



PREDICTING SUSTAINABLE CORPORATE ENTREPRENEURSHIP AND SUSTAINED COMPANY PERFORMANCE

By

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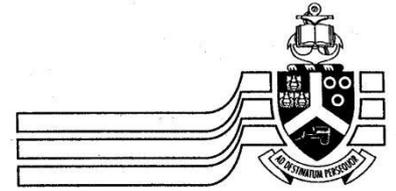
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ABSTRACT

Sustainable corporate entrepreneurship (CE) is a new field attracting increasing attention from scholars of different interested disciplines. Based on an analysis of 646 cases of managers in Zambia, this research attempts to determine whether sustainable CE and sustained company performance can be predicted, and also to identify best predictors of the phenomena. Through the use of structural equation modelling, the study applied the measurement instruments for CE climate and external environmental factors to analyse the data. The study findings indicate that CE climate (management support for internal CE; management support for external CE; work discretion; rewards/reinforcement; time availability; and organisational boundaries, barriers and bureaucracies), and external environment (dynamism; hostility; and heterogeneity), are compelling determinants of sustainable CE which leads to sustained company performance. While the internal organisational antecedents largely work through entrepreneurial actions, the external contextual influences have direct effect on sustainable CE as well as indirect effects through entrepreneurial actions. Specifically the findings show that management support for internal CE and environmental dynamism are the best predictors of sustainable CE among the organisational antecedents and environmental factors respectively. Valuable management implications of the findings in relation to the pursuit of sustainable CE as well as the substantive significance of the findings are highlighted.

KEY WORDS: Sustainable corporate entrepreneurship, entrepreneurial actions, sustained company performance, corporate entrepreneurship climate instrument (CECI), dynamism, hostility, heterogeneity, structural equation modelling.

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CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter provides an introduction to the study by way of giving a brief background and rationale for undertaking the study. The chapter presents the research problem and the objectives as well as importance or benefits of the study, followed by a list of the hypotheses to be tested and the techniques used for data analysis.

This brief overview to the study also indicates the concepts of interest in the study, the theoretical foundation for the research, the hypothesised model depicting the theoretical relationships as well as the independent and dependent variables, and the statistical techniques used for data analysis.

Finally the chapter provides an outline of the study on chapter by chapter basis, covering all the seven chapters.

1.2 The entrepreneurship phenomenon

Scholars have been pursuing several theoretical and empirical studies about entrepreneurship over the past decades (Özdemirci, 2011:612) and there has been growing interest in the field from different perspectives. However, there still is no consensus on the definition of entrepreneurship (Berglann, Moen, Røed & Skogstøm, 2011:180; Kusumsiri & Jayawardane, 2013:26).

Notwithstanding the fact that entrepreneurship tends to be dynamic and is intertwined with a complex set of overlapping constructs and perspectives (Kusumsiri & Jayawardane, 2013:26), scholars have tried to give an operational definition, taking into account its undeniable effect on the economy, which is the reason why the phenomenon has aroused significant interest. Various disciplines “ranging from social anthropology to organisational theory to mathematical economics” (Henrekson, 2007:717) have all tried to define entrepreneurship.

On the other hand, the various definitions of entrepreneurship reveal the different important social realities (Davidsson (2004:4) and offer endless possibilities and meaning to different ventures (Kusumsiri & Jayawardane, 2013:26). In this respect, the field of entrepreneurship would benefit more if the focus were on exploiting these endless possibilities presented by the various definitions that look at the phenomenon from different but well justified contexts.

Basically the field of entrepreneurship studies the discovery and exploitation of opportunities (Shane & Venkataraman, 2000); this is done from the various perspectives of the many different disciplines involved (Henrekson, 2007; Naudé, 2011). According to Shane (2012:11), entrepreneurship “examines many outcomes other than business performance (e.g., entrepreneurship is concerned with how identification and exploitation of opportunities affect societal wealth and individual happiness). ...and does not require the existence of firms, can occur before firms are established, exists in settings in which firms do not exist, and takes place at lower levels than the firm level of analysis”. Kuratko (2013:5) defines entrepreneurship as “a dynamic process of vision, change, and creation. It requires an application of energy and passion toward the creation and implementation of new ideas and creative solutions. Essential ingredients include the willingness to take calculated risks – in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skills to marshal needed resources; the fundamental skill of building a solid business plan; and finally, the vision to recognise opportunity where others see chaos, contradiction, and confusion”. For the purposes of this study, entrepreneurship is defined as the process of identifying opportunities and innovatively engaging in creating, founding, adapting, and managing a growth-oriented venture with a profit motive.

1.3 Corporate entrepreneurship

Entrepreneurship is not just an individual concept; it also qualifies as an institutional concept taking place inside established organisations (Özdemirci, 2011:612). Within the entrepreneurship domain, scholars are generally in agreement that entrepreneurship is a phenomenon that can take place in a variety of organisational contexts. Corporate entrepreneurship (CE) is a term used to describe entrepreneurial

behaviour inside established mid-sized and large organisations, and centres on re-energising and enhancing the organisation's ability to acquire innovative skills and capabilities, resulting in improved company performance, including the aspects relating to innovation (Chen, Tang, Jin, Xie & Li, 2014; Morris, Kuratko & Covin, 2011:11). It is the aggregation of an organisation's "renewal and venturing efforts" (Chen *et al.*, 2014).

According to Corbett, Covin, O'Connor and Tucci (2013:812), CE "seeks to renew" organisations "thereby facilitating their viability and competitiveness through the utilisation of various innovation-based initiatives". Sharma and Chrisman (1999:18) have defined CE as "the process whereby an individual or group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization". Dess and Lumpkin (2005:147) offer a similar definition, stating that CE serves the purpose of "creation and pursuit of new venture opportunities and strategic renewal". The aspect of the phenomenon relating to the creation of new business within an established organisation is referred to as internal CE, while the aspect that relates to the creation and/or growth of business outside the parent organisation (including spin-offs, joint ventures, and venture capital initiatives) is referred to as external CE (Covin & Miles, 2007:183; Zahra, 1991:277).

Furthermore, Kuratko and Hodgetts (2007:55) observe that CE encompasses three main aspects of the phenomenon, namely: (i) *strategic renewal*, which relates to organisational renewal involving major strategic and/or structural changes; (ii) *innovation*, which relates to the introduction of something new to the marketplace; and (iii) *corporate venturing*, which relates to corporate entrepreneurial efforts that lead to the creation of new businesses within the corporate business.

Recent conceptualisations of the phenomenon have in fact further expanded its scope (Corbett *et al.*, 2013). For instance, Morris *et al.*, (2011) and Phan, Wright, Ucbasaran and Tan (2009) suggest that the domain of CE is represented by two categories: corporate venturing and strategic entrepreneurship. CE includes entrepreneurial behaviour and orientation in established organisations (Urbano & Turró (2013).

Therefore, as suggested by Morris *et al.* (2011) and Phan *et al.* (2009), CE comprises corporate venturing (referring to the same “new business” aspect appearing in previous definitions) and strategic entrepreneurship (referring to a much broader “variety of specific phenomena”, to which Sharma and Chrisman (1999) also refer, and includes all the “entrepreneurial initiatives that do not necessarily involve new businesses being added to the corporation” such as “strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation, and business model reconstruction” (Corbett *et al.*, 2013:812-813).

According to Zahra (1991:261), CE may be formal or informal, intended to create new businesses in established organisations through product and process innovations and market development. CE is one method of stimulating as well as capitalising on individuals in an organisation who think that something can be done differently and better (Hisrich, Peters & Shepherd 2008:68).

However, CE has its own challenges. For instance, one study found that new ventures started within a corporation performed worse than those started independently by entrepreneurs (Fast, as cited by Hisrich *et al.*, 2008:83). Corporate entities also tend to find it difficult to achieve sustained competitive advantage, which is defined by Duncan, Ginter and Swayne (1998:7) as “the result of an enduring value differential between the products or services of one organisation and those of its competitors in the mindset of customers”. According to Morris *et al.* (2011:8), organisations can achieve sustainable competitive advantage by being more “adaptable, flexible, fast, aggressive, and innovative” in order to adjust to the dynamic, hostile and complex external environment, and also to create change in that environment.

1.4 Sustainable corporate entrepreneurship

According to Morris *et al.* (2011:375), entrepreneurship has a bearing on company performance and sustainability. To achieve corporate sustainability, an organisation should have the ability to move on two parallel paths: continuous improvement and radical innovation (Morris *et al.*, 2011:403). Kelley (2011:74) defines sustainable CE from the viewpoint of an organisation developing “enduring capabilities” or “lasting

abilities” for entrepreneurship within an organisation through continuous learning and adaptation to change, taking into account both the internal and external environmental factors.

This study uses the concept of *sustainability* in line with Morris *et al.* (2011) to refer to consistency in the levels of innovativeness, risk-taking, and proactiveness, as well as in the internal climate for CE that an organisation is able to achieve on an on-going basis. Furthermore, this study uses the term sustainability in relation to corporate entrepreneurial behaviour to imply on-going or enduring entrepreneurial capabilities (Kelley 2011) within established organisations, resulting in sustainable competitive advantage and sustained company performance.

In this study, sustainable CE relates to the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance (Covin & Miles, 1999:50-54; Morris *et al.*, 2011:98-101). In this regard, the study uses the construct sustainable CE basically with reference to creation of enduring entrepreneurial capabilities (Kelley 2011:73), sustainable competitive advantage (Urban & Nikolov, 2013), sustaining CE (Kuratko, Hornsby & Goldsby, 2004), and continued entrepreneurship (Davidsson, 1991) within an existing organisation, which is different from corporate environmental stewardship practices.

The study distinguishes sustainable CE from traditional CE by emphasising continuity or endurance of entrepreneurial behaviour in established organisations through the promotion of sustained innovation relating to products, processes, strategies, domain, or business models, resulting in sustained company performance.

1.5 Organisational antecedents for CE

The literature singles out certain organisational antecedents as being critical for achieving entrepreneurship within a company (Hornsby, Kuratko, Holt & Wales, 2013). Specifically, Kuratko, Montagno, and Hornsby (1990) developed the CE climate instrument (CECI) as a diagnostic tool for assessing, evaluating, and

managing the internal environment of the organisation in a manner that supports the creation of sustainable entrepreneurship (Morris *et al.*, 2011:381). According to Kuratko, Hornsby and Covin (2014:39) and Hornsby *et al.* (2013:939), these antecedents include (1) *management support*; (2) *work discretion/autonomy*; (3) *rewards/reinforcement*; (4) *time availability*; and (5) *organisational boundaries*.

These antecedents have been found to have an influence on CE (Hornsby, Kuratko & Zahra, 2002:253). Therefore, corporations desiring to achieve sustainable entrepreneurial climate and competitive advantage have to ensure that these antecedents are vigorously promoted internally in order to enhance entrepreneurial activities and ensure sustained company performance.

1.6 Sustained company performance

According to Morris *et al.* (2011:403), ultimately, corporate entrepreneurial activities should lead to improved performance and venture sustainability. Company performance is a multidimensional concept and the empirical literature shows a high diversity of performance indicators (Rauch, Wiklund, Lumpkin & Frese, 2009; Combs, Crook, & Shook, 2005), which shows that researchers have used different approaches to operationalise the concept. The relationship between company performance and entrepreneurial activities may depend upon indicators used to assess performance (Rauch *et al.*, 2009; Lumpkin & Dess, 1996), while the construct *company performance* can broadly be defined by taking into account both the quantitative and qualitative outcomes of measures, or financial and nonfinancial measures.

This study defines the construct *sustained company performance* in terms of continued improvements in market share, new product sales, and return on investment (Matsuno, Mentzer & Ozsomer, 2002) and also incorporates managers' satisfaction with performance outcomes, which provides a feedback basis for continuing with planned strategies to foster on-going improvements relating to the identified performance dimensions.

1.7 Managers' entrepreneurial actions for sustainable CE

Kuratko, Hornsby and Bishop (2005a:276) define entrepreneurial actions as “any newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited”. The defining characteristic of entrepreneurial actions is novelty in terms of new resources, customers, markets, or a new combination of resources, customers, and markets” (Kuratko, Ireland & Hornsby, 2001:60). According to Simon and Shrader (2012:292-293), entrepreneurial actions are actually specific to the identified entrepreneurial activity in a given decision-making context for the organisation, and do reflect a unique decision environment, ranging from new venture creation to product introduction in a dynamic environment, “all of which are by definition risky, aggressive, innovative, and/or proactive”.

By adapting the definition by Kuratko *et al.* (2005a:276), in this study, managers' entrepreneurial actions for sustainable CE refer to a newly fashioned set of actions through which organisations seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited; and these actions are specific to the promotion of sustained innovation through products, processes, strategies, domain, or business models, resulting in sustainable competitive advantage and on-going improvement in organisational performance. Satisfaction with organisational outcomes in relation to the implemented entrepreneurial activities is a critical aspect of these entrepreneurial actions for sustainable CE, as it creates the basis for the decision whether to sustain, enhance or revise such activities for the purposes of achieving sustainable competitive advantage and on-going improvements in performance.

According to Kuratko *et al.* (2001:60), managers' entrepreneurial actions have been identified as playing an important role in instigating entrepreneurship within established organisations, and are considered as “critical pathways to competitive advantage and improved performance”. This study therefore also investigated the mediating role of managers' entrepreneurial actions on the ability of an organisation's corporate climate to stimulate sustainable CE.

Smith and Di Gregorio (2002) posit that these entrepreneurial actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways. These entrepreneurial actions are a product of organisational antecedents (Kuratko *et al.*, 2005a:277) and the conduit through which CE is practised in established organisations (Hitt, Ireland, Camp & Sexton, 2001). In this regard, entrepreneurial actions are undertaken by individuals or groups of individuals/teams (Urban & Nikolov, 2013:384) within established organisations, and could have a mediating effect on the ability of a corporate climate to stimulate sustainable CE.

1.8 External environment and sustainable CE

To add to the internal CE climate, the external environment or external contextual influences, such as industry globalisation, product/market life cycle stage, and government regulations, also have a bearing on CE (Zahra & Covin, 1995:48). According to Li and Liu (2014), external environmental conditions refer to both physical and social factors, outside the organisation but within its operative business sphere, which individuals in the organisation directly consider in their decision-making behaviour. The more complex and dynamic the external environment, the more entrepreneurial organisations must become “in order to identify new opportunities for sustained superior performance” (Hayton (2005:21).

It is therefore expected that the effect of environmental factors will actually filter down to the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team. However, it is evident from the literature review that researchers operationalise the construct *external environment* differently, and several definitional variations exist (Bruton, Ahlstrom & Li, 2010; Shirokova & Shirokova, 2013; Stam & Elfring, 2008; Turró, Urbano & Peris-Ortiz, 2014; Urbano & Turró, 2013).

Several studies have argued that external environment affects CE and entrepreneurial performance (Bojica & Fuentes, 2012:403). However, according to Rosenbusch, Rauch and Bausch (2013:634), although several scholars have argued that external environment affects company performance, empirical research on this

highly complex relationship has generated inconclusive results and this is largely because “the precise means by which firms utilize opportunities and resources provided by the environment to enhance their performance remain unclear”. It is, however, considered that the more complex and dynamic the external environment, the more entrepreneurial organisations must become “in order to identify new opportunities for sustained superior performance” (Hayton, 2005:21). It is also important to note that changes in the external environment do not always have a direct effect on the organisation (Rosenbusch *et al.*, 2013:634).

Therefore in order to ensure sustainable CE, organisations have to necessarily keep on scanning both the internal and external environments for opportunities. Scholars have largely operationalised external environments in terms of dimensions relating to the organisation’s general environmental factors, such as dynamism, hostility, and heterogeneity that affect CE (Alvarez & Barney, 2005; Bojica & Fuentes, 2012:398; Gathungu, Aiko & Machuki, 2014:354-355); Antoncic & Hisrich, 2001:503; Zahra, 1993a:319; Covin & Slevin, 1989:75). For the purposes of this research, the construct *external environment* is operationalised according to Zahra (1991:262) as comprising environmental dynamism, hostility, and heterogeneity, which are defined as follows:

Dynamism refers to the perceived instability of a company’s market because of continuing changes in that company’s external environment (Baron & Tang, 2011:52; Rosenbusch *et al.*, 2013:642) resulting from social, political, technological, competitive rivalry, government regulation, and economic factors, and ushering in opportunities for CE within the existing markets or in adjacent fields (Rauch *et al.*, 2009; Ruiz-Ortega, Parra-Requena, Rodrigo-Alarcon & Garcia-Villaverde, 2013; Zahra, 1991:262; Zahra, 1993a:322).

Hostility refers to the increased rivalry in the industry or depressed demand for an organisation’s products or services, which endangers survival of the organisation; unfavourable change and competitive rivalry which negatively affects an organisation’s goals and mission (Antoncic & Hisrich 2001:503-504; Miller & Friesen, 1984; Zahra, 1991:263).

Heterogeneity refers to complex contextual influences in the external environment whereby developments in one market create new pockets of demand for an organisation's product in related areas, and indicates existence of multiple organisational segments with varied characteristics and needs (Arregle, Naldi, Nordqvist & Hitt, 2012:1121; Dess & Beard, 1984:157; Zahra, 1991:263).

These antecedents for the external environment are also some of the external environment variables mainly considered in existing CE literature to have an influence on CE as regards company performance (Bojica & Fuentes, 2012:403; Gathungu *et al.*, 2014:344).

1.9 Problem statement and justification for the study

Although the literature reveals that CE scholars have tried to enhance our understanding of what makes an organisation entrepreneurial by investigating the corporate environment and its impact on corporate venturing (Shepherd & Krueger, 2002:167), there tends to be no empirical work conducted specifically on the predictability of sustainable CE and sustained company performance. Research on CE has tended to focus on attributes that promote entrepreneurial action (Urban & Nikolov, 2013:384) or, as Özdemirci (2011:612) puts it, the focus has been on factors of the organisation's "external environment and organisation-level internal factors".

For instance, recently there have been a number of empirical researchers attempting to refine the CEI (e.g., Hornsby *et al.*, 2009; Hornsby *et al.*, 2013; Hornsby, Holt & Kuratko, 2008; Van Wyk & Adonisi, 2011); conduct research linking performance to aspects of CE (e.g., Combs *et al.*, 2005; Corbett *et al.*, 2013; Ireland, Covin & Kuratko, 2009; Peltola, 2012; Rauch *et al.*, 2009; Zahra & Covin, 1995); research considering the effect of external environment on company performance (e.g., Hayton, 2005; Jansen, Van den Bosch & Volberda, 2006; Rosenbusch *et al.*, 2013; Yang, 2012; Zahra, 1991); and research on entrepreneurial actions (e.g., Kuratko *et al.*, 2005a; Simon & Shrader, 2012). It is therefore evident that there tends to have been little attention paid on empirically determining predictors of sustainable CE, which brings about sustainable competitive advantage and sustained performance.

Several leading scholars have also been involved in valuable exploratory work on CE, resulting in a number of CE models that focus on internally generated innovations within existing organisations (Ireland *et al.*, 2009). The models include the domain model of CE (Guth & Ginsberg, 1990), a conceptual model of entrepreneurship as firm behaviour (Covin & Slevin, 1991), an organisational model for internally developed ventures (Brazeal, 1993), an interactive model of corporate entrepreneuring (Hornsby, Naffziger, Kuratko & Montagno, 1993), a model of strategic entrepreneurship (Ireland, Hitt & Sirmon, 2003), a model of sustained CE (Kuratko *et al.*, 2004), and a framework for sustainable CE (Ireland, Kuratko & Morris, 2006). Although all these models articulate the CE phenomenon, and some of them actually have some similarities, it is evident that there are some variations in a number of respects including their conceptualisations and theoretical grounding (Ireland *et al.*, 2009).

Sustainable CE is an important aspect of entrepreneurship within established organisations; however, many organisations fail to exhibit this phenomenon (Kelley, 2012:74) and therefore are unable to achieve sustainable competitive advantage and superior performance. In such organisations, CE “takes a cyclical path of enthusiastic support and investment, followed by diminished interest and programs cuts”. In this respect, given the widening scope of the CE domain and its related phenomena (Corbett *et al.*, 2013:813), new insights and scholarly enquiry from different perspectives would benefit established organisations pursuing CE strategies in a manner that does not relegate their efforts to serendipity attempts (Kelley 2011:74), but rather results in sustainable CE.

This proposed study seeks to fill this gap by determining the predictability of sustainable CE and sustained company performance, using key organisational antecedents and external environmental factors affecting CE. Structural equation modelling (SEM) was used to express the dependence relationships among independent and dependent variables, and to distinguish which independent variables have more predictive power on sustainable CE, which in turn affects sustained company performance. The main purpose of the study was to undertake an empirical study to determine the predictability of sustainable CE and sustained company performance. The study was therefore concerned with the predictability of

sustainable CE and sustained company performance and dwelt on the following specific research questions:

- What factors influence sustainable CE which should result in sustained company performance?
- Can the level of sustainable CE and sustained company performance be predicted?
- Which of the external environmental factors and the CECI internal organisational antecedents could be considered to be the best predictors of sustainable CE?

1.10 Research objectives and focus

The study looked at the antecedents (both external and internal factors) of sustainable CE. In particular, for the internal factors, the study focused on the key antecedents of the corporate entrepreneurial climate within an organisation (management support, work discretion/autonomy, reinforcement, time availability, and organisational boundaries) and their influence on sustainable CE that results in on-going improvement in company performance. For the external factors, the study focused on three antecedents of external environment (dynamism, hostility, and heterogeneity) and their influence on sustainable CE. This study attempted to achieve the following research objectives:

- To empirically identify best predictors of sustainable CE by testing the postulated measurement and structural model
- To assess the validity and predictive power of the CECI as developed by Kuratko *et al.* (1990) and the external environment antecedents as postulated by Zahra (1991) in relation to sustainable CE
- To make a contribution to the CE domain on the basis of the study findings
- To contribute to the Zambian literature on entrepreneurship, specifically regarding sustainable CE

1.11 Importance/benefits of the study

1.11.1 What is known?

The literature reveals that CE is a potentially viable means for promoting and sustaining corporate competitiveness or performance (Guth & Ginsberg, 1990); Khandwalla, 1987; Miller, 1983; Naman & Slevin, 1993). Further, it is evident from scientific literature that CE centres on re-energising and enhancing the organisation's ability to acquire innovative skills and capabilities, leading to strengthened competitive position, better performance and growth (Morris *et al.*, 2011:12). A number of factors have been identified as playing a major role in achieving such results and ensuring sustainable CE leading to improved company performance. These factors include, but are not limited to, the external environment and internal organisational antecedents. The literature also suggests important relationships between the corporate environment, managers' entrepreneurial behaviour, and successful implementation of CE actions (Kuratko *et al.*, 2005a:275).

Several research studies have also linked CE to enhanced competitive advantage and company performance (e.g., Combs *et al.*, 2005; Corbett *et al.*, 2013; Ireland *et al.*, 2009; Peltola, 2012; Rauch *et al.*, 2009; Zahra & Covin, 1995). Indeed, several studies have been conducted also looking at individual components, or at least some of the measurement components of this study's hypothesised SEM model, such as the CECl (e.g., Hornsby *et al.*, 2008; 2013; Kuratko *et al.*, 2014; Van Wyk & Adonisi, 2011), external environment and company performance (e.g., Hayton, 2005; Jansen *et al.*, 2006; Rosenbusch *et al.*, 2013; Yang, 2012; Zahra, 1991), and entrepreneurial actions (e.g., Kuratko *et al.*, 2005a; Simon & Shrader, 2012). It is, however, also documented that CE is not always successful (Block & MacMillan, 1993; Morris *et al.*, 2011), regardless of whether it starts small or is corporate controlled.

1.11.2 What is not known?

Although numerous studies have been conducted, such as the CECl (e.g., Hornsby *et al.*, 2008; Hornsby *et al.*, 2013; Kuratko *et al.*, 2014; Van Wyk & Adonisi, 2011), external environment and company performance (e.g., Hayton, 2005; Jansen *et al.*,

2006; Rosenbusch *et al.*, 2013; Yang, 2012; Zahra, 1991), and entrepreneurial actions (e.g., Kuratko *et al.*, 2005a; Simon & Shrader, 2012), which have looked at some of the individual components of the hypothesised model, to our knowledge none of these previous studies have used the composite SEM model for predicting sustainable CE and sustained company performance in the manner in which this study proposes to do so.

Furthermore, none of these previous studies were conducted using Zambian data, and none of the measurement components were validated in the Zambian cultural context. In addition, notwithstanding the causal link that has been attributed to these factors regarding CE, it has not yet been clearly established empirically whether one can really predict sustainable CE and sustained company performance. Although research literature has examined and identified certain organisational antecedents that affect corporate entrepreneurial actions (Hornsby *et al.*, 2013; Kuratko *et al.*, 2005a), it is not yet empirically clear whether these antecedents have a similar effect on, and can be used to predict, sustainable CE, taking into account the aforementioned aspects of the phenomena. In addition, the predictive power and the interrelationships of the internal organisational antecedents tend not to be well established empirically.

Both in terms of the external environmental factors and the internal organisational antecedents, the literature does not seem to empirically show which variables can be considered to be the best predictors of sustainable CE. In this respect, this study has attempted to fill this gap, and therein lays its importance and contribution to the CE literature.

1.11.3 Why is it important to know?

Although the literature shows that entrepreneurship is instrumental for ensuring the long-term sustainability of any enterprise (Corbett *et al.*, 2013; Rwigema, 2004; Timmons & Spinelli, 2007), as well as a necessary condition for instigating economic development and wealth creation (Naudé, 2011; Phan *et al.*, 2009), it is not yet empirically established whether one can predict sustainable CE and sustained company performance. To be able to predict sustainable CE would therefore be a

significant contribution to the field of entrepreneurship, as it would enhance corporate performance, success and contribution to economic development. At a micro level, this would also guide enterprises in strategy formulation to ensure resources are accordingly directed to areas which make a greater contribution to sustaining CE leading to sustained company performance. In addition, the research findings would be useful for enhancing teaching materials and educational activities and would provoke further research on the subject.

1.12 The hypothesised model for sustainable CE

Research on CE largely focuses on two domains: the external environment and the internal organisational antecedents (Özdemirci, 2011:612). This study incorporates both the external environment and the internal organisational antecedents as predictors of sustainable CE. The model used in this research is based on the conceptual framework that incorporates factors affecting sustainable CE and sustained company performance outcomes as shown in Figure 1-1, and depicts the hypothesised theoretical relationship which is the basis for the hypotheses to be tested.

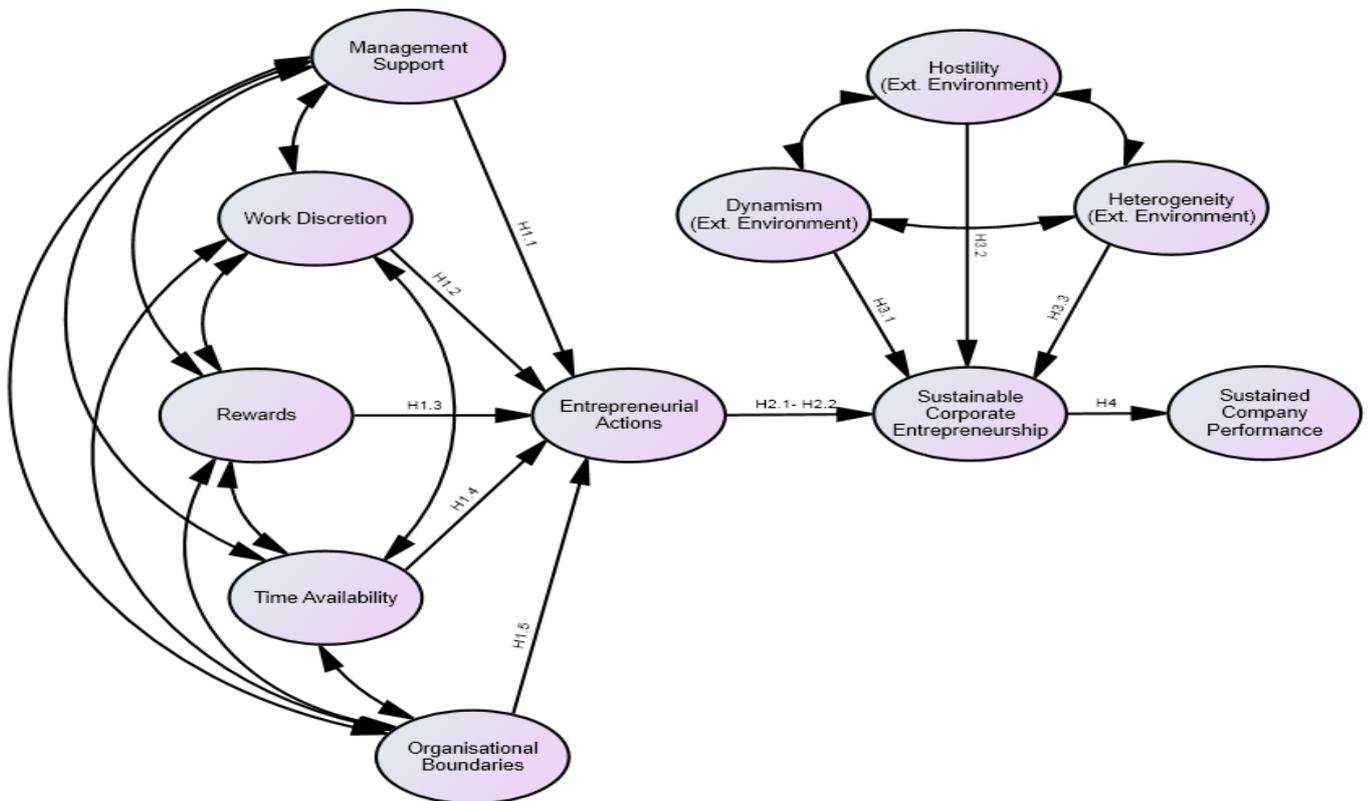


Figure 1-1: The hypothesised model and structural relationships for SCE

1.13 Variable measurement

The hypothesised model for the study has eleven variables in total, comprising nine independent variables and three dependent variables. Out of the nine independent variables, five represent the organisational antecedents (management support, organisational boundaries, autonomy, rewards/reinforcement, and time availability); while three represent the external environment (dynamism, hostility, and heterogeneity). The three dependent variables are entrepreneurial actions (mediating variable), sustainable CE, and sustained company performance.

1.13.1 Independent variables

External environmental conditions: These refer to both the physical and social factors, outside the organisation but within its operative sphere, that individuals in the organisation directly take into consideration in their decision-making behaviour (Li & Liu, 2014). It is therefore expected that the external environment will actually affect the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team. The more complex and dynamic the external environment, the more entrepreneurial organisations must become (Hayton, 2005:21), thus three independent external environment variables are hypothesised as affecting CE (Antoncic & Hisrich, 2001:503; Covin & Slevin, 1989:75; Zahra, 1993a:319), namely:

- (i) Environmental dynamism
- (ii) Environmental hostility
- (iii) Environmental heterogeneity

CE organisational antecedents: These refer to five independent variables pertaining to corporate entrepreneurship climate (Hornsby *et al.*, 2013; Hornsby, Kuratko, Shepherd & Bott, 2009:239), namely:

- (i) Management support
- (ii) Organisational boundaries
- (iii) Autonomy
- (iv) Rewards/reinforcement
- (v) Time availability

1.13.2 Dependent variables

The following are the dependent variables of the hypothesised model:

Entrepreneurial actions: These refer to a “newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited” (Kuratko *et al.*, 2005a:276). Entrepreneurial actions are a product of organisational antecedents (Kuratko *et al.*, 2005a:277) and the conduit through which CE is practised in established organisations (Hitt *et al.*, 2001). In this regard, entrepreneurial actions could have a mediating effect on the ability of a corporate climate to stimulate sustainable CE. Therefore, entrepreneurial actions in this model serve as a mediating variable which mediates the effects of organisational antecedents and sustainable CE.

Corporate entrepreneurship: This refers to the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance (Covin & Miles, 1999:50-54; Morris *et al.*, 2011:98-101). The study uses the construct of sustainable CE interchangeably with sustainable corporate competitive advantage, which is different from environmental stewardship practices.

Sustained company performance: This refers to the resultant entrepreneurial outcomes in the form of continuing organisational growth and profitability (Covin & Slevin, 1990; Morris & Sexton, 1996; Zahra, 1991) and generally encompasses achievement of set objectives with both financial and non-financial dimensions.

1.14 Hypotheses

The study aimed at testing the following research hypotheses, grounded on sound CE theory:

H₁: The more entrepreneurial the organisational climate is perceived to be, the more the individual will take entrepreneurial actions.

- H_{1.1}: Management support for CE is positively related to entrepreneurial actions.
- H_{1.2}: Work discretion/autonomy is positively related to entrepreneurial actions.
- H_{1.3}: Rewards/reinforcement is positively related to entrepreneurial actions.
- H_{1.4}: Time availability for CE is positively related to entrepreneurial actions.
- H_{1.5}: Organisational boundaries for CE will be positively related to entrepreneurial actions.
- H_{2.1}: Entrepreneurial actions will mediate the relationships between the individual's perceptions of a corporate entrepreneurial climate and sustainable CE.
- H_{2.2}: Entrepreneurial actions will be positively related to sustainable CE.
- H₃: External environmental characteristics are positively associated with sustainable CE.
- H_{3.1}: Environmental dynamism will be positively related to sustainable CE.
- H_{3.2}: Environmental hostility will be positively related to sustainable CE.
- H_{3.3}: Environmental heterogeneity will be positively related to sustainable CE.
- H₄: Sustainable CE positively influences sustained company performance.

1.15 Theoretical foundation for the research

A number of theories have been advanced in the entrepreneurship field based on various disciplines interested in the phenomenon. However, as regards entrepreneurship within established organisations, the literature review showed that most of the CE studies do not use a specific theoretical framework (Hornsby *et al.*, 2002; Urbano & Turró, 2013) although recently there has been increasing attention paid to the combination and management of resources which enable the organisation to pursue new business opportunities and develop innovative actions (Castrogiovanni, Urbano, & Loras, 2011; Urbano & Turró, 2013), and such studies belong to the resource-based theoretical foundation (Bhide, 2000). Therefore, in looking at predictors of sustainable CE, this study was basically premised on four theoretical foundations that relate to both the external environment and internal

organisational antecedents affecting entrepreneurship inside established organisations, namely: the resource-based theory, the agency theory, the institutional theory, and theory of dynamic capabilities.

The resource-based theory (RBT) attempts to identify fundamental factors within organisations that create sustainable competitive advantage for both start-up performance and longer-term growth (West & Noel, 2009:3). According to the RBT, an organisation's competitive advantage arises from managerial or entrepreneurial knowledge; that is, management's entrepreneurial capabilities which are critical for understanding how the organisation attains growth and competitive position (West & Noel, 2009:4). Management has the crucial responsibility of identifying, evaluating, distributing and managing resources in line with the perceived entrepreneurial opportunities (West & Noel, 2009:4). The RBT approach is therefore critical in aiding an organisation to learn to develop structures and systems in order to transform itself to become more adaptive and responsive to changes and jolts in the external environment (Wang & Ellinger, 2011:515).

The agency theory focuses on the relationship between the principal (owner) and agent (managers and employees), and is useful in explaining the motivations of management to “support (or sabotage) corporate venturing activities” (Zahra, 2007:446). In the context of agency theory, entrepreneurship is defined as “the process by which firms notice opportunities and act to creatively organize transactions between factors of production so as to create surplus value” (Jones & Butler, 1992:735), thereby enhancing their competitiveness and performance.

The institutional theory is concerned with the need for organisations to adopt structures, processes, policies and/or procedures due to the pressure from coexisting institutions, and these function as constraints and opportunities aimed at enhancing human interactions (Bruton *et al.*, 2010). In this respect, the institutional theory is critical to entrepreneurship research as institutions are the embodiments of “the set of rules that articulate and organize the economic, social and political interactions between individuals and social groups, with consequences for business activity and economic development” (Bruton *et al.*, 2010).

Dynamic capabilities refer to the “higher-level competencies that determine the firm’s ability to integrate, build, and reconfigure internal and external resources/competencies to address, and possibly shape, the rapidly changing business environment” (Teece, 2012:1395-1396). In this respect, dynamic capabilities gear an organisation for achieving sustainable competitive advantage as well as sustained performance, as they empower the organisation with the ability to sense opportunities, seize resources, and bring about continued renewal.

1.16 Statistical techniques used for data analysis

In order to analytically test a conceptually grounded theory of CE explaining how different measured items represent important measures of the CE phenomenon, and also test the postulated hypotheses, the study used confirmatory factor analysis (CFA) and SEM. The proposed measurement theory was tested using CFA and confirmatory processes, while SEM was used to empirically examine the theoretical model by involving both the measurement model and the structural model in one analysis.

SEM was also used to express the dependence relationships between independent and dependent variables, and to distinguish which independent variables have more predictive power on sustainable CE. The methodology was aimed at establishing an acceptable level of goodness of fit (GOF) and construct validity tests. Concepts and constructs were used in the theoretical presentation. At the empirical stage of data analysis, variables were used for the purposes of testing and measuring the postulated relationships according to Cooper and Schindler (2008:61).

Furthermore, SEM was used to measure mediation (Chen, Choi, Weiss & Stapleton, 2014:254) of entrepreneurial actions on sustainable CE using AMOS version 20. Mediation refers to a mechanism through which an initial causal variable (X) influences an outcome (Y) by a third variable (M), termed mediator or intervening variable, and in a mediation model, the effect from X to M is usually designated as a , the effect from M on Y as b , while the effect from X on Y is c' (Ledermann, Macho & Kenny, 2011:595). The mediating or indirect effect (IE) of X on Y equals ab , and the total effect equals $ab + c'$ (Hayes, 2009:409; Ledermann *et al.*, 2011:595).

1.17 Outline of the study

The study report contains seven chapters and each chapter provides a detailed segment of the research process. Table 1-1 gives a brief outline of the chapters of the study.

Table 1-1: Outline of Chapters

Chapter 1: Introduction to the study
This chapter presents an overview of the study in terms of problem statement, research objectives and background, as well as statistical techniques used for data analysis.
Chapter 2: Literature Review: Entrepreneurship theory
The chapter looks at the construct <i>entrepreneurship</i> and some concepts used for its operationalisation: the entrepreneur, the entrepreneurial process, the role of entrepreneurship in economic development, and factors influencing entrepreneurship development.
Chapter 3: Literature Review: Corporate Entrepreneurship theory and hypotheses
This chapter presents a detailed analysis of what corporate entrepreneurship is and focuses on both the internal organisational antecedents and contextual influences in the external environment that are postulated as predictors of sustainable corporate entrepreneurship which should result in sustained company performance.
Chapter 4: Research design and methodology
This chapter details the research process in terms of design, measurement instrument development, data collection and data analysis techniques.
Chapter 5: Measurement and structural model for sustainable CE
This chapter details the process for assessing measurement model validity and reliability, and also presents the postulated measurement and structural model for sustainable CE.
Chapter 6: Research findings
Here the nature and form of the research findings are presented in line with prescribed reporting format for SEM results.
Chapter 7: Discussion of findings, conclusion, recommendations, limitations and future research direction
This chapter discusses research findings, draws some conclusions about the empirical work and its implications and makes some recommendations for future research direction.

1.18 Conclusion

In this chapter the reasons for undertaking the study, as well as an overview on research design, methodological procedures pertaining to data collection and analysis, and reporting and discussion of the findings were stated. In addition, the hypotheses and statistical techniques used for data analysis were indicated. Furthermore, the chapter provided an overview of the contextual variables that were hypothesised as predictors of sustainable CE, both from within the organisational climate and the external environment, which results in sustained company performance through sustainable CE.

With the overview and research direction provided, the rest of the chapters deal with specific details on literature review, research design, methodological procedures, and reporting and discussion of the findings. The next two chapters – chapters 2 and 3 – will provide a review of literature on entrepreneurship and CE in order to lay an appropriate theoretical foundation for the study.

CHAPTER 2: ENTREPRENEURSHIP THEORY

2.1 Introduction

With the overview and research direction provided in chapter 1, this chapter covers a review of literature on the construct of *entrepreneurship* in general and the attendant descriptive concepts that are usually employed when operationalising the construct. The chapter also gives a theoretical perspective on the phenomenon, as well as characteristics of the persons that instigate entrepreneurial undertakings. In this regard, this chapter also acts as the point of departure for the next chapter that deals with entrepreneurship within established organisations.

Forms of entrepreneurship and factors affecting entrepreneurship development are also presented, as well as the role of creativity and innovation in entrepreneurship. The chapter also provides details of the approaches used for describing entrepreneurship, and highlights benefits of the phenomenon to the economy and society.

Finally the chapter provides a review of literature pertaining to entrepreneurship in Zambia, the country where the sample for the study was obtained.

2.2 Entrepreneurship definition and history

Entrepreneurship is one concept which has been very broadly defined by many scholars, researchers, policy makers and educators. However, the phenomenon has been defined from perspectives of various disciplines “ranging from social anthropology to organisational theory to mathematical economics” (Henrekson, 2007:717). The debate on the definition has been ongoing since the early 1700s, when the concept was first established, and it still rages on, yet there still is no consensus on the definition of entrepreneurship (Berglann *et al.*, 2011:180). The literature abounds in several definitions of the phenomenon from such perspectives as economic, social, psychological, behavioural, managerial and anthropological dimensions, while “no single discipline provides a tool for managing an entrepreneurial venture” (Kusumsiri & Jayawardane, 2013:26). This reveals an

undeniable fact of the complexity of the entrepreneurship phenomenon. The evolving nature of its definition clearly shows that entrepreneurship is dynamic. However, some of the definitional variations for the phenomenon are “relatively minor and of little import” Davidsson (2004:4).

2.2.1 Operational definition of entrepreneurship

Notwithstanding the fact that entrepreneurship tends to be complex and dynamic, scholars have tried to give an operational definition taking into account its undeniable effect on the economy, which is the reason why the concept has aroused significant interest. The numerous variations of definitions for the entrepreneurship phenomenon can be seen from Table 2-1 which gives a list of some of the recent definitions of entrepreneurship.

Table 2-1: Defining entrepreneurship

Definitions of entrepreneurship	Proponent
The carrying out of new combinations of firm organisation in the form of new products, new services, new sources of raw material, new methods of production, new markets, and new forms of organisation.	Schumpeter (1934)
A purposeful activity to initiate, maintain and aggrandise a profit-oriented business.	Cole (1949)
Process of new venture creation.	Vesper (1982)
Innovative and change oriented behaviour.	Drucker (1985)
The creation of new enterprises.	Low & MacMillan (1988)
The creation of new organisations.	Gartner (1988)
The process of creating something different with value by devoting the necessary time and effort; assuming the accompanying financial, psychological, and social risks; and receiving the resulting rewards of monetary and personal satisfaction.	Hisrich & Peters (1989)
The process by which individuals – either on their own or inside organisations – pursue opportunities without regard to the resources they currently control.	Stevenson & Jarillo (1990)
Process of creation, founding, adapting, and managing a venture	Cunningham & Lischeron (1991)
Innovative and change-oriented behaviour; task-related motivation, expertise, and expectation of gain for self.	Bull & Willard (1993)
Discontinuous process of combining resources to produce new goods or services.	Stoner, Freeman & Gilbert (1995)

Definitions of entrepreneurship	Proponent
The creation of an innovative economic organisation (or network of organisations) for the purpose of gain under conditions of risk and uncertainty.	Dollinger (1995)
New entry.	Lumpkin & Dess (1996)
Act of forming a new organisation of value.	Bateman & Snell (1996)
Taking advantage of opportunity by novel combinations of resources in ways which have impact on the market.	Wiklund (1998)
Pursuit of a discontinuous opportunity involving the creation of an organisation (or sub-organisation) with the expectation of value creation to the participants.	Carton, Hofer & Meeks (1998)
The creation of new enterprises.	Bartol & Martin (1998)
The “pursuit of a discontinuous opportunity involving the creation of an organisation (or sub-organisation) with the expectation of value creation to the participants.... Therefore, entrepreneurship is the means by which new organizations are formed with their resultant job and wealth creation.”	Carton <i>et al.</i> (1998:1)
Entrepreneurship “involves the nexus of two phenomena: the presence of lucrative opportunities and the presence of enterprising individuals.” Entrepreneurship involves the discovery and exploitation of opportunities.	Shane & Venkataraman (2000:218)
Entrepreneurship embraces “all businesses that are new and dynamic, regardless of size or line of business, while excluding businesses that are neither new nor dynamic as well as all non-business organizations.”	Acs & Audretsch (2003:6)
The World Bank defines entrepreneurship as “the activities of an individual or a group aimed at initiating economic activity in the formal sector under a legal form of business”.	Klapper, Amit & Guillén (2008:3)
Entrepreneurship “refers primarily to an economic function that is carried out by individuals, entrepreneurs, acting independently or within organizations, to perceive and create new opportunities and introduce their ideas into the market, under uncertainty, by making decisions about location, product design resource use, institutions, and reward systems. The entrepreneurial activity and the entrepreneurial ventures are influenced by the socioeconomic environment and result ultimately in economic growth and human welfare.”	Carlsson, Braunerhjelm, McKelvey, Olofsson, Persson & Ylinenpää (2013:914)
Entrepreneurship is “a dynamic process of vision, change, and creation. It requires an application of energy and passion toward the creation and implementation of new ideas and creative solutions. Essential ingredients include the willingness to take calculated risks – in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skills to marshal needed resources; the fundamental skill of building a solid business plan; and finally, the vision to recognise opportunity where others see chaos, contradiction, and confusion.”	Kuratko (2013:5)

The above list of definitions for entrepreneurship clearly shows that some of the definitional variations tend to be a mere substitution of words that mean the same

thing, thereby adding little or no value at all. Scholars have advanced a number of reasons why the construct of entrepreneurship has tended to attract definitional variations, some of which are listed below:

- The various disciplines involved define entrepreneurship from their own respective perspectives, resulting in failure to harmonise their definitional viewpoints.
- Entrepreneurship is considered as a potentially vague concept, as there is a lack of understanding of what precisely entrepreneurship is (Davidsson, 2004; Gartner, 1990; Naudé, 2011).
- There is a lack of adequate and consistent measurement for the phenomenon (Naudé, 2011).

Consequently, scholars have pointed out that the many different theoretical roots of entrepreneurship have resulted in the lack of a common theoretical framework or central research paradigm for the phenomenon (Carlsson *et al.*, 2013:915). Notwithstanding the clear indication that there is no agreed-upon definition for entrepreneurship, the phenomenon does have practical “social realities” (Davidsson, 2004:4) that are worth focusing on. According to Davidsson (2004), the definitional variations address “two relatively distinct social realities” or perspectives (see also Figure 2-1):

- Under the *first social reality*, entrepreneurship is largely viewed as pertaining to independently owned small firms and their owner-managers. In addition, the risk/reward structure is radically different, with a much wider span of possible financial gains, and there tends to be more flexibility between work and leisure, although enterprises face various management and transitioning challenges over time, as some may have grown in size.
- The *second social reality* takes a broader view of entrepreneurship that embraces a different set of topics such as innovation, along with Schumpeter’s (1934) “new combinations” approach. The other topics include corporate venturing and organisation rejuvenation (Sharma & Chrisman, 1999), and change agency outside of the profit sector.

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Davidsson (2004) further argues that the problem with most of the definitions and views regarding the phenomenon is that they cover both of the social reality views relating to the construct. However, looking at the list of sample definitions in Table 2-1, concurring with the observation by Carlsson *et al.* (2013:915), one can see that entrepreneurship is viewed from many different “disciplinary perspectives and at various levels of analysis, using a variety of methods”, making it “difficult to define the boundaries of the domain”. On the other hand, the many theoretical perspectives brought about by multiple disciplines present a broad spectrum of scholarly interests at various levels: micro (such as individual or team level, and venture or corporate level), and macroeconomic level (Carlsson *et al.*, 2013:915).

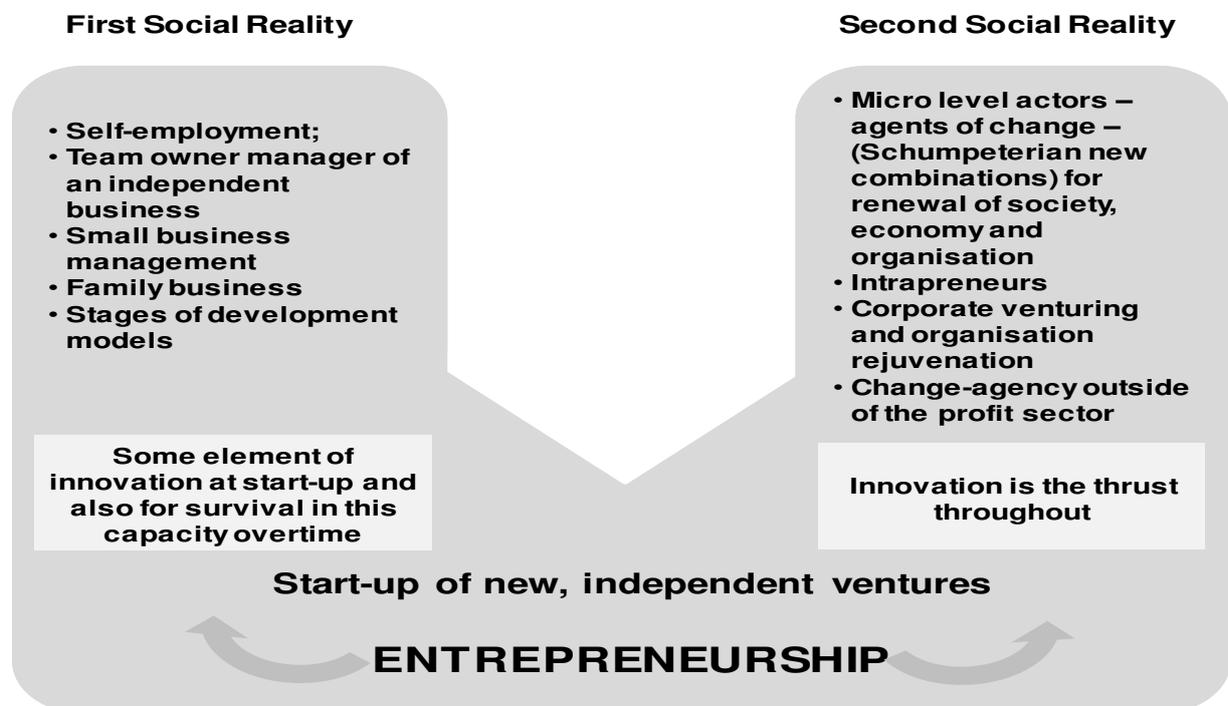


Figure 2-1: Social realities of entrepreneurship

Source: Davidsson (2004).

Basically the field of entrepreneurship studies the discovery and exploitation of opportunities (Hitt *et al.*, 2001:480; Shane & Venkataraman, 2000), and this is done from the various perspectives of the many different disciplines involved (Henrekson, 2007; Naudé, 2011). According to Kuratko (2013:5), “entrepreneurship is a dynamic process of vision, change, and creation”. However, notwithstanding the many derivative definitions, scholars (Audretsch & Link, 2012:140; Berglann *et al.* (2011:180) tend to agree that the modern definition of entrepreneurship was

introduced by Joseph Schumpeter in 1934. Schumpeter (1934:78) states that “the carrying out of new combinations we call ‘enterprise’” and “the individuals whose function it is to carry them out we call ‘entrepreneurs’”. According to Schumpeter (1934), there are five types of entrepreneurship projects, namely: the introduction of a new good in the market, the introduction of a new method of production, the opening of a new market, the conquest of a new source of supply, and the carrying out of a new organisation of industry. The first, introduction of a new product in the market, is considered the most influential, as it directly increases human welfare, while the other four new combinations only indirectly increase human welfare through the reduction of costs. Many other definitions have been introduced, trying to build on Schumpeter’s definition. The reality is that there are different theoretical roots of entrepreneurship, which have resulted in “a conflicting array of definitions” of the phenomenon in terms of “dynamic change, new combinations, exploiting opportunities, innovation, price arbitrage, risk, uncertainty, ownership, new-venture formation, non-control of resources, asymmetries of information, superior decision-making, personality traits, monopoly formation or something else” (Gedeon, 2010:16).

Economists mainly define entrepreneurship from “an occupational, a behavioural, or an outcomes point of view”, with the occupational definition (focusing on the self-employed and business owners) being the most widely used in relation to economic development (Naudé, 2011:5-6). The behavioural definitions of the entrepreneurship phenomenon focus on certain critical functions an entrepreneur performs (Naudé, 2011). As Carton *et al.* (1998:1) state, entrepreneurship is the “pursuit of a discontinuous opportunity involving the creation of an organisation (or sub-organisation) with the expectation of value creation to the participants.... Therefore, entrepreneurship is the means by which new organizations are formed with their resultant job and wealth creation”. Entrepreneurship can also be looked at as the process by which new organisations come into existence (Kuratko, 2013; Nieman & Nieuwenhuizen, 2009; Vesper, 1982). However, given the existence of fundamentally different disciplines on entrepreneurship, a wide range of activities such as “creation, founding, adapting, and managing a venture” have been used to define the phenomenon (Kusumsiri & Jayawardane, 2013:26). Admittedly, the literature

presents several entrepreneurship perspectives or themes. Table 2-2 presents the seven common perspectives on the nature of entrepreneurship.

Table 2-2: Common perspectives on the nature of entrepreneurship

Perspective	Definition of Entrepreneurship
Creation of Wealth	Entrepreneurship involves assuming the risks associated with the facilitation of production in exchange for profit.
Creation of Enterprise	Entrepreneurship entails the founding of a new business where none existed before.
Creation of Innovation	Entrepreneurship is concerned with unique combinations of resources that make existing methods or products obsolete.
Creation of Change	Entrepreneurship involves creating change by adjusting, adapting, and modifying one's personal repertoire, approaches, and skills to meet different opportunities available in the environment.
Creation of Employment	Entrepreneurship is concerned with employing, managing, and developing the factors of production, including the labour force.
Creation of Value	Entrepreneurship is a process of creating value for customers by exploiting untapped opportunities.
Creation of Growth	Entrepreneurship is defined as a strong and positive orientation towards growth in sales, income, assets, and employment.

Source: Morris *et al.* (2011)

Scholars hold the view that “entrepreneurship is intertwined with a complex set of overlapping constructs and perspectives, such as management of change, innovation, technological and environmental turbulence, new product development, small business management, individualism and industry evolution” (Kusumsiri & Jayawardane, 2013:26). According to Shane (2012:11), entrepreneurship “examines many outcomes other than business performance (e.g., entrepreneurship is concerned with how identification and exploitation of opportunities affect societal wealth and individual happiness). ...and does not require the existence of firms, can occur before firms are established, exists in settings in which firms do not exist, and takes place at lower levels than the firm level of analysis”. Kuratko (2013:5) defines entrepreneurship as “a dynamic process of vision, change, and creation. It requires an application of energy and passion toward the creation and implementation of new

ideas and creative solutions. Essential ingredients include the willingness to take calculated risks – in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skills to marshal needed resources; the fundamental skill of building a solid business plan; and finally, the vision to recognise opportunity where others see chaos, contradiction, and confusion”.

For the purposes of this study, entrepreneurship is defined as the process of identifying opportunity and innovatively engaging in creating, founding, adapting, and managing a growth-oriented venture with a profit motive.

2.3 Entrepreneurs and their roles

The people who discover and exploit entrepreneurial opportunities are called entrepreneurs, and are the agents of change in the entrepreneurial process. Unfortunately, as is the case with entrepreneurship, there are far too many varying definitions of entrepreneur. It is also argued that entrepreneurship discourse has continued to fail to assign the character of the entrepreneur a positive identity (Jones & Spicer, 2005:223). However, entrepreneurs are seen as the “main agents of production in the economy and act in a world of equilibrium by assessing the most favourable economic opportunities” (Thai & Tukina, 2014:492). Entrepreneurs are therefore considered as individuals who specialise in decision making through the assessment of unique situations that will arise in the future and make decisions about how to profitably exploit them (Casson, 2003; Gedeon, 2010:493).

In this study, an entrepreneur is defined as an individual (or team) that innovatively perceives a business opportunity, takes a calculated risk and gathers needed resources to start or grow a business venture with the expectation of creating value for the participants (Nieman & Nieuwenhuizen, 2009:9). This is more in line with the direction of the research and also captures the essence of entrepreneurship – venture and value creation with the prospect of gain. An entrepreneur also undertakes performance oversight of his or her business and has strategic objectives for business growth in order to maximise profit or wealth creation. Characteristics of an entrepreneur include being a risk taker, innovator, and ‘people manager’ or an effective leader/mentor that plays a major role in “motivating, directing and leading people” (Cunningham & Lischeron, 1991:52).

Scholars are in agreement that entrepreneurs do possess qualities or characteristics (although the listing of these varies) that make it possible for them to carry out entrepreneurial activities; the main ones are summarised in Figure 2-2 (Gartner, 1989a:48; Timmons & Spinelli, 2007:6-15; Wickham, 2006:97-100). However, although personality characteristics are important in the decision to become an entrepreneur, they tend not to count for entrepreneurial success (Rauch & Frese, 2000).

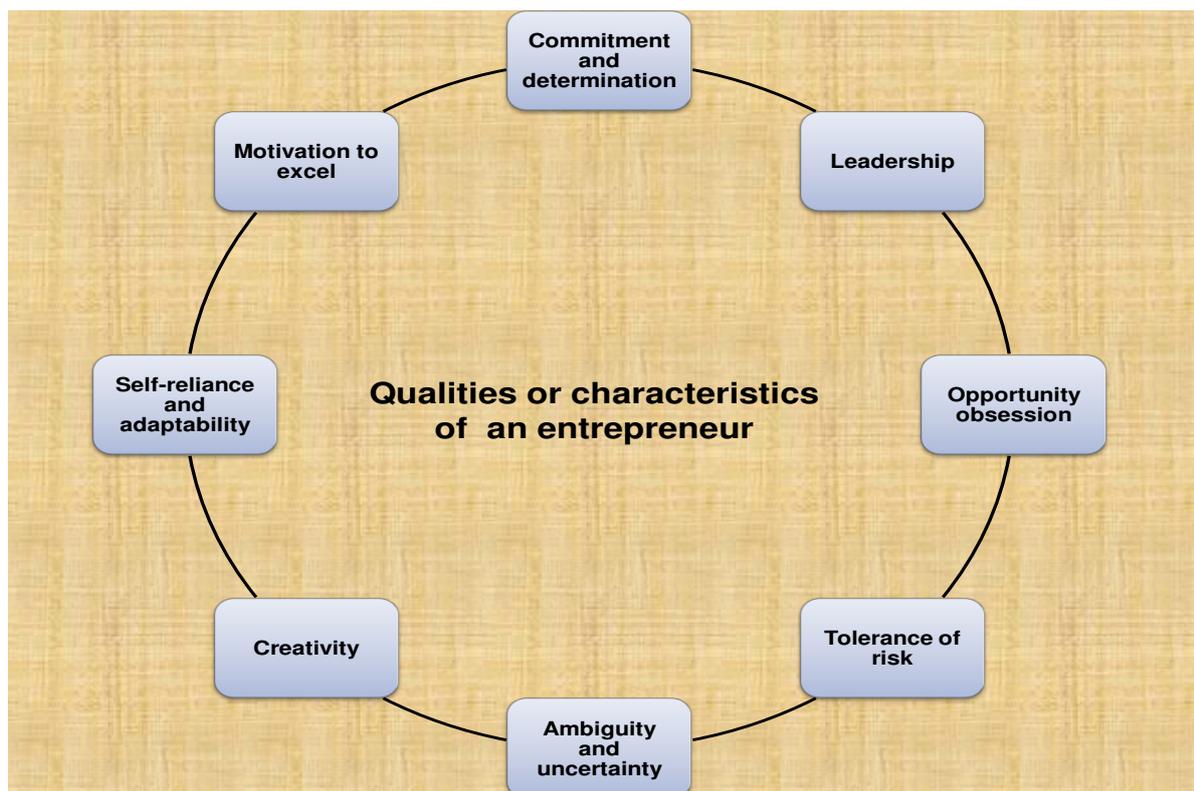


Figure 2-2: Qualities or characteristics of an entrepreneur

According to Timmons and Spinelli (2007), these attitudes and behaviours vary according to the environment of the entrepreneur, and are in fact acquirable. This suggests that entrepreneurs can actually be developed through a process of learning and acquiring the requisite attributes. Therefore countries or communities that desire to have more entrepreneurs need to create an appropriate milieu for their incubation. (This issue is discussed in detail in sections 2.9 and 2.10 of this chapter.) It is also important to note that not all entrepreneurs possess all of the necessary attributes, and even among those entrepreneurs who may have them, the attributes are combined in many different ways (Kirby, 2003). The ability to see opportunities from global change and innovatively exploit them in an organised manner through creating

organisations is critical in the entrepreneurial process. In pursuing their ideas and vision by establishing entrepreneurial ventures, entrepreneurs take a great many calculated, personal risks (Timmons & Spinelli, 2007:135).

Extensive research has been conducted to determine characteristics of successful entrepreneurs, resulting in a long list of entrepreneur personality attributes. However, recent research has tended to focus on the seven most cited personality characteristics in the entrepreneurship literature which have been found to have a significant association with entrepreneurial inclination: autonomy, need for achievement, internal locus of control, tolerance of ambiguity, risk taking, innovativeness, and confidence (Murugesan, 2010; Tajeddini & Mueller, 2009). Research has also shown that the levels of these entrepreneurial characteristics may differ from one country to another (Tajeddini & Mueller, 2009), owing to several factors such as socioeconomic conditions. A number of entrepreneurship theories have been advanced by several scholars in the recent past aimed at refining this field. However there still remains a lack of consensus about what constitutes entrepreneurship theory, and no generally accepted theory of entrepreneurship has emerged, although scholars tend to agree on a number of theories that can be described as pertaining to the entrepreneurship phenomenon. The various definitions of entrepreneurship clearly reveal that entrepreneurship relates to what the entrepreneur does, and it is a process (Wickham, 2006:4) of value creation by marshalling a unique combination of resources to exploit opportunity.

Entrepreneurship is manageable as well as ongoing, applicable to any organisational context, and can be broken down into phases (Morris *et al.*, 2011:9). In this respect entrepreneurs combine resources (i.e., money, materials, people, procedures, facilities, technologies, packaging, distribution channels, and others) in a unique way, and create value where there was no value at all, both within organisations and in the marketplace (Morris *et al.*, 2011:9). The field of entrepreneurship studies the discovery and exploitation of opportunities (Shane & Venkataraman, 2000) and this is done from various perspectives of the many different disciplines involved (Naudé, 2011; Henrekson, 2007). According to Kuratko (2013:5), “entrepreneurship is a dynamic process of vision, change, and creation”.

2.4 Approaches for describing entrepreneurship

In the absence of a unifying definition for the construct *entrepreneurship*, various schools of thought have emerged and advanced different approaches to describing the phenomenon or examining its activities. In this respect, numerous methods and models have been framed that endeavour to capture aspects considered to belong to entrepreneurship (Kuratko, 2013). In this section, two approaches are considered, namely the conceptualisation approach, which looks at entrepreneurship from both a micro view and a macro view, and also the process approach.

2.4.1 The entrepreneurial schools-of-thought approach: the micro and macro views

One way of examining the diversity of entrepreneurship theory is to take a view that conceptualises entrepreneurship from a micro view or a macro view, and this is done by dividing entrepreneurship into ‘Schools of thought’ that emphasise specific entrepreneurial activities, as shown in Table 2-3 (Bhat & Khan, 2014:84; Kuratko, 2013:9-12). Some researchers conceptualise the micro view further into various definitions and segments (Cunningham & Lischeron, 1991; Kuratko, 2013): *Great person* (“extraordinary achievers”); *Psychological characteristics* (founder, control over means of production); *Classical* (entrepreneurs engage in innovation, risk taking, uncertainty, and creative destruction); *Management* (value creation through recognition and exploitation of business opportunities, management of risk taking, and acquisition of management skills); *Leadership* (“social architects”, and promotion and protection of values); and *Intrapreneurship* (those who pull together to promote innovation).

Table 2-3: The entrepreneurial schools of thought: micro and macro views

CONCEPTUALISING ENTREPRENEURSHIP						
Micro Viewpoint (Inside-looking-out approach to entrepreneurship) [Examines factors that are internal or specific to entrepreneurs and are part of the internal locus of control]			Macro Viewpoint (Outside-looking-in approach to entrepreneurship) [Presents broad array of factors that relate to success or failure in contemporary entrepreneurial ventures, e.g., external processes]			
School of Thought	Entrepreneurial Trait School of Thought (People School of Thought)	Venture Opportunity School of Thought	Strategic Formulation School of Thought	Environmental School of Thought	Financial Capital School of Thought	Displacement School of Thought
Characteristics	<p>Grounded in the study of successful people who exhibit similar characteristics which could increase success possibilities for the emulators</p> <ul style="list-style-type: none"> Characteristics of successful entrepreneurs: Achievement, creativity, determination, and technical knowledge Other factors: <ul style="list-style-type: none"> Family development (nurturing and support within home atmosphere of entrepreneurial family) Educational incubation/ development of entrepreneurs. 	<p>Emphasis on adequate preparation in interdisciplinary business segments as key to entrepreneur's recognition of a venture opportunity.</p> <p>Search for idea sources, development of concepts, and implementation of venture opportunities</p>	<p>Emphasis on the planning process in success venture development.</p> <p>Leveraging of unique elements:</p> <ul style="list-style-type: none"> Unique markets Unique people (great chef strategies): skills or special talents of individual or team around whom the venture is built. Unique products: innovations that encompass new or existing markets. Unique resources: Ability to gather or harness special resources (land, labour, capital, raw materials) over the long term. 	<p>This is the broadest and most pervasive school.</p> <p>Deals with external factors affecting lifestyle of potential entrepreneur regarding moulding entrepreneurial desires.</p>	<p>Based on capital-seeking process.</p> <p>Venture capital process (funding, business planning and management) vital to entrepreneur's development.</p>	<p>Based on the view that the group hinders the person from advancing or eliminates certain critical success factors for that person to advance.</p> <ul style="list-style-type: none"> Entrepreneurs arise out of frustration; Individuals will not pursue a venture unless they are displaced from doing other activities (e.g., political, cultural, and economic displacement) Motivation to succeed projects entrepreneurs into pursuit of entrepreneurial ventures.
Focus	<ul style="list-style-type: none"> Traits common to successful entrepreneurs. 	<ul style="list-style-type: none"> Opportunity aspect of venture development; creativity and market awareness. 	<ul style="list-style-type: none"> Interdisciplinary managerial capabilities. 	<ul style="list-style-type: none"> Socio-political environmental framework (Institutions, values, rules, laws, work environment, social groups, etc). 	<ul style="list-style-type: none"> Seed and growth capital Financial management. 	<ul style="list-style-type: none"> Focuses on the negative side of group phenomenon where someone feels out of place or is literally "displaced" from the group.
Influence/Key to Entrepreneurial success	<p>Acquisition of personal characteristics, training and experiential knowledge</p>	<p>Developing right ideas at the right time for the right market niche.</p>		<p>Development of both independent & corporate entrepreneurs.</p>	<p>Financial management critical to success of entrepreneurial venture.</p>	<p>Cultural awareness, knowledge or political and public policy, and economic indoctrination will enhance entrepreneurial understanding.</p>

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While the micro view conceptualises entrepreneurship on the basis of factors internal or specific to entrepreneurs (factors that are part of the internal locus of control), the macro view focuses on factors relating to the external processes that are usually beyond the entrepreneur's control (factors that are part of external locus of control) regarding success or failure of entrepreneurial ventures. The macro or contextual environment is considered by some scholars to be more central in the entrepreneurship development of any economy, while the institutional environment is globally considered as one of the contextual factors with significant impact on the entrepreneurship process of economies (Bhat & Khan, 2014:85). The micro view comprises the entrepreneurial trait school of thought ("people school"), the venture school of thought, and the strategic formulation school of thought, while the macro view also has three schools of entrepreneurial thought: the environmental school of thought, the financial/capital school of thought, and the displacement school of thought (Kuratko, 2013).

2.4.2 Process approaches to entrepreneurship

Entrepreneurship is also usually described using a process approach, and there are several methods and models for looking at the entrepreneurial process. Two of the more traditional process approaches are the integrated approach and the dynamic states approach, and both of these methods describe the entrepreneurial process as a consolidation of various factors (Kuratko, 2013:14), as described below.

The integrative model by Morris *et al.* (1994:29) takes into account the inputs to the entrepreneurial process as well as the outcomes from the entrepreneurial process (see Figure 2-3). The input component focuses on the entrepreneurial process itself, and on essential elements contributing to the process, namely: (1) environmental opportunities (including demographic change, modification to current regulations, or the development of a new technology); (2) the individual entrepreneurs (people that creatively conceptualise and innovatively implement entrepreneurial new ventures); (3) unique business concept (developed to capitalise on the opportunity); (4) organisational context (the vehicle for implementation of the business concept); and (5) resources (land, labour, capital, raw materials).

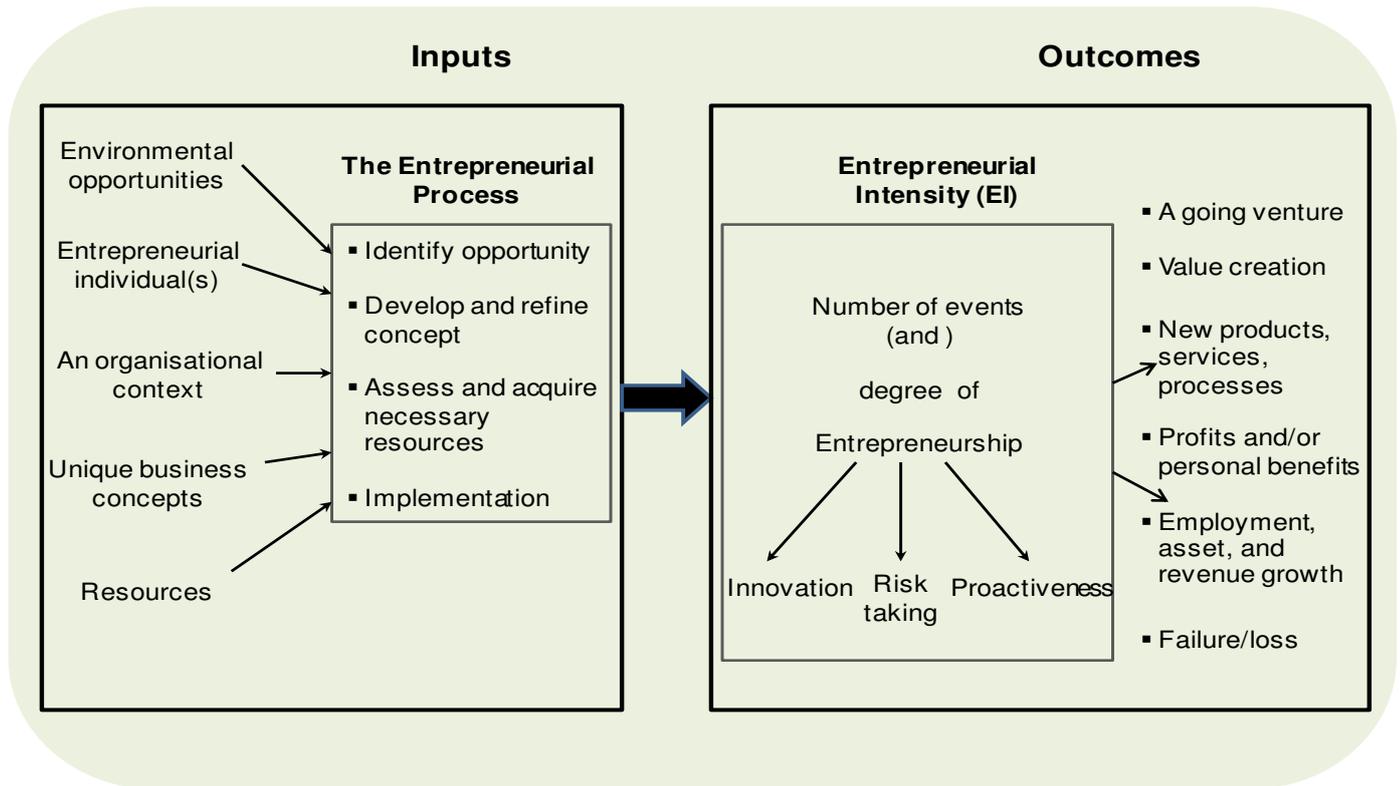


Figure 2-3: An Integrative Model of Entrepreneurial Inputs and Outcomes

Source: Adapted from Kuratko, 2013:14)

The dynamic-states approach to entrepreneurship (see Figure 2-4) is based on a complex systems perspective premised on the view that established businesses follow a series of states (stages or phases), each reflecting a configuration of age, size, and structure (Levie & Lichtenstein, 2010:331). In order to survive, when faced with rapid growth or imminent decline, the most successful organisations “can and do change their pathways of development by learning and adapting in ways that increase their “fitness” within their changed environment” (Levie & Lichtenstein, 2010:331). Organisations accomplish this by altering their resource sets (Chiles, Meyer & Hench, 2004), redefining their niche (Garud, Kumaraswamy & Sambamurthy, 2006), or by redefining themselves in order to operate within the evolving niche (Barker & Nelson, 2005). According to Levie and Lichtenstein (2010:333), a dynamic state is “a network of beliefs, relationships, systems, and structures that convert opportunity tension into tangible value for an organisation’s customers/clients, generating new resources that that maintain that dynamic state”.

The dynamic-states approach intends to reflect an optimal relationship between the organisation's business model and its environment, both of which can change *ad infinitum*, thereby bringing about the possibility of an unlimited number of dynamic states (occurring in any number of sequences) in an organisation's existence (Levie & Lichtenstein (2010:335).

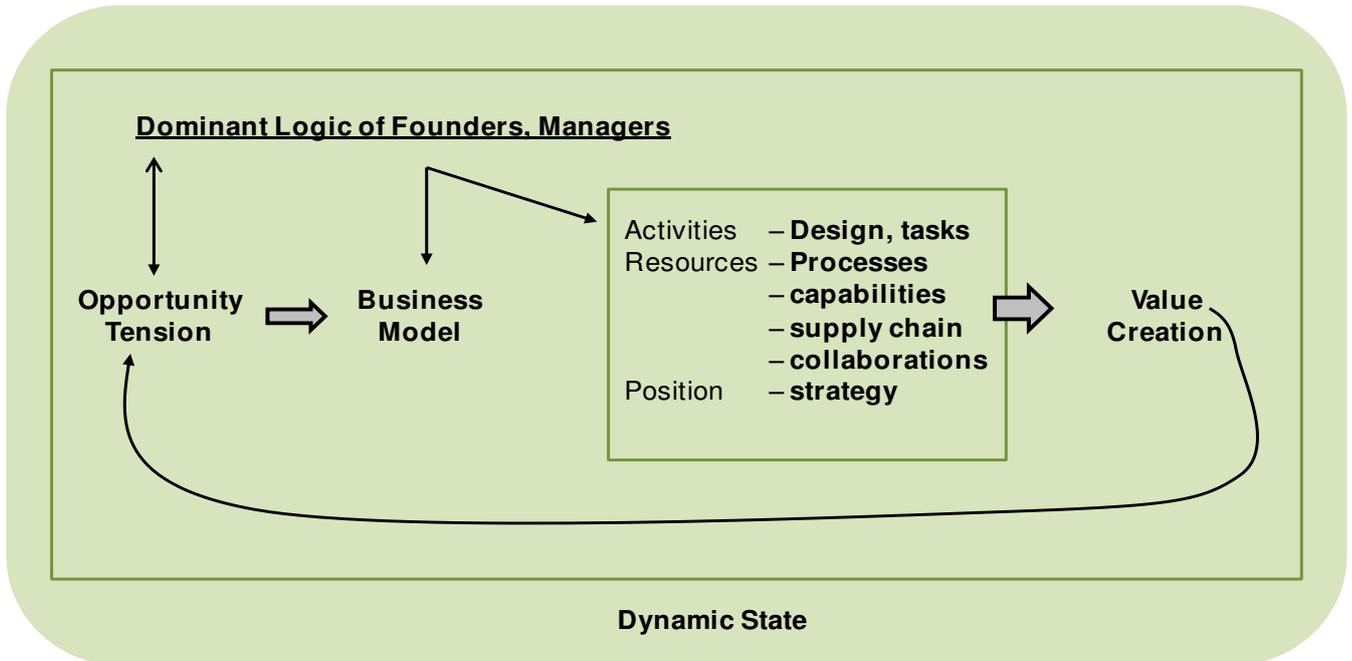


Figure 2-4: The dynamic-states approach to entrepreneurship

Source: Levie & Lichtenstein (2010:332)

The following are some of the main attributes or elements of the dynamic-states approach to entrepreneurship, which incorporates the complex adaptive systems (from complexity science), and nonlinear economics and management (Levie & Lichtenstein, 2010:332-333):

- From an entrepreneurship point of view, an organisation is an energy conversion system that organises resources (e.g., material, capabilities, etc.) into products or services providing value for its customers, thereby leveraging a business opportunity.
- **Business model:** The organisation's value-creation strategy is enacted by its business model, that is, the activities, resources, collaborations, and strategic positions necessary to capitalise on the opportunity.

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- **Dominant logic:** The business model itself is derived from organising activities, strategic decisions, and organisational processes that reflect the emerging “dominant logic” of the organisation. This entire set of enacted qualities is also referred to as a configuration or a phase of management.
- **Opportunity tension:** This is the perception or co-creation of an untapped market potential and the commitment to act on that potential by creating value. According to complexity science, every dynamic state originates from some inherent tension (i.e., opportunity tension). Opportunity refers to the perceived cache or pool of resource potential, while tension represents an entrepreneur’s desire and personal passion to exploit the opportunity. Repetitive testing of an emerging business concept (a coevolution of exploration and exploitation) confirms the existence of an opportunity and amplifies the entrepreneur’s conviction that it should be exploited.
- **Venture growth and scope:** The opportunity tension drives the organisation’s dominant logic through the entrepreneur’s projection of the possible growth and scope of the venture. The entrepreneur’s personal desire and perceived capability (i.e., resources, commitment, passion, and skills) are critical in the creation of the right organisation that can proactively take advantage of this anticipated energy potential.
- **Value creation:** The shaping of a viable business model (i.e., the set of interactions within an agent network that reliably creates value for every customer through the venture’s products or services) converts opportunity tension into value creation.

Both the entrepreneurial schools-of-thought approach and the process approaches to entrepreneurship presented in this study reveal the potential of entrepreneurship to enhance company performance, growth and competitive advantage. The dynamic-states approach to entrepreneurship, though complex, elaborately portrays the possibility of organisational survival and sustainability by adapting to the changing environment, while the integrative approach model takes into account the necessary inputs for the desired entrepreneurial outcomes, such as organisational performance and survival, appropriate for all stakeholders. While the micro view of

entrepreneurship focuses on the internal factors appropriate for entrepreneurial activities to take place, the macro view of entrepreneurship emphasises the need to incorporate external environmental factors which also affect organisational performance. All these approaches apply to all forms of entrepreneurship -- independent entrepreneurship, intrapreneurship or corporate entrepreneurship, and the entrepreneurial organisation.

2.5 Forms of entrepreneurship

Scholars identify three distinct forms that entrepreneurship can take and from which new ventures spring, namely: independent entrepreneurship, intrapreneurship (corporate entrepreneurship), and the entrepreneurial organisation.

Independent entrepreneurship refers to the process in which an individual (entrepreneur) or a team, acting not in association with any existing organisation, creates a new organisation, a stand-alone new venture, or acquires or franchises his or her own organisation (Gündoğdu, 2012:298; Rwigema, 2004). In this respect, the focus is not so much on who an entrepreneur is, but rather what an entrepreneur does.

Intrapreneurship or *corporate entrepreneurship*, on the other hand, takes place in established organisations, and the agents are enterprising employees (intrapreneurs) who create new ventures or separate divisions within an organisation (Rwigema, 2004). Intrapreneurship also involves the development of independent units designed to create, market and expand innovative services, technologies, or methods within the organisation (Scheepers, 2009). A detailed literature review of corporate entrepreneurship is presented in the next chapter, as it is the focus of this study. According to Kelley, Singer and Herrington (2012:24), intrapreneurship (CE) to some extent tends to replace independent entrepreneurship as “an alternative means for pursuing entrepreneurial opportunities”. This is attested to by the Global Entrepreneurship Monitor (GEM) findings showing that the innovation-driven economies with the highest levels of entrepreneurial employee activity (EEA), such as Denmark, Belgium, and Sweden, are among countries with lowest total early-stage entrepreneurial activity (TEA) rates (Kelley *et al.*, 2012:24). GEM

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operationalises the EEA form of entrepreneurship as the process whereby employees develop or launch new goods or services, or set up a new business unit, a new establishment or subsidiary for their main employer (Amorós & Bosma, 2014:34). In other words, these are intrapreneurs and their activities pertain to entrepreneurship inside established organisations. TEA is the key indicator for GEM and is used to measure the “percentage adults (18 to 64 years) who are in the process of starting or who had just started a business” (Xavier, Kelley, Kew, Herrington, & Vorderwulbecke, 2013:8)

The entrepreneurial organisation is an organisation that creates an internal environment in which “all of its members can contribute in some fashion to the entrepreneurial function” (Cornwall & Perlman, 1990:8). It is not necessarily the case that entrepreneurial function should be embodied in a physical persona, as “every social environment has its own way of fulfilling the entrepreneurial function” (Clemence, 1951:255). However, according to Cornwall & Perlman (1990:8), creating an entrepreneurial organisation is a challenging process as the organisation has to be “ready, willing, and able to adapt to a changing external environment”. Hence not all organisations are entrepreneurial.

The distinction between entrepreneurial and conservative organisations lies in their entrepreneurial orientation (EO) or posture: “the decision-making practices, managerial philosophies, and strategic behaviours that are entrepreneurial in nature” (Anderson, Kreiser, Kuratko, Hornsby & Eshima, 2014). An organisation is considered entrepreneurial in relation to three dimensions: innovativeness, proactiveness, and risk taking (Anderson, Covin & Slevin, 2009)

Regardless of the form entrepreneurship takes (that is, independent entrepreneurship, intrapreneurship, or entrepreneurial organisation), there are certain commonalities that are considered fundamental for the phenomenon. All these forms of entrepreneurship involve risk taking, innovation, and market orientation for whatever product or service is involved (Cornwall & Perlman, 1990; Covin & Miles, 1999). In fact research shows that entrepreneurial organisations generally outperform their non-entrepreneurially managed peers (Rauch *et al.*, 2009).

2.5.1 Explorative and Exploitative Entrepreneurship

The entrepreneurship domain can be viewed from two different perspectives, namely: explorative or exploitative, and several definitions follow either of these perspectives.

According to Carlsson *et al.* (2013:914), the explorative side of entrepreneurship focuses on the role and characteristics of individuals and teams/organisations, and these entrepreneurial activities lead to “opportunity recognition, innovation and venture creation” (founding of new organisations or new activities within established organisations). Pinchot (1985) also expresses this view in relations to exploration of entrepreneurial opportunity, which process involves knowledge exchange and recombination.

In order to upscale exploration or evaluation of an entrepreneurial opportunity, organisational champions, such as middle managers, engage in exchange of knowledge with key resource holders and decision makers within the organisation to determine the possibility of succeeding (Kuratko *et al.*, 2005a). This knowledge is then exchanged with the initiators of the entrepreneurial idea in order to appropriately align it with the goals of the organisation (Pinchot, 1985). According to Pinchot (1985), middle managers play a critical role in the entrepreneurial process by influencing others to champion discovery, exploration, and exploitation of entrepreneurial opportunities through the creation of networks and a shared vision with the organisation, while they may themselves also act as sponsors or instigate other sponsors to influence resource allocation for pursuing the opportunity.

These explorative entrepreneurial activities in essence instigate both independent entrepreneurship and entrepreneurship within established organisations (corporate entrepreneurship). The focus of explorative entrepreneurial activities is therefore not on the characteristics and behaviour of the entrepreneur, but rather on the function of entrepreneurship, whose aggregate outcomes take the form of economic growth and development as well as human welfare (Carlsson *et al.* (2013:914).

The exploration side of entrepreneurship deals with a number of dimensions, including commitment to opportunity, commitment to process, control of resources,

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strategic orientation, management structures, and compensation and rewards (Stevenson, 2004:3). Thus entrepreneurship definitions that assume this exploration dimension define entrepreneurship less holistically (Carlsson *et al.*, 2013:916). Stevenson (2004:3), for instance, defines entrepreneurship from the exploration perspective as “the pursuit of opportunity beyond the resources you currently control”.

On the other hand, the exploitation side of entrepreneurship leads to change, creation, and socioeconomic development, which also benefits stakeholders (Carlsson *et al.*, 2013:914; Ireland *et al.*, 2003:966; Phan *et al.*, 2009:199). Kuratko’s (2013:3) definition of entrepreneurship incorporates both the explorative and exploitative dimensions of the entrepreneurial activities. In other words, from the exploitative perspective, entrepreneurship is key to the functioning of market economies, while entrepreneurs are considered as agents of change, production, and growth (Thai & Tukina, 2014:492).

2.6 Entrepreneurship versus management

Going by the attributes ascribed to the phenomenon of entrepreneurship, it is important to make a distinction between entrepreneurship and management. Whereas the construct *management* relates more to administration, such as human resource management, controlling, leading, organising, and planning, which is essentially the work of managers (Rwigema, 2004), entrepreneurship relates to what the entrepreneur does and involves opportunity recognition, venture creation, founding, and adapting, with the objective of growing the venture as well as creating value for the stakeholders.

As the founder of the venture, an entrepreneur often performs management functions during the start-up phase when the enterprise is still small and getting established, which function is passed on to hired expert managers as the venture grows (Rwigema, 2004). However, it is possible that some of the hired managers may in fact turn out to be intrapreneurs who may innovatively engage in entrepreneurial activities inside the organisation.

2.7 Entrepreneurship versus small business management

Another important distinction that needs highlighting is that between entrepreneurship and small business management. Small business management relates to the ownership and operation of independent enterprises that “are not dominant in their fields, and usually do not engage in many new or innovative practices” (Kuratko, 2013:3). Furthermore, small businesses may never have a growth orientation, while the owners (who may also be viewed as small business managers) “may prefer a more stable and less aggressive approach to running these businesses”, that is, the management focuses on achieving “stable sales, production, and profits” (Kuratko, 2013:3). A small business is usually distinguished in terms of size according to specified thresholds. For instance, Zambia’s Micro, Small and Medium Enterprise (MSME) policy (Ministry of Commerce, Trade and Industry [MCTI], 2009) specifies number of employees, turnover, total fixed investment (excluding land and buildings), and legal status to determine whether a business is micro, small, or medium, as shown in Table 2-4.

Table 2-4: Defining MSME enterprises in Zambia

Enterprise category		# employees	Total investment (excluding land & buildings)*	Annual turnover*
Micro enterprise	All categories	≤ 10	≤K80 000	≤ K150 000
Small enterprise	Trading & service	11–50	≤ K150 000	K150 000–K250 000
	Manufacturing & processing		K80 000–200 000	
Medium enterprise	Trading & service	51–100	K151 000–K300 000	K300 000–K800 000
	Manufacturing & processing		K20 000–K500 000	

* The Kwacha (K) amounts are rebased figures. Exchange rate as of end of May 2015: US\$1 = K7.3.

Source: Ministry of Commerce, Trade and Industry (2009).

In contrast, an entrepreneurial venture, regardless of its size, is characterised by innovation, introduction of new products/services, or new ways of producing existing products and services, and having growth as its main objectives (Kuratko, 2013:3). Entrepreneurship is considered as a type of behaviour that focuses on opportunities and not resources, and can be exhibited in both small and large ventures (Thurik &

Wennekers, 2004). In addition, while entrepreneurs focus on profit and venture growth, small business owners “focus on providing family income and view the venture as an extension of their personalities” (Stewart, Watson, Carland & Carland, 1998:190). Entrepreneurial business owners and small business owners can also be distinguished in terms of their goals and activities (Wagener, Gorgievski & Rijdsdijk, 2010:1514). Entrepreneurial ventures tend to be characterised by innovative strategic practices, profitability, and growth as principal goals, while small businesses tend not to engage in any new marketing or innovative practices and have low growth potential (Wagener *et al.*, 2010:1514).

However, although entrepreneurship and small business are not synonymous concepts, they are in fact related and important for economic development; some small businesses serve as a vehicle for entrepreneurs to introduce new combinations in the form of products, services, and processes which impact on the market and industry, while others are operated simply for survival (Thurik & Wennekers, 2004).

2.8 Entrepreneurship, creativity and innovation

The role of creativity and innovation in entrepreneurship can be considered from different aspects of the phenomenon. Both creativity and innovation have been linked to organisation performance (Baron & Tang, 2011:49; Rosenbusch, Brinckmann & Bausch, 2011:441) and entrepreneurial success. Innovation has long been associated with entrepreneurship, as it works as a catalyst for accelerated economic growth and socioeconomic development (Nijkamp, 2011). To succeed in all his or her functional roles, including risk taker, innovator, and ‘people manager’ or an effective leader/mentor who plays a major role in “motivating, directing and leading people” (Cunningham & Lischeron, 1991:52), an entrepreneur would need creativity as a critical entrepreneurial attribute.

2.8.1 Entrepreneurial creativity

According to Herrmann (1996:203), creativity is a right-brain activity of the human brain, and “problem solving and inventing strongly suggest a business application of the creative process”. Scholars tend to commonly define creativity as “the

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development of new or novel ideas, appropriate for their context, that have value” (Napier & Nilsson, 2008:24), or the “production of novel and appropriate solutions to open-ended problems in any domain of human activity” (Amabile, 1997a:18). Creativity is primarily the cognitive process of discovering new patterns of or combinations from familiar ideas, routines, and mental models (Phan, Zhou & Abrahamson, 2010; Amabile, 1997a). Largely, creativity has been defined in terms of the attributes of a person, product, services, processes, procedures, and situation (Bruton, 2011:322). All these aspects, newness or novelty, and being appropriate for their context, and valuable, are characteristic components of creative ideas.

Entrepreneurial creativity is the “generation and implementation of novel, appropriate ideas to establish a new venture”, and “can be exhibited in established organisations as well as in start-up firms” (Amabile, 1997a:18). Entrepreneurship begins with the combination of human creativity, financial, and technological resources, whose blending fosters the discovery and establishment of new ways of organising production and service processes, as well as new institutional setups, resulting in venture rejuvenation and growth and creation of new ventures (Phan *et al.*, 2010).

According to Amabile (1997a:18), entrepreneurial creativity requires “a combination of both intrinsic motivation and certain kinds of extrinsic motivation – a motivation synergy that results when strong levels of personal interest and involvement are combined with the promise of rewards that confirm competence, support skills development, and enable future achievement”. Creativity is therefore at the core of entrepreneurship and has always been linked to the phenomenon in the sense that it brings forth new and novel ideas, products, services, and processes that give organisations competitive advantage. Creative thinking and behaviour enhance the entrepreneur’s ability to recognise opportunities and discharge his or her entrepreneurial tasks in a way that leads to greater socioeconomic value as well as entrepreneurial success. Creativity and effective problem solving are therefore necessary attributes at all points of the entrepreneurial process, as they entail novelty and lateral thinking (Lumsdain & Binks, 2009). As Bruton (2011:322) posits, creativity also plays a significant role in fostering the maintenance and improvement of international commercial competitiveness in economic recovery environments.

2.8.2 Entrepreneurial innovation

According to Amara and Landry (2005), there seems to be no consensus on the definition of the construct *innovation*. However, the literature generally reveals that innovation comprises two different activities, namely “the development of novel, useful ideas and their implementation” (Baer, 2012:1102). Notice that this definition of innovation is similar to Amabile’s (1997a:18) definition of entrepreneurial creativity – the “generation and implementation of novel, appropriate ideas to establish a new venture”. This clearly shows a conceptual overlap between creativity and innovation which is found in many scholarly publications. Amabile (1997a:18) defines innovation as the “implementation of those novel, appropriate ideas”.

In other words, entrepreneurial creativity as defined by Amabile (1997a) is in essence innovation – “the generation and implementation of novel, appropriate ideas to establish a new venture”. In fact Amabile (1997a) acknowledges that her definition of entrepreneurial creativity is essentially that of innovation, as she posits that “the entrepreneurial part of the phrase requires action – the implementation of those ideas, or innovation” (Amabile, 1997a:20). The point really is that creativity (idea generation) is necessarily the initial step in any kind of innovation.

Beyond the generation of novel and useful ideas, entrepreneurial innovation, however, also encompasses the implementation of ideas, and each “activity may be shaped by different personal and contextual forces” (Baer, 2012:1102). However, unlike innovation, creativity is grounded in originality and tends to require a paradigm shift. The element of value narrows down to whether the creative idea is entrepreneurially innovative, that is, whether it might be a marketable outcome that has economic or commercial value. The adaptation and implementation of creative ideas is what is known as innovation (Napier & Nilsson, 2008).

Snow (2007:101) defines innovation as “a new product, service or idea, a new process technology, a new business model”, which all suggest originality, a key aspect of creativity. According to Pannekoek, Van Kooten, Kemp and Omta (2005:41), entrepreneurial innovation involves “taking a creative idea and turning it into a product or process that can be sold or used in the market place”. In this

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respect, entrepreneurial innovation not only tends to be exhibited at the level of idea generation and implementation, but also incorporates the aspect of creation and exploitation of commercial value in relation to such ideas. This could be at the level of venture founding, product or process creation, as well as adapting to changes in the contextual environment such as changes in the industry or marketplace. Ultimately the goal of innovation is to provide a solution to a problem, and this process can take many rounds of creative problem solving (Lumsdaine & Binks, 2009).

Another distinction to be made is between two closely linked concepts, namely innovation and invention, both of which involve ideas and newness. While invention involves “new ideas, new discoveries and breakthroughs”, innovation goes beyond invention; it is the commercialisation of the invention and includes activities such as “design, manufacturing, marketing, distribution and product support” (Smith, 2009:6).

Thus, although innovation also encompasses invention, it is more than that, as it results in a product or process with commercial value and is “widely dispersed to where its acceptance leads to a permanent change” (Lumsdaine & Binks, 2009:180, as can be seen in Figure 2.5. It is this type of innovation that this study refers to as entrepreneurial innovation.

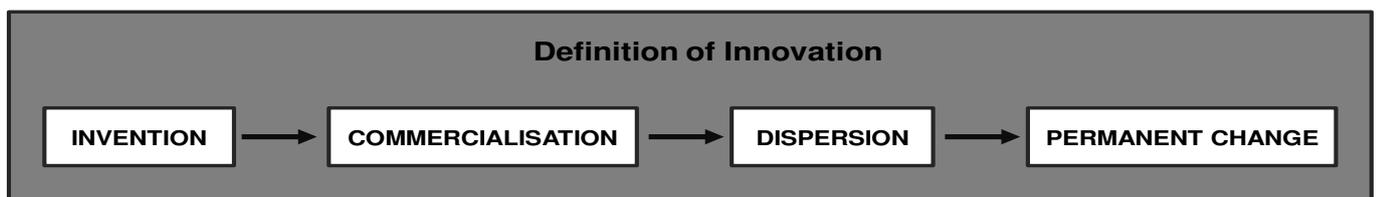


Figure 2-5: Defining innovation

Source: Adapted from Lumsdaine (2009)

Therefore, not all inventions are entrepreneurial innovations, but all entrepreneurial innovations are a subset of invention (Smith, 2006), whereas creativity is found in both. Thus, both creativity and innovation are core facets of the entrepreneurship phenomenon.

Entrepreneurial innovation has long been identified as a critical factor for economic progress and sustainable business competitiveness in an increasingly changing

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environment, as it leads to product and process improvements as well as venture rejuvenation, growth, and efficiency (Atalay, Anarfata & Sarvan, 2013; Beaver & Prince, 2002). For instance, “over 60 per cent of all economic growth is due to technological advancement rather than improvements in labour productivity” (Beaver & Prince, 2002:28).

Notwithstanding the critical role creativity is presumed to play in entrepreneurship, it is important to note that some scholars are of the view that so far creativity’s tie to the phenomenon is still just “intuitive and anecdotal”, as the link between the two has “not been studied systematically” (Ciavarella & Ford, 2004). However, creativity is widely considered as one of the critical entrepreneurial success factors that promote or mitigate new business venture creation, which significantly contributes to economic growth and development (Lee, Florida & Acs, 2004).

Recent empirical studies have in fact shade more light on the influence of creativity and innovation on the entrepreneurship phenomenon. For instance, in a study on senior managers of 113 companies in the automotive supply industry, Atalay *et al.* (2013:226) found that technological innovation (product and process innovation) has “significant and positive impact on firm performance”. The literature clearly shows that innovation is central to entrepreneurship, as it is one of the key factors for success and survival of an organisation. According to Kuratko (2013:3-4), “entrepreneurship is an integrated concept that permeates an individual’s business in an innovative manner. It is this mind-set that has revolutionized the way business is conducted at every level in every country.”

2.9 The role of entrepreneurship in the economy and society

Entrepreneurship plays a critical role in the economy and society as it is a major source of frames and mental models that give rise to new strategic initiatives (Isenberg, 2010). Economists have widely argued that a vibrant private sector promotes economic growth and poverty reduction through investment initiatives and improved productivity, which leads to job and wealth creation (Naudé, 2011). Entrepreneurship is therefore considered as one of the most important ingredients for local economic development. In fact entrepreneurship is considered as the fourth

factor of production (Leff, 1979:47). According to Zahra and Nambisan (2012:222), entrepreneurship plays three interrelated roles which all lead to value creation: (1) a source of strategic initiatives; (2) a lever in positioning the organisation; and (3) a set of activities that actualise the organisation's strategic moves.

2.9.1 Entrepreneurship and economic development

Entrepreneurship is now regarded as a major thrust for economic growth and development through job and wealth creation resulting from successful entrepreneurial ventures. Through increased entrepreneurial business activities in an economy, a nation's capacity to produce goods and services increases over time, resulting in economic growth and more employment opportunities. Entrepreneurship leads to growth of organisations as well as the economy, as it contributes to "economic performance through the introduction, creation and enhancement of innovativeness, change, rivalry and competition (Antoncic & Antoncic, 2011:594).

Empirical evidence also exists (Antoncic & Antoncic, 2011:594) showing that entrepreneurship influences enterprise success leading to wealth creation, and is related to growth (both in small businesses and large organisations (e.g., Alegre & Chiva, 2013; Antoncic & Hisrich, 2001, 2004; Stam & Elfring, 2008). It is the aspect of establishing organisations or business entities that directly creates new jobs and brings about economic growth as well as new wealth for reinvestment. As more wealth is created and reinvested, the economy becomes more and more geared to growth capacity, taking into account availability of factors of production – organisation, land, capital and labour. Organisation is the factor that plays a coordinating role, bringing together the other three factors of production. Some modern economists have argued that entrepreneurship is itself the fourth factor of production and the most important in driving a successful economy, as it is the element that powers and strengthens the organisation (Leff, 1979:47).

However, in relation to economic development, it is evident that entrepreneurship does not just lead to increased per capita output and income; entrepreneurship affects both business and societal structures by initiating and constituting change (Hisrich *et al.*, 2008). As Soriano and Huarng (2013:1964) argue, entrepreneurship is

a milestone on the road towards economic progress, and makes a contribution towards the quality and future hopes of a sector, economy or even a country. The role of entrepreneurship in economic development is depicted in Figure 2-6.

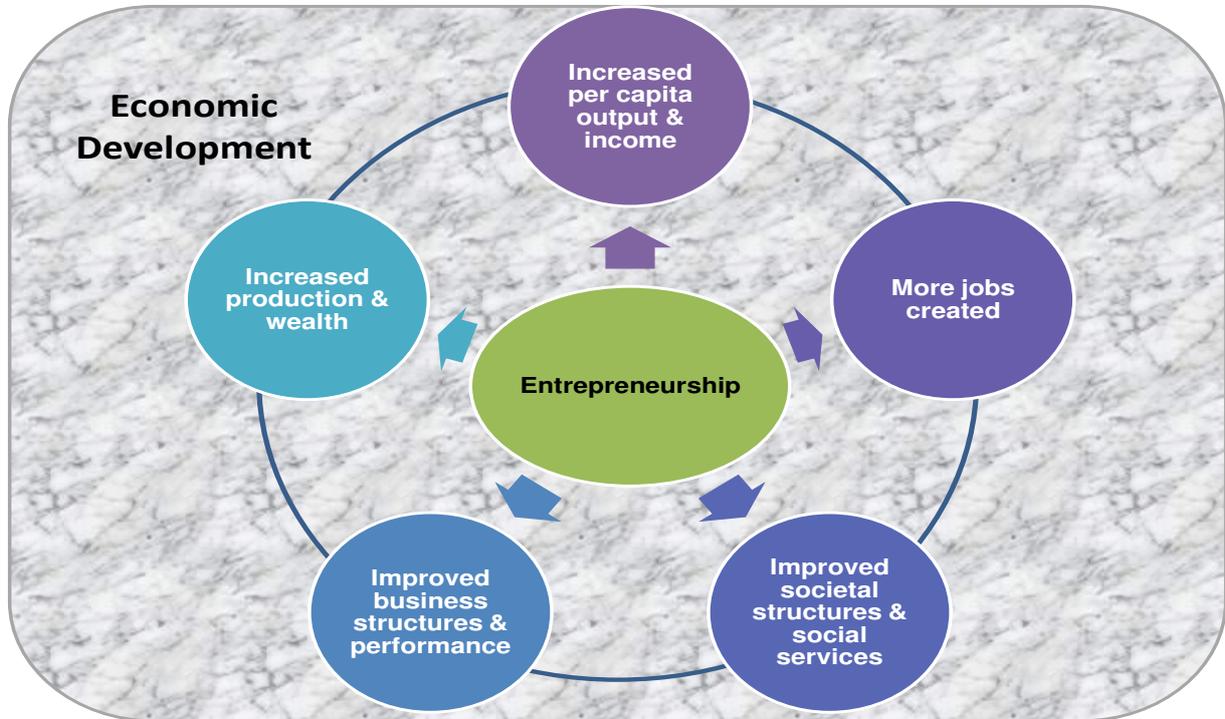


Figure 2-6: Entrepreneurship and economic development

As Schumpeter (1934) pointed out, entrepreneurial innovation is the critical ingredient that fosters the creation of new combinations in the form of new products, new services, new sources of raw material, new methods of production, new markets, and new forms of organisation. It is therefore evident that although there are differences in defining the term, scholars generally agree that entrepreneurship plays an important role in socioeconomic development by generating wealth, which leads to economic growth as well as more employment opportunities. In this respect, in order to achieve accelerated economic development, it is necessary to entrench within an economy the environment that would allow the breeding of entrepreneurs who will engage in growth-oriented entrepreneurial activities.

In most of the developed countries, entrepreneurship has been the thrust of socioeconomic advancement as well as job and wealth creation through the well-performing established business entities. Characteristic of these economies is the existence of appropriate support systems, coupled with entrepreneurially minded

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individuals with the ability to create or seize commercial opportunities and engage in innovative undertakings for the good of all. The socioeconomic structures of such economies have been altered permanently, with their spill-over effects affecting the whole world to some extent. In the United States of America (US), for instance, the ever-increasing entrepreneurial activities and innovation accounted for the creation of 24 million new jobs during the decade from 1974 to 1984 (Drucker, 2004:1), while recent statistics show that smaller businesses reached a record total of 27.5 million by 2011, of which 6 million were employing companies, accounting for 49.6% of US private-sector jobs (Kuratko, 2013:17).

According to Burns (2001) in the United Kingdom (UK), small businesses provide 62% of employment, while in the entire European Community the small business sector provides 66% of employment. Due to the enabling entrepreneurial environment, the new entrepreneurial generation in these countries is involved in the creation and leadership of entirely new industries built from among staggering start-ups which have further transformed the economies (Timmons & Spinelli, 2007). These start-ups are nurtured by appropriate entrepreneurship support systems that ensure their growth and success and job and wealth creation.

For the developing countries, the effect of entrepreneurship is not as pleasant as that in the developed countries, although a lot of initiatives are being pursued aimed at enhancing entrepreneurial gains. The situation, however, differs from country to country, as some are making significant improvements. In South Africa, for instance, “when it comes to job creation, many role-players as well as the community as a whole rely on entrepreneurs to make a difference ... it is estimated that small businesses produce about 42% of the country’s gross domestic product (GDP), and employ half the people working in the private sector” (Haydam, 2004:11). In Zambia, according to a recent Zambia Business Survey report (Clarke, Shah, Sheppard, Munro & Pearson, 2010:15)¹, 88% of Zambia’s workforce is employed in the informal MSME sector, while the country’s large business organisations employ only 7% of the workforce.

¹ The cited labour statistics in the Zambia Survey Report for 2010 are based on the 2005 Labour Force Survey conducted by the Ministry of Labour and Social Security and may therefore not reflect the current position.

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The Global Entrepreneurship Monitor (GEM) Report 2013 (Amorós & Bosma 2014:11, 32) identifies two types of entrepreneurship, namely, necessity entrepreneurship and opportunity entrepreneurship. Necessity entrepreneurship refers to having to become an entrepreneur because one has no better option. Opportunity entrepreneurship is defined as an active choice to start a new enterprise based on the perception that an unexploited or under-exploited business opportunity exists. The GEM 2013 report (Amorós & Bosma, 2014:32) makes a further categorisation of opportunity entrepreneurs, referred to as improvement-driven opportunity (IDO) entrepreneurs, defined as “those opportunity-driven entrepreneurs who sought to earn more money or be more independent, as opposed to maintain income”. As regards economic set up, necessity entrepreneurs tend to be more prevalent in factor-driven economies where individuals tend to have no better option for work.

However, in economies with higher economic development levels, necessity entrepreneurs tend to be relatively less common, as necessity gradually falls off as a motivator, while IDO entrepreneurs increase as IDO motives increase (Amorós & Bosma, 2014:32). Undoubtedly opportunity entrepreneurship may lead to job creation and economic development through the establishment of viable business entities to exploit identified opportunities. However, this may not be as obvious with necessity entrepreneurship. A situation where individuals (entrepreneurs) find themselves engaged in self-employment due to circumstances such as lack of better options for work may even choke the economy with poor performance and under-development.

The issue of the entrepreneurial driving force for business start-ups, whether it is motivated by opportunity or driven by necessity, is critical in determining level of business success. Furthermore, perceiving an entrepreneurial opportunity is not in itself a guarantee for success. The entrepreneur needs to have capacity in terms of motivation, skills, resourcefulness and other requirements to execute the entrepreneurial activity.

In the case of African economies, some scholars (such as Ikiara, 1994:118) contend that the general underdevelopment of these economies and their slow industrialisation is due to “lack of the critical mass of indigenous entrepreneurs and

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development oriented bourgeoisie”. The other argument is that underdeveloped countries do not actually lack entrepreneurship, as entrepreneurial activities exist. The issue is that these entrepreneurial activities are not directed toward productive ends conducive to economic progress (Boettke, 2004). This obviously means more unemployment and high poverty, as there are fewer opportunities for the poor.

A World Bank report on sub-Saharan Africa points out that the “informal sector offers a striking illustration of the strengths and weaknesses of enterprise in Africa. Unregulated and largely unrecorded, its activities comprise the most accessible and competitive economies. These enterprises, many of them very small, are a training ground for entrepreneurial initiatives” (World Bank, 1989:135). As Jackson (2012:2902) posits, “much of the entrepreneurial activity in sub-Saharan Africa is within the informal economy, as is employment and skills development”. Although world economies are approaching development from many different angles, entrepreneurship is one of the most promising economic development strategies. This is particularly so for the developing countries. The role of entrepreneurship in socioeconomic development and employment creation is critical. The founding of ventures and their performance, shareholder benefits, and resultant economic growth, are important outcomes of entrepreneurship.

At the micro level, the development of entrepreneurial personal qualities and acquisition of practical abilities by entrepreneurs is necessary for them to become successful business persons and consequently enhance their wealth-creation capacity and increased productivity, which create job opportunities. However, an enabling environment needs to be provided in order to have meaningful gains from entrepreneurship. All in all, entrepreneurship is the defining characteristic of growing economies. For instance, in a study of the fast-growing Chinese economy, Phan *et al.* (2010) have shown that entrepreneurship as an economic activity has been an important engine of growth of that economy.

2.10 Factors affecting entrepreneurship development

It is also important to note that in any given economy, there are numerous factors which have a bearing on the level of entrepreneurial activity at a given time. Previous

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research findings have shown that entrepreneurial activity varies from country to country according to Gross Domestic Product (GDP), and also across stages of economic development in regions within countries (Valliere & Peterson, 2009:461). The following are some of the key factors affecting entrepreneurship development (see also Figure 2-7):

2.10.1 The socio-cultural factors

Culture, which is the core system of values peculiar to a specific group or society, influences the entrepreneurial potential of the group or society, as it shapes the development of certain personality traits and motivates individuals to engage in behaviours that might not be evident in other societies (Mueller & Thomas, 2001). According to Morrison (2000), there are a number of factors that influence culture, namely, family, role models, history, religion, and education. Thus different societies exhibit different levels of entrepreneurial activity partly because of different cultural influences. Some cultures tend to be inhibitive of certain virtues such as self-reliance, personal drive, diligence, responsibility, creativity, and innovation, which are important attributes for entrepreneurial drive.

Society's values have long been identified as influencing the level of entrepreneurial activity in an economy, as the values have a bearing on an individual's need for achievement, which is an important characteristic of an entrepreneur (McClelland, 1961; Cornwall & Perlman, 1990). However, culture is not static but dynamic and can therefore be changed (Morrison, 2000). Cultures that possess or encourage entrepreneurial values serve as incubators in the entrepreneurial initiation (Johannisson, 1987; Kirby, 2003).

Another aspect relating to sociocultural factors affecting entrepreneurial activity is what Cornwall and Perlman (1990) refer to as *affect*, defining it as "people's feelings and emotions" or "emotional commitment" which includes someone's persistence, passion, and believing in their product or service. According to Cornwall and Perlman (1990), *affect* plays an important role in facilitating entrepreneurial success.

2.10.2 The enterprise culture

According to Peters (2001:58), the concept of enterprise culture emerged in the UK under Margaret Thatcher's administration as a core theme in political thought, thus ushering in a paradigm shift from the "Keynesian welfare state to a deliberate attempt at cultural restructuring and engineering based upon the neo-liberal model of entrepreneurial self – a shift characterised as a move from a 'culture of dependency' to one of 'self-reliance'", which works to promote entrepreneurial activity in an economy.

However, its use has generally been restricted to small and medium-sized enterprises as well as new venture creation, although the concept is broader than these aspects and requires "individuals, groups and organizations to take responsibility for their own destinies ('ownership'), whether in a business or non-business context" (Kirby, 2003:51). According to Timmons and Spinelli (2007) the enterprise culture is a proactive culture that is about "initiating, doing, achieving". Enterprise culture is also associated with the ability to "innovate, recognise and create opportunities, work in a team, take risks and respond to challenges" (UK Department of Employment, 1989:3).

2.10.3 The politico-economic factors

There are several politico-economic factors that influence entrepreneurship. Kent (1982) identifies the following factors influencing entrepreneurship in an economy:

- *Demand for final output:* Is there strong demand in the economy?
- *Availability of inputs:* Are resources available and affordable to make a new venture possible?
- *Inflation:* Is inflation making debt too expensive and inhibitive to fund new venture initiatives?
- *Taxation:* Are there tax considerations that favour or hurt new ventures?

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- *Regulation*: Are the regulatory barriers too restrictive for new ventures?
- *Political stability*: is public policy favourable for long-term investment needed for new ventures?

The above listed factors affect the level of entrepreneurial activity largely in relation to success (or failure) of new ventures. And they also may present entrepreneurial opportunities through the changes they trigger on the economy. However, by the time the venture is to be created, the entrepreneur should already be in a position to identify an entrepreneurial opportunity, take the risk, and undertake it.

An enabling environment for venture success in which the milieu for breeding entrepreneurs is lacking can, at best, only achieve very little in terms of impact of entrepreneurship on economic development and will largely depend on imported entrepreneurs bred elsewhere. Further, as Cornwall and Perlman (1990) observe, individual entrepreneurs, or indeed large entrepreneurial organisations, have either limited impact or no influence at all on these factors, thereby limiting the entrepreneurs' ability to take advantage of available entrepreneurial opportunities.

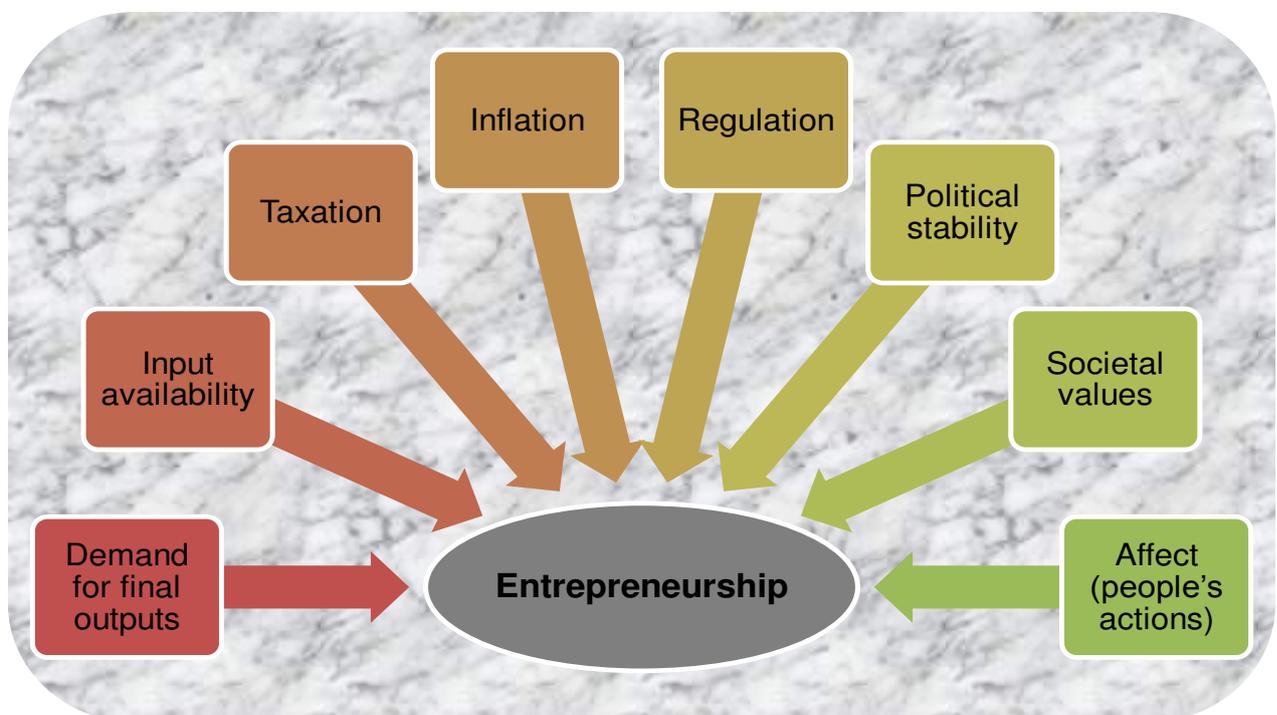


Figure 2-7: Factors influencing the level of entrepreneurship

Source: Cornwall & Perlman (1990); Kent, (1982); McClelland (1961)

2.10.4 The organisational factors

There are basically three aspects under organisational or institutional factors that can affect entrepreneurship development. These are the belief in 'big is better' or Fordism, corporate culture, and corporate prestige (Kirby, 2003). The belief in 'big is better', leads to the establishment of large-scale corporations with the view that socioeconomic development can only be achieved by economies of scale in production. According to Kirby (2003), these large-scale corporations tend to neglect entrepreneurship and small business development, although the onset of downsizing, outsourcing, and re-engineering, as well as increased research and development conducted by large corporations, tend to enhance the conditions for entrepreneurship development.

Anti-entrepreneurial corporate culture found in some large corporations also stifles the development of entrepreneurship, as it tends to be inflexible, hierarchical, and entrenched in rigid bureaucratic and formal lines of authority and reporting systems (Kirby, 2003). Coupled with corporate prestige, such a corporate culture tends to have not much latitude for entrepreneurial initiatives and does not deal well with small businesses (Kirby, 2003). However, as Kirby (2003) posits, there is growing interest in entrepreneurship development even among large corporations which are getting into strategic alliances and partnerships with small businesses in order to promote new-venture creation as well as enterprise culture.

2.11 Entrepreneurship enabling environment

The role of entrepreneurship in socioeconomic development and employment creation is critical. At the micro level, the development of entrepreneurial personal qualities and acquisition of practical abilities by entrepreneurs is necessary for them to become successful business persons and consequently enhance their wealth-creation capacity and increased productivity, which creates job opportunities. However, not every socioeconomic environment is appropriate for productive entrepreneurial activity.

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In order for entrepreneurship to make a meaningful contribution to employment creation and economic development, a country needs to create an enabling environment for innovative and sustainable entrepreneurial activities. This brings in the issue of the role of government and other parties with a vested interest in supporting entrepreneurship development. According to Inder and Khalib (2007), “entrepreneurial activities satisfy all the characteristics of a public good and is, therefore, likely to be under-produced unless public funds are provided”. Entrepreneurial businesses, whether small or large corporations, play a complementary role in an economy and together contribute toward job creation and economic development.

It is therefore government’s responsibility to provide an enabling environment for vibrant entrepreneurship. It is critical for policy makers to understand the role of entrepreneurship in economic development and the policy infrastructure necessary for its survival. The role of government is therefore to provide an enabling environment to promote or propagate the type of entrepreneurship that can lead to job and wealth creation in order to accelerate economic development. According to Ikiara (1994:122), a “society that is able to breed the critical mass of entrepreneurs greatly enhances its chances of economic prosperity”.

For most developing economies, including Southern Africa, the entrepreneurship support systems in place tend not to have created the right climate for entrepreneurial development, notwithstanding the many initiatives undertaken. This has resulted in relatively low income-generating activities undertaken by the entrepreneurs. As a result the vicious cycle of poverty and high unemployment has not been broken. In order for entrepreneurial activities to significantly impact on the economy, it is critical for an enabling environment to be created which should include several factors such as deregulation, fiscal and financial incentives, entrepreneurial education and training, provision of critical entrepreneurial facilities, product development and marketing, technological empowerment, and research and development, as shown in Figure 2-8 (Cornwall & Perlman, 1990; Inder & Khalib, 2007; Shane, 2003; Kirby, 2003).

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Regarding deregulation, the government should ensure that there are better procedures, legislation and regulation, which should promote development of high-value entrepreneurship. These should include property rights, rule of law, and legitimatisation of productive entrepreneurial activities (Shane, 2003). A recent empirical study found that individuals with business skills were less likely to enter entrepreneurship in countries with higher entry regulation, and furthermore, individuals who knew other entrepreneurs were less likely to start large businesses in countries with higher levels of entry and contract enforcement regulation (Ardagna & Lusardi, 2010:594).

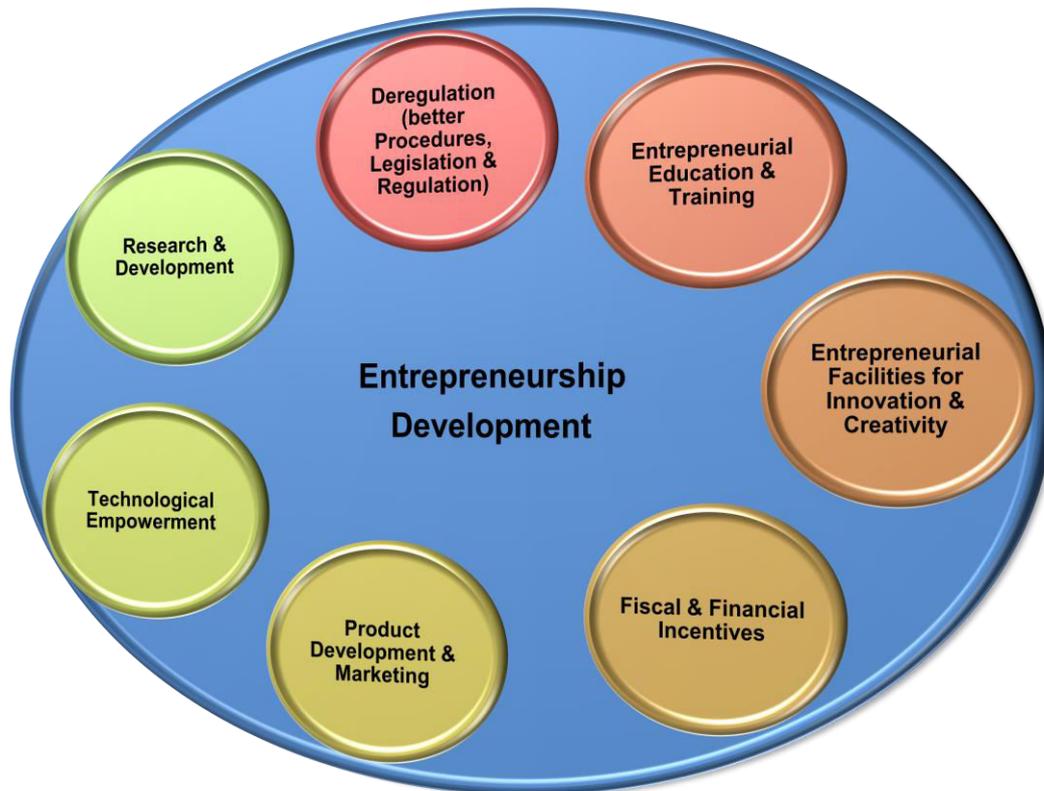


Figure 2-8: Factors affecting entrepreneurship development

Under fiscal and financial incentives, it is critical to realise that entrepreneurship development with the participation of both local and foreign entrepreneurs in any given economy requires that government offload appropriate fiscal and financial incentives. Research has shown that fiscal and financial incentives can promote economic growth through increased resource availability for entrepreneurial activities (Ghirmay, 2004; King & Levine, 1993a; Yang & Yi, 2007). On the other hand, fiscal and financial disincentives tend to have a negative effect on entrepreneurship. For instance, in a study involving a cross-section of 85 countries, effective corporate

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taxes were found to have a large and significantly adverse effect on aggregate investment, foreign direct investment (FDI), and entrepreneurial activity (Djankov, Ganser, McLiesh & Ramalho, 2010:31). The effective corporate taxes tend to reduce business density and the average entry rate, thereby negatively affecting entrepreneurship (Djankov *et al.*, 2010:48). In another recent empirical study, corporate income taxation was found to have a significant negative effect on entrepreneurship through reduced entry rates (Da Rin, Di Giacomo & Sembenelli, 2011:1048). According to King and Levine (1993b), improved financial systems increase the probability of successful innovation, which in turn accelerates economic growth. Entrepreneurship plays a critical role in an economy by instigating economic growth and expansion. Government should therefore take a proactive and supportive stance by creating an enabling environment for entrepreneurship development: that is, government should provide a “facilitative framework” in which enterprises could “grow unfettered by government or trade union interference” (Scase, 2000:35).

2.12 Entrepreneurship in Zambia

In Zambia the culture of entrepreneurship and business practice is not well developed among the citizens, a situation largely attributed to a cultural mindset of dependency and a low propensity for risk taking (MCTI, 2009). As a result, the country has generally exhibited relatively low levels of entrepreneurial abilities and business management competencies (MCTI, 2009).

Few studies are available focusing on entrepreneurship in Zambia, and even the few that are available generally dwell on the MSME sector, not necessarily entrepreneurship broadly. This tends to be the perspective of government, nongovernmental organisations, business associations, and the private sector. Entrepreneurship tends to be operationalised in the context of MSME development, and this is apparent when you look at most of the government policy pronouncements and other enterprise development initiatives. For instance, the Zambian government has an elaborate MSME policy (MCTI, 2009) but has no entrepreneurship development policy.

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In trying to instigate enterprise development in the economy, the government, among other instruments, established the Zambia Development Agency (ZDA) through the ZDA Act No. 11 of 2006 and the Citizens Economic Empowerment Commission (CEEC) through the Citizens Economic Empowerment (CEE) Act No. 9 of 2006. While the ZDA focuses on fostering industrial development largely through FDI and the establishment of Multi-Facility Economic Zones (MFEZs), as well as non-finance MSME initiatives, the CEEC, on the other hand, focuses on broad-based economic empowerment of Zambians (MSMEs) through various empowerment measures, such as access to finance (for both asset acquisition and working capital requirement), and non-finance measures (including promoting equity, enterprise ownership, management and control, preferential procurement, and skills development). There are other key institutions involved in attempting to foster entrepreneurship in Zambia through training or skills development, fostering innovation and technology transfers. These include the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), the National Technology and Business Centre (NTBC), and higher learning education institutions.

For many years entrepreneurship as a course or degree programme was not taught in Zambian colleges and universities, and only recently have some universities and colleges started offering such programmes. These include Mulungushi University (a public institution) and the privately owned Lusaka University, which offer a bachelor's degree in Entrepreneurship. Regarding the entrepreneurship training offered by TEVETA, it is evident that this initiative is aimed at enhancing the ability of the "active labour force", aged "between 15 and 64" years, "to set up and run viable growth oriented business enterprises as a deliberate career option" (www.teveta.org.zm/index.php/entrepreneurship-training). In other words, the government's entrepreneurship efforts through TEVETA have been aimed at trying to impart entrepreneurial skills basically to adults who have lived their initial 15 years or more largely without such an orientation, especially as the Zambian cultural mindset tends to be that of dependency and a low propensity for risk taking (MCTI, 2009).

Therefore, there has been a gap in terms of entrepreneurial skills development, as learners below the age of 15 are not the focus of TEVETA entrepreneurship training programmes. The age group of 15 years and below is under the care of pre-primary,

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primary and secondary education, but unfortunately for the past 49 years of independence the Zambian education system has not been able to incorporate Entrepreneurship in the curriculum for this age group. This means that Zambia has been without an elaborate and proactively aggressive entrepreneurship development framework for half a century, notwithstanding the many education and industrial development reforms the country has undertaken since independence. Entrepreneurship training has essentially been missing from the country's pre-primary, primary, secondary, and even tertiary education since independence.

Fundamentally, the lack of such an aggressive entrepreneurship development framework is the main cause of the low level of entrepreneurial abilities and development in the country. In fact from the time Zambia became independent in 1964, up until 1991 when there was a change of government from President Kaunda's United National Independence Party (UNIP) to President Chiluba's Movement for Multi-Party Democracy (MMD), Zambia's economic orientation was socialist or state capitalist, in which the government played the leading role in stimulating economic activities (Keyser, De Kruif & Frese, 2000:31), and there was therefore no deliberate initiative on the side of government to encourage entrepreneurship. In other words, the entrepreneurial spirit in relation to business ownership was only ignited by the MMD government in 1991. By 1995 the country only had a few large companies, very few medium-size businesses, and a large number of very small microbusinesses (Keyser *et al.*, 2000:32). According to Keyser *et al.* (2000:32), small businesses "were actively encouraged for the first time in Zambia" under Chiluba's government.

However, the characteristics of these small businesses clearly reveal the fact that the majority of Zambians could not engage in innovative entrepreneurial activities: by 1995 nearly 50% of these small and micro-businesses were into trading, 41% in manufacturing, 10% in service (Parker, 1996), and even towards the end of the MMD's rule, most of the small businesses had low sales and were "more like home-based income generating activities rather than formal business located on separate business premises" (Clarke *et al.*, 2010:18-19). One of the missing entrepreneurial ingredients among these emerging entrepreneurs was managerial skills, which tended to restrict growth (Keyser *et al.*, 2000:32), and also the sheer lack of an

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enabling environment for entrepreneurship development. Entrepreneurship is not just about small business development; it is about creating an enabling environment for people to be able to perceive entrepreneurial opportunities to improve their lives and also to be empowered to act on their visions (Acs, Szerb & Jackson, 2013:219).

Recent statistics show, however, that the country's entrepreneurship profile has significantly improved due to a number of factors, including relatively enhanced entrepreneurial skills, access to finance, reduction in cost of doing business, and simplified government regulation. The MSME sector has become larger, although 90% of that is still informal (MCTI, 2009), meaning its contribution to the economy is largely unrecorded. However it is evident that entrepreneurship in the country plays an important role in instigating economic development: by 1996, the sector accounted for 97% of enterprises in the country and employed 18% of Zambia's labour force (Parker, 1996). A recent Zambia Business Survey report based on 2005 national figures indicates that 88% of Zambia's workforce is employed in the informal MSME sector, while the country's large business organisations employ only 7% of workforce statistics (Clarke *et al.*, 2010:15).

In terms of its regulatory framework, Zambia has made significant steps towards facilitating entrepreneurial activities by working at removing the bureaucratic difficulties faced by entrepreneurs. For instance, about five years ago it used to take six procedures and 35 days to start a business and 16 licences to run it (Svensson, 2008:2). Obviously, such tight regulation regarding business registration negatively affected entrepreneurship development in the country.

However, the period it takes to register a business in Zambia has since been significantly reduced to only a day, owing to the introduction of one-stop shop business registration and electronic business licensing (e-Registry) initiatives by the government's Private Sector Development Reform Program (PSDRP) [<http://www.psdzambia.org>], while the cost of doing business has also correspondingly been substantially reduced, making it a lot easier to establish business entities. The improvement in company registration procedures has seen a corresponding increase in business registration, as can be seen from statistics by the Patents and Companies Registration Agency (PACRA), which show a substantially upward trend

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from 23 458 businesses registered in 2011 to 24 793 in 2012, and 27 000 in 2013 (<http://www.pacra.org.zm>). However, the registration of 27 000 businesses in 2013 was also accompanied by deregistration of 1 400 limited companies for non-compliance with the requirement to file annual returns (<http://www.pacra.org.zm>), essentially implying that these companies were non-operational or non-existent.

To try to entrench entrepreneurial skills in primary and secondary school learners, the government recently introduced a new curriculum with two pathways: the academic pathway, meant for learners with a passion for academic subjects and desire for careers in that direction, and the vocational pathway, meant for ambitious learners and those interested in technical and other hands-on subjects – aimed at providing the learners with practical skills right from grades 8 to 12 (Zulu, 2014). The new curriculum for the Early Childhood Education (pre-school) is meant to introduce learners to social interaction through play activities and also academic activities using local languages as the medium of instruction up to grade 4, and thereafter using English as the medium of instruction (learners will be taught English as a subject beginning at grade 2) (Zulu, 2014). The impact these changes to the education system will have on entrenching an entrepreneurial mindset in the Zambian society is yet to be seen, as they are just being introduced. The government, however, expects that the new curriculum will lead to increased literacy levels and practical skills needed for national development (Zulu, 2014).

However, Zambia's current entrepreneurial environment, like that obtaining in many other African countries, tends to suggest that entrepreneurship is not appropriately utilised as an initiative for economic development, and there is also the added challenge of limited documented information and research on entrepreneurial activities in the country. There is an urgent need to develop an appropriate environment that will promote high-value entrepreneurship. The predicament of entrepreneurship development in Zambia is clearly revealed by the GEM 2013 Global Report (Amorós & Bosma, 2014:34), which shows that, among the participating countries, Zambia had the most extreme case of having “the highest early-stage entrepreneurship rates across the entire sample, yet has less than one-tenth this level of established business owners”. This phenomenon partly reflects the demographic trend in sub-Saharan Africa of “growth in the youth population facing

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limited opportunities only on the job market”, and also “limited sustainability of many start-up attempts” (Amorós & Bosma, 2014:13, 34). In this case, high rates of early-stage entrepreneurship do not necessarily imply high numbers of sustainable established businesses (Amorós & Bosma, 2014:34).

Zambia also showed another extreme case of necessity-driven entrepreneurs (-1.26) and also low score (-1.31) on opportunity-based TEA (Amorós & Bosma, 2014:64). This clearly underlines the need for establishing the enabling environment for entrepreneurship, which should include the development and implementation of entrepreneurship policy, formalisation of the informal MSME sector, deregulation (including better procedures, legislation and regulation, property rights, rule of law, and legitimatisation of productive entrepreneurial activities), fiscal and financial incentives, entrepreneurial education and training, creating an entrepreneurial culture, provision of critical entrepreneurial facilities, product development and marketing, technological empowerment, and research and development.

The literature abounds in significant evidence that governments have a critical role to play in fostering entrepreneurship at all levels, while some scholars argue that “entrepreneurship policy is likely to emerge as the most important policy instrument for a global and knowledge-based economy” (Minniti & Lévesque, 2008:605). Zambia is one of the most entrepreneurial countries in the world, with over 41% of its adult population (18 to 64 years) engaged in business activity and, as indicated, has one of the highest TEA levels (41%) in the world (Xavier *et al.*, 2013:8), coupled with an extreme prevalence of necessity-driven entrepreneurs and also low opportunity-driven entrepreneurs (Amorós & Bosma, 2014:64). This is a situation of serious concern, as most of its adult population (18 to 64 years) who are in the process of starting or who have just started a business end up not succeeding. In other words, the country is faced with high rate of business formation (increase in business registration with PACRA) but also relatively high venture failure rate (high number of business deregistration by PACRA for those start-ups that are not sustainable).

In fact, a recent report on African entrepreneurship (Foy, 2013:68) indicates that Zambia’s business closure (discontinuance) rate at 20% is among the highest in the world, in comparison with sub-Saharan Africa (16%), and the Middle East and North

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Africa (6%). Zambia's start-up survival is one of the lowest among the countries where GEM data exists (Foy, 2013:64). The high failure rate is attributed to unfavourable access to finance (Foy, 2013), as well as lack of entrepreneurial skills (MCTI 2009). The government could therefore take this as an opportunity to urgently continue its efforts to create an enabling environment for high-value entrepreneurship, which will bring about enhanced enterprise survival and sustainability, leading to wealth creation, socioeconomic benefits to stakeholders, and economic growth and development.

For long term benefits, and in order to deeply entrench an entrepreneurial culture among its citizenry, government could take practical steps by making entrepreneurship an elaborate strategy for economic development by establishing and implementing an entrepreneurship policy. In contrast to an SME policy (which essentially focuses on already existing small businesses), the scope of an entrepreneurship policy is much broader and encompasses activities at all levels of government from local to national, and even beyond (Gilbert, Audretsch & McDougall, 2004; Stevenson & Lundström, 2007). According to Stevenson and Lundström (2007:105), an entrepreneurship policy focuses on the “pre-start, the start-up and early post-start-up phases of the entrepreneurial process, designed and delivered to address the areas of motivation, opportunity and skills, with the primary objective of encouraging more people in the population to consider entrepreneurship as an option, move into the nascent stage of taking actions to start a business and proceed into the entry and early stages of the business”.

A new set of policies, such as poverty alleviation policy, economic development partnerships, and regulatory policy, should be designed aimed at promoting entrepreneurial activity, enabling start-ups and survival or viability of entrepreneurial organisations, rather than stifling existing ones (Gilbert *et al.*, 2004:313). While provisions pertaining to business entry and exit are fundamental to enabling emergence of new enterprises, it is critical to also focus on increasing the supply of entrepreneurs in an economy which instigates new business entry.

2.13 Conclusion

Entrepreneurship is not a new concept and tends to cut across different disciplines. The discussion in this chapter clearly highlighted a number of pertinent attributes of the phenomenon, while at the same time pointing out the fact that so far there is no agreed definition of the term, and nor is there one for entrepreneur. However, a definition of the phenomenon focusing on what entrepreneurs undertake tends to be much clearer and more unifying: that is, entrepreneurs (in all the identified three forms of entrepreneurship) scan their environment to identify opportunities for the purposes of creating wealth. Entrepreneurs are people with certain personality and behavioural characteristics whose impact or result is entrepreneurship, which plays a critical role in economic development. Entrepreneurship is “the fuel for economic growth and expansion” (Cornwall & Perlman, 1990:15). Critical to the entrepreneurial process is risk taking, while innovation is key to entrepreneurship.

Thus entrepreneurship embraces both the exploration and exploitative dimensions, and can be viewed from many different perspectives, such as micro or macro viewpoints, or process approaches. Entrepreneurship is opportunity-driven behaviour and has many facets, largely arising from the fact that there are many theoretical perspectives from different scholarly disciplines. Furthermore, entrepreneurship is more than just an occupation, such as self-employment and start-ups. In fact, although the self-employed contribute to overall performance of an economy, some could actually be more productive by working as an employee (Amorós & Bosma, 2014). Entrepreneurship is a process of value creation by marshalling a unique combination of resources to exploit opportunity, and as a process, entrepreneurship is manageable as well as ongoing, applicable to any organisational context, and can be broken down into phases (Morris *et al.*, 2011:9).

Chapter 3 will deal with organisational entrepreneurship or entrepreneurship within established organisations in detail, provide theoretical foundation for the study, and also state the hypotheses to be tested.

CHAPTER 3: CORPORATE ENTREPRENEURSHIP THEORY AND HYPOTHESES

3.1 Introduction

The previous chapter broadly dealt with the theoretical underpinnings of entrepreneurship, a vast field of study that attracts various disciplines. The chapter also showed that, although the concept of entrepreneurship is plagued with numerous variations of definitions, the phenomenon plays a critical role in an economy and society. Entrepreneurship can be formal or informal while the entrepreneurial venture can be pursued by individual(s) or established organisation.

This chapter (chapter 3) specifically focuses on entrepreneurship within established organisations (corporate entrepreneurship) as this is the domain of the study aimed at predicting sustainable CE and sustained company performance. Therefore, the chapter presents a detailed review of the literature on the construct *corporate entrepreneurship* and provides the theoretical foundations of the study.

Furthermore, the review of the literature in this chapter also focuses on antecedents within the internal organisational climate and those from the external environment that are considered to influence sustainable CE and consequently sustained company performance. In this regard, the chapter provides the theoretical basis of the hypothesised predictions as well as detailed conceptual definitions of all the concepts of interest in the postulated SEM model, namely: the organisational antecedents (management support, organisational boundaries, autonomy, rewards/reinforcement, and time availability) external environment (dynamism, hostility, and heterogeneity), entrepreneurial actions, sustainable CE, and sustained company performance.

The hypotheses to be tested are also presented, as well as the study's conceptual model and the hypothesised relationships for sustainable CE and sustained company performance.

3.2 Corporate entrepreneurship definition

Over time, the scope of CE has expanded significantly and become more refined, compared with the “somewhat ambiguous views of the domain” held by early scholars (Corbett *et al.*, 2013:812). According to Corbett *et al.* (2013:812), what was considered entrepreneurial by the early CE scholars was either not explicitly defined or was not differentiated from other phenomena commonly associated with innovation in organisations (e.g., new product development). However, by the mid-1980s, following the publication of a book on intrapreneuring by Pinchot (1985), CE became a separate research topic, with growing interest. Although according to Christensen (2005:306) the forming of CE ideas dates back to the mid-1970s, other scholars (Corbett *et al.*, 2013) argue that it was in fact Guth and Ginsberg (1990:5) who shed more light by viewing CE as a phenomenon with two important aspects, namely: (1) corporate venturing (CV) (referring to “the birth of new businesses” within established organisations), and (2) strategic renewal (referring to “the transformation of organizations through renewal of the key ideas on which they are built”). Later, further insight was provided by Sharma and Chrisman (1999:18), who defined CE as “the process whereby an individual or group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization.”

It is evident that although the concept of CE tends to be well understood among entrepreneurship scholars (Menzel, Aaltio & Ulijn, 2007), different opinions do exist among CE researchers regarding what attributes must exist in order to label an organisation entrepreneurial (Covin & Miles, 1999:49). There are many different definitions and terms used for the phenomenon, while the CE construct itself takes many forms (Sharma & Chrisman, 1999:13; Menzel *et al.*, 2007:733). Accordingly, scholars argue that CE is still a concept in search of a clear meaning and construction, while others acknowledge that CE conceptualisations and scope have extensively expanded over the years, resulting in increased scholarly enquiry interest (Corbett *et al.*, 2013:813). The many terms used to refer to different aspects of the phenomenon include organisational entrepreneurship (Morris *et al.*, 2011:11), corporate entrepreneurship (Phan *et al.*, 2009), corporate venturing (Parker, 2011:19; Narayanan, Yang & Zahra, 2009), intrapreneurship (Parker, 2011:19;

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Antoncic & Hisrich, 2003), strategic renewal (Crossan & Berdrow, 2003:1087), internal corporate entrepreneurship (Lumpkin & Dess, 1999), and corporate posturing (Covin & Slevin, 1990).

Sharma and Chrisman (1999:18), in their seminal article: *Towards a reconciliation of the definitional issues in the field of corporate entrepreneurship*, discussed various definitions of CE and concluded that CE is a process whereby an individual or a group of individuals, in association with an established enterprise, create a new organisation or instigate renewal or innovation within the current organisation. Other scholars have operationalised CE as a multidimensional construct involving organisation-based entrepreneurial activities relating to the organisation's innovative, venturing and strategic renewal (Simsek, Veiga & Lubatkin, 2007).

The literature on CE, however, attests to the fact that significant efforts have been made to try to harmonise different opinions regarding the attributes that must be present in order to label an organisation entrepreneurial (e.g., Cogliser, Brigham, Keith & Lumpkin, 2008; Covin & Lumpkin, 2011; Kuratko & Audretsch, 2013; Kuratko & Hodgetts, 2007; Lumpkin & Dess, 1996; Sharma & Chrisman, 1999). Kuratko and Hodgetts (2007:55) observe that CE encompasses three main aspects of the phenomenon, namely: (i) *strategic renewal*, which relates to organisational renewal involving major strategic and/or structural changes; (ii) *innovation*, which relates to the introduction of something new to the marketplace; and (iii) *corporate venturing*, which relates to corporate entrepreneurial efforts that lead to the creation of new businesses within the corporate business.

Noticeably, Kuratko and Hodgetts' (2007) definition of the corporate venturing aspect of CE is different from other conceptualisations that categorise CV as incorporating both internal and external CE, implying that such entrepreneurial efforts do not just lead to the creation of new businesses within the corporate business but also external to the corporate business (e.g., Covin & Miles, 2007:183; Phan *et al.*, 2009:198-199; Sharma & Chrisman, 1999:19-20). According to Zahra (1991:261), CE takes place at different levels of an organisation such as corporate, division (business) or project levels and may be formal or informal, intended to create new businesses in established organisations through product and process innovations

and market development. A round-up of existing definitions as presented in Table 3-1 reveals that entrepreneurship within existing organisations is operationalised differently by different scholars.

Table 3-1: Different definitions and labels used for CE

Author(s)	Suggested Definition
CORPORATE ENTREPRENEURSHIP	
Burgelman (1983:1349)	CE refers to the process whereby the organisation engages in diversification through internal development. Such diversification requires new resource combinations to extend the organisation's activities in areas unrelated, or marginally related, to its current domain of competency or corresponding opportunity.
Vesper (1984:295)	CE involves employee initiatives from below in the organisation to undertake something new. An innovation that is created by subordinates without being asked, expected, or perhaps even given permission by higher management to do so.
Jennings & Lumpkin (1989:489)	CE is defined as the extent to which new products and/or new markets are developed. A business is entrepreneurial if it develops a higher than average number of new products and/or new markets.
Guth & Ginsberg (1990:5)	CE encompasses two types of phenomena and the processes surrounding them, namely: (1) corporate venturing (referring to the birth of new businesses within existing organisations), and (2) strategic renewal (referring to the transformation of organisations through renewal of the key ideas on which they are built).
Zahra (1991:260-261)	The process of creating new businesses within established organisations to improve organisational profitability and enhance a company's competitive position or the strategic renewal of existing business.
Zahra (1991:262)	CE is a formal or informal activity aimed at creating new businesses in established organisations through product and process innovations and market developments, as well as strategic renewal of an existing business. These activities may take place at the corporate, division (business unit), functional or project levels, with the unifying objective of improving a company's competitive position and financial performance.
Zahra (1993a:321)	CE is a process of organisational renewal that has two distinct but related dimensions: innovation and venturing, and strategic renewal.
Zahra (1995:227 & 1996:1715)	CE is the sum of a company's innovation, renewal, and venturing efforts. Innovation involves creating and introducing products, production processes and organisational systems. Renewal means revitalising the company's operations by changing the scope of its business, its competitive approaches or both. It also means building and acquiring new capabilities and then creatively leveraging them to add value for shareholders. Venturing means that the firm will enter new businesses by expanding operations in existing or new markets.
Carrier (1996:6)	A process of creating new business within established firms to improve organisational profitability and enhance a company's competitive position.
Sharma & Chrisman (1999:18)	CE is the process whereby an individual or group of individuals, in association with an existing organization, create a new organisation or instigate renewal or innovation within that organisation.

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Author(s)	Suggested Definition
Covin & Miles (1999:50)	CE refers to the presence of innovation plus the presence of the objective to rejuvenate or purposely redefine organisations, markets, or industries in order to create or sustain competitive superiority; CE comprises four distinct forms, namely: (1) sustained regeneration, (2) organisational rejuvenation; (3) strategic renewal; and (4) domain redefinition.
Hornsby, Kuratko & Zahra (2002:255)	CE centres on re-energising and enhancing the ability of a firm to acquire innovative skills and capabilities.
Antoncic & Zorn (2004:6)	CE refers entrepreneurship activities within an existing organisation. ... refers not only to the creation of new business ventures, but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies and competitive postures.
Kuratko & Hodgetts (2007:55)	CE is a process whereby an individual or a group of individuals, in association with an existing organisation, creates a new organisation or instigates renewal or innovation with the organisation.
Morris, Kuratko & Covin (2011:11)	CE is a term used to describe entrepreneurial behaviour inside established mid-sized and large organisations
Morris, Kuratko & Covin (2011:98-101)	Expands Covin and Miles' (1999:50) definition by adding a fifth form of CE known as business model reconstruction (referring to a form of CE whereby a firm applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.
Phan, Wright, Ucbasaran, & Tan (2009:198-199)	CE refers to the process of organisational renewal and relates to two distinct but related phenomena (quoted Guth & Ginsberg, 1990:5). First is innovation and corporate venturing (CV) activities. Second, CE embodies renewal activities that enhance a corporation's ability to compete and take risks, which may or may not involve the addition of new businesses to a corporation.
Corbett, Covin, O'Connor & Tucci (2013:812-813); Morris, Kuratko & Covin (2011:99)	CE comprises corporate venturing (referring to the same new-business aspect appearing in previous definitions) and strategic entrepreneurship (referring to a much broader variety of specific phenomena to which Sharma and Chrisman (1999) also refer, and includes all the entrepreneurial initiatives that do not necessarily involve new businesses being added to the corporation, such as strategic renewal, sustained regeneration, domain redefinition, organisational rejuvenation, and business model reconstruction.
Urbano & Turró (2013)	CE includes entrepreneurial behaviour and orientation in established organisations.
INTERNAL CORPORATE ENTREPRENEURSHIP	
Schollhammer (1982:211)	Internal (or intra-corporate) entrepreneurship refers to all formalised entrepreneurial activities within existing business organisations. Formalised internal business activities are those which receive explicit organisational sanction and resource commitment for the purpose of innovative corporate endeavours – new product developments, product improvements, new methods or procedures.
Jones & Butler (1992:734)	Internal corporate entrepreneurship refers to entrepreneurial behaviour within one firm.

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Author(s)	Suggested Definition
CORPORATE VENTURING	
Von Hippel (1977:163)	Corporate venturing is an activity which seeks to generate new businesses for the corporations in which it resides through the establishment of external or internal corporate ventures.
Biggadike (1979:104)	A corporate venture is defined as a business marketing a product or service that the parent company has not previously marketed, and that requires the parent company to obtain new equipment or new people or new knowledge.
Ellis & Taylor (1987:528)	Corporate venturing was postulated to pursue a strategy of unrelatedness to present activities to adopt a structure of an independent unit and to involve a process of assembling and configuring novel resources.
Block & MacMillan (1993:14)	A project is a corporate venture when it (1) involves an activity new to the organisation, (2) is initiated or conducted internally, (3) involves significantly higher risk of failure or large losses than the organisation's base business, (4) is characterised by greater uncertainty than the organisation's base business, (5) will be managed separately at some time during its life, and (6) is undertaken for the purpose of increasing sales, profit, productivity, or quality.
Stopford & Bade-Fuller (1994:521)	The creation of new businesses within an existing organisation.
Sharma & Chrisman (1999:19).	CV refers to corporate entrepreneurial efforts that lead to the creation of new business organisations within the corporate organisation. They may follow from or lead to innovations that exploit new markets, or new product offerings, or both. These venturing efforts may or may not lead to the formation of new organisational units that are distinct from existing organisational units in a structural sense (e.g., a new division).
Covin & Miles (2007:183); Sharma & Chrisman (1999:19).	CV involves entrepreneurial efforts in which established business organisations invest in and/or create new businesses. When the new business is created within the parent company's organisational domain, internal CV is the label attached to the phenomenon. External CV involves investments that facilitate the founding and/or growth of external businesses – that is those outside the parent company's organisational domain.
VENTURE, INTERNAL VENTURES, INTERNAL CORPORATE VENTURING, NEW BUSINESS VENTURING	
Roberts & Berry (1985:6)	Internal ventures are a firm's attempt to enter different markets or develop substantially different products from those of its existing different base business by setting up a separate unit within the existing corporate body.
Zajac, Golden & Shortell (1991:171)	Internal corporate venturing involves the creation of an internally staffed venture unit that is semi-autonomous, with the sponsoring organisation maintaining ultimate authority.
Hornsby, Naffziger, Kuratko & Montagno (1993:30)	Venture may be applied to the development of new business endeavours within the corporate framework.
Stopford & Baden-Fuller (1994:522)	New business venturing occurs when individuals and small teams form entrepreneurial groups inside a business, capable of persuading others to alter their behaviour, thus the creation of new corporate resources.
Zahra (1996b:1715)	Venturing means that the firm will enter new businesses by expanding operations in existing or new markets.

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Author(s)	Suggested Definition
ENTREPRENEURIAL ORIENTATION	
Merz & Sauber (1995:554)	EO is defined as the firm's degree of proactiveness (aggressiveness) in its chosen product market-unit (PMU) and its willingness to innovate and create new offerings.
Lumpkin & Dess (1996:136-137)	The process, practices and decision-making activities that lead to new entry... It involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation... The key dimensions that characterise an EO include a propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities.
Zahra & Neubaum (1998:124)	EO is the sum total of a firm's radical innovation, proactive strategic action and risk-taking activities that are manifested in support of projects with uncertain outcomes.
Dess & Lumpkin (2005:147)	EO refers to the strategy-making practices that businesses use to identify and launch corporate ventures. It represents a frame of mind and perspective about entrepreneurship that are reflected in a firm's ongoing processes and corporate culture.
Voss, Voss & Moorman (2005:1134)	EO is defined as a firm-level disposition to engage in behaviours [reflecting risk-taking, innovativeness, proactiveness, autonomy, and competitive aggressiveness] that lead to change in the organisation or market place ([] added by Covin & Wales, 2012:679).
Avlonitis & Salavou (2007:567)	EO constitutes an organisational phenomenon that reflects a managerial capability by which firms embark on proactive and aggressive initiatives to alter the competitive scene to their advantage.
Cools & Van den Broeck (2007/2008:27)	EO refers to the top management's strategy in relation to innovativeness, proactiveness, and risk taking.
Rauch, Wiklund, Lumpkin & Frese (2009:762)	EO refers to the strategy-making processes that provide organizations with a basis for entrepreneurial decisions and actions.
Corbett, Covin, O'Connor & Tucci (2013:813)	EO is the engine that drives specific acts of CE.
Wiklund, Patzelt & Shepherd (2013:18)	EO refers to the degree of entrepreneurial activity in a firm, or a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices.
INTRAPRENEURSHIP	
Pinchot (1985:xv)	Entrepreneurship inside large corporation.
Nielson, Peters & Hisrich (1985:181)	The development within a large organisation of internal markets and relatively small and independent units designed to create, internally test-market, and expand improved and/or innovative staff services, technologies or methods within the organisation. This is different from the large organisation entrepreneurship/venture units whose purpose is to develop profitable positions in external markets.
Rule & Irwin (1988:44)	Intrapreneurship is the means and methods by which the organisation identifies new ideas, products and philosophies.
Kuratko, Hornsby & Montagno (1990:50)	Entrepreneurship inside the corporation.

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Author(s)	Suggested Definition
Carrire (1996:7)	The introduction and implementation of a significant innovation of the firm by one or more employees working within an established organisation.
Hostager, Neil, Decker & Lorentz (1998:11-12)	Individuals and groups working within the organisation identify ideas for new products or services, and turn these ideas into profitable products and services.
Antoncic & Hisrich (2001:498)	Entrepreneurship within an existing organisation. Refers to a process that goes on inside an existing firm, regardless of its size, and leads not only to new business ventures but also to other innovative activities and orientations such as development of new products, services, technologies, administrative technologies, strategies and competitive postures.
Antoncic & Hisrich (2003:9)	Entrepreneurship within an existing organisation regardless of its size, referring to emergent behavioural intentions and behaviours of an organisation that are related to departures from the customary, and leads not only to new business ventures but also to other innovative activities and orientations such as development of new products, services, technologies, administrative technologies, strategies and competitive postures.
Antoncic (2007:310)	In broad terms, intrapreneurship is entrepreneurship within an existing organisation.
Bosma, Stam & Wennekers (2010:8)	Special type of entrepreneurship which refers to initiatives by employees in organisations to undertake new business activities. Intrapreneurship relates to the individual level and is about bottom-up, proactive work-related initiatives in individual employees.
Gómez-Haro, Aragón-Correa & Cordón-Pozo (2011:591)	Broadly refers to entrepreneurship within an existing organisation, and includes entrepreneurial behaviours and orientations of existing organisations.
Parker (2011:19)	Intrapreneurship – also known as corporate entrepreneurship and corporate venturing – is the practice of developing a new venture within an existing organisation, to exploit a new opportunity and create economic value. Entrepreneurship involves developing a new venture outside an existing organisation.
STRATEGIC ENTREPRENEURSHIP (SE)	
Hitt, Ireland, Camp & Sexton (2001:480-481)	SE is entrepreneurial action with a strategic perspective... SE is the integration of entrepreneurial (i.e., opportunity-seeking behaviour) and strategic (i.e., advantage-seeking) perspectives in developing and taking actions design to create wealth.
Ireland, Hit & Sirmon, (2003:963)	SE involves simultaneously opportunity-seeking and advantage-seeking behaviours that result in superior firm performance.
Ireland & Web (2007:50)	SE is a term used to capture firm's efforts to simultaneously exploit today's competitive advantages while exploring for the innovations that will be the foundation for tomorrow's competitive advantages.
Morris, Kuratko & Covin 2011:99)	SE corresponds to a broader array of entrepreneurial initiatives that do not necessarily involve new businesses being added to the firm. All forms of SE have one thing in common: they all involve organisationally consequential innovations that are adopted in the pursuit of competitive advantage. SE involves simultaneous opportunity-seeking and advantage-seeking (quoted Ireland, Hitt & Sirmon, 2003).

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Author(s)	Suggested Definition
Kuratko & Audretsch (2009:8)	While corporate venturing involves company involvement in the creation of new businesses, SE corresponds to a broader array of entrepreneurial initiatives, which do not necessarily involve new businesses being added to the firm. All forms of SE have one thing in common: they all involve the exhibition of organisationally consequential innovations that are adopted in the pursuit of competitive advantage.
Phan, Wright, Ucbasaran & Tan (2009:199)	SE involves the identification and exploitation of opportunities, while simultaneously creating and sustaining a competitive advantage. It may involve strategic renewal, sustained regeneration, domain redefinition, organisational rejuvenation, and business model reconstruction.
Hitt, Ireland, Sirmon & Trahms (2011:57)	SE is concerned with advantage-seeking and opportunity-seeking behaviours resulting in value for individuals, organisations, and/or society. This means that SE involves actions taken to exploit current advantages while concurrently exploring new opportunities that sustain an entity's ability to create value across time.
Corbett, Covin, O'Connor & Tucci (2013:812)	SE category of CE refers to a wide variety of specific phenomena that include, among others, strategic renewal and the Schumpeterian (disruptive) innovation phenomenon... Additionally, strategic entrepreneurship as part of CE construct recognises not only the disruptive aspects of Schumpeterian innovation, but also the generative, path creating, new business creation aspect that may be inherent in breakthrough innovation, where firms struggle to understand how to execute opportunities in the face of high levels of uncertainty on multiple dimensions.
Corbett, Covin, O'Connor & Tucci (2013:812-813)	SE category of CE includes a broad array of entrepreneurial initiatives that do not necessarily involve new businesses being added to the corporation. The recognised forms of SE – strategic renewal, sustained regeneration, domain redefinition, organisational rejuvenation, and business model reconstruction – all involve the exhibition of organisationally consequential innovations that are adopted in pursuit of competitive advantage.
STRATEGIC OR ORGANISATIONAL RENEWAL	
Guth & Ginsberg (1990:6)	Strategic renewal involves the creation of new wealth through new combinations of resources.
Zahra (1993a:321)	Renewal has many facets, including the redefinition of the business concept, reorganisation and the introduction of system-wide changes for innovation. Renewal is achieved through a redefinition of a firm's mission through the creative redeployment of resources, leading to new combinations of products and technologies.
Stopford & Baden-Fuller (1994:522)	Organisational renewal alters the resource pattern of business to achieve better and overall sustainable economic performance. To be sustainable, more pervasive effort is needed, involving more than a few individuals and the finance function.
Zahra (1995:227 & 1996b:1715)	Renewal means revitalising a company's business through innovation, and changing its competitive profile. It means revitalising a company's operations by changing the scope of its business, its competitive approaches or both. It also means building or acquiring new capabilities and then creatively leveraging them to add value for shareholders.

Sources: Some definitions adapted from Maes (2003:22-24); Sharma & Chrisman (1999:13-14)

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Most recent conceptualisations of CE have revealed that the scope for the CE domain has expanded (Corbett *et al.*, 2013:812; Morris *et al.*, 2011:99), while there is growing interest in CE as a strategy that can lead to enhanced company performance, achievement and perpetuation of competitive superiority (Corbett *et al.*, 2013; Ireland *et al.*, 2009), and growth (Zahra & Covin, 1995). For instance, Morris *et al.* (2011:99) and Phan *et al.* (2009:197) suggest that CE comprises two categories of the phenomenon, that is, CE is manifested either through corporate venturing or strategic entrepreneurship, as shown in Figure 3-1.

While corporate venturing refers to the same new-business aspect appearing in previous definitions, strategic entrepreneurship (SE), on the other hand, refers to a much broader “variety of specific phenomena” to which Sharma and Chrisman (1999) also refer, and includes all the “entrepreneurial initiatives that do not necessarily involve new businesses being added to the corporation” such as “strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation, and business model reconstruction” (Corbett *et al.*, 2013:812-813).

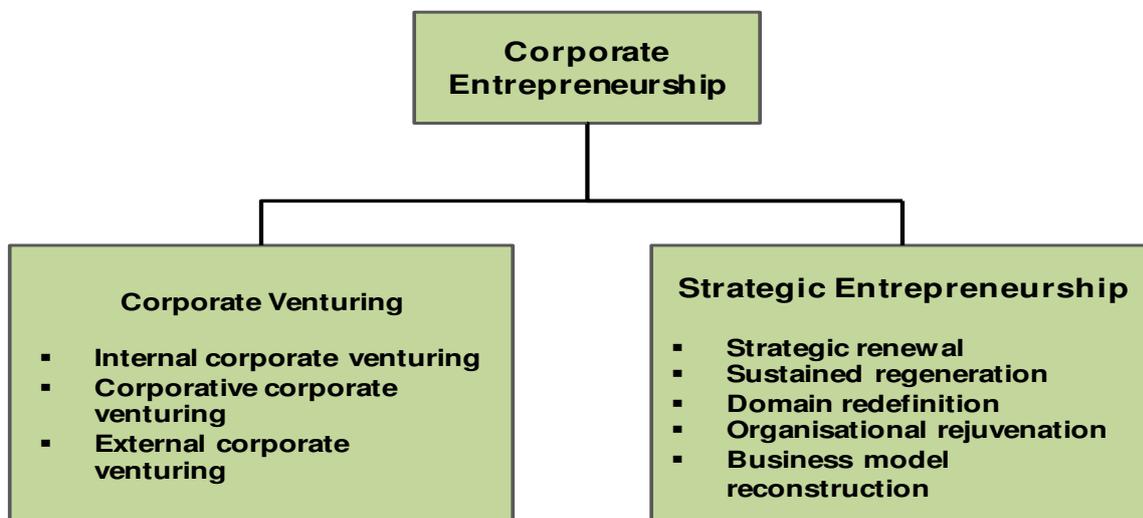


Figure 3-1: The domains of corporate entrepreneurship

Source: Adapted from Morris *et al.*, (2011:99)

Strategic entrepreneurship also incorporates the Schumpeterian (disruptive) innovation phenomenon (Corbett *et al.*, 2013:812), and involves company-level innovations aimed at achieving competitive advantage (Covin & Kuratko, 2010; Ireland *et al.*, 2003).

In this study *sustainable CE* is defined as the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance. Furthermore, the concept *sustainability* is used to refer to consistency in the levels of innovativeness, risk-taking, and proactiveness, as well as in the internal climate for CE that an organisation is able to achieve on an on-going basis.

While the commonality for CV approaches or forms involves the adding of new businesses, or portions of new businesses, through equity investments to the organisation, SE commonality involves the exhibition of large-scale or otherwise highly consequential innovations adopted as an organisation's strategy for pursuing competitive advantage (Corbett *et al.*, 2013:812; Morris *et al.*, 2011:99; Phan *et al.*, 2009:197).

An in-depth review of entrepreneurship literature reveals that scholars generally conceptualise CE as a multidimensional phenomenon that involves entrepreneurial activities within established organisations in relation to their investment in and/or creation of new business (Covin & Miles, 2007; Sharma & Chrisman, 1999). The aspect of the phenomenon relating to the creation of new business within an established organisation is referred to as internal CE, while the aspect that relates to the creation and/or growth of business outside the parent organisation (including spin-offs, joint ventures, and venture capital initiatives) is referred to as external CE (Covin & Miles, 2007:183; Zahra, 1991:277). One of the early CE scholars who clearly identified these two aspects of the CE phenomenon was Von Hippel (1977:167), who defined CE as “an activity which seeks to generate new businesses for the corporation in which it resides through the establishment of external or internal corporate ventures”. Sharma and Chrisman (1999:18-19) define internal CE as “corporate venturing activities that result in the creation of organizational entities within an existing organizational domain”, while external CE is defined as “corporate venturing activities that result in the creation of semi-autonomous or autonomous organizational entities that reside outside the existing organizational domain”.

Overall, CE is initiated in established organisations for many reasons, including profitability, strategic renewal, innovativeness, gaining knowledge to develop future revenue streams, international success, and the effective configuration of resources as the pathway to developing competitive advantage (Kuratko & Audretsch, 2013).

3.3 Conceptual models for corporate entrepreneurship

There are a number of existing theories and conceptual models about CE which highlight the external and internal environments affecting the phenomenon. The literature reveals that leading scholars have been involved in valuable exploratory work on CE, resulting in a number of CE models that focus on internally generated innovations within existing organisations and which actually vary in a number of respects. The models include the domain model of CE (Guth & Ginsberg, 1990), a conceptual model of organisation behaviour (Covin & Slevin, 1991), an interactive model of corporate entrepreneuring (Hornsby *et al.*, 1993), a model of strategic entrepreneurship (Ireland *et al.*, 2003), and a model of sustained CE (Kuratko *et al.*, 2004:77), and an integrated model for corporate entrepreneurship (Mokaya, 2012).

As these models are conceptualised from different theoretical perspectives, they individually bring out pertinent elements of entrepreneurship practices within established organisations. However, there is no single model that singly sufficiently represents entrepreneurship inside established organisations. Yet, together they present important precursors, dimensions, and outcomes of CE. Below is a presentation of selected conceptual models of CE.

3.3.1 A strategic management perspective model by Guth and Ginsberg (1990)

The model by Guth and Ginsberg (1990) provides a framework for integrating CE into the strategic management of an organisation. This model, as depicted in Figure 3-2, conceptualises CE as comprising two types of processes: (1) internal innovation or venturing through the birth of new businesses within existing organisations, and (2) strategic renewal or the design of corporate initiatives that lead to the transformation

of organisations. The model also identifies organisational performance as an outcome of CE.

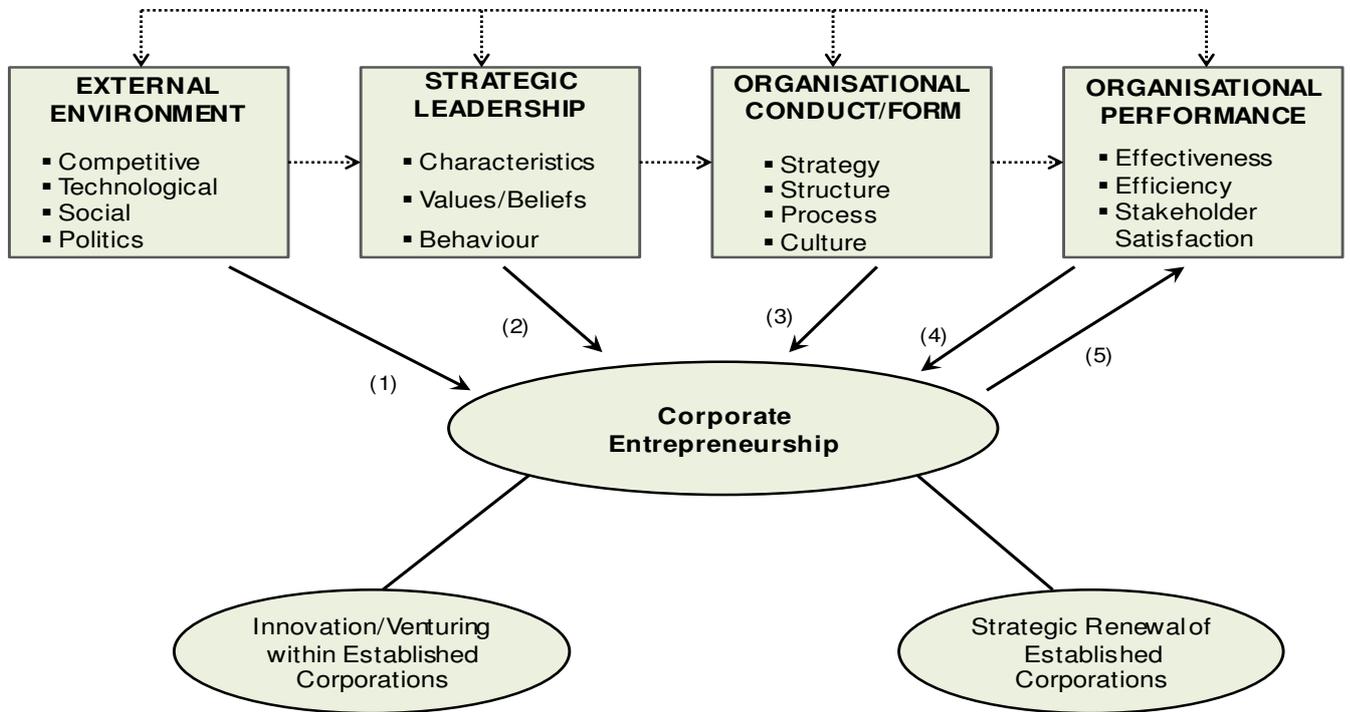


Figure 3-2: A strategic management perspective model by Guth and Ginsberg (1990)

Source: Adapted from Guth & Ginsberg (1990)

The model identifies four antecedents that influence the extent to which CE occurs and the ways in which it is manifested, namely: external environment, strategic leadership, organisational form, and organisational performance. The domains are explained as follows:

- *External environment (competitive, technological, social, and political):* The multiplicity and complexity of external environments are considered to have a major influence on CE, as they increase the intensity of entrepreneurship within an established organisation.
- *Strategic leadership:* The nature of leadership within the organisation and the extent to which leaders demonstrate certain characteristics (including opportunity orientation, comfort with change), values/beliefs (such as desire for

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achievement, competitiveness), and behaviours (such as risk taking and innovation) influence CE.

- *Organisation conduct/form*: internal organisational work environment such as organisational strategies, structures, processes, and cultures influences CE.
- *Organisational performance*: company performance, and the extent to which performance drives and is driven by innovative behaviours, is also an influence.

The model by Guth and Ginsberg (1990) is relevant to this study, as it articulates the nature of CE and how it occurs, and also recognises certain antecedents such as external environment that intensify entrepreneurship in established organisations. The link between CE and company performance is another aspect of the model relevant to the study.

3.3.2 A model of predictors and financial outcomes of CE by Zahra (1991)

Zahra's (1991:260) model of predictors and financial outcomes of CE presented in Figure 3-3 posits that a combination of external environmental, strategic, and internal organisational variables jointly influences CE efforts. The model, which was empirically tested, also stresses the association between CE and superior company performance. According to Zahra (1991:262), organisations innovate and venture in anticipation of, or in response to, their external environment. In this respect, the model postulates the following (Zahra, 1991:262-265):

- *External environment*: the effect of the multiplicity and complexity of external environment (dynamism, hostility, and heterogeneity) intensifies CE.
- *Grand corporate strategy* stimulates CE: Operationally, grand corporate strategy has four dimensions: internal growth, external growth, stability, and retrenchment, and these strategies are expected to vary in their association with CE. Growth-oriented strategies involve both internal growth and external growth. An internal growth-oriented strategy relates to activities that call for

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organisational innovation and venturing in almost every functional area within the organisation and aim at strengthening an organisation's position in existing markets by offering novel, product-improving service, or reducing costs and initiating ventures for expanding the scope of the market through product introduction. An external growth-oriented strategy, on the other hand, calls for aggressive expansion by broadening the scope of business and markets.

- *Organisational factors:* These form the context within which employees and executives perceive opportunities for new ventures, as well as CE venture evaluation, acceptance, or rejection. Organisational factors are both tangible and intangible, and can both enhance or impede CE. Tangible variables pertain to the properties of the formal organisational structure (e.g. communication, scanning, integration, differentiation, and control) and its receptivity to the emergence and adoption of CE. Intangible factors, on the other hand, include dominant organisational values, primarily an organisation's persistent belief system. Well-articulated organisational values (centring on the employees as individuals and also on competition) are supportive of CE.

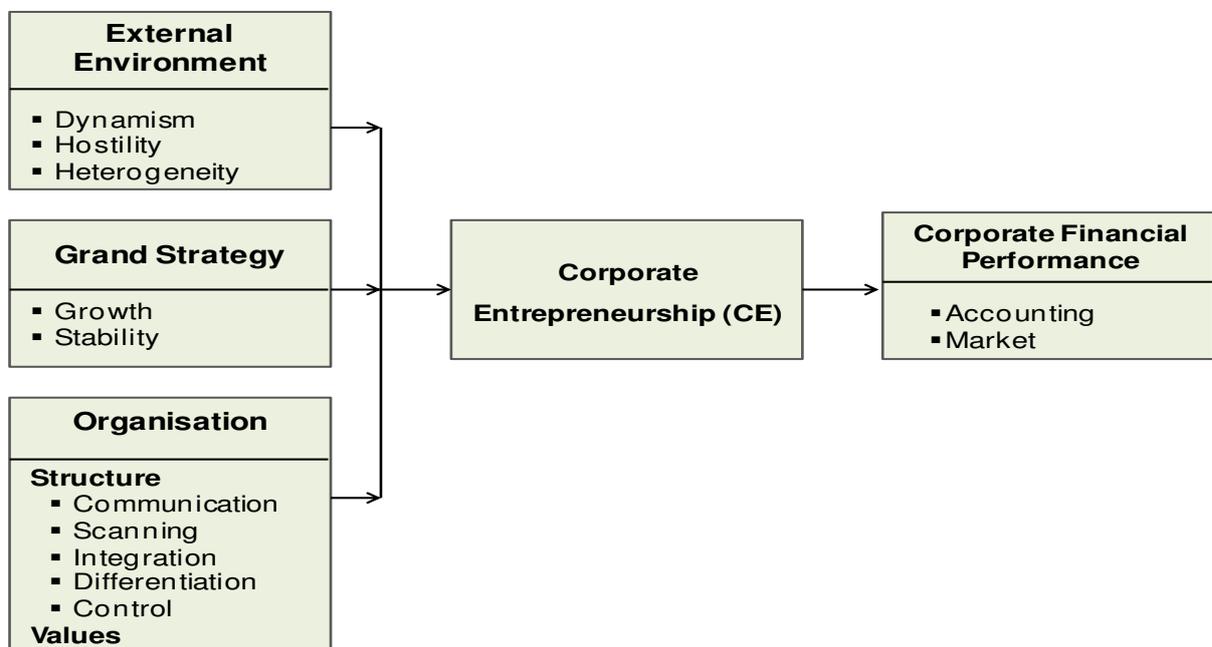


Figure 3-3: A model of predictors and financial outcomes of CE by Zahra (1991)

Source: Adapted from Zahra (1991:262)

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Zahra's (1991:260) model further posits that measures of CE are interrelated; therefore, although each variable may independently influence the phenomenon, only by examining their simultaneous effects can the major precursors of CE be reliably understood.

Zahra's (1991) model is applicable to this study in a number of aspects: Firstly, the model identifies antecedents such as external environment (dynamism, hostility, and heterogeneity), and organisational factors that intensify CE. Organisational antecedents form the context within which managers as well as individual employees engage in entrepreneurial activities to explore and exploit opportunities. Secondly, the model also stresses the direct association between CE and superior company performance. Thirdly, Zahra (1991:277) highlights the two interrelated components of CE (internal and external CE) that should be explored simultaneously in order to enhance product or service and business development as a means of improving company performance. These components also vary in their association with different antecedents. Fourthly, the model was empirically tested and the results were consistent with theory on the association of specific predictor variables (external environment, growth-oriented strategies, and organisational factors) and CE, and also CE on superior company performance.

3.3.3 Conceptual model of CE by Covin and Slevin (1991)

Covin and Slevin's (1991) integrative model of CE focuses on entrepreneurial posture and demonstrates the connections between the organisation's entrepreneurial posture and its external environment, strategy, internal factors, and organisational performance (see Figure 3-4).

The model by Covin and Slevin (1993:23) is an empirically grounded model built around a particular conceptualisation and operational definition of entrepreneurial posture, which views entrepreneurship as a strong commitment to three interrelated components: risk taking, proactiveness, and product innovation. *Product innovation* is a company's ability to create new products or modify existing ones in order to meet the demands of current or future markets; *Proactiveness* refers to a company's capacity to outwit its competitors in introducing new products, services or

technologies to the market; and lastly; *Risk taking* refers to a company’s willingness to engage in business ventures or strategies whose outcome may be highly uncertain (Covin & Lumpkin, 2011:862; Covin & Miles, 1999:49; Miller, 1983:771; Morris *et al.*, 2011:59-71). The model therefore reflects one dimension (intensity) of the multidimensional construct CE (Covin & Slevin, 1993:23).

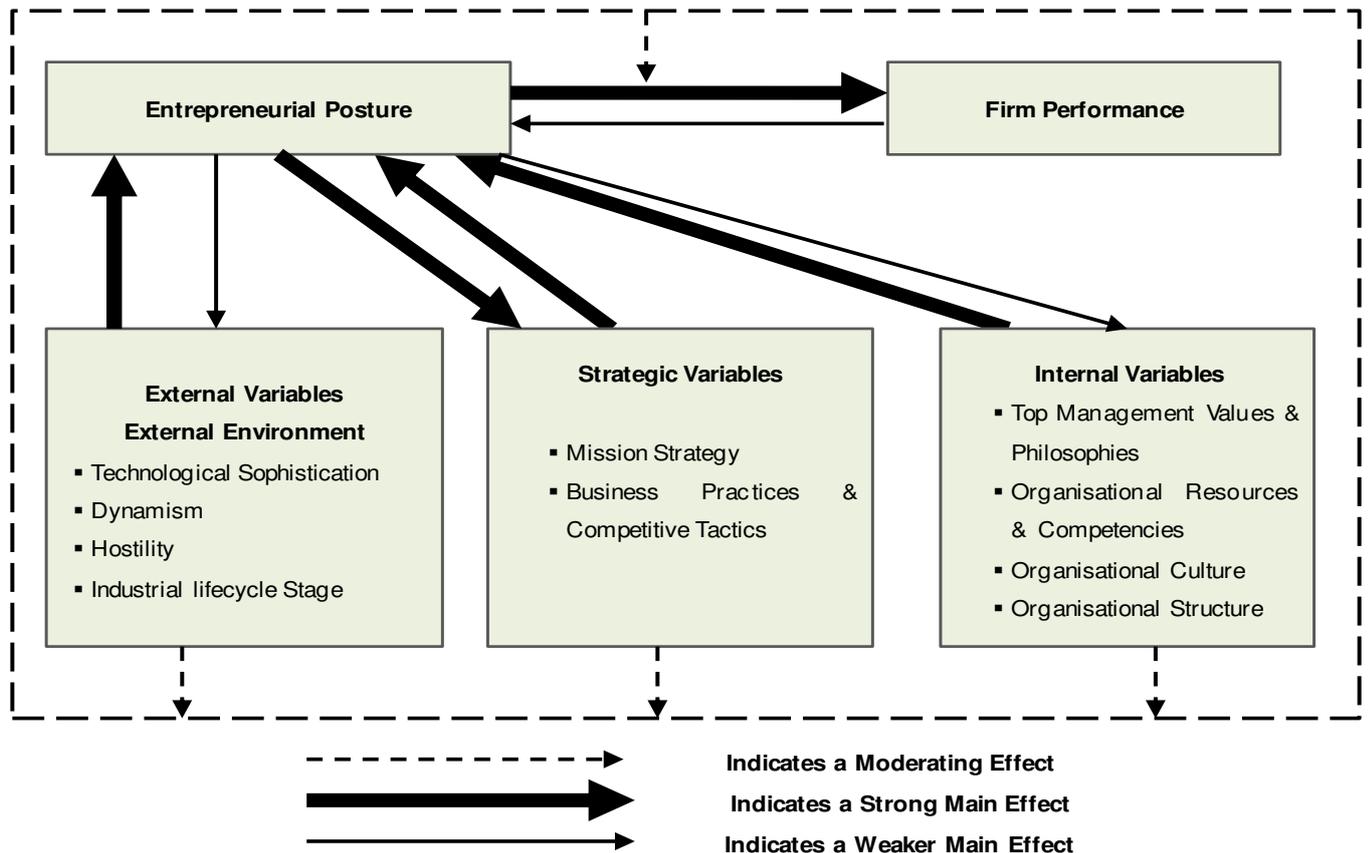


Figure 3-4: Model of CE by Covin and Slevin (1991)

Source: Adapted from Covin & Slevin (1991:11)

According to Covin and Slevin (1991:7), entrepreneurship is considered to be a dimension of strategic posture which encompasses an organisation’s risk-taking propensity, ability to be competitively aggressive, proactiveness, and product innovation, and therefore all organisations may behave entrepreneurially and should therefore be viewed as entrepreneurial entities, while the entrepreneurial behaviour is usually part of the organisation’s management (Covin & Slevin, 1991:7). As a behavioural phenomenon, entrepreneurial posture can be managed (Covin & Slevin, 1991:24). The Covin-Slevin model was critiqued by Zahra (1993b), who indicated

various aspects of the model he considered as weaknesses and therefore proposed some improvement and extension. The next model was developed by Zahra (1993b) arising out of his critique of the Covin-Slevin model.

3.3.4 A revised conceptual model for CE by Zahra (1993b)

Arising from a critique of Covin and Slevin's (1991) model, Zahra (1993b) developed a revised model (see Figure 3-5) which took into account what were perceived as the model's weaknesses, such as conceptual redundancies. According to Zahra (1993b:7), in order to avoid misspecification of the entrepreneurship activities in relation to other important issues such as company performance, the nature of entrepreneurial behaviour in the Covin and Slevin (1991) model should consider four distinct dimensions: intensity, formality, type (locus), and duration of entrepreneurship within established organisations.

Furthermore, as regards the locus of entrepreneurship, Zahra (1993b:9) suggests the following modifications to the Covin and Slevin (1991) model: (1) incorporating the specific level of analysis (corporate, business, and functional) in theorising about the antecedents of CE; (2) making a clear distinction between new ventures inside an established organisation and "stand-alone" ventures; and (3) making a change in the model to distinguish between domestic and international ventures/entrepreneurship efforts. The model by Covin and Slevin (1991) also ignores the managerial processes associated with the entrepreneurial activities, such as the fairness of the criteria used by top management in considering different new ventures, which could have a significant effect on the success or failure of the organisation's entrepreneurial posture (Zahra, 1993b:10).

The revised conceptual model of CE by Zahra (1993b:13) recognises the importance of organisational processes that instigate entrepreneurial activities, which the Covin and Slevin model overlooks, clearly categorises the external environmental factors, and subsumes the technological sophistication factor into a dynamism factor, while adding another environmental attribute: munificence, referring to the abundance of opportunities of innovation in the industry.

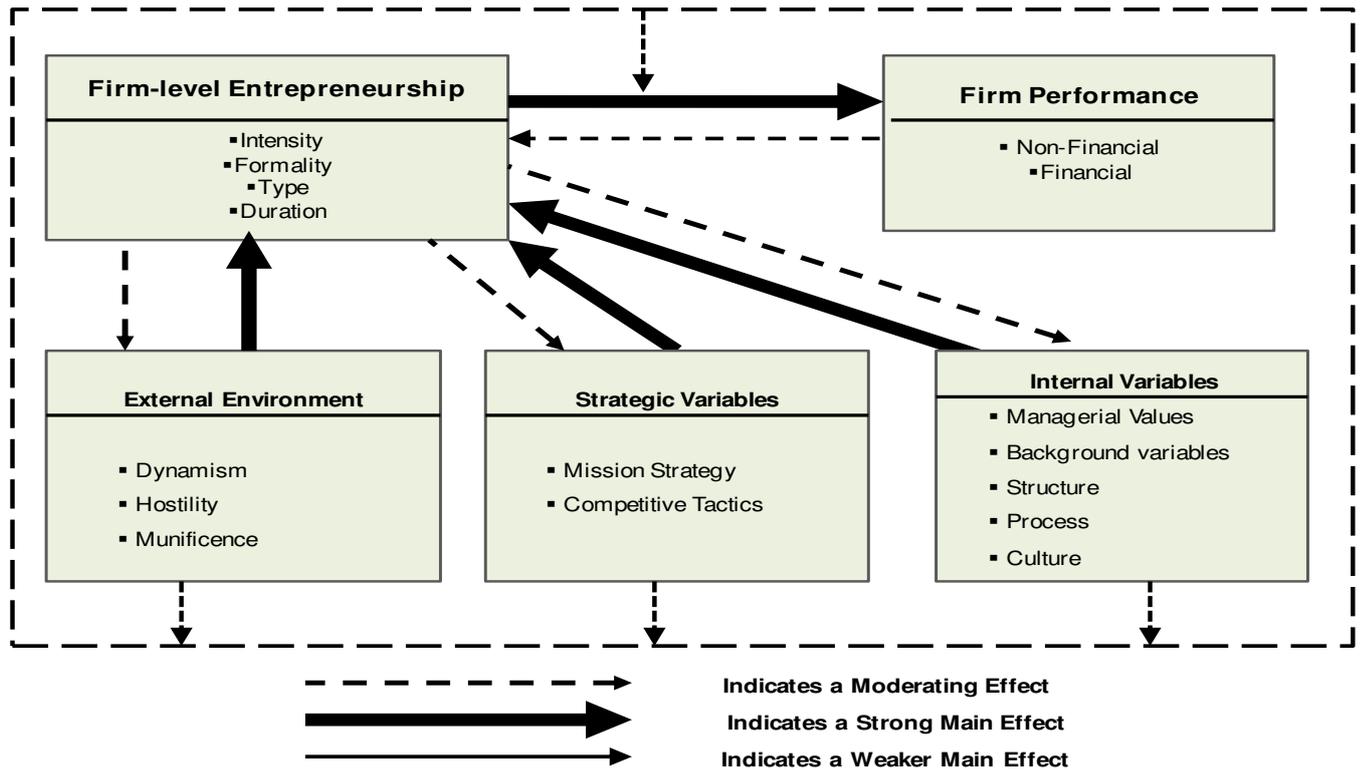


Figure 3-5: A revised conceptual model for CE by Zahra (1993b)

Source: Adapted from Zahra (1993b:13)

Zahra’s (1993b:11) model also recognises the possibility that different entrepreneurial postures may influence different dimensions of performance (financial and non-financial) in different ways and possibly at different points in time. In this respect, Zahra (1993b:12) recommends three additional changes to the Covin and Slevin’s (1991) model: (1) The model should recognise the financial and non-financial outcomes of entrepreneurship; (2) The model should acknowledge the possibility that growth and profitability are not always guaranteed through organisation-type entrepreneurship; and (3) It should be recognised that financial and non-financial criteria are useful at different points in the life of an entrepreneurial venture.

However, in their response to Zahra’s (1993b) critique, Covin and Slevin (1993:23) while accepting many of Professor Zahra’s refinements to their model as valid, respectfully disagreed with others, maintaining that their model was “an empirically grounded model built around a particular conceptualization and operational definition of entrepreneurial posture (see Covin & Slevin, 1989)”. Regarding Zahra’s (1993b) proposed changes relating to company performance dimensions (financial and non-

financial), Covin and Slevin (1993:26) argue that their model was developed explicitly and expressly around the financially based organisational effectiveness constructs of revenue growth and profitability, and in no way did the model suggest that entrepreneurial posture cannot have non-financial outcomes. Covin and Slevin (1993:27) further argue that, overall, both approaches (Covin-Slevin model and Zahra's (1993b) revised model) are necessary, and neither is sufficient alone for continued progress toward the common goal of accurately modelling entrepreneurship as corporate behaviour.

The revised model by Zahra (1993b) is applicable and relevant to this study, as it identifies CE as a multidimensional construct, while identifying the link between CE and company performance. Furthermore, the model also emphasises the effect of external environment and organisational antecedents on CE, which form part of the hypothesised relations in this study.

3.3.5 Conceptual model of entrepreneurial orientation by Lumpkin and Dess (1996)

The model by Lumpkin and Dess (1996) conceptualises CE in the context of entrepreneurial orientation (EO) considered as a multidimensional construct, which they define as having five key dimensions, namely, innovativeness, proactiveness, risk taking, competitive aggressiveness, and autonomy. According to Lumpkin and Dess (1996:136), the model as presented in Figure 3-6 emphasises new entry as the essential act of entrepreneurship.

According to Lumpkin and Dess (1996:136), EO refers to the processes, practices, and decision-making tasks that facilitate creation of a new venture, and entering into new markets with new products and services, and it emerges from a strategic-choice perspective. The model articulates the following:

- All the five factors (innovativeness, proactiveness, risk taking, competitive aggressiveness, and autonomy) may be present when an organisation engages in new entry, although successful new entry may also be attained when only some of these factors are operating. This means that the extent to

which each of these factors is useful for predicting the nature and success of any new undertaking may be dependent on external factors, including industry or business environment, or internal factors such as organisational structure (in the case of an existing organisation) or the characteristics of founders or senior managers.

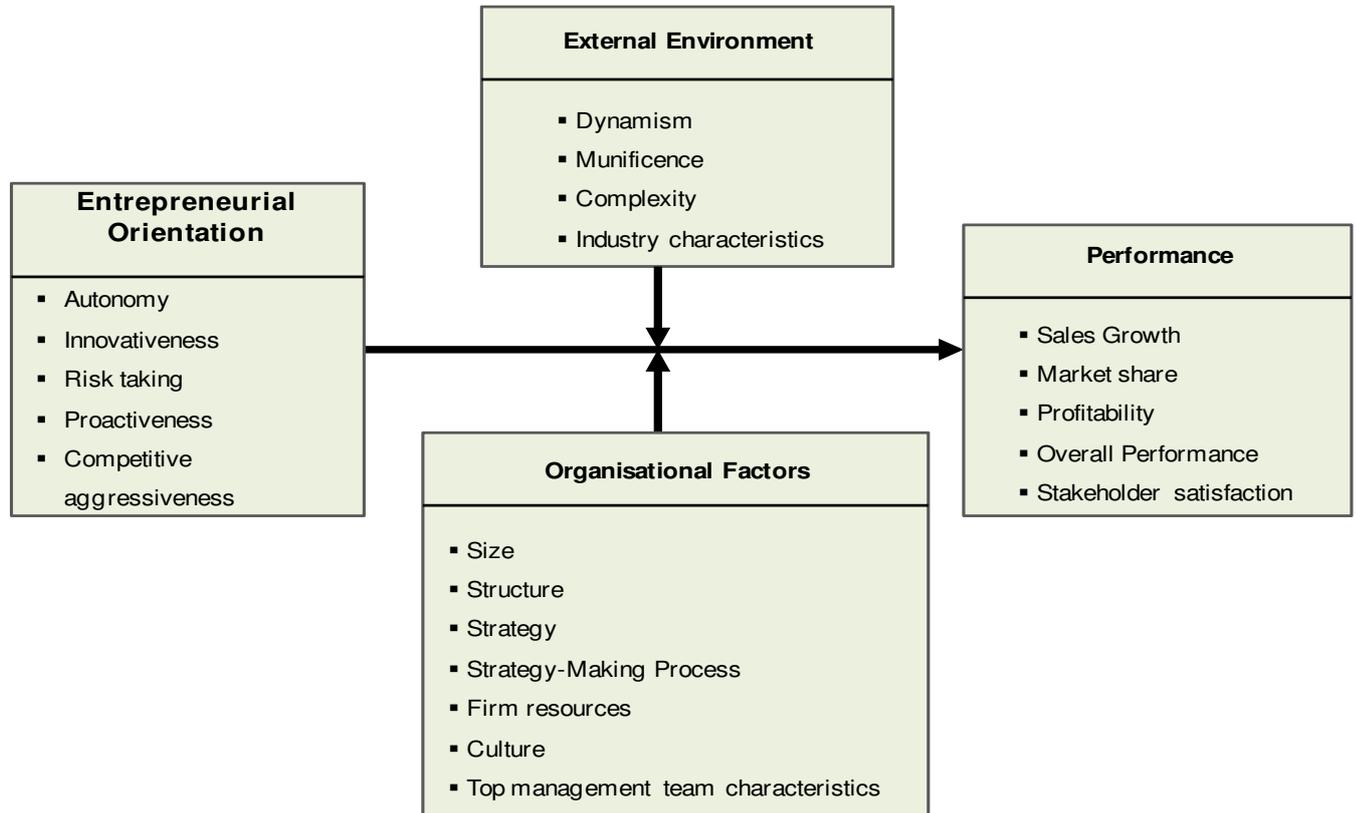


Figure 3-6: Conceptual model of entrepreneurial orientation by Lumpkin and Dess (1996)

Source: Lumpkin & Dess (1996)

- The model of EO by Lumpkin and Slevin (1996), which conceptualise that the EO dimensions may vary independently depending on the environmental and organisational context, is fundamentally different from prior research (e.g., Covin & Slevin 1989) that suggested that the dimensions of EO covary.

Overall, the model by Lumpkin and Slevin (1996:137) provides a CE framework that (1) considers the relationship between EO and performance to be context specific, and (2) considers that the dimensions of EO may vary independently of each other in

a given context. Although the model is applicable and relevant to the study specifically in relation to external environment, organisational antecedents, and company performance, CE is defined in the context of EO. In this study conceptualisation and operational definition of CE is broader than EO as will be seen in the next section.

3.3.6 A model of strategic entrepreneurship by Ireland *et al.* (2003)

The model of strategic entrepreneurship by Ireland *et al.* (2003) presented in Figure 3-7 explains the integration of specific CE precursors to create wealth. These variables include an entrepreneurial mind-set, an entrepreneurial culture and entrepreneurial leadership, the strategic management of resources, and applying creativity to develop innovations. Strategic entrepreneurship involves simultaneous opportunity-seeking and advantage-seeking behaviours and results in superior company performance. Growth and wealth creation are considered as the defining objectives of entrepreneurship, the outcome of effective use of entrepreneurship (i.e., opportunity-seeking) and strategic management (i.e., advantage-seeking) (Ireland *et al.*, 2003:964-965). The model incorporates the view by Hitt *et al.* (2001) and Ireland *et al.* (2001) that SE involves taking entrepreneurial actions with strategic perspectives.

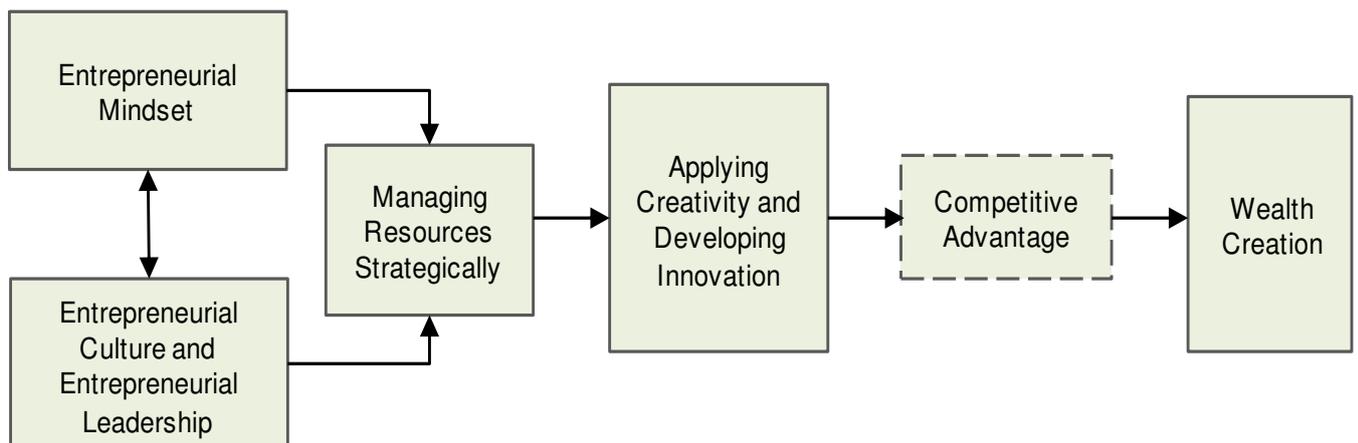


Figure 3-7: A model of strategic entrepreneurship by Ireland *et al.* (2003)

Source: Ireland, Hitt & Sirmon (2003:967)

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The following are some of the key elements of the model (Ireland *et al.*, 2003:965):

- *Entrepreneurial mind-set*: This is required to engage in SE, and is both an individualistic and collective phenomenon, that is, an entrepreneurial mindset is important to both individual entrepreneurs (independent entrepreneurship) as well as to managers and employees in established organisations (corporate entrepreneurship) to think and act entrepreneurially (Covin & Slevin, 2002). Key components of an entrepreneurial mindset include entrepreneurial opportunities, entrepreneurial alertness, real options, and an entrepreneurial framework.
- *Entrepreneurial culture and entrepreneurial leadership*: An effective entrepreneurial culture (that is, a culture in which new ideas and creativity are expected, risk taking is encouraged, failure is tolerated, learning is promoted, product, process, and administrative innovations are championed, and continuous change is viewed as a conveyor of opportunities) is characterised by multiple expectations and facilitates efforts for strategic management of organisational resources. Such a culture fosters and supports the continuous search for entrepreneurial opportunities that can be exploited with sustainable competitive advantages. Effective leadership is linked to the success of all kinds and sizes of organisations. Entrepreneurial leadership is a specific type of leadership ability to influence others to manage resources strategically in order to emphasise both opportunity-seeking and advantage-seeking behaviours, and is characterised by six imperatives (Covin & Slevin, 2002): (1) Nourishing an entrepreneurial capability; (2) Protecting innovations (disruptive innovations) threatening the current business model; (3) Making sense of opportunities; (4) Questioning the dominant logic; (5) Revisiting the “deceptively simple questions” to help identify opportunities and manage resources for exploiting opportunities (e.g., examining questions relating to viability of markets in which the organisation competes, the company’s purpose, how success is defined, and stakeholder relationships); and (6) Linking entrepreneurship and strategic management.
- *Strategic resource management*: Grounded in the resource-based theory, managing organisational resources provides the foundation for the

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organisation's opportunity-seeking and advantage-seeking behaviours, which leads to enhanced organisational performance. The focus is on three resources considered critical for engaging in SE: (1) financial capital, including all the different monetary resources that the organisation can use to develop and implement strategies (strong financial resources enable organisations to have the slack required to identify and subsequently exploit entrepreneurial opportunities); (2) human capital (knowledge and skills of an organisation's entire workforce), and both articulable and tacit knowledge, which are relevant to opportunity-seeking and advantage-seeking behaviours; and (3) social capital (the set of relationships between individuals (internal social capital) and between individual and organisations (external social capital) that facilitate action (Hitt, Lee & Yucel, 2002).

- *Applying creativity and developing innovations:* These are critical outcomes of the entrepreneurial mindset, an entrepreneurial culture and entrepreneurial leadership practices, as well as the strategic management of organisational resources. Innovations eliminate obsolete goods and services and production methods, while organisations that are innovative first movers have the ability to destroy incumbents' market power and enjoy transient monopoly advantages and abnormal profits due to rivals' lagged response. Creativity is an important component of SE as it affects the quality and quantity of innovations.

The model of SE by Ireland *et al.* (2003) is appropriately relevant to this study, as it points out the elements or dimensions that are critical for instigating opportunity exploration and exploitation, as well as advantage seeking, in order to establish and sustain competitive advantages, growth, and wealth creation.

3.3.7 A model of sustained corporate entrepreneurship by Kuratko *et al.* (2004)

The model by Kuratko *et al.* (2004:79) presented in Figure 3-8 focuses on the ability of an organisation to sustain entrepreneurship on an on-going basis. The model demonstrates that sustainability is contingent upon individual members continuing to undertake innovative activities, as well as positive perceptions of these activities by

the top management, which in turn leads to further allocation of necessary organisational support and resources.

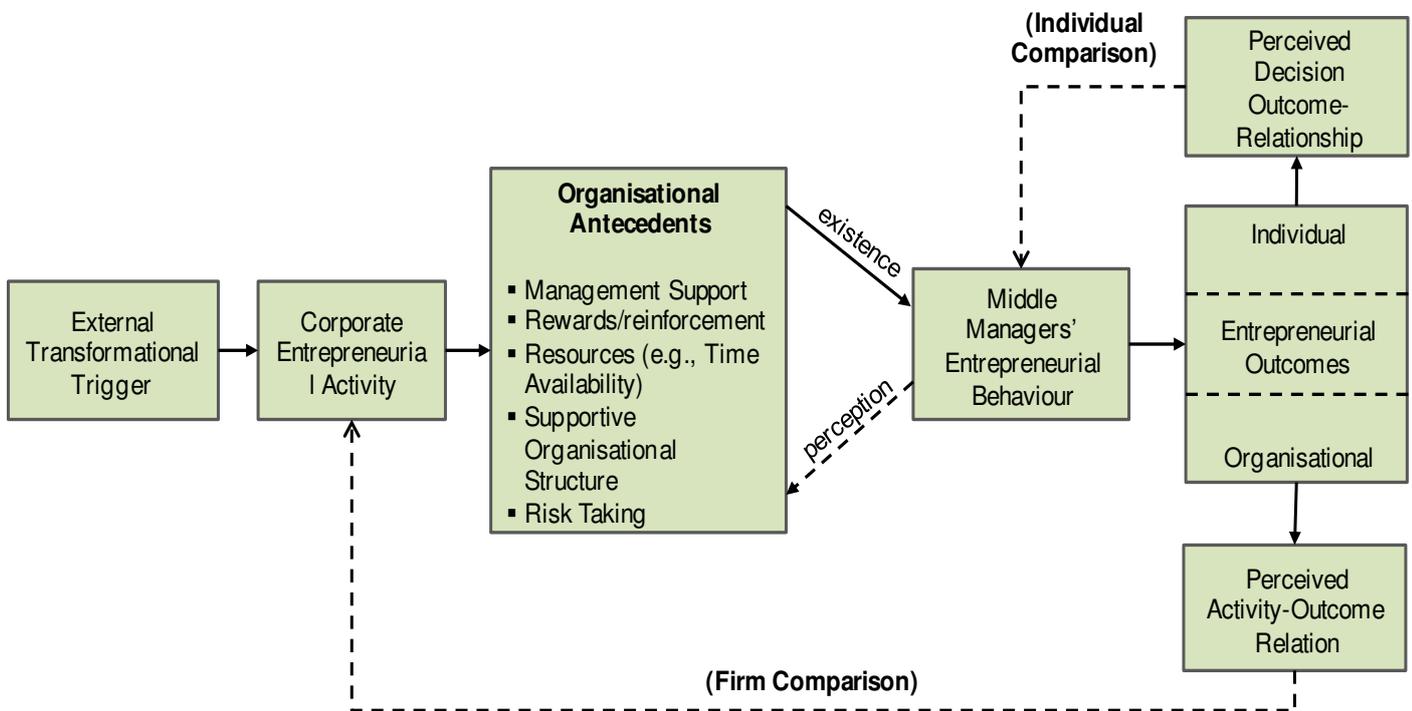


Figure 3-8: A model of sustained CE by Kuratko *et al*, (2004)

Source: Adapted from Kuratko, Hornsby & Goldsby (2004:79)

The following are the main features of the model (Kuratko *et al.*, 2004):

- *Transformational trigger:* To initiate the need for strategic change, there has to be a transformational trigger (something external or internal to the organisation that creates a threat or an opportunity).
- *Entrepreneurial activity:* One way to accomplish this change is through entrepreneurial activity, such as product, service or product, which is driven by individual employees within the organisation. The model emphasises the role of an individual employee's decision to espouse entrepreneurial behaviour.
- *Individual perception of organisational antecedents:* The perception of the individual employee that several organisational antecedents (e.g., management support, autonomy/work discretion, rewards, resources, and

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flexible organisational boundaries) are present may result in sustained entrepreneurial activity.

- *Entrepreneurial outcomes* – individual and organisation levels: Outcomes of the entrepreneurial activity are compared with previous expectations at both the individual and organisational levels. Continued and sustained entrepreneurial behaviour will result when both the individual employee and the organisational leadership perceive that the outcomes are equitable, or that they meet and/or exceed expectations. Satisfaction with the entrepreneurial outcome should be at both levels (individual and organisation) in order for the amount of entrepreneurial activity not to decline.
- *Satisfaction as feedback mechanism*: Satisfaction with performance outcomes functions as a feedback mechanism for either sustaining the current strategy or selecting an alternative one. As agents of strategic change, individuals should also be satisfied with the intrinsic (i.e., psychological) and extrinsic (i.e., tangible) outcomes they receive for their entrepreneurial behaviour; otherwise their participation will diminish.

The model by Kuratko *et al.* (2004) shown in Figure 3-8 is relevant and applicable to this study as it focuses on elements necessary for instigating entrepreneurial behaviour, and also identifies the importance of satisfaction with performance outcomes as a feedback mechanism in order to foster sustained CE. In other words, the model focuses on the ability of an organisation to sustain entrepreneurship on an on-going basis. Another important aspect of the model applicable to this study is its conceptualisation that sustained CE is the result of the perception by the individual that several organisational antecedents (e.g., management support, autonomy, rewards, resources, and flexible organisational boundaries) are present.

3.3.8 A model of middle-level managers' entrepreneurial behaviour by Kuratko *et al.* (2005b)

Middle management's entrepreneurial behaviour has been linked to successful CE, and the model by Kuratko, Ireland, Covin and Hornsby (2005b) shown in Figure 3-9 is

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considered as a useful model for capturing such entrepreneurial behaviour, since it focuses on actions that middle management must undertake for entrepreneurship to have a meaningful contribution to organisational success (Morris *et al.*, 2011:332). The model shows the importance of the middle manager’s entrepreneurial behaviour through specific actions as regards fostering competitive advantage and improved company performance in organisations of all types and sizes (Kuratko *et al.*, 2005b:704).

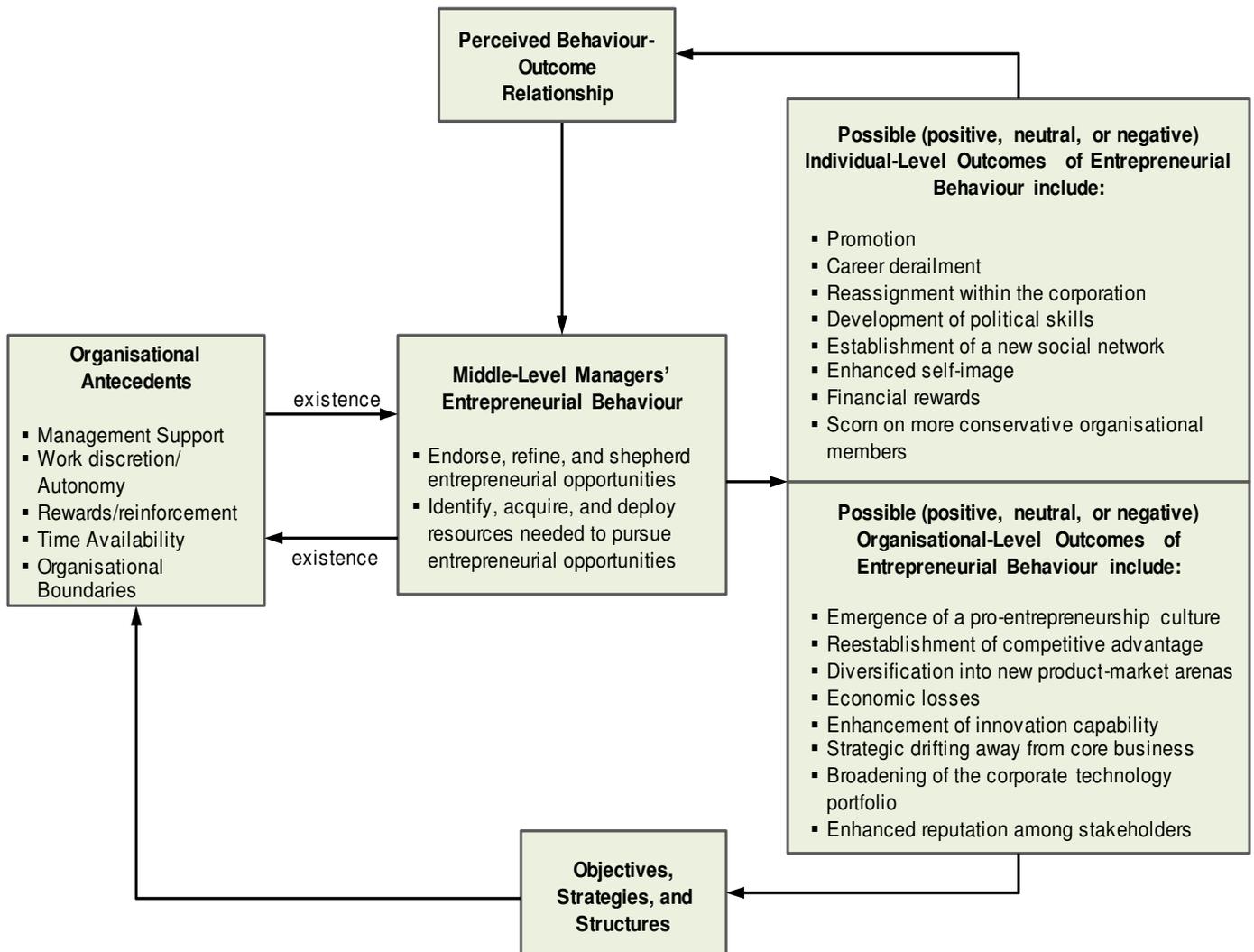


Figure 3-9: A model of middle-level managers' entrepreneurial behaviour

Source: Adapted from Kuratko, Ireland, Covin & Hornsby (2005b:701)

The model also depicts the organisational antecedents of middle management’s entrepreneurial behaviour, the entrepreneurial actions describing that behaviour, and

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outcomes of that behaviour, and factors influencing its continuance (Kuratko *et al.*, 2005b:699). Specifically the model emphasises the following:

- *Organisational antecedents* – management support, work discretion/autonomy, rewards/reinforcement, time availability, and organisational boundaries – affect (either by promoting or impeding) the breadth and depth of entrepreneurial actions taken to pursue CE. It is important that middle managers receive information from top management regarding their position relative to the five antecedents and then effectively communicate that information to operating-level managers to instigate entrepreneurial actions. According to Hornsby and Kuratko (2003), total satisfaction of entrepreneurial outcomes is highly related to the existence of an organisational context that supports entrepreneurial context.
- *The entrepreneurial behaviours* of these middle managers focus on entrepreneurial opportunities as well as resources, and relate to the discovery, evaluation, and exploitation of entrepreneurial opportunities through key and specific activities or sub-processes such as coaching, facilitating, synthesising, strategic building, delineating, and implementing (Kuratko *et al.*, 2005b:705). Middle managers endorse, refine, and shepherd entrepreneurial opportunities and identify, acquire, and deploy resources needed to pursue those opportunities.
- *Entrepreneurial outcomes and consequences* (both individual-level and organisation-level) that are unique and interrelated accrue to organisations and managers as a result of middle managers' entrepreneurial behaviour. Outcomes are either intrinsic or extrinsic. Extrinsic outcomes include financial or other tangible outcomes, while intrinsic outcomes include rewards that centre on the satisfaction individuals receive as a result of developing their own entrepreneurial ideas, from being more in control of their destiny and from having ultimate responsibility for the success of the projects with which they are involved. In this respect the implication of the model is that managers will choose to engage in entrepreneurial behaviour if they perceive that the entrepreneurial outcomes as a result of their actions will meet or exceed their

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expectations. Performance outcomes may influence changes by providing feedback whether or not the organisation's current competitive actions are yielding desired outcomes.

According to this model by Kuratko *et al.* (2005b:708-709), success of entrepreneurial actions is based on either financial outcomes (e.g., increased sales, productivity, market share, reduced waste, and labour efficiencies) or on behavioural criteria (e.g., number of ideas suggested, number of ideas implemented, amount of time spent working on new ideas, amount of time spent outside of normal channels to pursue an idea). The model by Kuratko *et al.* (2005b) is relevant to this study as it points out the critical role of middle managers in instigating entrepreneurial actions on the basis of their perceptions about the existence of organisational antecedents. Both organisational antecedents and managers' entrepreneurial behaviours are core dimensions of the hypothesised relationships critical for predicting sustainable CE.

3.3.9 An integrated model for corporate entrepreneurship by Mokaya (2012)

Another integrated model for CE, presented in Figure 3-10, was proposed by Mokaya (2012), and borrows heavily from those proposed by other theorists (e.g., Heinonen & Korvela, 2003; Hornsby *et al.*, 1993). Conceptualisation of the model is premised on the argument that CE strategy results in increased company performance, hence organisations that engage in entrepreneurial activities are expected to achieve higher levels of growth and profitability than those organisations that do not (Mokaya, 2012:139). The model proposes that for this to be achieved, a number of factors or precipitating events must be in place (Mokaya, 2012:139), such as (1) external environment (e.g., dynamism, technological opportunities, industry growth, changing customer demands, unfavourability of change, and competitive rivalry), (2) internal organisational factors (e.g., communication systems, formal controls, environment scanning, management support, work discretion, time availability, organisational boundaries, organisational culture, rewards and recognition systems, and work systems), and (3) individual characteristics (e.g., skills and attitudes, risk taking propensity, desire for autonomy, need for achievement, goal orientation, internal locus of control, and self-confidence and motivation).

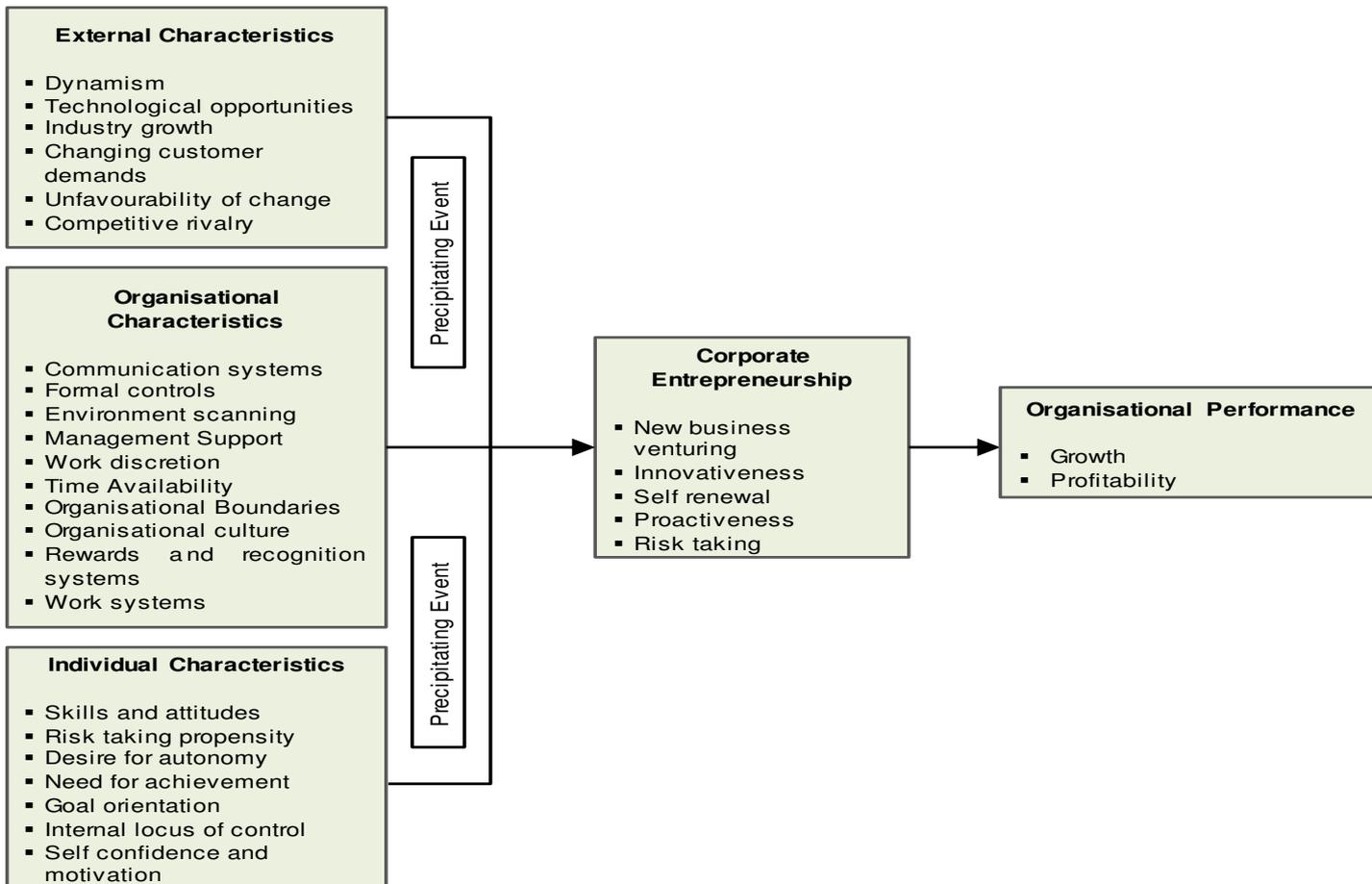


Figure 3-10: An integrated model for CE by Mokaya (2012)

Source: Adapted from Mokaya (2012:140)

The model by Mokaya (2012) is applicable to this study in many aspects, as it articulates the critical precipitating elements (such as external and internal environmental variables) appropriate for sustainable CE. Furthermore, the model acknowledges the multidimensionality of CE and its effect on company performance. An organisation’s external and internal environments are critical components that stimulate company performance by influencing entrepreneurial activity.

3.4 Entrepreneurial orientation and Corporate Entrepreneurship

One of the phenomena associated to CE is entrepreneurial orientation, which Corbett *et al.* (2013:813) describe as the “engine that drives specific acts of CE” (cf. Morris *et al.*, 2011). According to Van Rensburg (2013:17), the notion of entrepreneurial orientation was introduced by Lumpkin and Dess (1996) as an

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expansion on the work of Covin and Slevin (1989). EO is commonly conceptualised as either the concurrent exhibition of behaviours reflecting risk taking, innovativeness and proactiveness, or as a domain of activity that includes dimensions of risk taking, innovativeness, proactiveness, autonomy, and competitive aggressiveness (Covin & Lumpkin, 2011). Other different labels such as entrepreneurial mode (Mintzberg, 1973), entrepreneurial style (Khandwalla, 1976, 1977), or entrepreneurial posture (Covin & Slevin, 1989), are used to refer to the same EO phenomenon.

Lumpkin and Dess (1996) in their article: *Clarifying the entrepreneurial orientation construct and linking it to performance*, conducted a thorough review of the broadly defined CE literature and significantly helped to define the attributes of an entrepreneurial orientation. According to Lumpkin and Dess (1996:136-137), EO refers to “the processes, practices, and decision-making activities that lead to new entry” and identified five dimensions of the phenomenon, namely: autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness. However Lumpkin and Dess (1996) were not certain whether or not all the five dimensions have always to be present in entrepreneurial organisations, or whether any of these dimensions must always be present for an organisation to qualify to be classified as having an entrepreneurial orientation (Lumpkin & Dess (1996:163).

According to Wiklund, Patzelt & Shepherd (2013:18), EO refers to the “degree of entrepreneurial activity” in an organisation, or an organisation’s “strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices”. The EO is a reflection not of what an organisation does but how it operates (Lumpkin & Dess, 1996). Specifically, the concept EO involves an organisation’s willingness to innovate for the purposes of rejuvenating market offerings, and trying out new and uncertain products, services and markets, as well as proactively outwitting competitors in capturing opportunities in new marketplaces (Wiklund *et al.*, 2013:19). It is also evident that several studies use Covin and Slevin’s (1989) strategic posture scale to operationalise EO, although there is evidence that numerous measures with haphazard and inadequate construct measurement, which in some instances have been incongruent with theory, have been used across EO research (Cogliser *et al.*, 2008).

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One of the reasons for this “wide variation in the measurement and application of the EO construct, in particular with regard to its dimensionality”, is that the theoretical foundations of the construct have involved from divergent “research streams across numerous study contexts” (Cogliser *et al.*, 2008). In fact a review of recent literature (Rosenbusch *et al.*, 2013:642) shows that debate about the dimensionality of the EO construct still rages on, with some preferring to operationalise it unidimensionally while others operationalise it multidimensionally; yet others still conceptualise EO multidimensionally but operationalise it unidimensionally (Cogliser *et al.*, 2008; Rosenbusch *et al.*, 2013:642; Stettler, Schweiger & Baldauf, 2012; Wales, Gupta & Mousa, 2011:357;).

There are basically two principal conceptualisation approaches for EO, namely: (1) the composite dimension approach, which is largely associated with Miller’s (1983) and Covin and Slevin’s (1989) work, (2) the multidimensional approach commonly associated with Lumpkin and Dess’ (1996) work. According to Covin and Lumpkin (2011:860) “these two conceptualisations of EO are fundamentally different and neither is inherently superior to the other” and it is therefore important to come to terms with their “irreconcilability”. The two conceptualisations also require separate construct definitions and measurement models (Covin & Lumpkin, 2011:863; Covin & Wales, 2011:691-694).

In addition to the current dimensionality debate, there are also issues relating to the validity of measures used for the EO construct, “given the unique contributions of individual variables (Gathungu *et al.*, 2014:354-355). Further, there are still some fragmentations about the construct’s nomological network within which it exists, and also there is a lack of appropriate definitions (Covin & Lumpkin, 2011:856). All these issues signify “unresolved theoretical matters” that are points of contention and ambiguity as regards the EO concept. However, notwithstanding the definitional challenges that have engulfed EO, it is commonly considered that organisations that exhibit high levels of the phenomenon perform better than those with low levels of EO (Gathungu *et al.*, 2014:356; Rauch, *et al.*, 2009:764).

Going by the current scholarly debate on EO, it seems evident that EO is not the same thing as CE, but rather EO is part of CE (Covin & Lumpkin, 2011; Memili,

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Lumpkin & Dess, 2010; Urbano & Turró, 2013). According to Urbano and Turró (2013), CE includes entrepreneurial behaviour and orientation in established organisations. Covin and Lumpkin (2011:855) clearly indicate that CE is an “ostensibly larger topical domain within which discussions about EO occur” and that “many scholars consider EO to be an aspect of corporate entrepreneurship”. CE is the bigger and overarching phenomenon for describing entrepreneurship within established organisations. There is growing recognition of CE as an overall construct capturing all entrepreneurial activities within established business organisations (De Jong, Parker, Wennekers & Wu, 2011:4; Sharma & Chrisman, 1999:18). In other words, whereas CE serves the purpose for “creation and pursuit of new venture opportunities and strategic renewal” (Dess & Lumpkin, 2005:147), EO is “the driving force” for CE (Memili *et al.*, 2010:326).

According to Rauch *et al.* (2009:762), EO refers to “the strategy-making processes that provide organizations with a basis for entrepreneurial decisions and actions”. Thus organisations with a strong EO in terms of processes, practices, and decision-making styles that enhance capacity to identify and capture entrepreneurial opportunities tend to possess superior competitive advantage (Kuratko *et al.*, 2005b; Lumpkin & Dess, 1996). In this respect, organisations that would like to successfully pursue CE should have a strong EO (Dess & Lumpkin, 2005).

3.5 Forms of corporate entrepreneurship

Covin and Miles (1999:50-54) envision four distinct forms of CE as follows: (1) *sustained regeneration* (the CE phenomenon whereby the organisation regularly and continuously introduces new products and services or enters new markets); (2) *organisational rejuvenation* (the CE phenomenon whereby the organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities); (3) *strategic renewal* (the CE phenomenon whereby the organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes); and (4) *domain redefinition* (the CE phenomenon whereby the organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit).

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In adopting the forms or approaches of CE envisioned by Covin and Miles (1999), Morris *et al.* (2011:99) added another form of CE known as business model reconstruction. They define it as a form of CE whereby an organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market (Morris *et al.*, 2011:101). As shown in Table 3-2, the Morris *et al.* (2011) typology of CE indicates the focus of the entrepreneurial initiative, the entrepreneurial event, and the frequency of the entrepreneurial event.

Table 3-2: Forms of strategic corporate entrepreneurship

Forms of Strategic CE	Focus of the Entrepreneurial Initiative*	The Entrepreneurial Event	Typical Frequency of the Entrepreneurial Event
Strategic Renewal	Strategy of the firm	Adoption of a new strategy	Low
Sustained Regeneration	Products offered or markets served by the firm	Introduction of a new product into a pre-existing product category or introduction of an existing product into a new (to the firm) but pre-existing market	High
Domain Redefinition	New competitive space	Creation of new or reconfiguration of existing product categories or market space	Low
Organisational Rejuvenation	Organisation structure, processes, and/or capabilities of the firm	Enactment of a major internally focused innovation aimed at improving strategy implementation	Low to moderate
Business Model Reconstruction	Business model of the firm	Design of a new or redesign of an existing business model	Low

* The focus of the entrepreneurial event can be the entire organisation or, in the case of multi-business organisations, one or more of its businesses.

Source: Adapted from Morris *et al.* (2011:99),

Entrepreneurship is more than just individual entrepreneurial activities undertaken by employees or managers. Entrepreneurship becomes integrated in the entire organisational fabric and “captures the essence of what an organisation is about and how it operates” (Morris *et al.*, 2011:52). In fact research shows that CE has a direct and positive influence on organisational performance, as it is interwoven with the organisation’s mission and vision, strategies, objectives, structures, the everyday operations, and the overall organisational culture (Covin & Slevin, 1991; Morris *et al.*,

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2011:52). According to Corbett *et al.* (2013:812), “CE seeks to renew established organisations, thereby facilitating their viability and competitiveness through the utilization of various innovation-based initiatives”. Currently there is renewed interest in CE owing to the recognised need for organisational renewal through the creation of appropriate entrepreneurial processes that can bring about the achievement and perpetuation of competitive superiority within established organisations (Corbett *et al.*, 2013).

Furthermore, scholars have also come to the conclusion that every organisation, whether large or small, has some level of entrepreneurship and exhibits the three underlying dimensions of the phenomenon, namely: innovativeness, risk-taking, and proactiveness (Morris *et al.*, 2011:58; Morris & Sexton, 1996; Slevin & Covin, 1990:43; Wiklund & Shepherd, 2005). *Innovativeness* is the extent to which an organisation does things that are novel, unique or different; *risk-taking* relates to an organisation’s willingness to pursue opportunities that have a reasonable likelihood of producing losses or significant performance discrepancies; *proactiveness* relates to strategy making, the willingness to initiate actions to which competitors then respond, or the extent to which an organisation is acting on, rather than reacting to, its environment (Covin & Miles, 1999:49; Morris *et al.*, 2011:71; Slevin & Covin, 1990:43).

Although according to Morris *et al.* (2011:375) organisations should have the ability to move on two parallel paths (i.e., continuous improvement and radical innovation) in order to achieve corporate sustainability, levels of entrepreneurship within organisations are never constant as they vary across departments and units, as well as over time. Different organisations will obviously exhibit different levels or degrees of innovativeness, risk-taking and proactiveness as these dimensions will combine differently.

According to Morris *et al.* (2011:74), an entrepreneurial event varies in terms of the degree of entrepreneurship, or how much innovativeness, risk-taking, and proactiveness is involved. The more entrepreneurial events an organisation has, the higher the frequency of entrepreneurship in that organisation, and vice versa (Morris *et al.*, 2011:74). In order to assess the overall level of entrepreneurship in an

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organisation at a given point, Morris *et al.* (2011:74) recommend that both the degree and frequency of entrepreneurship be considered together, thus indicating entrepreneurial intensity (EI) for the organisation. Figure 3-11 shows a two-dimensional matrix for EI, with the vertical axis indicating the number or frequency of entrepreneurial events, and the horizontal axis showing the extent or degree to which these events are innovative, risky, and proactive. An organisation with only a few entrepreneurial events, which are also nominally innovative, risky, and proactive, can be described as periodic or incremental in terms of its EI level, which is modest, whereas an organisation with numerous entrepreneurial events, which are also highly innovative, risky and proactive, fits into the revolutionary segment of the EI matrix (Morris *et al.*, 2011:74).

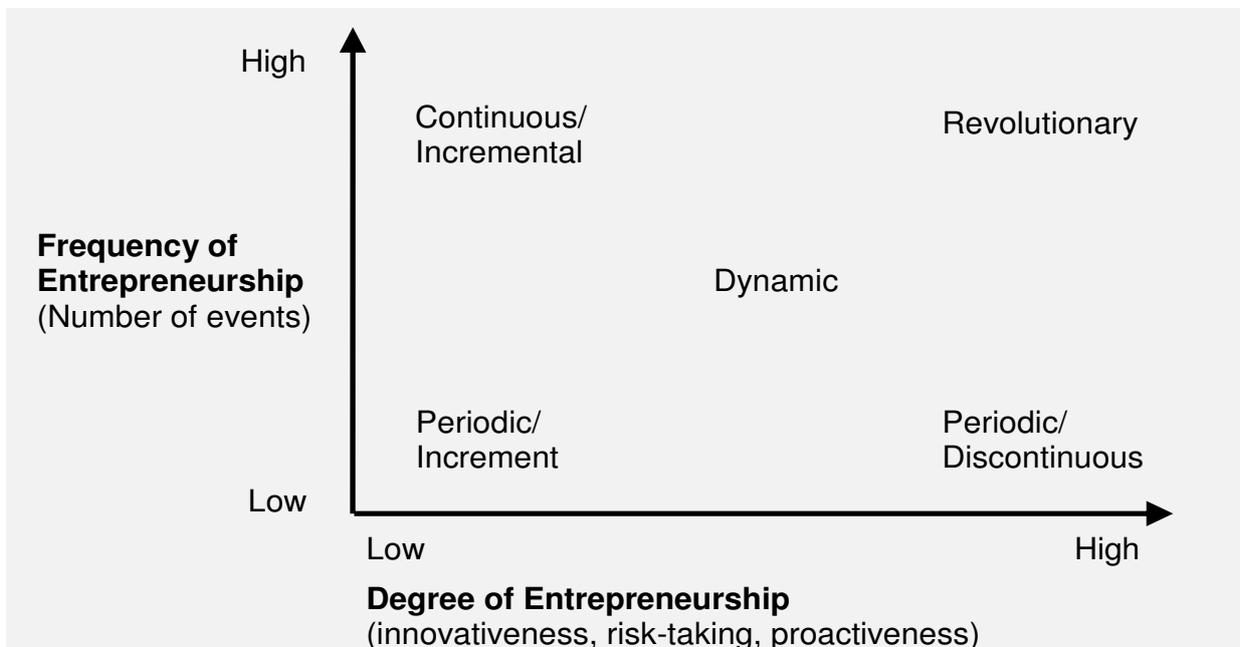


Figure 3-11: The Entrepreneurial Grid

Source: Adapted from Morris *et al.* (2011:75)

This study adopted a definition of CE within the context of the forms of CE envisioned by Covin and Miles (1999) and extended by Morris *et al.* (2011): thus CE is the effort of promoting innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive economic opportunities with a long-term perspective. While this definition for CE was adopted for the study,

there is also evidence that CE researchers often acknowledge variations when conceptualising the construct, as can be seen from the various selected definitions of the phenomenon.

3.6 Creativity and innovation in established organisations

Most of the theories and studies on innovation have tended to focus on factors determining innovative behaviour of an individual, as opposed to innovative behaviour at the level of an organisation (Montalvo, 2006). However, the individual level attributes for creativity and innovation fundamentally provide the foundation for organisational creativity as well as innovation (Amabile, 1988). From a point of view of CE (intrapreneurship), creativity plays a major role especially in ensuring renewal and survival of an organisation in this highly competitive world. In an established organisation, the “raw materials” for entrepreneurial innovation are the “new ideas, principles, or concepts” which are essentially the “product of creativity” (Baron & Tang, 2011:51).

Creative intrapreneurs must act as entrepreneurs and successfully implement their innovative and creative ideas without themselves becoming owners (Cunningham & Lischeron, 1991; Timmons & Spinelli, 2007). For instance, they may have to creatively develop independent units designed to create, market, and expand innovative services, technologies, or methods within the organisation (Scheepers in Nieman & Nieuwenhuizen, 2009).

In this respect, company-level innovative behaviour is essentially a combination of the innovative behaviour of the entrepreneurial team or managers. In other words, managers’ willingness to innovate determines the innovative behaviour of an organisation (Mantalvo, 2006). In an empirical study to determine what triggers innovation at the level of an organisation, based on behavioural sciences, Mantalvo (2006:19) established that an organisation’s willingness to engage innovation can be explained in terms of managers’ “attitudes toward the innovation, the perceived social pressure and the perceived control upon the innovation process”. The organisation’s willingness to innovate can be revealed through its intentionally planned performance behaviour, such as the development of a strategic plan and performance measures.

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In this respect, managers' beliefs and behavioural domains will influence their willingness and attitude to innovation.

The componential theory of organisational creativity and innovation predicts how the organisational work environment impacts on individuals' creativity, and how creativity by individuals and small teams of individuals also functions as primary source for organisational innovation, as shown in Figure 3-12 (Amabile, 1997b). The upper part of Figure 3-12 presents work environment elements that are considered necessary for innovation (management practices, resources, and organisational motivation), while the lower part presents the components of individual creativity as earlier mentioned (expertise, creative thinking skills, and intrinsic task motivation). The factors considered to influence organisational innovation and creativity are explained in Table 3-3 (Amabile, 1997b).

The critical aspect of this componential theory of organisational creativity and innovation is its assertion that the internal organisational work environment influences creativity by impacting on the components for individual creativity as shown in Figure 3-12 (Amabile, 1997b). Organisations that embrace creativity and innovation have many benefits, not just in terms of growth and renewal but also their performance and long-term sustainability. According to Stowe and Grider (2014:3), "the implementation of a creative idea must result in lowering costs or raising sales or both to create "value" for the buyer or stakeholder". Creativity and innovation underpin long-term competitive advantage and organisational performance by enhancing the organisation's ability to develop and market new and novel products, services, performances and offerings, and to develop new and improved thinking styles (Napier & Nilsson, 2008).

Thus creativity and innovation are necessary attributes of an entrepreneurial organisation, and this is what sets such organisations apart from traditional non-entrepreneurial organisations. Entrepreneurial organisations also take deliberate steps to set the internal organisational environment conducive for fostering creativity and innovation. For instance, several studies and reports (Gobble, 2012:66) have identified organisational culture and talent as catalytic to organisational creativity and

innovation, that is, finding the “right people and putting them in the right environment” for them to innovate.

Table 3-3: Components of creativity and innovation for the work environment

	Component	Component operationalisation
Creativity	Creative thinking skills	A cognitive style favourable for taking new perspectives on problems, an application of techniques (or ‘heuristics’) for the exploitation of new cognitive pathways, and a working style conducive to persistent, energetic pursuit of one’s work.
	Expertise	The set of cognitive pathways that may be followed for problem solving or undertaking a given task (memory for factual knowledge, technical proficiency, and special talents in the target work domain).
	Task motivation	Task motivation can be either <i>intrinsic</i> (driven by deep interest and involvement in the work, by curiosity, enjoyment of a personal sense of challenge) or <i>extrinsic</i> (driven by the desire to attain some goal that is apart from the work itself, e.g. achieving a promised reward, meeting a deadline or winning a competition). A combination of the two is also possible and common, although a primarily intrinsic motivation is more conducive to creativity than a primarily extrinsic motivation.
Innovation	Organisational motivation	Management support for: (1). Orientation toward innovation (organisational encouragements for value placed on creativity and innovation in general, an orientation toward risk, a sense of pride in the employees and enthusiasm in their capabilities, an offensive strategy of taking the lead toward the future; (2). Organisational-wide support for innovation and creativity (mechanisms for developing new ideas; effective communication of information and ideas; reward and recognition for creative work; fair evaluation of work; and (3). Absence of impediments (internal political problems, destructive criticism and competition with the organisation, strict management control, and an excess of formal structures and procedures), and workload pressure.
	Management practices	Management practices at all levels, particularly individual departments and projects as regards challenging work, work group supports, supervisory encouragement, and degree of freedom or autonomy.
	Resources	Sufficient resources (all tangible and intangible organisational resources available to aid innovation: time availability for producing novel work, expertise, materials, systems and processes, information, and training).

Organisational culture is a system of shared values and beliefs that shape the organisation’s structural arrangements and its members’ actions to produce behavioural norms (Ireland *et al.*, 2003:971). Culture therefore influences the cognitive framework that affects how organisational members perceive issues as well as how they view their organisation’s competitiveness (Johnson, 2002:11). It is in fact now empirically evident that “creativity is positively related” to organisation-level innovation and this relationship is “moderated by environmental dynamism, being stronger in highly dynamic than stable environments” (Baron & Tang, 2011:49).

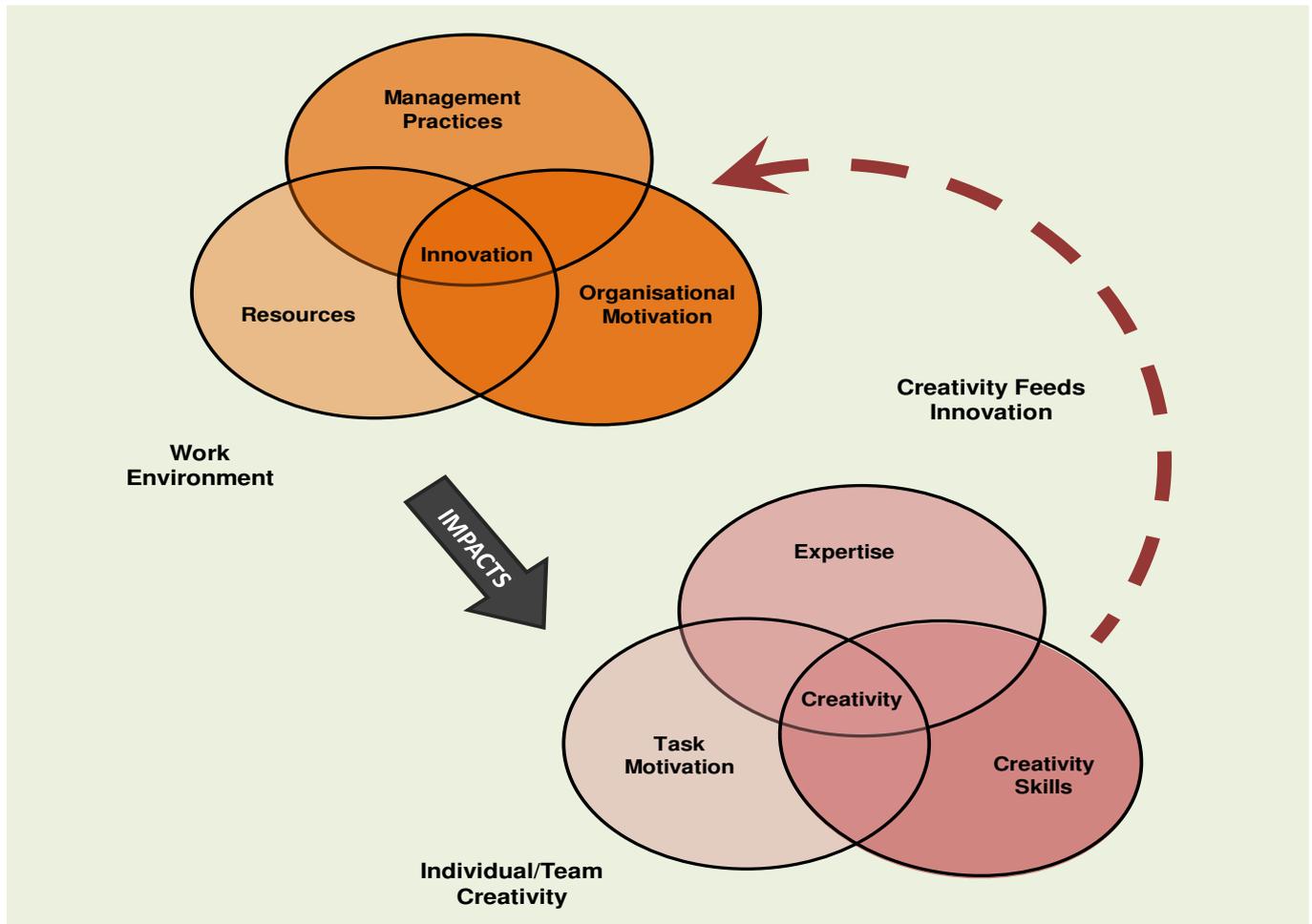


Figure 3-12: Impact of the organisational environment on creativity

Source: Adapted from Amabile (1997b:39-58).

There are a number of classifications of innovation within established organisations. One classification with growing interest is categorising innovations along two domains (Jansen *et al.*, 2006:1661), namely: (1) exploratory innovations (referring to radical innovations designed to meet the needs of emerging customers or markets (Benner & Tushman, 2003:243) and offer new designs, create new markets, and develop new channels of distribution, while requiring use of new knowledge or departure from existing knowledge (Jansen *et al.*, 2006:1662), and (2) exploitative innovation (referring to incremental innovations designed to meet the needs of existing customers or markets (Benner & Tushman, 2003:243) and build on existing knowledge while reinforcing existing skills, processes, and structure (Jansen *et al.*, 2006:1662). Thus, whereas exploratory innovations have to do with proximity to existing technologies, products, and services, exploitative innovations deal with

proximity to existing customer or market segments (Benner & Tushman, 2003:243; Jansen *et al.*, 2006:1662).

Entrepreneurship literature supports the view expressed by Stevenson and Gumpert (1985) that innovation is the “heart of entrepreneurship” and all types of the phenomenon are based on innovation (Cohen & Winn, 2007:35; Covin & Miles, 1999:49; Kuratko, 2013:3-4; Stopford & Baden-Fuller, 1994:522). Accordingly, innovation is considered as a tool for growth and development (Stowe & Grider (2014:2). Covin and Miles (1999:49) conclude that without innovation there is no CE regardless of the presence of the other dimensions. Consistent with this observation, Covin and Miles (1999:50) define CE as the presence of innovation plus the presence of the objective to rejuvenate or purposely redefine organisations, markets, or industries in order to create or sustain competitive superiority. What clearly comes out of the foregoing is that the objective of organisational sustainability through innovation tends to be critical. According to Corbett *et al.* (2013:812), the utilisation of various innovation-based initiatives is the thrust for renewal of “established organisations, thereby facilitating their viability and competitiveness”. Continuous innovation in relation to products, processes, and administrative routines and structures is critical for any organisation to compete effectively in the global markets of the 21st century (Kuratko *et al.* (2014:37).

3.6.1 Barriers to creativity and innovation

Creative behaviour and thinking, which leads to innovative actions and processes, is a necessary attribute for entrepreneurial success as it tends to enhance the problem solving and opportunity discernment ability of an entrepreneur (Antonites in Nieman & Nieuwenhuizen, 2009). However, although human beings are by nature creative, it does not follow that everyone has this creative behaviour and thinking appropriate for entrepreneurial actions, as in most people the ability tends to diminish over time due to a number of surmountable barriers (Antonites in Nieman & Nieuwenhuizen, 2009; Timmons & Spinelli, 2007).

At an individual level, anything that does not support creativity and innovation will tend to impede them. For instance, in the componential theory, the lack of acquirable

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creative thinking skills, expertise, and task motivation will obviously work as barriers to creativity. Further, in relation to Couger's 4P model of creativity (as quoted by Antonites in Nieman & Nieuwenhuizen, 2009), any unfavourable conditions regarding the person, the product, the process and the press (environment) will act as impediments to entrepreneurial creativity, as they tend to diminish the person's creative thinking. For instance, aspects such as perceptual, cultural, emotional, environmental (socioeconomic and physical), and organisational factors can stifle creativity (Antonites in Nieman & Nieuwenhuizen, 2009; Hisrich *et al.*, 2008).

Although there are a number of barriers to creative thinking and behaviour, it is important for entrepreneurs to embrace the view that creativity can be learned or enhanced.

3.6.2 Barriers to innovation

There are several factors that can negatively affect innovation, thereby reducing entrepreneurial uptake and slowing down organisational performance and economic growth. Of importance to note is that whatever affects creativity also affects innovation, since creativity is the first part of the innovation process. Therefore the barriers to creativity mentioned above are also applicable to innovation. Within an organisation, impediments in the work environment as regards components for creativity (creative thinking skills, expertise, and task motivation) and innovation (management support, management practices, and organisational motivation) will diminish innovation.

There are other important barriers to innovation that need mention. Innovation is a process that includes invention and commercialisation, whose performance is also affected by the environment external to the organisation. Therefore, factors in the external environment, outside management control, also do have an effect on innovation. Financial sector distortions, for instance, are one critical impediment to innovation as they reduce the rate of innovation, resulting in a decline in organisational performance and economic growth (King & Levine, 1993b).

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According to the agency theory, CE is associated with risk taking, which encourages entrepreneurial innovativeness among the intrapreneurs, while risk taking itself is enhanced by compensation systems that link rewards to entrepreneurial behaviours (Hayton, 2005:26). Of all human resource practices, compensation or reward has been found to be the most important for encouraging innovation (Hayton, 2005:26). In this regard, lack of appropriate compensation systems within established organisations works as a barrier to entrepreneurial innovation.

Further, according to Murovec and Prodan (2009:859), empirical research showed that an organisation's absorptive capacity was positively related to product and process innovation output. In this respect, levels of these kinds of innovation are likely to be low in organisations whose absorptive capacity is low. Pérez-Luño, Wiklund and Cabrera (2011:555) found that organisational proactivity and risk taking influence the number of innovations generated internally as well as the extent to which organisations favour internal generation over adoption of innovations. Thus internally generated innovations will tend to be high in first-mover organisations that are more risk taking and proactive or organisations that have a high entrepreneurial orientation.

In competitive environments, organisations may opt for pursuing the less costly exploitative innovations to improve on their offerings to the existing customers and build customer loyalty (Jansen *et al.*, 2006:1664). In this respect environmental competitiveness tends to reduce available resources for exploratory innovations (Zahra 1996a), as organisations minimise on pursuing such highly risky and costly innovations that have the potential to harm the viability of organisational units (Zahra & Bogner, 1999). On the other hand, organisations pursuing exploratory innovations, reacting to existing trends and demands by improving current products, services, and markets, have a better chance of enhancing their performance in competitive environments (Jansen *et al.*, 2006:1664). Organisations pursuing entrepreneurial innovations will find themselves opting for a balance between exploratory and exploitative innovation strategies as they respond to the external environment in order to remain more competitive.

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Furthermore, research has shown that innovation in established organisations is affected by environmental, organisational, process, and managerial characteristics (Koberg, Detienne & Heppard, 2003). In an empirical study, Koberg *et al.* (2003:21) found that different mixes of environmental and organisational variables were significant predictors of incremental and radical innovation. Factors such as environmental dynamism, age and size of the organisation (although not as hypothesised), intra-organisation structural linkages, and the CEO's age favoured incremental innovation, while variables such as environmental dynamism, intra-organisation structural linkages, experimentation, and transitioning or sequencing from one project to the other favoured radical innovation (Koberg *et al.*, 2003:21).

In this respect, organisations have to create an appropriate internal environment (addressing both organisational and individual characteristics) for entrepreneurial innovations and maximise their capacity to respond or adapt to changes within the external environment. This calls for continuous organisational learning and adapting, as well as ensuring having an appropriate CE climate coupled with favourable strategies, structure, systems, and human resource management practices and leadership that will free the spirit of entrepreneurial creativity and innovation.

Creativity and innovation are therefore necessarily part of the entrepreneurial process. Research has shown that entrepreneurial creativity and innovation, coupled with market oriented reforms, play a critical role in ensuring rapid economic growth, which brings about wealth and job creation, and ultimately socioeconomic development. Innovation is considered as key to entrepreneurial success as it brings commercial value to an invention. In this respect, it is important to note the role of creativity and innovation in entrepreneurship. Success of an entrepreneurial venture requires not only a “productive and supportive business climate along with an educated population”, but also a climate that promotes and nurtures “creativity, diversity and innovation” (Lee *et al.*, 2004: 881). Innovation is a necessity for all organisations, regardless of size or age, competing in environments where change is pervasive, unpredictable, and continuous (Koberg *et al.*, 2003:22).

3.7 Factors affecting Corporate Entrepreneurship

Scholars have identified a number of factors that drive or influence entrepreneurship with organisations. These include appropriate processes and systems such as having an appropriate organisation structure, compositions of teams and communication channels, and the right vision and team to steer the vision, as well as motivating compensation for the team (Bhardwaj, Sushil & Momaya, 2011:188; Zimmerman, 2010:80). A number of CE models have incorporated these elements in their conceptualisations (e.g., Kuratko *et al.*, 2004:79; Kuratko *et al.*, 2005b:701; Levie & Lichtenstein, 2010:332; Lumpkin & Dess, 1996:152; Mokaya, 2012:140; Morris *et al.*, 1994:29).

Zimmerman (2010:80) identified four key factors that could bring about sustained CE behaviour in organisations, namely: (1) conducting a CE health audit for the purposes of reviewing structures, control of human resources management, and culture; (2) CE development training for high-potential individuals; (3) incorporating a strategic business unit process into the organisation's overall strategic process; and (4) establishing an internal corporate venture capital committee to approve and fund value-adding initiatives. A recent study by Urban and Nikolov (2013:383) on sustainable CE showed that individual participation in CE initiatives was mostly influenced by the likelihood of venture success, followed by possibility of financial reward, while job risk, pay risk and required effort were considered as deterrents to participation. The results further showed that individuals with prior entrepreneurial experience were less concerned about job risk and had a higher positive perception about venture success (Urban & Nikolov, 2013:383). Thus individual perceptions of rewards and risks instigate intrapreneurs' decision whether to engage and/or continue with any corporate entrepreneurial actions. In this respect, organisations must strive to bring active change through the appointment of individuals or teams that drive and instigate entrepreneurial activities in order to gain sustainable competitive advantage (Urban & Nikolov, 2013:384).

As a multidimensional phenomenon, CE incorporates behavioural interactions of three elements within organisations, namely: the individual, the organisation itself, and the environment (Covin & Miles, 2007:183; Urban & Nikolov, 2013:386). These

three elements are the embodiments of factors that affect entrepreneurship within established organisations. Currently there is renewed interest in CE owing to the recognised need for organisational renewal through the creation of appropriate entrepreneurial processes that can bring about the achievement and perpetuation of competitive superiority within established organisations (Corbett *et al.*, 2013).

3.8 Arguments against corporate entrepreneurship

Although CE has been elevated as the appropriate strategy for enhanced corporate competitiveness, survival and renewal (Morris *et al.*, 2011), the phenomenon still has its own challenges. No doubt, the issue of the inherent value of CE for existing organisations seems settled; however, how this is done still remains elusive to some extent (Kuratko & Audretsch, 2013; Morris *et al.*, 2011). The literature still overflows with evidence of theoretically “fundamental ambiguity” regarding the meaning of having CE as a strategy for an organisation (Kuratko & Audretsch, 2013: 324; Meyer & Heppard, 2000). In fact, research has shown that “not all corporate entrepreneurial behaviour is good for the organisation” (Goodale, Kuratko, Hornsby, & Covin, 2011:124). What this means is that in trying to experiment on CE, some organisations are likely to suffer detrimental effects depending on their preparedness. For instance, one study found that new ventures started within a corporation performed worse than those started independently by entrepreneurs (Fast as cited by Hisrich *et al.*, 2008:83).

Even the CECI designed to predict or measure CE has been found wanting in terms of its factor structure. As Hornsby *et al.* (2013) note, some researchers have found problems with the original five-factor structure developed by Hornsby *et al.* (2002). Empirical research findings have shown that the factor structure for the CECI tends to be quite inconsistent, yielding between four to eight factor solutions, while the original items tended not to be as conceptually distinct as desired (Adonisi, 2003; Brizek, 2003; Hornsby *et al.*, 2002; Hornsby *et al.*, 2008; Hornsby *et al.*, 2009; Hornsby *et al.*, 2013; Van Wyk & Adonisi, 2011). Brizek (2003), found the factor organisational boundaries to be particularly problematic regarding internal consistency, while Hornsby *et al.* (2009), Holt *et al.* (2007), and Hornsby *et al.* (2013) completely excluded this dimension from further analysis.

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Further, even the number of items per factor for the CECI keeps on falling by the wayside as they fail to pass the item reliability test in different studies. For instance, in a recent study by Hornsby *et al.* (2013), out of a total of 48 items for the original measure, only 18 items (38%) made it when they were subjected to a more parsimonious and psychometrically sound test. This clearly shows that there is still need for further refinement of the CECI so that it could be relied upon as an appropriate measure of CE levels for the purposes of evaluating and steering the organisation to a dynamic entrepreneurial milieu. It would therefore be of interest to assess the CECI as regards predicting sustainable CE and its factor structure.

This notwithstanding, the literature still abounds with empirical evidence that the CECI was a relatively stable measurement instrument for factors influencing an organisation's entrepreneurial activities and outcomes and can therefore be relied upon (Hornsby *et al.*, 2013). The measurement of CE enables management to objectively assess an organisation's readiness for entrepreneurial activities and to effectively communicate CE actions (Hornsby *et al.*, 2002; Hornsby *et al.*, 2008; Van Wyk & Adonisi, 2011). The CECI has also been found to be an appropriate CE diagnostic tool useful for identifying existing corporate entrepreneurial actions and therefore facilitating development of those actions identified as missing (Hornsby *et al.*, 2008). Furthermore, the CECI has been found useful for setting employees on an entrepreneurial path on the basis of the instrument's diagnostic capabilities (Hornsby *et al.*, 2008; Van Wyk & Adonisi, 2011).

Regarding failures that have been recorded among some organisations trying to experiment with the CE strategy, there are several reasons that could have led to such unintended outcomes. According to Burgelman and Välikangas (2005), research has shown that CE in many major companies is rather cyclical, beginning with enthusiastic support and investment but later phasing into diminished interest and programme cuts. This sequence may be repeated afterward. Companies fail to maximise the benefits of CE as they largely "vacillate in their commitment to internal corporate venturing activities, leading to less than optimal outcomes" (Burgelman & Välikangas, 2005:26).

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It is therefore imperative for top management to be able to understand and manage the factors that drive cyclicality in CE (Burgelman & Välikangas, 2005). According to Kelley (2011:74), these cycles occur due to the largely unpredictable changes in the internal and external environment which impact on the organisation, resulting in CE being “relegated to serendipity if mechanisms are not put in place to support the initiative as the organisation and its environment change”.

Thornberry (2001:531-532) also identifies a number of reasons why CE as an organisational strategy has failed in some instances; these include the following:

- Failure to make changes in an organisation’s culture and values as well as maintaining traditional reward and motivation schemes while trying to embrace CE
- Top management’s unwillingness to practice CE, let staff take risks and make mistakes
- Organisations not really knowing what they want when they talk about CE
- Having wrong people in the organisation who are not entrepreneurially minded
- Upper middle managers’ unwillingness to become entrepreneurial or support those that want to be
- Having part-time intrapreneurs who are not available on full-time basis
- Lack of appropriate entrepreneurial skills that will creatively and innovatively engage in the entrepreneurial process.
- Inappropriate new venture-funding mechanisms that lack understanding of the venture capital mindset as well as the mind of an entrepreneur and the need for an entrepreneurial team.

For CE to work, it must be embraced first and foremost by top management, who should provide a strong support structure as well as appropriate resources (Ireland *et al.*, 2009) and must themselves have a thorough understanding of both the internal and external environments (Hornsby *et al.*, 2002). Further, it is important that all

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levels of management be involved (Holt, Rutherford & Clohessy, 2007), while the entire organisation must be readied for the CE experience in terms of its culture and values as well as reward and motivation schemes (Thornberry, 2001:531). However, as Kelley (2011:73) posits, the majority of organisations “possess a general resistance to these initiatives”.

Therefore companies that do not gear themselves for CE will not reap the benefits of having an entrepreneurial environment and will instead blame the phenomenon itself if it does not work. An illustration of marriage seems suitable here: there are many divorced couples, and this is as a result of several reasons, including marital unfaithfulness. However, this does not amount to sufficient evidence to disband all marriages, as there are countless other couples enjoying successful and rewarding relationships based on stringent adherence to the covenanted marital principles which they love and cherish.

3.9 Sustainable corporate entrepreneurship

The construct *sustainability* is a multidimensional concept that has many different connotations depending on the context in which it is used. For instance, The World Commission on Environment and Development (1987:49) uses the term “sustainability” from a developmental perspective, and defines sustainable development as the “development that meets the needs of the present without compromising the ability of the future generations to meet their needs”. In this respect, sustainability is global in scope and embraces both the future and the present in terms of three critical spheres, namely environmental, social, and economic health, the “triple bottom line” (Cohen & Winn, 2007:30), which should be pursued accordingly.

In the field of entrepreneurship, the construct of sustainability takes on many different conceptualisations and dimensions. Sustainable CE (SCE) is a relatively new field and there is therefore still a lot to be covered, as there tends to be not so much entrepreneurship literature, let alone empirical research, specifically addressing this aspect of CE. Furthermore, given the divergent interests in the field of sustainable CE, issues pertaining to this phenomenon are being addressed from different

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perspectives by various schools of thought, including those that take the perspective of sustainable entrepreneurship in relation to environmental stewardship (e.g., Miles, Munilla & Darroch, 2009; Schaltegger & Wagner, 2011; Shepherd & Patzelt, 2011), or “ecopreneurship”, defined as environmentally orientated entrepreneurship (Schaltegger & Wagner, 2011:223).

However, other researchers take a different school of thought that uses the term sustainability in relation to corporate entrepreneurial behaviour to imply on-going improvements or enduring entrepreneurial capabilities within established organisations, resulting in sustainable competitive advantage and sustained performance, and use terms such as sustainable CE (Kelley, 2011), sustaining CE (Kuratko *et al.*, 2004), sustainable competitive advantage (Urban & Nikolov, 2013), strategic entrepreneurship (Hitt, Ireland, Sirmon & Trahms, 2011:57) and continued entrepreneurship (Davidsson, 1991) to define the phenomenon. It is evident that CE gives ground for competitive advantage of an established organisation in different ways: (1) differentiation or cost leadership in enterprise, (2) quick response to any change, and (3) new strategic direction or new ways of working or learning within the organisation (Mokaya, 2012:138). **This study uses the term sustainability in this context of on-going improvements or enduring entrepreneurial capabilities within established organisations, resulting in sustainable competitive advantage and sustained performance.**

Kelley (2011:74) defines sustainable CE from the viewpoint of an organisation developing “enduring capabilities” or “lasting abilities” for entrepreneurship within an organisation through continuous learning and adapting to change, taking into account both the internal and external environmental factors. Furthermore, Kelley (2011:74) posits that to achieve sustainable CE, “companies must develop strategic objectives to guide entrepreneurs, a management structure to support their work, and processes that inform assessment and decision making”. According to Kelley (2011:74), through an *Evolve and Connect model*, these three contexts (strategy, structure, and process) can adjust to shifts in both the internal and external environments. In this respect, for an organisation to achieve sustainable CE, it must engage in an evolving process of adapting to the internal and external factors through the three avenues of strategy, structure, and process, which should be viewed as the initial starting points (Kelley,

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2011:82). Management plays a key role in maintaining a link between entrepreneurial activity and the organisation's mainstream in order to facilitate the creation of enduring capabilities for sustainable CE.

Hitt *et al.* (2011:57) refer to this kind of sustainable CE as “strategic entrepreneurship” (SE), which results from the “integration of entrepreneurship and strategic management knowledge” (Ireland *et al.*, 2003:966), and is “concerned with advantage-seeking and opportunity-seeking behaviours resulting in value for individuals, organizations, and/or society”. In this respect, SE relates to “actions taken to exploit current advantages while concurrently exploring new opportunities that sustain an entity's ability to create value across time” (Hitt *et al.*, 2011:57).

In the context of SE, for an organisation to achieve sustainable competitive advantages and have effective responses to continuous environmental changes, it has to rely on its innovation and exploitation abilities (Hitt *et al.*, 2011:57). According to Hitt *et al.* (2011) and Ireland, Hitt, Camp and Sexton (2001), SE involves taking entrepreneurial actions with strategic perspectives. Therefore organisations that can only identify opportunities but lack opportunity exploitation capacity cannot realise their wealth creation potential and will therefore under-reward their stakeholders (Ireland *et al.*, 2003:966). Such organisations will therefore tend fall short of exhibiting sustainable CE.

Kelley (2011:75) points out a number of factors that are needed for an organisation to exhibit sustainable CE, namely: (1) having their strategic, structural, and process contexts framed in a such a manner that proactively reflects both the “current and changing conditions within and outside their organisations”, for instance having strategic objectives that can guide intrapreneurs, management structures that can support entrepreneurial activities, and processes to inform assessment and decision making, and (2) connecting these strategic, structural, and process contexts with the their broader environment.

Sustainable CE leads to an “enduring and progressive” organisation (Kelley, 2011: 75) with superior competitive advantage and sustained company performance. Organisations that are able to exploit their current competitive advantages while

simultaneously making decisions to shape the advantages they intend to appropriate and utilise in future increase their probability of long-term survival, growth, and financial success (Kuratko *et al.*, 2001:60). Given the continuously changing socioeconomic environment coupled with changes in governance and corporate laws, sustainable CE is the appropriate strategy for fostering organisational superiority in terms of growth, competitiveness, and overall performance through continuous entrepreneurial innovations.

According to Morris *et al.* (2011:403), ultimately, corporate entrepreneurial activities should lead to venture sustainability, which they define as “some level of consistency in the levels of innovativeness, risk-taking and proactiveness” that an organisation achieves over a period of time. Entrepreneurship is considered as a way of thinking (cognitive) and a way of action (behaviour) and has a bearing on company performance and sustainability (Morris *et al.*, 2011:375). Furthermore, Morris *et al.* (2011:403) argue that the key to corporate sustainability is the ability of a company to move on two parallel paths: continuous improvement and radical innovation. Whereas continuous improvement is incremental and additive, radical innovation implies explosive and market-defining advances – dramatic and revolutionary progress (Morris *et al.*, 2011:375).

In this study the concept *sustainability* is also used to refer to consistency in the levels of innovativeness, risk-taking, and proactiveness as well as in the internal climate for CE that an organisation is able to achieve on an on-going basis. This is in line with the use of the concept by Morris *et al.* (2011). Further, this study adopts the CE typology by Covin and Miles (1999) and Morris *et al.* (2011), and defines *sustainable CE* as the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance. This definition incorporates both phenomena aspects embodied by CE (Phan *et al.*, 2009:198), namely: (1) *innovation and corporate venturing activities* (referring to the aspect of entrepreneurship that focuses on the various steps and processes associated with creation of new businesses and their integration into the organisation’s overall business profile), and (2) *renewal activities* (referring to the CE

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activities that enhance an organisation's ability to compete and take risks, which may or may not involve the addition of new businesses to an organisation). Corporate venturing comprises internal and external CV (Sharma & Chrisman, 1999:19-20), also referred to as strategic entrepreneurship by Morris *et al.* (2011:99), and Kuratko and Audretsch (2009:8), defined as entrepreneurial behaviour involving the identification and exploitation of opportunities while simultaneously creating and sustaining a competitive advantage (Ireland *et al.*, 2003:963; Phan *et al.*, 2009:199).

Sustainable CE brings about continuous improvement in an organisation's competitiveness as well as performance dimensions through an organisation's "commitment to pursuing new opportunities, creating new units or businesses, innovativeness in terms of products, services and processes, strategic self-renewal, constructive risk-taking and proactiveness" (Urban & Nikolov, 2013:384). This requires organisations to be alert to changes both in the internal and external environments in order to see opportunities for entrepreneurial innovations. Thus management plays a critical role in bringing about such an entrepreneurial posture through embracing an appropriate CE climate, strategies, structures, processes, and human resource practices that allow and encourage entrepreneurial actions embracing creativity and innovation within the organisation. Sustainable CE includes both CV as defined by Covin and Miles (2007:183) and Sharma and Chrisman (1999:19), and SE as defined by Phan *et al.* (2009:199) and Ireland *et al.* 2003:963).

Accordingly, in recognising the critical need for an organisation to be committed to the strategy for on-going entrepreneurial innovation, Ireland *et al.* (2009:29) conceptualised CE strategy as "a vision-directed, organization-wide reliance on entrepreneurial behaviour that purposefully and continuously rejuvenates the organization and shapes the scope of its operations through the recognition and exploitation of entrepreneurial opportunity". An appropriate internal environment, which integrates entrepreneurial activity into the organisation's overall strategies, must be created for this purpose (Morris *et al.*, 2011), and should be "conducive to the initiation and sustainment of innovation-inducing strategies" (Kuratko *et al.*, 2014:38).

3.10 Organisational antecedents and sustainable CE

The literature singles out certain organisational antecedents as being critical for achieving entrepreneurship within a company. These organisational antecedents are measured using the CECI which was originally developed by Kuratko *et al.* (1990) for diagnosing the climate for CE. The CECI, also known as the Corporate Entrepreneurship Assessment Instrument (CEAI), is a diagnostic tool for assessing, evaluating, and managing the internal environment of the organisation in a manner that supports the creation of sustainable entrepreneurship (Morris *et al.*, 2011:381).

According to Kuratko *et al.* (2014:39) and Hornsby *et al.* (2013:939), these antecedents include: (1) *management support* (the willingness of top level management to facilitate and promote entrepreneurial behaviour, including the championing of innovative ideas and providing the resources people require to take entrepreneurial actions), (2) *work discretion/autonomy* (top-level management's commitment to tolerating failure, providing decision-making latitude and freedom from excessive oversight, and delegating authority and responsibility to managers), (3) *reinforcement* (developing and using systems that reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work), (4) *time availability* (evaluating workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support effort to achieve short- and long-term organisational goals), and (5) *organizational boundaries* (precise explanation of outcomes expected from organisational work and development of mechanisms of evaluating, selecting and using innovations). Organisational boundaries is also defined as the extent to which there are flexible and supportive organisational boundaries that are useful in promoting entrepreneurial activity, as they enhance the flow of information between the external environment and the organisation, as well as between departments/divisions within the organisation (Kuratko *et al.*, 2014:39).

Therefore, corporations desiring a sustainable entrepreneurial climate and competitive advantage have to ensure that these antecedents are vigorously promoted internally through top level management. Sustaining CE requires corporations to maintain high levels of entrepreneurship internally, which includes

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understanding the basic nature of the entrepreneurial experience, recognising the inherent entrepreneurial potential of all employees, and creating climates that allow employees to act on that potential (Morris, Van Vuuren, Cornwall & Scheepers, 2009). This means creating a conducive work environment, which Morris *et al.* (2011:247) define as the context or surroundings in which the employees find themselves when they come to the job each day, a set of conditions under which the employees must operate as they attempt to accomplish company tasks and personal goals.

Work environment includes elements such as strategy, structure, organisational culture, controls, and human resource management practices (Morris *et al.*, 2009; Morris *et al.*, 2011:247). Accordingly, Morris *et al.* (2009) conclude that there has to be a balance of opposites; sustainable entrepreneurship results not from compromise, integration, or bipolar tensions, but the simultaneous existence of two inconsistent states, as shown in Table 3-4.

Table 3-4: Achieving CE through co-existing properties

Design Element		Underlying Dimensions		
Strategy	➤	Exploration	Co-exists with	Exploitation
Culture	➤	Individualism	Co-exists with	Collectivism
Structure	➤	Autonomy	Co-exists with	Restraint
Control	➤	Resource tightness	Co-exists with	Resource looseness
HRM	➤	Performance incentives	Co-exists with	Professional security
		Administrative skills	Co-exists with	Entrepreneurial skills

Source: Adapted from Morris *et al.* (2009).

Morris *et al.* (2009) posit that the key to tapping employee entrepreneurial potential in order to sustain CE lies in creating the kind of work environment where employees are willing to develop creative concepts, demonstrate tenacity in promoting those concepts, and risk failure as they persevere in implementing those concepts. An organisation's control systems, reward approaches, resource management, and several other managerial factors do have an influence on employees' creativity and

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innovation, which in turn affects company performance. For instance, too much control of subordinates by managers essentially results in over-supervised employees with little room to be creative or innovative, and also results in narrowed-down frames of reference, which stifles the ability to integrate perspectives and methods across organisational boundaries (Morris *et al.*, 2011:309). All these variables should be tailored to facilitating heightened levels of entrepreneurial activities, which should result in sustained company performance. In this regard, management plays a critical role in creating an enabling workplace environment that fosters sustainable CE. According to Morris *et al.* (2011:51), the perception of the individual employee that several organisational antecedents are present (e.g. management support autonomy, rewards, resources, and flexible organisational boundaries) plays an important role in sustaining an entrepreneurial activity. In this case, the outcomes of the entrepreneurial event – whether they are equitable or at least meet expectations – determine whether the entrepreneurial activity will increase or decrease.

Ultimately, corporate entrepreneurial activities should lead to venture sustainability – some degree of consistency in the levels of innovativeness, risk-taking, and proactiveness that an organisation is able to achieve over a number of years (Morris *et al.*, 2011:403). The literature abounds in empirical evidence that the CECI is a relatively stable measurement instrument for factors influencing an organisation's entrepreneurial activities and outcomes and can therefore be relied upon (Hornsby *et al.*, 2013). The CECI as a diagnostic tool for CE climate has been refined in more recent studies to enhance its reliability and validity (Hornsby *et al.*, 2013; Hornsby *et al.*, 2009). In this respect, it is expected that the CECI antecedents, that is, management support, work discretion/autonomy, reinforcement, time availability, and organisational boundaries, can predict sustainable CE through managers' entrepreneurial actions. It is, however, also possible that some of the organisational antecedents could actually have a direct link with sustainable CE, given the relationship between entrepreneurial actions and CE (see section 3.11 for a detailed discussion on managers' entrepreneurial actions).

The literature reports a number of other internal factors influencing CE which some researchers have used previously, such as formal control, and the number of

alliances (Antoncic & Hisrich, 2004), company strategy, top management values and attitudes, and organisational resources and competencies (Covin & Slevin, 1991), leadership styles, human resource management practices (Arham & Muenjohn, 2012; Engelen, 2010; Wales *et al.*, 2011), resource availability, and individual characteristics of intrapreneurs such as tendency to risk, autonomy, need of fulfilment, orientation to achievement and self-control capacity (Quesada, Onaindia & Laburu, 2011). Others include socio-cultural characteristics of entrepreneurs such as religion, education, and experience (Altinay & Wang, 2011). On the basis of the aforementioned theoretical arguments and evidence in the literature, the following is the first main hypothesis for this study:

H₁: The more entrepreneurial the organisational climate is perceived to be, the more the individual will take entrepreneurial actions.

3.10.1 Management support and sustainable CE

Management support refers to the extent to which one perceives that top managers support, facilitate and promote entrepreneurial behaviour, which includes the championing of innovative ideas and providing the resources people require to take entrepreneurial actions (Hornsby *et al.*, 2009:238; Hornsby *et al.*, 2013:942; Morris *et al.*, 2011:381). The literature reveals that managers differ in their structural ability to use top management support as a resource for entrepreneurial action (Hales, 2005; Hornsby *et al.*, 2009:238). Top management in this case is about seniority and it is expected that the more senior one is, the closer that person will be to top management, thereby enabling them to have a clearer grasp of the nature of support needed. This implies that the more senior managers have better latitude and structural ability, which makes them more supportive of entrepreneurial actions than first-line managers, who may choose to be rather cautious for fear of overstepping the mark, as they may not be as privileged to know the bounds and nature of top management support needed.

Corporate entrepreneurial posture is a behavioural process of entrepreneurship at the level of an organisation (Poon *et al.*, 2006:65). As Lafuente and Salas (1989) posit, the personal characteristics of corporate executives as intrapreneurs will

influence the type of organisation that will be created and the way the organisation will be managed. In line with this, Zahra (1993a) suggests incorporating executives' characteristics into models of CE. The actions of personnel in any given entrepreneurially oriented organisation will necessarily impact on both pursuit of certain entrepreneurship strategies and the resultant performance outcomes. Research shows that top management support has a direct positive relationship with an organisation's entrepreneurial outcomes (Hornsby *et al.*, 2009:238; Kuratko *et al.*, 2014:39) and is therefore expected to lead to sustainable CE through the willingness of managers to support and promote entrepreneurial actions. Furthermore, research indicates that each level of management plays key roles in facilitating sustainable CE (Kuratko *et al.*, 2014:39). Thus the first sub-hypothesis relating to corporate entrepreneurial climate is:

H_{1.1}: Management support for CE will be positively related to entrepreneurial actions.

3.10.2 Work discretion/autonomy and sustainable CE

Work discretion or autonomy refers to the extent to which one perceives top-level management's commitment to tolerating failure, providing decision-making latitude and freedom from excessive oversight, and delegating authority and responsibility to lower-level managers and workers (Hornsby *et al.*, 2002:260; Hornsby *et al.*, 2009:238; Morris *et al.*, 2011:381). According to Kuratko *et al.* (2001), entrepreneurial outcomes are often a product of those with discretion for entrepreneurial experimentation arising from scanning both the external and internal environments for opportunities and threats (Hornsby *et al.*, 2009:239; Kraut, Pedigo, Mckenna & Dunnette, 2005). Entrepreneurial organisations are inclined to explore new business domains, and new ways of conducting business within existing domains, and as such their typical mode of operation is characterised by deviations from prior routines, strategies, business models, and operating environments (Kuratko *et al.*, 2014:38). Essentially, such organisations are viewed as dynamic, flexible entities that are prepared to take advantage of new business opportunities when they arise (Kuratko, Goldsby & Hornsby, 2012). In this respect, work discretion fosters an environment in which CE can flourish, as individuals are free to pursue entrepreneurial actions regardless of the organisational rules (Kuratko *et al.*, 2014:38).

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Recent research in fact also suggests that those with discretion over how to perform their work and also those encouraged to engage in experimentation are usually best suited to recognise entrepreneurial opportunities (Kuratko *et al.*, 2014:38). For instance, an empirical study by Hornsby *et al.* (2009:236) showed that there is a positive relationship between work discretion and entrepreneurial actions of managers, although the relationship is more positive for senior and middle level managers than it is for first level managers. Work discretion is more beneficial in instigating increased entrepreneurial actions (in the form of numbers of entrepreneurial ideas implemented) for senior and middle level managers, or those individuals that have the experience and personal discipline appropriate to supporting autonomy and discretion (Hornsby *et al.* (2009:248).

One possible explanation for this situation is that lower level managers may really not see the link between a work-discretion environment and their own tasks, especially if the organisation fails to integrate the strategy for CE down into lower levels of management, which situation could result in an increased focus on traditional practices by lower managers when they have more discretion and autonomy but lack an entrepreneurial orientation (Hornsby *et al.*, 2009:248). According to Garvin and Levesque (2006), this results in a two-cultures problem, where the focus of the organisation is on increment improvements through stability and efficiency.

A holistic integration of the CE strategy within the entire organisation equips all levels of management, as well as individual employees, with an entrepreneurial mindset, thereby enhancing the effect of work discretion on entrepreneurial outcomes. Work discretion makes it possible for managers to enhance performance of their salient tasks (Hornsby *et al.*, 2009:240). Therefore it is expected that work discretion, which brings about more entrepreneurial actions, will lead to sustainable CE. Thus the second sub-hypothesis relating to corporate entrepreneurial climate is:

H_{1,2}: Work discretion/autonomy is positively related to entrepreneurial actions.

3.10.3 Rewards/reinforcement and sustainable CE

Rewards and reinforcement refer to the extent to which one perceives that the organisation develops and uses systems that reward entrepreneurial activity and success in order to reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work (Hornsby *et al.*, 2013:942; Hornsby *et al.*, 2009: 239; Morris *et al.*, 2011:381). The literature reveals that rewards and reinforcement are positively related to entrepreneurial outcomes (Block & Ornati, 1987; Hornsby *et al.*, 2013:942; Kuratko *et al.*, 2014:39; Sykes, 1986) and are therefore expected to influence entrepreneurial actions.

Research has shown that reward systems that encourage risk taking and innovation have a strong effect on individuals' inclination to conduct themselves entrepreneurially (Kuratko *et al.*, 2014:39) According to Hornsby *et al.* (2009:240), "unlike the signals of top management support which senior managers can more fully appreciate, these signals from rewards and reinforcement are typically less ambiguous". Furthermore, the positive influence of rewards and reinforcement is likely to be more pronounced on lower level managers who are more risk averse as such rewards and reinforcements tend to assist in overcoming that aversion (Hornsby *et al.*, 2009; Hayton, 2005). According to Castrogiovanni *et al.* (2011:37), rewards and compensation systems have long been identified as key human resource practices that positively influence CE in both small and large organisations, as they reinforce individuals' and teams' entrepreneurial actions by stimulating innovative behaviour. Employees were also reported to be aware of the positive link of rewards to their own work behaviour (Castrogiovanni *et al.*, 2011:41).

Furthermore, several research findings have in fact identified rewards and reinforcements, as well as resource availability, as principal determinants of entrepreneurial behaviour by management at middle level and first level (Kuratko *et al.*, 2014:39). Hence the following third sub-hypothesis relating to corporate entrepreneurial climate:

H_{1,3}: Rewards/reinforcement is positively related to entrepreneurial actions.

3.10.4 Time availability and sustainable CE

Time availability refers to the perception that management evaluates workloads to ensure that individuals and groups have the extra time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals (Hornsby *et al.*, 2009:239; Hornsby *et al.*, 2013:943; Morris *et al.*, 2011:381). Time as an organisational resource is available differently to different management levels, with more senior managers being in a better position to use this resource to generate entrepreneurial actions (Hornsby *et al.*, 2009:240). This is largely because whereas first-line managers have a narrower scope as regards their more salient tasks (largely focusing on adjusting and conforming activities), senior managers' scope for more salient tasks is broader, allowing them to scan both the organisation and external environment more widely, which may result in generation of entrepreneurial ideas (Hornsby *et al.*, 2009; Kuratko *et al.*, 2005a ; Shepherd, McMullen & Jennings, 2007).

There are a number of factors within an organisation that may counter the effect of time as a resource in relation to instigating entrepreneurial actions. Generally, traditional organisations with structures, values, controls, and processes that are inhibitive of entrepreneurial creativity and innovation might not really benefit from implementing a CE strategy even if time as a resource were made available to management and all individual employees. Such time might merely be used for organisational tasks other than entrepreneurial activities. For instance, specific control systems, such as managerial flexibility, may be perceived by lower level managers as offering an opportunity to spend more time on standard procedures and activities and may therefore not result in their engaging in entrepreneurial behaviour (Hornsby *et al.*, 2009; Morris, Allen, Schindehutte & Avila, 2006).

According to the literature, time availability for managers, like rewards and reinforcements, is an important resource for generating entrepreneurial outcomes (Kuratko *et al.*, 2014; Slevin & Covin, 1997; Sykes & Block, 1989) that are likely to have a positive impact on an organisation's performance and sustainability, especially if valuable time is spent on the most salient tasks, which may in turn influence entrepreneurial actions. The availability of unstructured or free time, for

instance, can enable intrapreneurs to consider opportunities for entrepreneurial innovation that may ordinarily not be pursued due to their required work schedules (Kuratko *et al.*, 2014:39). Thus the fourth sub-hypothesis relating to corporate entrepreneurial climate:

H_{1.4}: Time availability for CE is positively related to entrepreneurial actions.

3.10.5 Organisational boundaries and sustainable CE

Organisational boundaries refer to the extent to which one perceives that there are flexible and supportive organisational boundaries that are useful in promoting entrepreneurial activity (Kuratko *et al.*, 2014:39). According to Hornsby *et al.* (2013:939) and Morris *et al.* (2011:382), the term *organisational boundaries* involves the precise explanation of outcomes expected from organisational work and development of mechanisms for evaluating, selecting and using innovations. The existence of flexible and supportive organisational boundaries is therefore another important resource for fostering entrepreneurial outcomes as such boundaries enhance the flow of information between the external environment and the organisation, and also between departments/divisions within the organisation (Hornsby *et al.*, 2009:239; Kuratko *et al.*, 2014:39; Miller, Fern & Cardinal 2007:308). Innovative entrepreneurial outcomes are achieved most predictably when innovation is treated as a structured and purposeful, rather than a chaotic process (Kuratko *et al.*, 2014:39). In this respect, it has long been recognised by organisation theorists that productive outcomes are most readily accomplished in organisational systems that keep uncertainty at manageable levels, which position is achievable through setting boundaries that induce, direct, and encourage coordinated organisational innovative behaviour (Kuratko *et al.*, 2014:39).

A supportive organisational structure provides the administrative mechanisms by which ideas are evaluated, chosen, and implemented (Burgelman & Sayles, 1986; Hornsby *et al.*, 2002:260). However, as more hierarchical levels are incorporated into the organisational structure, the ability to identify market opportunities, achieve management commitment, reallocate resources, take risks, or implement effective marketplace moves becomes problematic (Morris *et al.*, 2011:309). As earlier stated,

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an organisation's control systems, reward approaches, resource management, and several other managerial factors do have an influence on performance and should therefore be tailored to facilitating instigation of heightened levels of entrepreneurial activities which should result in sustained company performance.

Flexible organisational boundaries involve the precise explanation of outcomes expected from organisational work and development of mechanisms of evaluating, selecting and using innovations (Hornsby *et al.* (2013:939; Morris *et al.*, 2011:382). In other words, flexible organisational boundaries can bring about a productive use of innovation-enabling resources (Kuratko *et al.*, 2014:39), and enhancement of an organisation's entrepreneurial outcomes and performance through increased entrepreneurial actions. Thus the fifth sub-hypothesis relating to corporate entrepreneurial climate:

H_{1.5}: Organisational boundaries for CE will be positively related to entrepreneurial actions.

3.11 Managers' entrepreneurial actions for sustainable CE

An organisation's entrepreneurial actions could have a mediating effect on the ability of an organisation's corporate climate to stimulate sustainable CE. It is evident from the literature that the construct *entrepreneurial actions* has been operationalised differently and used in different contexts by a number of scholars (e.g., Ireland *et al.*, 2001; Kuratko *et al.*, 2001; Kuratko *et al.*, 2005a; Simon & Shrader, 2012; Wensley, Cegarra-Navarro, Cepeda-Carrion & Millan, 2011), while others have used it without offering any operational definition (e.g., Hornsby *et al.*, 2013). For instance, Kuratko *et al.* (2005a:276) define "entrepreneurial actions" as "any newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited". This definition is similar to the one offered by Ireland *et al.* (2001:50) who define entrepreneurial actions as "newly fashioned behaviours through which companies exploit opportunities others have not identified or exploited" and are "oriented to novelty". According to Kuratko *et al.* (2001:60), the defining characteristic of entrepreneurial actions is novelty in terms of new resources, customers, markets, or a new combination of resources, customers, and markets.

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Furthermore, Kuratko *et al.* (2001:61), posit that “product, process, and market innovations” are often a result of “newly fashioned entrepreneurial actions”, through which organisations exploit opportunities on first-mover basis. Smith and Di Gregorio (2002) posit that these entrepreneurial actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways. Wensley *et al.* (2011:133) define “entrepreneur’s actions” as consisting of “arranging or organising the human and capital assets under his or her control in order to create a viable profit-making entity.” However Wensley *et al.* (2011:133) clearly conceptualise entrepreneurial actions as various actions undertaken to achieve specific entrepreneurial objectives, such as successfully achieving the creation of customer capital, and operationalise the concept in terms of: (1) the presence of open-minded practices within organisation, which leads to the questioning of established organisational approaches to problem solving and organisational beliefs, even when these have led to successful outcomes in the past; (2) knowledge exploration practices which allow organisational members to call upon aspects of practice latent in the periphery as they are needed, rather than deciding ahead of time what an individual needs to know and making this explicitly available to the exclusion of everything else; and (3) knowledge exploitation practices. Thus there are different types of entrepreneurial actions.

This study distinguishes the two concepts (entrepreneurial actions and CE) as separate but related constructs: Entrepreneurial actions pertaining to established organisations are the specific entrepreneurial behaviours of managers, as well as those of the other individual employees within an organisation, and act as a conduit (Hitt *et al.*, 2001) through which CE is practised in established organisations. CE, on the other hand, is the “ostensibly larger topical domain” (Covin & Lumpkin, 2011:855) embracing all aspects of entrepreneurship inside established organisations such as entrepreneurial orientation/posture, strategic entrepreneurship, corporate venturing, and intrapreneurship. In other words, CE is the bigger and overarching phenomenon, an overall construct capturing all entrepreneurial activities within established business organisations (De Jong *et al.*, 2011:4). Indeed in this respect, CE includes entrepreneurial behaviour and orientation in established organisations (Urbano & Turró, 2013).

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However, entrepreneurial actions or behaviours can be looked at as the “conduit” of CE (Hitt *et al.*, 2001). As Kuratko *et al.* (2001:61) put it, entrepreneurial actions are in fact “novel behaviours” the organisation “intends to use to pursue opportunities; entrepreneurship captures the full set of entrepreneurial actions the firm takes to create renew, or innovate; when practiced in large organizations, entrepreneurial actions are the foundation for corporate entrepreneurship, a specific application of entrepreneurship; and, when entrepreneurial actions are the foundation on which a firm’s strategy is built, a corporate entrepreneurship strategy is being implemented”.

Entrepreneurship in established organisations (CE) is practised through proactive entrepreneurial actions or behaviour, and this is for several reasons, including innovation, increased profitability, strategic renewal, gaining knowledge to develop future revenue streams, international success, the effective configuration of resources as the pathway to developing competitive advantage, innovation, and as a separate identifiable strategy (Kuratko *et al.* 2005b:699). Entrepreneurial actions are actually specific to identified entrepreneurial activity in a given decision-making context for the organisation, and do reflect a unique decision environment, ranging from new venture creation to product introduction in a dynamic environment (Simon & Shrader, 2012:292-293). For example Simon and Shrader (2012) in their empirical study on entrepreneurial actions and optimistic overconfidence, looked at five different types of entrepreneurial actions, such as venture creation, introducing products in hostile or dynamic environments, and introducing products that require more of the organisation’s resources.

By adapting the definition by Ireland *et al.* (2001:50) and Kuratko *et al.* (2005a:276), in this study, managers’ entrepreneurial actions for sustainable CE refers to a newly fashioned set of actions through which organisations seek to continually exploit entrepreneurial opportunities that rivals have not noticed or exploited; and these actions are specific to the promotion of sustained innovation through products, processes, strategies, domain, or business models. The more the frequency of these entrepreneurial actions, the higher the chances the organisation has to achieve sustainable CE. Furthermore, managers’ satisfaction with organisational outcomes in relation to the implemented entrepreneurial activities is a critical aspect of these entrepreneurial actions as it creates the basis for the decision whether to sustain,

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enhance or revise such activities for the purposes of achieving sustainable competitive advantage and on-going improvements in performance.

According to Kuratko *et al.* (2001:60), managers' entrepreneurial actions have been identified as playing an important role in instigating entrepreneurship within established organisations and are considered as "critical pathways to competitive advantage and improved performance". The presence of an appropriate corporate entrepreneurship climate or organisational antecedents is critical in instigating these entrepreneurial actions. However, managers at different levels will perceive differently the feasibility and/or desirability of the organisational antecedents (top management support, rewards, time availability, work discretion, and organisational boundaries) for promoting entrepreneurial actions (Hornsby *et al.*, 2009:241). This study therefore also investigated the mediating role of managers' entrepreneurial actions on the ability of an organisation's corporate climate (organisational antecedents for CE) to stimulate sustainable CE.

For the purposes of this study, entrepreneurial actions were measured by items developed by Kuratko *et al.* (2005a), namely: (1) the number of new ideas suggested, (2) the number of new ideas implemented, and (3) the number of improvements implemented without official organisational approval. The researcher added a fourth item relating to managers' perceived satisfaction regarding the entrepreneurial activity being undertaken – whether or not the activity meets expectations, in order for it to be sustained or discontinued. For instance, empirical research findings by Simon and Shrader (2012:291) showed that both high and low levels of satisfaction with company performance were associated with the type of entrepreneurial actions relating to product introductions.

According to Kuratko *et al.* (2005a:708) managers will only engage in entrepreneurial actions when they are convinced that the organisational antecedents to those actions exist and when managers are in fact aware of their existence. Once individuals recognise, as well as interpret, the organisational antecedents as indicators of the existence of an internal environment supportive of entrepreneurial actions, they are led to assess their entrepreneurial capacities in reference to what they perceive to be a set of organisational resources, opportunities, and obstacles to engaging in

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entrepreneurial actions (Chen, Greene & Crick, 1998; Kuratko *et al.*, 2005a:280). This is critical for sustaining CE, as it instigates continuity or discontinuity of current entrepreneurial actions. Hence the reason the researcher added the fourth item to measure entrepreneurial actions for SCE.

The literature shows that several authors (Alegre & Chiva, 2013; Covin & Miles, 1999; Ireland & Webb, 2007) posit that entrepreneurial actions have direct effects on product, process and administrative innovations. Entrepreneurial actions do not therefore occur in a vacuum but rather in a place within the context of the organisation's full array of actions (Dess, Lumpkin & Covin, 1997). In other words, entrepreneurial actions are a product of organisational antecedents (Kuratko *et al.*, 2005a:277) and the conduit through which CE is practised in established organisations (Hitt *et al.*, 2001). In this regard, entrepreneurial actions could have a mediating effect on the ability of a corporate climate to stimulate sustainable CE. Therefore, the following hypothesis was developed on the basis of the preceding theoretical arguments regarding the mediating effect of entrepreneurial actions on the corporate entrepreneurial climate and sustainable CE.

H_{2.1}: Entrepreneurial actions will mediate the relationships between the individual's perceptions of a corporate entrepreneurial climate and sustainable CE.

Since an organisation's entrepreneurial actions constitute its fundamental behaviour by which it moves into new markets, seizes new customers, and/or combines (existing) resources in new ways (Smith & Di Gregorio, 2002), it is therefore to be expected that organisations exhibiting more entrepreneurial actions will tend to be on the path to sustainable CE, hence the following hypothesis.

H_{2.2}: Entrepreneurial actions will be positively related to sustainable CE.

3.12 External Environment and Sustainable CE

The literature shows that an organisation's external environment affects its CE performance (Covin & Slevin, 1991:11; Gómez-Haro, Aragón-Correa & Córdón-Pozo,

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2011:1677; Sehora & Theerapatvong, 2010:344; Zahra & Covin, 1995:48; Zahra, 1986). External environment in this case refers to the external contextual influences or factors that have a bearing on CE, such as industry globalisation, product/market life cycle stage, and government regulations (Gómez-Haro *et al.*, 2011:1680; Zahra & Covin, 1995:48). According to Zahra (1991:262), external environment brings challenges and new opportunities for organisations to respond creatively through CE.

It is therefore critical that business organisations faced with turbulent external environments engage in continuous renewal of their products or services in order to remain profitably afloat in the face of these drastic environmental changes (Yang, 2012; Zahra, 1995). In his exploratory study, Zahra (1991:259) found that “the multiplicity and complexity” of the external environmental antecedents – dynamism, hostility, and heterogeneity – “intensify corporate entrepreneurship”.

In general, the external environment of an organisation includes both the physical and social factors that individuals in the organisation directly take into consideration in their decision-making behaviour (Li & Liu, 2014). In this respect it is expected that the effect of environmental factors will actually filter down to the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team. According to Hayton (2005:21), the more complex and dynamic the external environment, the more entrepreneurial organisations must become “in order to identify new opportunities for sustained superior performance”.

Research shows that external environment affects entrepreneurship at both the individual and organisational level (Covin & Slevin, 1991). However, according to Rosenbusch *et al.* (2013:634), although several scholars have argued that external environment affects company performance, empirical research on this highly complex relationship has generated inconclusive results and this is largely because it remains unclear exactly how organisations make use of opportunities and resources provided by the environment to enhance their performance. As changes in the external environment may simply stimulate company-specific strategic behaviours which in turn influence company performance, it is not always the case that changes in the environment have a direct effect on the organisation (Rosenbusch *et al.*, 2013:634).

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However, in this highly complex relationship, CE plays a crucial role in influencing proactive and specific strategic decisions and resource allocations (Atuahene-Gima & Ko, 2001) for exploration and exploitation of opportunities arising from changes in the external environment (Rosenbusch *et al.*, 2013). Consequently researchers building contingency models to explain and predict CE and its outcomes tend to incorporate a set of external environmental variables, in addition to internal variables (Antoncic & Hisrich, 2001:503; Badguerahanian & Abetti, 1995; Zahra, 1991:262; Zahra & Covin, 1995:48).

Furthermore, since entrepreneurial actions are a conduit for CE, it is theoretically expected that the effect of environmental factors (dynamism, hostility, and heterogeneity) could actually filter down to the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team, while the resultant impact could be negative or positive depending on the preparedness of the affected organisation (Antoncic & Hisrich 2001; Li & Liu, 2014; Zahra, 1991). Therefore environmental factors could have a direct influence (positive or negative) on both entrepreneurial actions and sustainable CE.

It is widely acknowledged that external environment affects innovation and performance of established organisations (Jansen *et al.* 2006:1664). Researchers have also generally come to the conclusion that dynamic and complex environments characterised by uncertainty increase the positive effects of entrepreneurship (Bojica & Fuentes, 2012:398). For example, Zahra (1996a:210) found that the relationship between innovation and performance was moderated by aspects of the external environment. Lewin, Long and Carroll (1999:535) indicate that environmental dynamism and competitiveness are likely to moderate the impact of both exploratory and exploitative innovations, and that the company's strategic and organisational adaptations coevolve with environmental changes, specifically relating to competitive dynamics, technological, and institutional environment. Thus organisations innovate or venture in anticipation of, or response to, their external environment (Chang, Hughes, & Hotho, 2011; Wang & Ellinger, 2011, Zahra, 1986), while research has also shown that CE may be an effective organisational practice among organisations operating in a hostile environment (Covin & Slevin, 1991; Khandwalla, 1987; Miller & Friesen, 1983; Zahra & Covin, 1995:48).

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According to Chang *et al.* (2011:1659-1660), it is also theoretically suggested that external environmental antecedents like “dynamism and degree of competitiveness can generate opposing pressure for innovation ambidexterity”. Empirical research by Jansen *et al.* (2006:1661) concluded that dynamic environments are more beneficial for pursuing explorative innovations, while more competitive environments favour exploitative innovations in terms of financial performance.

Furthermore, while dynamic environments have the potential to cause organisations to concurrently pursue both explorative and exploitative innovations in order to remain buoyant, competitive environments may cause organisations to focus on exploitative innovations in order to keep up with rivals (Chang *et al.*, 2011:1660; Jansen *et al.*, 2006:1661). Entrepreneurial organisations are also more likely to search for opportunities in new environments following events that make them expectant of a significant and lasting change in performance (Bhardwaj, Camillus & Hounshell, 2006:248). By so doing, entrepreneurial organisations are likely to embark more on exploratory innovations as they endeavour to reach out for these opportunities in new environments. On the basis of the preceding theoretical arguments and empirical evidence relating to the influence of external environment on CE, the following was the study’s third main hypothesis for this study:

H₃: External environmental characteristics are positively associated with sustainable CE.

It is evident from the literature review that there are a number of definitional variations at the operational level of the construct external environment, with some researchers including additional or other variables such as national culture, networking (Bruton *et al.*, 2010; Stam & Elfring, 2008:97; Turró *et al.*, 2014), legal environment, tradition and history in an industry, and economic incentives (Bruton *et al.*, 2010; Urbano & Turró, 2013). Others include business environment (Alexandrova, 2004), and regulation or regulatory institutions (Shirokova & Shirokova, 2013). The impact of external environment on organisations varies depending on a number of factors, including the organisation’s entrepreneurial orientation. Research shows that organisations that embrace the CE strategy are better placed to access opportunities emanating from changes in the external environment (Rosenbusch *et al.*, 2013:634).

Zahra (1991:262) operationalised external environment as having three antecedents, namely: dynamism, hostility, and heterogeneity, which are discussed in detail in the following sections.

For the purposes of this research, the studied antecedents for external environment are dynamism, hostility, and heterogeneity, as operationalised by Zahra (1991:262). These antecedents are also some of the external environment variables mainly considered in existing CE literature to have an influence on CE as regards company performance (Gathungu *et al.*, 2014:344). Organisations are affected by these contextual factors in the external business environment and should therefore be alert to changes in that environment, and position themselves to adapt or respond to such changes by altering their actions and strategies through innovative entrepreneurial actions.

3.12.1 Dynamism and sustainable corporate entrepreneurship

Dynamism refers to the perceived instability or unpredictable and rapid change of an organisation's market because of continuing changes in that organisation's external environment (Rosenbusch *et al.*, 2013:642; Baron & Tang, 2011:52) resulting from social, political, technological, competitive rivalry, government regulation, and economic factors, and ushering in opportunities for CE within the existing markets or in adjacent fields (Baron & Tang, 2011:52; Zahra, 1991:262; Zahra, 1993a:322). According to Jansen *et al.* (2006:1664) dynamic environments are characterised by changes in technologies, variations in customer preferences, and fluctuations in product demand or supply of materials. These dynamic changes in the external environment are largely unpredictable imperfections in the competitive markets which companies cannot easily respond to due to resource constraint (Simseki *et al.*, 2007:1405). According to Li and Liu (2014:2795), environmental dynamism has two dimensions: industrial unpredictability as a result of industrial changes and innovation, and also the uncertainty or unpredictability of customer actions.

Many industries are characterised by a quickly changing environment which increases risk and unpredictability (Davis, 2007). Organisations competing in such environments with strong dynamism tend to have flexibility to adapt to changing

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environments for their survival (Mthanti, 2012). A lower level of environmental dynamism could be indicative of a generally slowing down economy or, in many cases, a non-turbulent and well established industry which offers organisations more stability and predictability while giving them greater latitude and ability to react to changes in the environment (Gathungu *et al.* (2014:345).

However, the changes in the organisation's markets offer numerous opportunities for creativity and innovation, thereby instigating intensified entrepreneurial activities within a company in order to gain from such market developments (Fannin, 1989). Companies will respond differently to these changes. For some, the dynamic changes may present a case for product differentiation or embarking on new products/services or processes, while for others the changes may present an opportunity for innovative company renewal or rebranding. It is also possible that dynamic changes could even be destructive to those organisations that fail to innovatively take advantage of the entrepreneurial opportunities made available. According to Li and Liu (2014:2795), changes in external environment force organisations "to cultivate dynamic capabilities" in order to survive. The construct *dynamic capabilities* is defined as the organisation's "potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely decisions and to implement strategic decisions and changes efficiently to ensure the right direction" (Li & Liu, 2014:2795). Therefore environments that are more dynamic would require that organisations maintain higher levels of dynamic capabilities to effectively adapt to these changes (Jiao, Alon, Koo, & Cui, 2013).

In Zambia, for instance, the liberalisation and deregulation measures pursued in the early 1990s by the Movement for Multiparty Democracy (MMD) government ushered in persistent changes in the economy, moving away from a controlled economy to the one that was largely market-led. This, coupled with several privatisations that were being implemented, ushered in a wave of opportunities for corporations that positioned themselves to benefit from such dynamic changes in the environment. Corporations had to re-examine their approach to competition and adopt new strategies, organisational culture and values, as well as fundamentally changing their internal processes and structures in order to positively benefit from the dynamic changes in the external environment and be more competitive. Those that failed to

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adjust accordingly were negatively affected by the changes. In fact some of the privatised companies closed down or were liquidated as they failed to adapt to the new market environment.

Thus increased dynamism is positively associated with CE in the sense that such a condition in the external environment creates new opportunities in a company's markets. This kind of reaction by corporations is grounded in Zahra (1993a:322) who posits that "as companies perceive their environment as dynamic, their emphasis on self-renewal and corporate venturing activities will rise". In addition, Pérez-Luño et al. (2011:567) in their recent empirical study found that the effect of risk taking is much stronger in dynamic environments than in stable environments. Further, the literature shows that dynamic environments make current products and services obsolete much more quickly, needing new ones to be developed (Jansen *et al.*, 2006:1664). Consequently, organisations competing in dynamic environments have high failure rates (Simon & Shrader, 2012:297), and face the challenge of smaller decision windows as well as unpredictable resource needs, making it difficult for them to control outcomes (Simon & Shrader, 2012:297; Sirmon, Hitt, & Ireland, 2007).

These dynamic changes in the external environment are considered as favourable (munificent) for and have a positive link with CE (Antoncic & Hisrich, 2001:503). The literature review showed that dynamic environments are considered to have a "strong and possibly even deterministic influence on the existence and effectiveness of entrepreneurial activities, such as innovation, proactiveness, and risk taking" (Simon & Shrader, 2012:297). Thus the first sub-hypothesis relating to external environment:

H_{3.1}: Environmental dynamism will be positively related to sustainable CE

3.12.2 Hostility and sustainable corporate entrepreneurship

Hostility refers to the increased rivalry in the industry or depressed demand for an organisation's products or services, which endangers survival of the organisation (Kuratko, 2009:466; Zahra, 1991:263); unfavourable change and competitive rivalry (Antoncic & Hisrich, 2001:503) which negatively affects an organisation's goals and mission (Antoncic & Hisrich 2001:504; Miller & Friesen, 1984). According to Covin

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and Slevin (1989:75) hostile environments are “characterised by precarious industry settings, intense competition, a harsh, overwhelming business climate, and a relative lack of exploitable opportunities”. In this respect, hostility refers to an unfavourable environmental condition that implies competition for scarce resources and opportunities (Covin & Slevin, 1989; Ronsenbusch *et al.*, 2013).

According to Kuratko *et al.* (2014:38), factors such as high company failure rates, intense competitive pressure, and price-based competition are characteristics of environments that are hostile. Environments that are technologically sophisticated are characterised by factors including significant research and development investments, frequent changes in technology relating to products and/or processes, and a reliance on superior technical personnel as the main basis for their competitive advantage (Kuratko *et al.*, 2014:38).

In this respect, an organisation that does not have the capability to respond innovatively to such intense rivalry and scarce emerging opportunities is likely to be affected negatively and become a victim rather than a beneficiary of such a hostile environment. However, research has shown that entrepreneurial organisations perform better in hostile environment as they are able to identify the scarce emerging opportunities and, as first movers, exploit them well before the less entrepreneurial organisations make a move (Casillas, Mareno & Barbero, 2011; Covin & Slevin, 1989; Covin & Slevin, 1990). According to Zahra (1991:263), environmental hostility has a stimulating effect on CE. For example, an organisation facing a hostile environment may opt for product differentiation through intensive marketing and advertising which may bring about sustained customer loyalty or increased market penetration of existing segments (Zahra, 1991).

A study by Miller and Friesen (1983) found that changes in innovative behaviour and competitive proactiveness were significantly more positively correlated with changes in environmental hostility among a sample of 48 “successful” organisations than among a sample of 40 “unsuccessful” organisations. In another study by Covin & Slevin (1989:75) of 161 manufacturing organisations representing 25 industries, results indicated that hostile environments afford fewer opportunities for achieving growth and profitability, and conclude that in these settings CE is a logical means for

creating and exploiting opportunities that result in competitive superiority. In a study of 102 manufacturing organisations, Zahra (1993a:319) found a strong association of environmental hostility with particular manifestations of CE, such as product development.

The above findings are in agreement with Guth and Ginsberg (1990), who argue that environmental changes in industry competitive structure and the underlying technologies can influence CE. Thus the second sub-hypothesis relating to external environment:

H_{3.2}: Environmental hostility will be positively related to sustainable CE.

3.12.3 Heterogeneity and sustainable corporate entrepreneurship

Heterogeneity refers to complex contextual influences in the external environment whereby developments in one market create new pockets of demand for an organisation's product in related areas, and the term indicates existence of multiple organisational segments with varied characteristics and needs (Dess & Beard, 1984:157; Zahra, 1991:263). Environmental heterogeneity is characterised by variations such as product lines, customer tastes, and tactics by competitors across an organisation's respective markets (Caruana, Ewing & Ramaseshan, 2002). In order to remain competitive, an organisation operating in a heterogenic environment must employ different strategies such as those relating to marketing, production, distribution and administration (Miller & Friesen, 1983). In this respect, organisations operating in heterogenic market domains should offer differentiated products and services in various market segments in order to instigate entrepreneurial innovations relating to their offerings and technology. One important attribute for organisations in a heterogenic environment is the acquisition of procedural knowledge, which enhances and sustains the discovery and exploitation of opportunities (Bojica & Fluentes, 2012:399). Procedural knowledge refers to the knowledge exercised in the performance of tasks (Bojica & Fluentes, 2012:399). This kind of knowledge has tacit dimensions and is therefore not easily articulated by the individual (Gupta & Govindarajan, 2000:483), and includes the knowledge of how something works and

how (especially how best) to perform some tasks (Bojica & Fluentes, 2012:399; West & Noel, 2009:3).

Companies facing similar heterogenic factors may be affected differently due to their perceptual differences. In particular, one organisation may “perceive the environment as manageable (simple)” while the other may view it as “complex and uncontrollable” due to the fact that each company has a different experience of the external environment (Zahra, 1991:264). The literature reveals that increased heterogeneity enhances the use of CE due to opportunities made available for innovation and market development as a result of diversity of customer needs and expectations and lessons learnt from competitors (Zahra, 1991:264). Further, heterogeneity has also been found to be a significant predictor of entrepreneurial orientation (Sciascia, Naldi & Hunter, 2006; Zahra, 1991). On the basis of the preceding theoretical arguments and empirical evidence relating to the influence of heterogeneity on CE, the following was the third sub-hypothesis relating to external environment:

H_{3.3}: Environmental heterogeneity will be positively related to Sustainable CE.

3.13 Sustained Company Performance

The performance of the global economy has brought about a realisation that CE could be the most effective method for achieving high levels of organisational performance (Kuratko & Audretsch, 2014). Company performance is a multidimensional concept and the empirical literature shows high diversity of performance indicators (Combs *et al.*, 2005; Rauch, *et al.*, 2009), which shows that researchers have used different approaches to operationalise the concept. The relationship between company performance and entrepreneurial activities may depend upon indicators used to assess performance (Lumpkin & Dess, 1996; Rauch *et al.*, 2009). The construct *company performance* can broadly be defined taking into account both the quantitative and qualitative outcomes of measures, or financial and non-financial measures. Any outcomes of interest to the organisation, such as “better economic indicators or enhanced competitive capability” would count for organisational performance (Peltola, 2012:44). Financial performance measures

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include growth in sales, growth in profit, and return on investment (ROI), while non-financial measures include satisfaction in terms of achievement on set goals for the organisation, global success ratings made by owners or business managers, market share, and employee growth (Combs *et al.*, 2005; Delmar, Davidsson & Gartner, 2003; Matsuno *et al.*, 2002; Rauch *et al.*, 2009). Regarding growth measures, the literature shows that there are several indicator variations used; for instance, Delmar *et al.* (2003:189) used 19 different measures, including relative and absolute sales growth, relative and absolute employee growth, organic growth versus acquisition growth, and regulatory and volatility growth.

As for financial measures, a distinction can be made between financial measures for growth and those for profitability, in the sense that, although these concepts are empirically and theoretically related, there are also important differences between them (Combs *et al.*, 2005; Rauch *et al.*, 2009:765). For instance, a business may sacrifice short-term profits by heavily investing in long-term growth, or forgo long-term growth by focusing on short-term profits (Rauch *et al.*, 2009:765). The relationship between CE and non-financial measures is described as “less straightforward”, as it is considered to be “tenuous” (Rauch *et al.*, 2009:765). However, while acknowledging that entrepreneurial performance has mostly been measured using economic indicators, Ali and Sarasvathy (2013) argue that an assessment that incorporates impact on all stakeholders and not only on those who finance the venture would be more accurate. In this study, the construct *sustained company performance* is defined in terms of continued improvements in market share, new product sales, and return on investment (Matsuno *et al.*, 2002) and also incorporates managers’ satisfaction with performance outcomes which is the ingredient for on-going improvements relating to the recognised performance dimensions.

ROI is a profitability measure that evaluates the performance of a business by dividing net profit by net worth (www.entrepreneur.com/encyclopedia), while market share is the percentage of an industry or market’s total sales that is earned by a particular organisation over a specified time, and is calculated by dividing an organisation’s sales by the total sales of the industry or market over the same period (www.investopedia.com). New product sales relates to an organisation’s growth in

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sales directly attributed to newly introduced products or services. New product sales refer to an organisation's growth in sales relating to new products.

Research has shown that satisfaction with performance outcomes necessarily acts as a feedback mechanism that helps in deciding whether to sustain current entrepreneurial strategy or to select another one (Chen *et al.*, 1998; Kuratko *et al.*, 2004:77; Kuratko *et al.*, 2005a:280; Kuratko *et al.*, 2005b:708; Morris *et al.*, 2011:51). The performance indicators used in this study assess internal outcomes of organisational activities and are obtained from an instrument used by Matsuno *et al.* (2002).

The importance and effect of CE on company performance have been immensely highlighted in both theoretical discussions and empirical research (Poon, Ainuddin & Junit 2006:65) which have shown a positive link between CE and company performance. Conceptually the focus as regards the debate on the relationship between CE and performance has mainly been on financial aspects of performance (Rauch *et al.*, 2009:765). Theoretically, organisations that embrace CE tend to have first-mover advantage over others, as they strategically reposition themselves to the external environment and are able to capitalise on emerging opportunities, which gives them a competitive advantage that translates into improved financial results (Ireland *et al.*, 2009:34-36; Wiklund, 1999:39). This obviously implies better management approaches of the organisation, an improved work environment and enhanced employee satisfaction in relation to their work. These outcomes are both at the individual and organisational levels (Ireland *et al.*, 2009:34). Ireland *et al.* (2009:35) further observe that the development of competitive capability brings about direct effects on the architecture of the organisation, while strategic repositioning “indirectly impacts CE strategy by altering the external environmental conditions organizational members may examine when considering the appropriateness of such a strategy”, which signals a “change to the competitive landscape”.

Research has identified a number of factors which an entrepreneurial organisation should have in order to achieve sustainable company performance such as human resource capabilities, organisational structure, corporate strategy, and organisational culture, control systems, reward approaches, and resource management (Morris *et*

al., 2011:326). Furthermore, there is extensive evidence of a statistically significant relationship between levels of entrepreneurship within an organisation and several indicators of company performance (Covin & Slevin, 1990; Ireland *et al.*, 2009:34; Miller & Friesen, 1982; Morris & Sexton, 1996; Wiklund & Shepherd, 2005; Zahra, 1991). For example, Zahra (1991:260), in his exploratory study of 119 of the Fortune 500 industrial organisations, found that CE was positively associated with corporate financial performance and reduced systematic risk. Wiklund (1999), in his longitudinal study, found entrepreneurial orientation to have positive long-term effects on the growth and financial performance of small organisations, even after controlling for a number of organisational and environmental variables.

Because organisations tend not to reveal their business financial data (Poon *et al.*, 2006:69; Naman & Slevin, 1993) and asking for such data may not elicit a good response, perceptual measures were used to assess company performance. The literature reveals that the use of such subjective, self-report measures of performance is consistent with past research practices (Covin & Slevin, 1989; Matsuno *et al.*, 2002:24; Poon *et al.*, 2006:69). In addition, it has been shown that subjective measures are correlated with objective measures of performance (Dess & Robinson, 1984:271; Matsuno *et al.*, 2002:24; Slater & Narver, 1994:51) and that top managers' perceptions of the performance of their company are highly consistent with their organisations' actual performance as indicated by objective measures (Dess & Robinson, 1984:271; Wall, Michie, Patterson, Wood, Sheehan, Clegg & West, 2004).

Scholars consider company performance as the most important outcome of entrepreneurial activities inside established organisations (Antoncic & Antoncic, 2011:594; Antoncic & Hisrich, 2001), usually denoting growth and profitability dimensions of company performance (Covin & Slevin, 1991). As an outcome of sustainable CE, sustained company performance is in fact fostered by on-going entrepreneurial activities instigated by both explorative and exploitative entrepreneurship within established organisations. On the basis of the preceding theoretical posture and empirical evidence relating to the effect of CE on performance, the following was the study's fourth main hypothesis:

H₄: Sustainable CE positively influences sustained company performance.

3.14 Theoretical foundation for the research

A number of theories have been advanced in the entrepreneurship field based on various disciplines interested in the phenomenon. However, as regards entrepreneurship within established organisations, the literature review showed that most of the CE studies do not use a specific theoretical framework (Hornsby *et al.*, 2002; Urbano & Turró, 2013), although recently there has been increasing attention paid to the combination and management of resources which enable the organisation to pursue new business opportunities and develop innovative actions (Castrogiovanni *et al.*, 2011; Urbano & Turró, 2013), resulting in more effective processes (Meyskens, Bobb-Post, Stamp, Carsrud & Reynolds, 2010). All such studies belong to the resource-based theoretical foundation, which has been a key theory in both the traditional entrepreneurship and CE fields, given the central role played by access to resources regarding venture success (Bhide, 2000).

Therefore, in looking at predictors of sustainable CE, and to better understand the nature of entrepreneurship within established organisations, this study was basically premised on four theoretical foundations that relate to both the external environment and internal organisational antecedents affecting entrepreneurship inside established organisations, namely: the resource-based theory, the agency theory, the institutional theory, and theory of dynamic capabilities. In this regard, these four theories are fundamentally the bedrock of the study, although their respective contribution varies taking into account the various theoretical components of the postulated model. As earlier indicated, it should be emphasised that CE suffers from a diversity of meanings and, consequently, theoretical foundations which are used to explain the phenomenon.

3.14.1 The resource-based theory

Derived from at least four theoretical sources (the study of distinctive competencies, Ricardian economics, Penrosian economics, and the study of the anti-trust implications of economics (Ireland *et al.*, 2003:973), the resource-based theory (RBT) attempts to identify fundamental factors within organisations that create sustainable competitive advantage for both start-up performance and longer-term growth (West &

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Noel, 2009:3). Critical to the RBT is the assumption that resources are heterogeneous among firms (implying that competing organisations may own different or control different bundles of resources), and that competitive advantage depends upon that heterogeneity due to resource immobility (implying that the differences in resource bundles owned by separate organisations may persist (Ireland *et al.*, 2003:973; West & Noel, 2009:3). There are many empirical studies in traditional entrepreneurship conducted on the basis of resource-based theory (RBT) (Urbano & Yardanova, 2008; Westhead, Wright & Ucbasaran, 2001), which basically focuses on three dimensions, namely: (1) the importance of an organisation's resources as the drivers of growth, (2) high profits, and (3) competitive advantage (Urbano & Turró, 2013). The RBT approach is critical in aiding an organisation to learn to develop structures and systems in order to transform itself to become more adaptive and responsive to changes and jolts in the external environment (Wang & Ellinger, 2011:515).

Whereas several studies usually gauge company performance using absolute measures such as survival and sales growth, the RBT addresses company performance relative to competition (Delmar & Shane, 2006; West & Noel, 2009). According to the RBT, an organisation's competitive advantage arises from managerial or entrepreneurial knowledge, that is, management's entrepreneurial capabilities which are critical for understanding how the organization attains growth and competitive position (West & Noel, 2009:4). Management has the crucial responsibility of resource identification, evaluation, and distribution in line with the perceived entrepreneurial opportunities (West & Noel, 2009:4). In this respect, organizations with more proficient management as regards resource mobilization, handling and utilization, will outperform competitors who may not easily duplicate or substitute for such resources. Studies have in fact linked intangible resources such as human capital (Crook, Todd, Combs, Woehr & Ketchen, 2011:443), routines and knowledge (Simsek & Heavey, 2011) to superior company performance. Alvarez and Busenitz (2001:762) describe entrepreneurial knowledge as the "ability to take conceptual abstract information of where and how to obtain undervalued resources, explicit and tacit, and how to deploy and exploit these resources".

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The critical entrepreneurial question is therefore how to secure the best use of resources to obtain a profit (Alvarez and Busenitz, 2001:762), and this is where managerial or entrepreneurial knowledge plays a crucial part; an organization with individuals or teams that have this abstract knowledge of where and how to secure these resources is able to outwit its competitors as regards opportunity identification and exploitation, and be able to achieve superior performance. The RBT approach is therefore critical in aiding an organization to learn to develop structures and systems in order to transform itself to become more adaptive and responsive to changes and jolts in the external environment (Wang & Ellinger, 2011:515). In this regard, the resource-based theory is also useful in understanding how sustainable CE can be promoted through human resource practices such as those related to fostering entrepreneurial attitudes among individuals within an organisation on an on-going basis.

In this respect, and in relation to this study, the RBT helps organisations to explore and exploit available entrepreneurial opportunities within the external environment. Furthermore the theory's emphasis on appropriate human resource capacity points to the role of management in instigating sustainable CE and sustained company performance.

3.14.2 The agency theory

In the context of agency theory, entrepreneurship is defined as the process by which organisations “notice opportunities and act to creatively organize transactions between factors of production so as to create surplus value” (Jones & Butler, 1992:735), thereby enhancing their competitiveness and performance. The main focus of the theory is on the relationship between the principal (owner) and agent (managers and employees), and in this sense the theory is useful in explaining the motivations of management to “support (or sabotage) corporate venturing activities” (Zahra, 2007:446). The theory also focuses on how agency problems that reduce the level of internal CE can indirectly cause an increase in the level of outside entrepreneurship (Jones & Butler, 1992:734).

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Agency problems appear in instances where there are conflicting goals between the principal and the agent (i.e., a mismatch between ownership and managerial interests), such as in situations where the agent works for the principal but does not bear or enjoy all the wealth effects of the work outcome (Goodale *et al.*, 2010:118). For instance, a manager may have an incentive to undertake risk decisions under the guise of entrepreneurship without suffering the consequences arising from poor decision making; hence the organisation (principal) would want to monitor the agent's decision making (through operations control mechanisms) as the agent's poor decision-making choices could result in loss on the part of the principal (Goodale *et al.*, 2010:118). Also there are instances when the agents (executives) want to maximise their share irrespective of benefits accruing to principals (shareholders), resulting in agency problems between the principals and agents (Shah & Bhutta, 2013:79).

The agency theory considers an organisation's operations control systems as the means for balancing interests of principals and agents in order to successfully pursue innovations (Goodale *et al.*, 2010:118). However, the operations control mechanisms applied to monitor the agent's decision making are fundamental in understanding to what extent an organisation's entrepreneurial activities and their attendant innovation performance outcomes are affected in relation to the costs of the agency problem (Goodale *et al.*, 2010:118). Agency cost is basically as a result of "self-interest behaviours of managers usually concerned on rank, excessive profit consumption, wrong decision making regarding investment and firm, misallocation of resources and accounting practices; agency cost affects the shareholder's wealth as well as other stakeholders' wealth like debt financiers, [and] employee society" (Shah & Bhutta, 2013:83-84).

Three variables comprise the sum total of agency cost, namely, the principal's monitoring expenditures, the agent's bonding expenditures, and the residual loss, while high agency costs have the tendency to lower CE activities by negatively affecting the organisation's competitive advantage (Shah & Bhutta, 2013:82-84). In this respect, while CE has a significant positive influence on company performance (Antoncic & Antoncic, 2011; Zahra & Covin, 1995), agency costs significantly detract from company performance (Colombo, Croce & Murtinu, 2014:226; Shah & Bhutta,

2013:84). Certain operations control mechanisms may suppress the positive relationship between entrepreneurial activity and its attendant performance outcomes, due to their tendency to limit the latitude available for entrepreneurial action by lower-level organisational members by centralising organisational structure and decision making (Goodale *et al.*, 2010:118). Furthermore, in a competitive environment, organisations that have high agency costs are likely to face threats from rival organisations, while efficient competition tends to lower agency cost (Shah & Bhutta, 2013:84).

The perspective of the agency theory acknowledges that principals (owners), principal–agents (managers), and agents (employees) each have distinct risk profiles, while “all organisational members, as agents unable to diversify their risks, will be more risk averse than the principals (owners) for whom they work” (Hayton, 2005:25-26). In this regard, organisations should come up with compensation systems that incentivise risk taking by linking rewards to entrepreneurial behaviour of organisational members, taking into account that, of all human resource practices, compensation has been found to be the most important for innovation (Hayton, 2005:26).

Studies have shown that CE is in fact dependent on an organisation’s intellectual capacity (human and social capital), which fosters organisational learning ability through exploration of new knowledge as well as exploitation of existing knowledge (Hayton, 2005:21; McGrath, 2001). Therefore, for organisations to successfully implement a CE strategy, among other things, they need to have in place all the important human resource practices for entrepreneurial activities, such as adequate rewards/reinforcement (Hayton, 2005). The agency theory therefore provides a useful theoretical basis for understanding many of the functional and dysfunctional CE dynamics (Goodale *et al.*, 2010:118).

In relation to this study, the agency theory is primarily helpful in providing basis for organisations to design and promote an appropriate internal organisational environment that enables management to exhibit entrepreneurial behaviour appropriate for achieving sustainable CE and sustained company performance. The established operations control systems should be such that they promote the

organisational antecedents for entrepreneurial behaviour (management support, work discretion, rewards, time availability, and organisational boundaries).

3.14.3 The institutional theory

The institutional theory is concerned with the need for organisations to adopt structures, processes, policies and/or procedures due to the pressure from coexisting institutions; these function as constraints and opportunities aimed at enhancing human interactions (Bruton *et al.*, 2010). An institutional environment is defined as the stable rules, social standards and cognitive structures in society that guide, favour or restrict business activity (Gómez-Haro *et al.*, 2011:1680). These institutional arrangements, such as government policy, legal, and financial systems, have an influence on organisational behaviour, as they affect company decision- and strategy-making posture (Lim, Morse, Mitchell & Seawright, 2010; Peng, Wang & Jiang, 2008). Faced with such an environment, organisations are left with no other option but to respond to such an environment by accepting and complying with the imposed rules, while at the same time trying to influence and possibly control these same institutions that try to control them (Gómez-Haro *et al.*, 2011; Rao & Giorgi, 2006).

The literature presents three dimensions of the institutional environment (Scott, 1995) which have been widely used in organisational research, namely, regulatory, normative, and cognitive institutional environments. These dimensions are operationalised as follows (Manolova, Eunni, & Gyoshev, 2008:205): (1) *Regulatory institutions* refer to formally codified, enacted, and enforced structure of laws in a community, society, or nation; (2) *Normative institutions* are less formal and are typically manifested in standards and commercial conventions such as those established by professional and trade associations, and business groups; and (3) *Cognitive institutions* refer to the axiomatic beliefs about the expected standards of behaviour that are specific to a culture, which are typically learnt through social interaction, by living or growing up in a community or society. Busenitz, Gomez, and Spencer, (2000:995) adopted somewhat narrower operational definitions of normative and cognitive dimensions than those originally provided, defining *cognitive dimension* as “the knowledge and skills possessed by the people in a country pertaining to establishing and operating a new business” while the *normative*

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dimension relates to “the degree to which a country’s residents admire entrepreneurial activity and value creative and innovative thinking”.

Previously, researchers paid more attention to the regulatory dimension of the institutional environment as regards its influence on entrepreneurship, although recent research shows that other factors that are more related to managers’ influence from cognitive and normative variables (e.g., culture, tradition, history, cognitive conceptions) should be incorporated also, as they affect the level and success of entrepreneurship (Capelleras, Mole, Greene & Storey, 2008; Gómez-Haro *et al.*, 2011; Lim *et al.*, 2010).

According to North (2005), institutions can be formal (e.g., political and economic rules and contracts) or informal (e.g., behavioural values, norms and attitudes, codes of conduct, and conventions (Kostova & Roth, 2002; Urbano & Turró, 2013). In this respect, the institutional theory is critical to entrepreneurship research, as institutions are the embodiments of “the set of rules that articulate and organize the economic, social and political interactions between individuals and social groups, with consequences for business activity and economic development” (Bruton *et al.*, 2010). Furthermore, the institutional environment influences the development of entrepreneurship as it “creates conditions that entrepreneurs must navigate and that policy makers can address”, and in the absence of “a solid institutional foundation, the entrepreneurship-specific conditions cannot function effectively” (Kelley *et al.*, 2012:4). An institutional environment also determines the process of gaining cognitive and socio-political legitimacy, which critically aids entrepreneurial organisations to overcome the liabilities of newness and smallness, and also to increase their survival prospects (Manolova *et al.*, 2008:205).

Although the institutional theory has substantially been used in the field of traditional entrepreneurship (Bruton *et al.*, 2010; Guerrero & Urbano, 2012; Thornton *et al.*, 2011; Welter & Smallbone, 2011), very little research in the field of CE has been conducted based on this theory (Gómez-Haro *et al.*, 2011). However, recent research shows that the relationship between institutional environment and CE is distinct: “both the normative and cognitive dimensions of the institutional environment influence an organisation’s entrepreneurial orientation, while the regulatory dimension positively

influences the type of corporate entrepreneurial activity carried out” (Gómez-Haro *et al.*, 2011:1678). This study basically leans heavily on the institutional theory as all the three aspects of the theory (that is, regulatory, cognitive, and normative institutional environments) have a bearing on sustainable CE and sustained company performance.

3.14.4 The theory of dynamic capabilities

Zahra, Sapienza & Davidson, 2006:918) define dynamic capabilities as “the abilities to reconfigure a firm’s resources and routines in the manner envisioned and deemed appropriate by its principal decision-makers(s)”. According to Teece (2012:1395), dynamic capabilities refer to the “higher-level competencies that determine the firm’s ability to integrate, build, and reconfigure internal and external resources/competencies to address, and possibly shape, rapidly changing business environment”. The dynamic capability that pertains to knowledge creation and utilisation, leading to enhanced ability of the organisation to gain and sustain a competitive advantage, is referred to as absorptive capacity (ACAP), which is defined as an organisation’s “ability to acquire, assimilate, transform, and exploit new knowledge” (Zahra & George, 2002:185).

The term “dynamic” refers to the capacity to regenerate competencies that are in line with changes in the environment, while the term “capability” relates to the adaptation, integration, and reconfiguration of both the internal and external organisational resources in response to the changing environment (Chien & Tsai, 2012:435). These kinds of capabilities determine the speed and degree to which the organisation’s particular resources can be appropriately synchronised with the requirements and opportunities of the business environment in order to generate sustained superior returns (Teece, 2012:1395).

Knowledge resources lead to the development of dynamic capabilities (Chien & Tsai, 2012:434), which in turn enhance an organisation’s ability to sense opportunities, seize resources, and bring about continued renewal (Teece, 2012:1396). Organisations acquire these knowledge resources through learning (defined as the process of using the knowledge resources) (Van der Heijden, 2004), while the

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learning mechanisms themselves enhance dynamic capabilities and offer understanding on how these dynamic capabilities evolve (Chien & Tsai, 2012:434).

Dynamic capabilities, which are strategic and distinct from ordinary capabilities, are useful in explaining CE, especially when looked at from the three clusters of activities and adjustments (Teece, 2012:1396), namely: (1) *sensing*, referring to opportunity identification and assessment, (2) *seizing*, referring to resource mobilisation for pursuing opportunity and creating value, and (3) *transforming*, referring to continued renewal. By using its ordinary capabilities, an organisation may only efficiently perform its current activities (Teece, 2012:1396) without positioning itself for entrepreneurial gains. On the other hand, the use of dynamic capabilities, combined with an appropriate strategy, places the organisation in a superiorly competitive position to exploit the entrepreneurial opportunities and create value by making the right products or services, and targeting the right markets to address the needs of the consumers as well as future technological and competitive opportunities (Teece, 2012:1396; Rumelt, 2011). In this respect, dynamic capabilities gear an organisation for achieving sustainable competitive advantage as well as sustained performance, as they empower the organisation with the ability to sense opportunities, seize resources, and bring about continued renewal.

As dynamic capabilities are “composed of creating, obtaining, integrating, and redeploying knowledge resources”, they can be used by organisations to respond to changes in the environment (Chien & Tsai, 2012:435), thereby gaining competitive advantage (Prieto & Easterby-Smith, 2006:500). Top management plays a significant role in instigating the necessary dynamic capabilities for evaluating and prescribing reconfiguration of resources (both internally and externally) for entrepreneurial actions (Teece, 2012:1397). Entrepreneurial organisations create opportunities through their actions (Jantunen, Puumalainen, Saarenketo & Kylaheiko, 2005), which actions must be premised on dynamic capabilities. Therefore, in order for organisations to take advantage of sensed opportunities, they need to have strong ability to reconfigure their resource bases and this can only be enabled by the organisation’s dynamic capabilities (Covin & Lumpkin, 2011:861). In this respect, dynamic capabilities gear an organisation for achieving sustainable competitive advantage as well as sustained performance, as they empower the organisation with

the ability to sense opportunities, seize resources, and bring about continued renewal.

3.15 Conclusion

CE is a construct with varying operational definitions; scholars have come up with different models for the phenomenon. However, scholars are in agreement in terms of the importance of entrepreneurship within organisations, as it can lead to enhanced competitiveness and improved company performance.

Sustainable CE is the key to sustained improvement in company performance. Scholars are in agreement that there are important antecedents, both in the external environment and the internal organisational climate, that influence sustainable CE, which in turn results in on-going improvement in company performance. Research on CE largely focuses on these two domains (Özdemirci, 2011:612). This study incorporates both the external environment and the internal organisational antecedents as predictors of sustainable CE. This chapter has presented these antecedents as a basis for the study's hypothesised model for sustainable CE, and also presented the theoretical foundations of the study. The next chapter presents the research design and methodology.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

In chapter 3, a detailed literature review on entrepreneurship within established organisations (corporate entrepreneurship) was given, with specific focus on the operationalisation of the concept and the various forms it takes as well as different models used to explain the phenomenon. Detailed consideration was also given to the two environments (external and internal) as well as entrepreneurial behaviour of managers which together have a bearing on sustainable CE and sustained company performance. While providing theoretical grounding for the study, chapter 3 also provided the theoretical basis of the study's hypotheses in respect of the organisational antecedents, the external environment, entrepreneurial actions, sustained CE, and sustained company performance.

This chapter (chapter 4) focuses on the next step of the study by looking at the research methodology, the practical steps that were followed in providing information needed to conduct the proposed empirical study. The chapter therefore details the process in the form of research objectives and hypotheses to be tested, research design, measurement instrument and data collection, data processing, and data analysis. The chapter elaborates on the postulated model for sustainable CE and the structural relationships, operationalises all the constructs of interest while indicating the respective items for the respective subscales comprising the overall measurement instrument, and provides basis for the assessment of both the measurement and structural model components of the postulated SEM model for sustainable CE and sustained company performance.

4.2 Research question for the study

Although literature reveals that CE scholars have tried to enhance our understanding of what makes an organisation entrepreneurial by investigating the corporate environment and its impact on corporate venturing (Shepherd & Krueger, 2002:167),

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there tends to be no empirical work conducted specifically on the predictability of sustainable CE and sustained company performance.

The proposed study seeks to fill this gap by determining predictability of sustainable CE and sustained company performance using key organisational antecedents and external environmental factors affecting CE. SEM was used to express the dependence relationships among independent and dependent variables, and to distinguish which independent variables have more predictive power on sustainable CE, which in turn affects company performance. The main purpose of the study was to undertake an empirical study to determine the predictability of sustainable CE and sustained company performance.

The study is concerned with the predictability of sustainable CE and sustained company performance and dwelt on the following specific research questions:

- What factors influence sustainable CE which should result in sustained company performance?
- Can the level of sustainable CE and sustained company performance be predicted?
- Which of the external environmental factors and the CECl internal organisational antecedents could be considered to be the best predictors of sustainable CE?

4.3 Research objectives

This study attempted to achieve the following research objectives:

- To empirically identify best predictors of sustainable CE by testing the postulated measurement and structural model
- To assess the validity and predictive power of the CECl as developed by Kuratko *et al.* (1990) and the external environment antecedents as postulated by Zahra (1991) in relation to sustainable CE

- To make a contribution to CE domain on the basis of the study findings
- To contribute to the Zambian literature on entrepreneurship, specifically sustainable CE

4.4 Hypothesised model of sustainable corporate entrepreneurship

The hypothesised model for the study, as shown in Figure 4-1, is based on the conceptual framework that incorporates factors affecting CE as well as company performance outcomes. Research on CE largely focuses on two domains, namely the external environment and the internal organisational antecedents (Özdemirci, 2011:612).

This study incorporates both the external environment and the internal organisational antecedents as predictors of sustainable CE. The model depicts the hypothesised theoretical relationships, the basis for the hypotheses to be tested. The variables for the hypothesised model are presented in the next section.

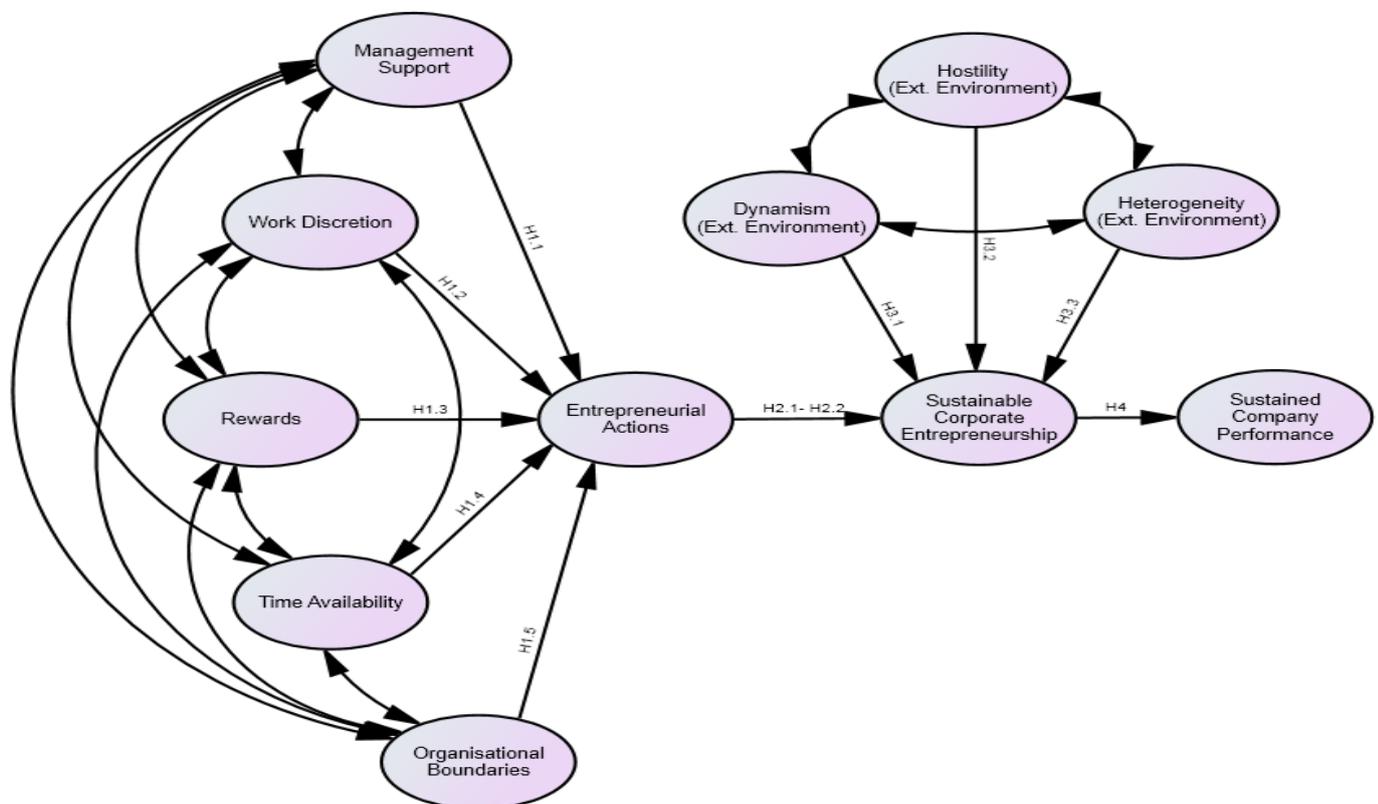


Figure 4-1: The hypothesised model and structural relationships for SCE

4.5 Variable measurement

The hypothesised model for the study has eleven variables in total, comprising nine independent variables and three dependent variables. Out of the nine independent variables, five represent the organisational antecedents (management support, organisational boundaries, autonomy, rewards/reinforcement, and time availability); while three represent the external environment (dynamism, hostility, and heterogeneity). The three dependent variables are entrepreneurial actions (mediating variable), sustainable CE, and sustained company performance.

4.5.1 Independent variables

External environmental conditions – referring to both the physical and social factors outside the organisation but within its operative sphere that individuals in the organisation directly take into consideration in their decision-making behaviour (Li & Liu, 2014). In this respect, it is expected that the effect of environmental factors will actually filter down to the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team.

According to Hayton (2005:21), the more complex and dynamic the external environment, the more entrepreneurial organisations must become “in order to identify new opportunities for sustained superior performance”. Thus three independent external environment variables are hypothesised as affecting CE (Antoncic & Hisrich, 2001:503; Covin & Slevin, 1989:75; Zahra, 1993a:319), namely:

- (iv) Environmental dynamism,
- (v) Environmental hostility, and
- (vi) Environmental heterogeneity

CE organisational antecedents – referring to five independent variables pertaining to corporate entrepreneurship climate (Hornsby *et al.*, 2009:239; Hornsby *et al.*, 2013), namely:

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- (vi) Management support,
- (vii) Organisational boundaries,
- (viii) Autonomy,
- (ix) Rewards/reinforcement, and
- (x) Time availability

4.5.2 Dependent variables

The following are the dependent variables of the hypothesised model:

Entrepreneurial actions – referring to newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited (Kuratko *et al.*, 2005a:276). Entrepreneurial actions are a product of organisational antecedents (Kuratko *et al.*, 2005a:277) and the conduit through which CE is practised in established organisations (Hitt *et al.*, 2001). In this regard, entrepreneurial actions could have a mediating effect on the ability of a corporate climate to stimulate sustainable CE. Therefore, entrepreneurial actions in this model serve as a mediating variable which mediates the effects of organisational antecedents and sustainable CE.

Corporate entrepreneurship – referring to the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance (Covin & Miles, 1999:50-54; Morris *et al.*, 2011:99). The study uses the construct *sustainable CE* interchangeably with sustainable corporate competitive advantage, which is different from environmental stewardship practices.

Sustained company performance – referring to the resultant entrepreneurial outcomes in the form of continuing organisational growth and profitability (Covin &

Slevin, 1990; Morris & Sexton, 1996; Zahra, 1991) and generally encompassing achievement on set objectives with both financial and non-financial dimensions.

4.6 Hypotheses tested

The study aimed at testing the following research hypotheses and their respective sub-hypotheses:

- H₁: The more entrepreneurial the organisational climate is perceived to be, the more the individual will take entrepreneurial actions.
- H_{1.1}: Management support for CE is positively related to entrepreneurial actions;
- H_{1.2}: Work discretion/autonomy is positively related to entrepreneurial actions;
- H_{1.3}: Rewards/reinforcement is positively related to entrepreneurial actions;
- H_{1.4}: Time availability for CE is positively related to entrepreneurial actions;
- H_{1.5}: Organisational boundaries for CE will be positively related to entrepreneurial actions;
- H_{2.1}: Entrepreneurial actions will mediate the relationships between the individual's perceptions of a corporate entrepreneurial climate and sustainable CE.
- H_{2.2}: Entrepreneurial actions will be positively related to sustainable CE
- H₃: External environmental characteristics are positively associated with sustainable CE.
- H_{3.1}: Environmental dynamism will be positively related to sustainable CE
- H_{3.2}: Environmental hostility will be positively related to sustainable CE.
- H_{3.3}: Environmental heterogeneity will be positively related to sustainable CE.
- H₄: Sustainable CE positively influences sustained company performance.

4.7 Research design

The proposed research is a scientific study grounded in the inference process and aims at determining predictors of sustainable CE. The theoretical framework indicated on CE shows that the external environment (dynamism, hostility, and heterogeneity) influences the phenomenon. It is also documented that CE climate (management support, work discretion, rewards, time availability, and organisational boundaries) influences entrepreneurial actions, which in turn influence CE and the resultant company performance. These constructs and their measured variables formed the study's measurement and structural model, as elaborated in Chapter 5.

4.8 Developing the overall sustainable CE measurement instrument

The measurement instrument used to diagnose predictors of sustainable CE was derived from various reputable sources reporting other research, and therefore comprised original questions, as well as some items developed by the researcher as listed below. Previous research that used these respective questionnaires phrased in the same manner include the following: external environment (Miller & Friesen, 1984; Zahra, 1991); organisational antecedents or the CECI (questions and number of items have tended to vary in some instances due to the search for refinement) (Adonisi, 2003; Brizek, 2003; Hornsby *et al.*, 2002; Hornsby *et al.*, 2013; Kuratko *et al.*, 1990; Van Wyk & Adonisi, 2011); entrepreneurial actions (Kuratko *et al.*, 2005a); and company performance (Matsuno *et al.*, 2002). In this study, latent variables are represented by multiple measures of the same underlying construct. This is in line with the classical test theory that postulates that multi-item scales enhance minimisation of random measurement error as well as maximisation of measurement reliability and validity (Nunnally & Bernstein, 1994).

Furthermore, all measures in the model, including those for company performance, were based on perceptions. Literature reveals that the use of such subjective, self-report measures is consistent with past research practices (Covin & Slevin, 1989; Matsuno *et al.*, 2002:24; Poon *et al.*, 2006:69). In addition, research has shown that subjective measures are correlated to objective measures of performance (Dess & Robinson, 1984:271; Matsuno *et al.*, 2002:24; Slater & Narver, 1994) and that top

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managers' perceptions of the performance of their organisation are highly consistent with their organisations' actual performance as indicated by objective measures (Dess & Robinson, 1984; Wall et al., 2004).

The full questionnaire consisted of two sections with the first section containing six biographic questions and three other items relating to company data. Section two held a 53-item multi-dimensional sustainable CE scale adapted from the various reputable sources reporting other research as well as some items developed by the researcher. In order to measure and evaluate the abstract concepts used for the predicting model in this study (i.e., sustainable CE, organisational antecedents, external environment, entrepreneurial actions for SCE, and sustained company performance), the concepts were operationalised or moved from conceptual to empirical level as shown in Table 4-1. As the concepts cannot be directly observed or measured, operationalising them helps to identify their main dimensions and to represent them with observable or measurable items (Cooper & Schindler (2008:59).

For measuring variables pertaining to the CE climate, the study adapted the CECI developed by Kuratko *et al* (1990), while the measurement instrument for variables pertaining to external environment was adapted from Miller and Friesen (1984) and Zahra (1991). The measurement instrument for the construct *sustainable CE* incorporated items the researcher adapted from the CE definition by Covin and Miles (1999) and extended by Morris *et al.* (2011). The measures for sustained company performance were adapted from the three self-report measures of performance developed by Matsuno *et al.* (2002), and one item developed by the researcher. In order not to confuse respondents, the same response format of a 5-point Likert-type scale was used.

Table 4-1: Transitioning from the Conceptual to the Observational Level

THEORY LEVEL			RESEARCH LEVEL	
Conceptual Level	Conceptual Components	Conceptual Definitions	Operational Definitions (A set of questionnaire items)	Observation Level
	Dynamism	The perceived instability or unpredictable and rapid change of an organisation's market because of continuing changes in that organisation's external environment resulting from social, political, technological, competitive rivalry, government regulation, and economic factors, and ushering in opportunities for CE within the existing markets or in adjacent fields.	The rate of product obsolescence in our industry is high.	Response to questionnaire
	Hostility	Increased rivalry in the industry or depressed demand for an organisation's products or services, thereby threatening organisational survival; unfavourable change and competitive rivalry which negatively affects an organisation's goals and mission.	In our industry, methods of production change often and in major ways.	
			Our firm must change its marketing practices frequently.	
Heterogeneity	Complex contextual influences in the external environment whereby developments in one market create new pockets of demand for an organisation's product in related areas, and indicates existence of multiple organisational segments with varied characteristics and needs.	In our industry, actions of competitors are unpredictable.		
		In our industry, demand and customer tastes are unpredictable.		
		Declining markets for products are a major challenge in our industry.		
		Tough price competition is a major challenge in our industry.		
		Government interference is a major challenge in our industry.		
	Entrepreneurial Actions for SCE	Activities companies embark upon to exploit entrepreneurial opportunities unnoticed or unexploited by rivals, and which actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways on an on-going basis.	Our business environment causes a great deal of threat to the survival of our company.	
			We are a highly organised conglomerate and operate in unrelated industries.	
			Customers' buying habits vary a great deal from one line of our business to the other.	
			Market dynamism and uncertainty vary a great deal from one line of our business to the other.	
			In our organisation, the number of improvements implemented without organisational approval were on the increase over the past six months.	Response to questionnaire
			Over the past six months, the number of new ideas suggested in our organisation increased greatly.	
			In our organisation, the number of new ideas implemented without official organisational approval was on the increase in the past six months.	
			I am satisfied with the outcomes of my organisation's entrepreneurial activities as they meet expectation.	

Table 4-1 (continued)

THEORY LEVEL			RESEARCH LEVEL	
Conceptual Level	Conceptual Components	Conceptual Definitions	Operational Definitions (A set of questionnaire items)	Observation Level
	Management Support	The extent to which people perceive that top managers support, facilitate and promote entrepreneurial behaviour, which includes the championing of innovative ideas and providing the resources people require to take entrepreneurial actions.	My organisation is quick to use improved work methods that are developed by workers. My organisation encourages the development of new ideas for the improvement of the corporation. Upper management is aware of and very receptive to my ideas and suggestions. Those actively working on projects are allowed to make decisions without going through elaborate justification and approval procedures. There are several options within the organisation for individuals to get financial support for their innovative projects and ideas. Individual risk takers are recognized and encouraged for the willingness to champion new projects, whether eventually successful or not. My organisation supports many small and experimental projects, realising that some will undoubtedly fail. Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track. I feel like I am my own boss and do not have to double-check all my decisions with someone else.	Response/questionnaire
	Work Discretion	The extent to which people perceive top-level manager's commitment to tolerating failure, providing decision-making latitude and freedom from excessive oversight, and delegating authority and responsibility to lower-level managers and workers.	This organisation gives me the opportunity to make use of my abilities. In this organisation I am not subject to criticism and punishment resulting from mistakes made on the job. I have much autonomy on my job and am left on my own to do my own work.	
	Rewards/ Reinforcement	The extent to which one perceives that the organisation develops and uses systems that reward entrepreneurial activity and success in order to reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work.	The rewards I receive are dependent upon my work performance. My manager/ supervisor will increase my job responsibilities if I am performing well in my job. Individuals running or initiating successful innovative projects receive additional rewards and compensation for their ideas and efforts beyond the standard reward system. My manager/supervisor would tell his/her boss if my work was outstanding. My manager/supervisor helps me get my work done by removing obstacles and roadblocks.	
	Time Availability	The perception that management evaluates workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals.	During the past three months, my workload kept me from spending time on developing new ideas. I have just the right amount of time and work load to do everything well. I always seem to have plenty of time for innovation and experimentation. My job is structured in such a way that gives me very little time to think about wider organisational problems. In this organisation my co-worker and I always find time for Long-term problem solving.	
	Organisational boundaries	The existence of a flexible and supportive organisational structure that provides the administrative mechanisms by which ideas are evaluated, chosen, and implemented and involves the precise explanation of outcomes expected from organisational work and development of mechanisms of evaluating, selecting and using innovations.	In the past three months, I had to follow very little standard operating procedures or practices to do my major tasks. There are many written rules and procedures that exist for doing my major tasks. My job description clearly specifies the standards of performance on which my job is evaluated. I clearly know what level of work performance is expected from me in terms of quantity, quality and timeline of output. I seldom have to follow the same work methods or steps for doing my major tasks.	

Table 4-1 (continued)

THEORY LEVEL			RESEARCH LEVEL	
Conceptual Level	Conceptual Components	Conceptual Definitions	Operational Definitions (A set of questionnaire items)	Observation Level
	Sustained regeneration	The CE phenomenon whereby the organisation regularly and continuously introduces new products and services or enters new markets.	Our organisation regularly and continuously introduces new products and services or enters new markets.	Response to questionnaire
	Organisational rejuvenation	The CE phenomenon whereby the organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities.	Our organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities.	
	Strategic renewal	The CE phenomenon whereby the organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes.	Our organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes.	
	Domain redefinition	The CE phenomenon whereby the organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit.	Our organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit.	
	Business Model Reconstruction	A form of CE whereby an organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.	Our organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.	
	Market share growth	An organisation's percentage of market's total sales earned over a specified time period.	Our organisation's primary market share grew last year.	Response to questionnaire
	Sales growth	An organisation's growth in sales relating to new products (percentage of new product sales to total sales).	Our organisation's percentage of sales generated by new products/services last year grew relative to major competitors.	
	Return on investment	A profitability measure that evaluates the performance of a business by dividing net profit by net worth.	Last year, our organisation's return on investment (ROI) grew relative to major competitors.	
	Performance satisfaction	Satisfaction with performance outcomes which necessarily acts as a feedback mechanism that helps in deciding whether to sustain current entrepreneurial strategy or to select another one.	I am satisfied with the performance of my organisation as the outcomes are equitable and/or meet expectation.	

4.8.1 Measures for management support

Management support relates to the extent to which people perceive that top managers support, facilitate and promote entrepreneurial behaviour, which includes the championing of innovative ideas and providing the resources people require to take entrepreneurial actions (Hornsby *et al.*, 2009:238; Hornsby *et al.* (2013:939; Kuratko *et al.* 1990:52). The study initially formed eight manifest indicators from the management support items, as shown in Table 4-2.

Table 4-2: Measurement scale for management support

Latent factor	Observed variable	Item statement	Developed by
Management Support	V11	My organisation is quick to use improved work methods that are developed by workers.	Kuratko <i>et al</i> (1990)
	V12	My organisation encourages the development of new ideas for the improvement of the corporation.	
	V13	Upper management is aware of and very receptive to my ideas and suggestions.	
	V14	Those actively working on projects are allowed to make decisions without going through elaborate justification and approval procedures.	
	V15	There are several options within the organisation for individuals to get financial support for their innovative projects and ideas.	
	V16	Individual risk takers are recognized and encouraged for the willingness to champion new projects, whether eventually successful or not.	
	V17	My organisation supports many small and experimental projects, realising that some will undoubtedly fail.	
	V18	Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.	

4.8.2 Measures for work discretion/autonomy

Work discretion or autonomy relates to the extent to which people perceive top-level managers' commitment to tolerating failure, providing decision-making latitude and freedom from excessive oversight, and delegating authority and responsibility to lower-level managers and workers (Hornsby *et al.*, 2002:260; Hornsby *et al.*, 2009:238; Morris *et al.*, 2011:381). A total of four manifest indicators were formed from the work discretion/autonomy items, as shown in Table 4-3.

Table 4-3: Measurement scale for work discretion

Latent factor	Observed variable	Item statement	Developed by
Work Discretion	V19	I feel like I am my own boss and do not have to double-check all my decisions with someone else.	Kuratko <i>et al</i> (1990)
	V20	This organisation gives me the opportunity to make use of my abilities.	
	V21	In this organisation I am not subject to criticism and punishment resulting from mistakes made on the job.	
	V22	I have much autonomy on my job and am left on my own to do my own work.	

4.8.3 Measures for rewards/reinforcement

Rewards or reinforcement relates to the extent to which one perceives that the organisation develops and uses systems that reward entrepreneurial activity and success in order to reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work (Hornsby *et al.*, 2002:259; Hornsby *et al.*, 2009:239; Morris *et al.*, 2011:381;). A total of five manifest indicators were formed from the rewards/reinforcement items, as shown in Table 4-4.

Table 4-4: Measurement scale for rewards

Latent factor	Observed variable	Item statement	Developed by
Rewards/ Reinforcement	V24	The rewards I receive are dependent upon my work performance.	Kuratko <i>et al</i> (1990)
	V25	My manager/ supervisor will increase my job responsibilities if I am performing well in my job.	
	V26	Individuals running or initiating successful innovative projects receive additional rewards and compensation for their ideas and efforts beyond the standard reward system.	
	V27	My manager/supervisor would tell his/her boss if my work was outstanding.	
	V28	My manager/supervisor helps me get my work done by removing obstacles and roadblocks.	

4.8.4 Measures for time availability

Time availability relates to the perception that management evaluates workloads to ensure that individuals and groups have the time needed to pursue innovations and

that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals (Hornsby *et al.*, 2009:239; Morris *et al.*, 2011:381). A total of five manifest indicators were formed from the time availability items, as shown in Table 4-5.

Table 4-5: Measurement scale for time availability

Latent factor	Observed variable	Item statement	Developed by
Time Availability	V29	During the past three months, my workload kept me from spending time on developing new ideas.	Kuratko <i>et al</i> (1990)
	V30	I have just the right amount of time and work load to do everything well.	
	V31	I always seem to have plenty of time for innovation and experimentation.	
	V32	My job is structured in such a way that gives me very little time to think about wider organisational problems.	
	V33	In this organisation my co-worker and I always find time for Long-term problem solving.	

4.8.5 Measures for organisational boundaries

Organisational boundaries relates to the existence of a flexible and supportive organisational structure that provides the administrative mechanisms by which ideas are evaluated, chosen, and implemented (Burgelman & Sayles, 1986; Hornsby *et al.*, 2002:260) and involves the precise explanation of outcomes expected from organisational work and development of mechanisms of evaluating, selecting and using innovations (Morris *et al.*, 2011:382). A total of five manifest indicators were formed from the items for organisational boundaries, as shown in Table 4-6.

Evidently, some of the measures of organisational boundaries, specifically items V34 and V35, tend to capture aspects of organisational control systems, which embraces a much broader scope of information, including financial information as well as “external information relating to markets, customers, competitors, non-financial information related to production processes, predictive information, and a broader array of decision support mechanisms, and informal personal and social controls” (Chenhall, 2003:129).

Table 4-6: Measurement scale for organisational boundaries

Latent factor	Observed variable	Item statement	Developed by
Organisational boundaries, barriers and bureaucracies	V34	In the past three months, I had to follow very little standard operating procedures or practices to do my major tasks.	Kuratko <i>et al</i> (1990)
	V35	There are many written rules and procedures that exist for doing my major tasks.	
	V36	My job description clearly specifies the standards of performance on which my job is evaluated.	
	V37	I clearly know what level of work performance is expected from me in terms of quantity, quality and timeline of output.	
	V38	I seldom have to follow the same work methods or steps for doing my major tasks.	

Control systems are essentially passive tools that provide information to assist managers with decision making (Chenhall, 2003:129). However, items V34 (“In the past three months, I had to follow very little standard operating procedures or practices to do my major tasks”) and V35 (“There are many written rules and procedures that exist for doing my major tasks”) relate to the conceptual component of organisational boundaries dealing with rules, and standard operating procedures or practices that are part of the administrative mechanisms by which ideas are evaluated, chosen, and implemented.

4.8.6 Measures for Entrepreneurial Actions for SCE

Entrepreneurial actions for SCE are activities companies embark upon to exploit entrepreneurial opportunities unnoticed or unexploited by rivals, and which actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways (Kuratko *et al.*, 2005a:276; Smith & Di Gregorio, 2002) on an on-going basis. The construct is therefore operationalised in the context of increased entrepreneurial activities or intensity, and not necessarily success. The construct *entrepreneurial actions for SCE* was measured by adapting three items developed by Kuratko *et al.* (2005a) and one item developed by the researcher, as shown in Table 4-7. The three

items developed by Kuratko *et al.* (2005a) represent an indication of entrepreneurial actions utilised in prior research.

Table 4-7: Measurement scale for entrepreneurial actions

Latent factor	Observed variable	Item statement	Developed by
Entrepreneurial Actions	V39	In our organisation, the number of improvements implemented without organisational approval was on the increase over the past six months.	Kuratko <i>et al.</i> (2005a)
	V40	Over the past six months, the number of new ideas suggested in our organisation increased greatly.	
	V41	In our organisation, the number of new ideas implemented without official organisational approval was on the increase in the past six months.	
	V42	I am satisfied with the outcomes of my organisation's entrepreneurial activities as they meet expectation.	Researcher

The measures for entrepreneurial actions developed by Kuratko *et al.* (2005a) basically focus on idea generation and implementation, whether official or unofficial. While new entrepreneurial ideas suggested are not necessarily entrepreneurial actions, they are foundational to eventual entrepreneurial actions within an organisation. Furthermore, while entrepreneurial idea generation and actions may happen without organisational approval, their approval also indicates management's willingness to encourage creativity and innovation, which to some degree indicates an organisation's entrepreneurial posture or orientation.

Management needs to have a sense of satisfaction with organisational outcomes in relation to the implemented entrepreneurial actions, which creates the basis for the decision whether to sustain, enhance or revise such activities for the purposes of achieving sustainable competitive advantage and on-going improvements in performance. Therefore, satisfaction with implemented entrepreneurial actions serves as an important aspect of the feedback mechanism that may reinforce or discourage continuity of current entrepreneurial actions (Simon & Shrader, 2012:291). Hence the reason the researcher added the fourth item to measure entrepreneurial actions for SCE.

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Furthermore, these entrepreneurial actions are a product of organisational antecedents (Kuratko *et al.*, 2005a:277) and the conduit through which CE is practised in established organisations (Hitt *et al.*, 2001). (Refer to Chapter 3 for a detailed conceptual discussion on entrepreneurial actions and CE, how the two construct are distinguished as separate but related concepts.)

4.8.7 Measures for dynamism

Dynamism in the external environment relates to the perceived instability of an organisation's market because of continuing changes (Rosenbusch *et al.*, 2013:642) resulting from social, political, technological, and economic factors, and ushering in opportunities for CE (Zahra, 1991:262). The study's three manifest indicators for measuring dynamism were adapted from Miller and Friesen (1984) and Zahra (1991) as shown in Table 4-8.

Table 4-8: Measurement scale for dynamism

Latent factor	Observed variable	Item statement	Developed by
Dynamism	V52	The rate of product obsolescence in our industry is high.	Miller & Friesen (1984); Zahra (1991)
	V53	In our industry, methods of production change often and in major ways.	
	V54	Our organisation must change its marketing practices frequently.	

4.8.8 Measures for hostility

Hostility in the external environment relates to the increased rivalry in the industry or depressed demand for an organisation's products or services, thereby threatening organisational survival (Zahra, 1991:263); unfavourable change and competitive rivalry (Antoncic & Hisrich, 2001:503) which negatively affects an organisation's goals and mission (Antoncic & Hisrich 2001:504; Miller & Friesen, 1984). The study's six manifest indicators for measuring hostility were adapted from Miller and Friesen (1984) and Zahra (1991), as shown in Table 4-9.

Table 4-9: Measurement scale for hostility

Latent factor	Observed variable	Item statement	Developed by
Hostility	V55	In our industry, actions of competitors are unpredictable.	Miller & Friesen (1984); Zahra (1991)
	V56	In our industry, demand and customer tastes are unpredictable.	
	V57	Declining markets for products are a major challenge in our industry.	
	V58	Tough price competition is a major challenge in our industry.	
	V59	Government interference is a major challenge in our industry.	
	V60	Our business environment causes a great deal of threat to the survival of our company.	

4.8.9 Measures for heterogeneity

Heterogeneity relates to the complex contextual influences in the external environment whereby developments in one market create new pockets of demand for an organisation's product in related areas, and indicates existence of multiple organisational segments with varied characteristics and needs (Dess & Beard, 1984:157; Zahra, 1991:263); diversity of customer needs and expectations among the different segments served by the organisation (Miller & Friesen, 1984:157). The study formed three manifest indicators that were developed by Miller and Friesen (1984) and Zahra (1991) for measuring hostility, as shown in Table 4-10.

Table 4-10: Measurement scale for heterogeneity

Latent factor	Observed variable	Item statement	Developed by
Heterogeneity	V61	We are a highly organised conglomerate and operate in unrelated industries.	Miller & Friesen (1984); Zahra (1991)
	V62	Customers' buying habits vary a great deal from one line of our business to the other.	
	V63	Market dynamism and uncertainty vary a great deal from one line of our business to the other.	

The literature reveals that several researchers conceptualise external environment differently, although generally dynamism, hostility and heterogeneity have been used as variables for the construct. Further, it is also evident that the use of these three variables has been selective, with some researches applying only one or two of them depending on the research question (e.g., Kuratko, 2009).

4.8.10 Measures for sustainable corporate entrepreneurship

Sustainable CE relates to the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance (Covin & Miles, 1999:50-54; Morris *et al.*, 2011:99). What is to be sustained in this respect is the on-going improvement arising from continued entrepreneurial actions as conduits for CE (i.e., sustained regeneration, organisational rejuvenation, strategic renewal, domain redefinition, and business model reconstruction), which brings about sustainable competitive advantage and sustained company performance.

Different measurements with varying dimensions have been used for the construct CE (e.g., Sakhdari, Burgers & Davidsson, 2014; Srivastava & Agrawal, 2010). The following are selected examples of items used to measure CE:

Miller and Friesen's (1982) seven-item scale for CE

Zahra and Covin (1995:51) used Miller and Friesen's (1982) scale with the following items: (1) "Our organisation has introduced many new products or services over the past three years"; (2) "Our organisation has made many dramatic changes in the mix of its products and services over the past three years"; (3) "Our organisation has emphasised making major innovations in its products and services in the last three years"; (4) "Over the past three years, our organisation has shown a strong proclivity for high risk projects (with chances of very high returns)"; (5) "This organisation has emphasised taking bold, wide-ranging actions in positioning itself and its products (services) over the past three years"; (6) "This organisation has shown a strong commitment to research and development, technological leadership, and innovation"; and (7) "This company has followed strategies that allow it to exploit opportunities in its external environment".

According to Zahra and Covin (1995:52), this measure was widely used in past researches because of its reliability and validity.

Miller's (1983) nine-item scale for CE

Miller (1983) developed a nine-item scale for CE which covered three dimensions only, namely: product innovation, risk taking, and proactiveness. However, according to Zahra (1991:272), this scale focused only on the formal aspects of CE.

Zahra's (1991) nine-item scale for CE

Building on Miller's (1983), Zahra (1991:272 & 285) used a nine-item scale which incorporated both formal and informal aspects of CE. The items were: Implementing new programmes to enhance innovation throughout the organisation over the past three year; Encouraging employee creativity and innovation; Soliciting employee ideas for new product and processes; Rewarding employees for creativity and innovation; Establishing a unity or department responsible for innovation and corporate development; Pursuing business opportunities developed outside your organisation; Training supervisors and managers in creativity and innovation techniques; Designating managers as champions of new ideas or innovations; and Emphasis on innovation in your organisation compared with your competitors.

Zahra's (1996b) 14-item scale for CE

Zahra (1996b:1723) used a fourteen-item scale capturing only three dimensions, namely: (1) innovation (referring to creating and introducing products, production processes, and organisational methods) [five items]: the creation and introduction of new products, emphasis on research and development investments, breakthrough innovations, and commitment to patenting; (2) venturing activities (referring to expanding operations in existing or new markets) [five items]: entry into new industries or business fields by sponsoring new ventures, expansion of international operations, and acquisition of many companies in very different industries; and (3) and strategic renewal (referring to changing the scope of business and/or its competitive approach) [four items]: redefining its business domain by eliminating unprofitable operations while improving internal efficiencies, changing competitive approach (strategy) for each business unit, initiating programs to improve productivity of business units, and reorganising operations to ensure increased coordination and

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communication among business units efforts aimed at revitalising an organisation's ability to compete.

Zahra, Neubaum and Huse's (2000) 22-item scale for CE

Zahra *et al.* (2000:958) developed a 22-item scale of CE to measure innovation and venturing. Innovation had a total of 13 items for three factors: product (five items); process (four items); and organisational innovation (four items). Venturing was measured using a total of nine items for two factors: domestic venturing (five items) and international venturing (four items).

Antoncic and Hisrich's (2003) 35-item scale for CE

Antoncic and Hisrich (2003) developed a 35-item measurement scale for CE, capturing dimensions of innovativeness, proactiveness, self-renewal and new business venturing. Özdemirci (2011:617) used the four-factor measure developed by Antoncic and Hisrich (2003) in an exploratory study; only 16 items were considered stable.

Chen, Zhu and Anquan (2005) 19-item scale for CE

Chen, Zhu and Anquan (2005:534) developed a 19-item measurement scale for CE as the aggregation of two dimensions, namely: innovation (11 items) and venture (8 items), with venture comprising both domestic and international activities.

Srivastava and Agrawal's (2010) five-item scale for CE

Srivastava and Agrawal, (2010:165) used the following five items to measure CE: (1) "Our organisation has high rate of new service/product introductions compared to our competitors"; (2) "Our organisation has increased the number of services offered during the past two years"; (3) "Our organisation is currently developing new products to replace current products for future markets in the next one to two years"; (4) "Customers are invited and encouraged to provide feedback to the organisation in

order to get new ideas for products and services“; and (5) “Our organisation places a strong emphasis on continuous improvement in product delivery“.

Romero-Martinez, Fernandez-Rodriguez and Vazquez-Inchausti’s (2010) adaptation of measures of CE developed by Zahra *et al.* (2000) and Zahra (1996b)

Romero-Martinez, Fernandez-Rodriguez and Vazquez-Inchausti (2010:4) used a six-dimension scale based on Zahra *et al.* (2000) and Zahra (1996b) to measure CE: Product innovation (five items); Process innovation (four items); Organisational innovation (four items); National venturing (five items); International venturing (three items); and Strategic renewal four items. According to Romero-Martinez *et al.*, (2010:4), this measurement was chosen as it was considered to include the main aspect of CE and it was involved measures that had been validated by Zahra and his colleagues.

Clearly, the different CE measurements listed above show that scholars conceptualise the phenomenon differently, though there are some communalities. According to Zahra and Covin (1995:45), there are other ways to conceptualise and operationalise CE, including the incorporation of other manifestations of CE such as “resource allocation patterns intended to revise existing business definitions, competencies, or firm skill bases”.

In addition, some researchers (e.g. Kellermanns & Eddleston, 2006) have opted to use more traditional and widely used measures (e.g., the scale developed by Miller [1983]) as opposed to more differentiated measures of CE (e.g., the scale developed by Zahra [1999b]). This might be out of convenience, as they preferred measures with questions that were more generic and did not require larger organisations to constitute the sample.

Taking into account the variations in the CE scales that have been used, this study developed five manifest indicators as measurable variables for CE, as shown in Table 4-11, based on the typology of CE by Covin and Miles (1999) and Morris *et al.* (2011). The scale captures the five dimensions of CE the study used in defining the

concept: sustained regeneration, organisational rejuvenation, strategic renewal, domain redefinition, and business model reconstruction.

Table 4-11: Measurement scale for corporate entrepreneurship

Latent factor	Observed variable	Item focus	Developed by
Corporate Entrepreneurship	V43	Our organisation regularly and continuously introduces new products and services or enters new markets.	Researcher (based on Covin & Miles [1999] and Morris <i>et al.</i> [2011])
	V44	Our organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities.	
	V45	Our organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes.	
	V46	Our organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit.	
	V47	Our organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.	

4.8.11 Measures for sustained company performance

In this study the construct *sustained company performance* was defined in terms of continued improvements in market share, new product sales, return on investment (Matsuno *et al.*, 2002), and managers' satisfaction with performance outcomes. Research has shown that satisfaction with performance outcomes necessarily acts as a feedback mechanism that helps in deciding whether to sustain current entrepreneurial strategy or to select another one (Chen *et al.*, 1998; Kuratko *et al.*, 2004:77; Kuratko *et al.*, 2005a:280; Kuratko *et al.*, 2005b:708; Morris *et al.*, 2011:50).

Because corporations tend not to reveal their business financial data (Naman & Slevin, 1993; Poon *et al.*, 2006:69) and asking for such data may not elicit a good response, perceptual measures were used to assess sustained company performance. The use of such subjective, self-report measures of performance is consistent with past research practices (Covin & Slevin, 1989; Matsuno *et al.*, 2002:24; Poon *et al.*, 2006:69), and these subjective measures are in fact correlated

to objective measures of performance (Dess & Robinson, 1984:271 Matsuno *et al.*, 2002:24; Slater & Narver, 1994). Research has shown that top managers' perceptions of the performance of their organisation are highly consistent with their organisations' actual performance as indicated by objective measures (Dess & Robinson, 1984; Wall *et al.*, 2004).

The construct *sustained company performance* was measured using three measurable indicator variables, adapted from the self-report measures of performance developed by Matsuno *et al.*, (2002) and one additional item developed by the researcher, as shown in Table 4-12.

Table 4-12: Measurement scale for sustained company performance

Latent factor	Observed variable	Item statement	Developed by
Company Performance	V48	Our organisation's primary market share grew last year.	Matsuno, Mentzer & Ozsomer (2002)
	V49	Our organisation's percentage of sales generated by new products/services last year grew relative to major competitors.	
	V50	Last year, our organisation's return on investment (ROI) grew relative to major competitors.	
	V51	I am satisfied with the performance of my organisation as the outcomes are equitable and/or meet expectation.	Researcher

To measure sustained company performance, the study used measures that looked at the last year's performance. It is expected that satisfaction with past performance works to instigate continuity of desirable outcomes and/or modification in the strategies to ensure sustained performance.

4.8.12 Theoretical backing for the measurement instrument

The developed full instrument for sustainable CE has adequate theoretical backing within the field of entrepreneurship, as can be seen from Table 4-13.

Table 4-13: Theoretical backing for sustainable CE measurement Instrument

Variables/ Constructs	Previous Research Findings	Reference
Organisational Antecedents		
Management Support for CE	Refers to the extent to which people perceive that top managers support, facilitate and promote entrepreneurial behaviour, which includes the championing of innovative ideas and providing the resources people require to take entrepreneurial actions.	Hornsby <i>et al.</i> , 2009:238; Kuratko <i>et al</i> 1990:52; Morris <i>et al.</i> , 2011:381.
	More senior managers have a clearer grasp of the nature of support needed and better latitude and structural ability to be more supportive of entrepreneurial actions than first-line managers.	Hales, 2005; Hornsby <i>et al.</i> , 2009:238.
	Corporate entrepreneurial posture is an organisation-level behavioural process of entrepreneurship.	Lafuente & Salas, 1989; Poon <i>et al.</i> , 2006:65; Zahra, 1993.
	Personal characteristics of corporate executives as intrapreneurs will influence the type of organisation that will be created and the way the organisation will be managed.	
	Executives' characteristics should be incorporated into models of corporate entrepreneurship.	
	The actions of personnel in any given entrepreneurially oriented organisation will necessarily impact on both pursuit of certain entrepreneurship strategies and the resultant performance outcomes.	Hornsby <i>et al.</i> , 2009:238.
	Has a positive relationship with an organisation's entrepreneurial outcomes through the willingness of managers to support and promote entrepreneurial actions.	
Work Discretion/ Autonomy	Refers to the extent to which people perceive top-level manager's commitment to tolerating failure, providing decision-making latitude and freedom from excessive oversight, and delegating authority and responsibility to lower level managers and workers.	Hornsby <i>et al.</i> , 2002:260; Hornsby <i>et al.</i> , 2009:238; Morris <i>et al.</i> , 2011:381.
	Entrepreneurial outcomes are often a product of those with discretion for entrepreneurial experimentation arising from scanning both the external and internal environments for opportunities and threats.	Hornsby <i>et al.</i> , 2009:239; Kraut <i>et al.</i> , 2005; Kuratko <i>et al.</i> , 2001.
	Work discretion brings about more entrepreneurial actions.	
Rewards/ Reinforcement	Refers to the extent to which people perceive that the organisation develops and uses systems that reward entrepreneurial activity and success in order to reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work.	Hornsby <i>et al.</i> , 2002:259; Hornsby <i>et al.</i> , 2009: 239; Morris <i>et al.</i> , 2011:381.
	A reward system that can spur entrepreneurial activity must consider goals, feedback, emphasis on individual responsibility, and results-based incentives.	Hornsby <i>et al.</i> , 2002:253.
	Rewards and reinforcement are positively related to entrepreneurial outcomes.	Block & Ornati, 1987; Sykes, 1986
Time Availability	Refers to the perception that management evaluates workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support effort to achieve short- and long-term organisational goals.	Hornsby <i>et al.</i> , 2009:239; Morris <i>et al.</i> , 2011:381.
	Spending more time on most salient tasks may influence entrepreneurial actions and generate outcomes that may positively impact on an organisation's performance and sustainability.	Slevin & Covin, 1997; Sykes & Block, 1989.
	Perceived availability of resources for innovative activities encourages experimentation and risk-taking behaviour.	Burgelman & Sayles, 1986

Table 4-13 (continued)

Variables/ Constructs	Previous Research Findings	Reference
Organisational Boundaries	Refers to a supportive organisational culture (organic rather than mechanistic in nature) that fosters administrative mechanisms by which ideas are evaluated, chosen, and implemented, and flexible structural boundaries.	Hornsby <i>et al.</i> , 2002:253; Kuratko <i>et al.</i> , 2005a:279.
	The existence of flexible and supportive organisational boundaries fosters entrepreneurial outcomes by enhancing the flow of information between the external environment and the organisation, and between departments/divisions within the organisation.	Hornsby <i>et al.</i> , 2009:239; Miller <i>et al.</i> , 2007:308.
	A supportive organisational structure provides the administrative mechanisms by which ideas are evaluated, chosen, and implemented.	Burgelman & Sayles, 1986; Hornsby <i>et al.</i> , 2002:260.
	Flexible organisational boundaries involve the precise explanation of outcomes expected from organisational work and development of mechanisms of evaluating, selecting and using innovations.	Morris <i>et al.</i> , 2011:382
	Improves an organisation's entrepreneurial outcomes and performance through increased entrepreneurial actions.	
Entrepreneurial Actions		
Entrepreneurial Actions	Refers to any newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited.	Kuratko <i>et al.</i> , 2005a:276
	Constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways.	Smith & Di Gregorio, 2002
	Every organisation, whether large or small, has some level of entrepreneurship and exhibits entrepreneurial actions.	Morris <i>et al.</i> 2011:58; Morris & Sexton, 1996; Slevin & Covin, 1990:43; Wiklund & Shepherd, 2005.
	Has three underlying dimensions: (1) <i>innovativeness</i> (the extent to which an organisation does things that are novel, unique or different); (2) <i>risk-taking</i> (an organisation's willingness to pursue opportunities that have a reasonable likelihood of producing losses or significant performance discrepancies); and (3) <i>proactiveness</i> (strategy making, the willingness to initiate actions to which competitors then respond or the extent to which an organisation is acting on rather than reacting to its environment).	Covin & Miles, 1999:49; Miller, 1987; Morris <i>et al.</i> 2011:58; Morris & Sexton, 1996; Slevin & Covin, 1990:43; Venkatraman, 1989.
	Different organisations exhibit different levels or degrees of innovativeness, risk-taking and proactiveness as these dimensions will combine differently.	Morris <i>et al.</i> , 2011:74.
	EAs are a product of organisational antecedents and the conduit through which CE is practiced in established organisations.	Dess <i>et al.</i> , 1997; Hitt <i>et al.</i> , 2001; Kuratko <i>et al.</i> , 2005a:277.
	Previously measured by three items, namely: (1) the number of new ideas suggested; (2) the number of new ideas implemented; and (3) the number of improvements implemented without official organisational approval.	Kuratko <i>et al.</i> , 2005a

Table 4-13 (continued)

Variables/ Constructs	Previous Research Findings	Reference
Sustainable Corporate Entrepreneurship		
Sustainable Corporate Entrepreneurship	Refers to the effort of promoting sustained innovation within an existing organisation through products, processes, strategies, domain, or business models in order to discover, assess and ultimately exploit attractive entrepreneurial opportunities to bring about on-going improvement in organisational performance.	Covin & Miles, 1999; Morris <i>et al.</i> , 2011; Wiklund, 1999:39.
	Enhances an organisation's competitive advantage.	
	Sustained regeneration – the organisation regularly and continuously introduces new products and services or enters new markets.	
	<i>Organisational rejuvenation</i> – the organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities.	
	<i>Strategic renewal</i> – the organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes.	
	<i>Domain redefinition</i> – the organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit.	
	<i>Business model reconstruction</i> – applying entrepreneurial thinking to the design or redesign of an organisation's core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.	
External Environment and Sustainable CE		
	External environment affects entrepreneurship at both the individual and organisational levels, hence the need to incorporate it when building contingency models to explain and predict CE and its outcomes.	Antoncic & Hisrich, 2001:503; Badguerahanian & Abetti, 1995; Covin & Slevin 1991; Zahra, 1986; Zahra, 1991:262; Zahra & Covin, 1995:48.
	Environmental changes in industry competitive structure and the underlying technologies can influence CE.	Guth & Ginsberg, 1990
Dynamism	Refers to the perceived instability of an organisation's market due to continuing changes resulting from social, political, technological, and economic factors, and ushering in opportunities for CE.	Baron & Tang, 2011:52; Rosenbusch <i>et al.</i> , 2013:642; Zahra, 1991:262.
	These factors are considered as favourable (munificent) for and have a positive link with CE.	Antoncic & Hisrich, 2001:503.
Hostility	Refers to the increased rivalry in the industry or depressed demand for an organisation's products or services, thereby threatening organisational survival.	Kuratko, 2009:466; Zahra, 1991:263
	Unfavourable change and competitive rivalry which negatively affects an organisation's goals and mission.	Antoncic & Hisrich, 2001:504; Miller & Friesen, 1984; Ronsenbusch <i>et al.</i> , 2013; Zahra, 1991:263.
	Has a stimulating effect on CE (e.g., an organisation facing a hostile environment may opt for product differentiation through intensive marketing and advertising which may bring about sustained customer loyalty or increased market penetration of existing segments).	
Changes in innovative behaviour and competitive proactiveness among organisations are significantly more positively correlated with changes in environmental hostility.	Miller & Friesen, 1983	

Table 4-13 (continued)

Variables/ Constructs	Previous Research Findings	Reference
	Hostile environments afford fewer opportunities for achieving growth and profitability.	Covin & Slevin, 1989:75
	There is a strong association between environmental hostility and particular manifestations of CE, such as product development.	Zahra, 1993a:319
	CE may be an effective organisational practice among organisations operating in a hostile environment.	Covin & Slevin, 1991; Khandwalla, 1987; Miller & Friesen, 1983; Zahra & Covin, 1995:48.
Heterogeneity	Refers to complex contextual influences in the external environment whereby developments in one market create new pockets of demand for an organisation's product in related areas, and indicates existence of multiple organisational segments with varied characteristics and needs.	Dess & Beard, 1984:157; Zahra, 1991:263.
	Diversity of customer needs and expectations among different segments served by the organisation.	Miller & Friesen, 1984:157
	Companies facing similar heterogenic factors may be affected differently due to their perceptual differences (one organisation may perceive the environment as manageable (simple) while the other may view it as complex and uncontrollable as each organisation has a different experience of the external environment).	Zahra, 1991:264
	Increased heterogeneity enhances the use of CE due to availed opportunities for innovation and market development as a result of diversity of customer needs and expectations as well as lessons learnt from competitors.	Baron & Tang, 2011:52; Rosenbusch <i>et al.</i> , 2013:642; Zahra, 1991:264.
Sustained Company Performance		
Sustained Company Performance	Embracing CE brings about improved financial results, better management approaches, improved work environment, enhanced employee satisfaction, and reduced systematic risk; creates sustainable competitive advantage.	Covin & Slevin, 1990; Ireland <i>et al.</i> , 2009:34; Miller & Friesen, 1982; Morris & Sexton, 1996; Poon <i>et al.</i> , 2006:65; Wiklund, 1999:39; Wiklund & Shepherd, 2005; Zahra, 1991:260.
	Numerous empirical studies show a positive link between CE and company performance.	
	Embracing CE brings about improved financial results, better management approaches, improved work environment, enhanced employee satisfaction, and reduced systematic risk.	
	CE effects are felt both at the individual and organisational levels; long term effect on company growth and performance.	
	Use of self-report measures of performance is consistent with past research practices, which also show that subjective measures are correlated to objective measures of performance and that top managers' perceptions of the performance of their company are highly consistent with their organisations' actual performance as indicated by objective measures.	Covin & Slevin, 1989; Dess & Robinson, 1984:271; Matsuno <i>et al.</i> , 2002:24; Naman & Slevin, 1993; Poon <i>et al.</i> , 2006:69; Slater & Narver, 1994; Wall <i>et al.</i> , 2004.
	Self-report items previously used: (1) Market share growth; (2) Percentage of new product sales, and Return on investment (ROI).	Matsuno <i>et al.</i> , 2002:24;
	Perceived satisfaction with organisational performance (whether the outcomes are equitable and/or meet expectation) determines sustenance of entrepreneurial activities. This forms the fourth measurement item for the study.	Chen <i>et al.</i> , 1998; Kuratko <i>et al.</i> , 2004:77; Kuratko, <i>et al.</i> , 2005a:280; Morris <i>et al.</i> , 2011:51.

4.9 Pre-testing Measurement Instrument

It is recommended that when a model has scales borrowed from various sources reporting other research, a pre-test should be conducted using respondents similar to those from the population to be studied in order to screen items for appropriateness (Hair, Black, Babin & Anderson, 2010:664).

To obtain a sample size large enough during the pilot phase that would replicate the required sample for the study was considered cumbersome. Therefore the main focus during the pilot phase was to ensure face validity and content validity of the questionnaire. Whereas face validity evaluates whether the questionnaire measures what it intends to measure, content validity, on the other hand, deals with whether the content of the instrument accurately assesses all fundamental aspects of the topic (Nunnally & Bernstein, 1994; Rattray & Jones, 2007). However face validity deals with subjective judgement, concerned with the extent to which the researcher believes the instrument is appropriate (Frankfort-Nachmias & Nachmias, 1996).

Content validity in this study was largely guided by theory pertaining to the proposed measurement model. The study proceeded accordingly and used 30 respondents from the target population as a pre-test sample that was used for validation of the measurement instrument. All the measures pertinent to this study in terms of face and content validity were considered during the pre-test, as well as demographic variables for both respondents and companies (e.g. titles of respondents, age and size of company, etc.).

Although the subscales had been used in previous research, all items were screened for face validity to assess the extent to which they were related to the respective concepts they were measuring. Face validity showed that all the subscales were generally deemed appropriate as they were linked to the conceptual definitions of the respective concepts they were measuring. Some items for the CECI were dropped and/or rephrased, as they were deemed repetitive. The results of the pre-test therefore confirmed that the overall instrument could be used for the study to predict sustainable CE.

4.10 Sampling and Sample size

The respondents considered in this research were junior, middle, and senior management staff of corporations based in Zambia. In order to attain the goal of the study, potential respondent organisations were identified through Chamber of Commerce membership lists, trade associations, business directories and online data bases. However, given that a large sample size is required, it became necessary to identify additional companies in the respective sectors that would also participate in the study. To ensure representativeness, a total of eight industry strata were included in the sample as shown in Table 4-14: manufacturing, agriculture/agro, banking/financial, tourism/hospitality, communication, mining, energy, and service industries. The strata were identified largely based on the Employment and Earnings Enquiry report of the Central Statistics Office (CSO) of the Zambian Government (2009), which was used indicatively for apportioning sectoral participation in the study.

Table 4-14: Sample strata for the study

Stratum	Planned sample	Percentage
Agriculture/Agro industry	120	10%
Banking/Financial	210	17%
Tourism/hospitality	120	10%
Communication	110	9%
Energy	100	8%
Manufacturing	200	16%
Mining	150	12%
Service	250	20%
Total	1,260	100%

Once the strata had been established, sample selection within the strata was not done randomly; rather a non-probability convenience sampling method was employed due to cost and time. The sample was drawn from the entire country on the basis of the established strata.

Once an organisation was selected, the approach taken was to have the participation of all, or at least the majority of, that organisation's junior, middle, and senior level managers. The study took this approach since the organisation was the unit of analysis. Therefore those in management, at some or other level, were the only ones to complete the questionnaire. In this respect, manager in the context of the organisation did not necessarily imply managing other people. Other categories of managers who may not necessarily be managing people, such as process, systems or operational managers, were also targeted. In order to ensure this was achieved, the upfront letter accompanying the questionnaire specifically stated that the questionnaire was to be completed only by managers (see first part of the questionnaire in Appendix A).

Organisations included in the sample were the established mid-sized to large corporations that should have been in operation for at least four years. It is expected that organisations in existence for 4 to 10 years would be experiencing early growth, while those in existence for 10 to 15 plus and 15 to 20 plus years would have reached the maturity and harvest/stability phases respectively (Van Vuuren, 2009). It is therefore expected that such organisations would be experiencing high levels of entrepreneurial activities.

Regarding sample size, Mcquitty (2004) suggests that it is important to determine the minimum sample size required in order to achieve a desired level of statistical power with a given model before data is collected. According to Schreiber, Nora, Stage, Barlow and King (2006), although the needed sample size is affected by the normality of the data and method of estimation used by researchers, it is generally agreed that a sample size of 10 participants for every free parameter estimated is ideal.

However, although according to Sivo, Fan, Witta, and Willse (2006) there seems to be little consensus on the recommended sample size for SEM, Garver and Mentzer (1999) as well as Hoelter (1983) propose a critical sample size of 200. According to Hair *et al.* (2010:661-664), the minimum sample size for a particular SEM model depends on several factors, including the ones indicated in Table 4-15. Further, Hair *et al.* (2010:662) suggest the following additional circumstances that may require sample size to be increased:

- Deviation of data from multivariate normality
- Use of sample-intensive estimation techniques
- When missing data exceeds 10%
- Need for group analysis (each group should meet the sample size requirements)
- Need for sample size to adequately represent the population of interest (this is often the researcher's overriding concern.)

Table 4-15: Sample size specifications for SEM

Type of Model	Minimum Sample Size
Models containing 5 or fewer constructs, each with more than three items (observed variables), and with high item communalities (0.6 or higher).	100
Models with seven or fewer constructs, modest communalities (0.5), and no under-identified constructs.	150
Models with seven or fewer constructs, lower communalities (below 0.45), and/or multiple under identified (fewer than three items) constructs.	300
Models with larger number of constructs, some of which have fewer than three measured items as indicators, and multiple low communalities.	500

The theoretical model for the study had 11 constructs and therefore required a sample larger than 500 (Hair *et al.*, 2010:664). The postulated SEM model had 126 free parameters to be tested, which accordingly required a sample size of 1,260 (126 free parameters x 10 participants for every free parameter) in order to achieve appropriate statistical power. In this respect, the desired sample size for the study was at least 1 260 respondents, and this was expected to meet the requirements of structural equation modelling technique in terms of providing a sound basis and statistical power for estimation (Hair *et al.*, 2010:661; Hoe, 2006:77). Stratified random sampling, among other factors, was intended to facilitate analysis of industrial groups in terms of the measurement for sustainable CE.

4.11 Data collection

Data collection was done through the use of a questionnaire carefully developed to adequately capture all the relevant research question dimensions as well as to facilitate testing of the hypotheses.

4.11.1 Data collection method

Collection of data was done through various hand-delivery means and the questionnaires were accompanied by a copy of an introduction letter from the Business Management Department of the University of Pretoria and a half-page brief explanation of what CE meant (see Appendix A). The simplified brief on CE was for the purposes of ensuring that all respondents had at least some basic understanding of the CE phenomenon in order to assist them to complete the questionnaire. All respondents were informed of the strict confidentiality of their responses to the questionnaire, which would be used only for the intended research purpose. It was also clearly indicated that their participation was voluntary. Furthermore, it was not a requirement for the participants to receive a copy of the study findings.

Questionnaires were given to selected companies for management to complete. The researcher hand-delivered the questionnaires to premises of most of the participating companies and arranged for senior executives within the organisations to administer the questionnaires to their respective managers. In some instances the researcher had to rely on other people such as friends and close associates at management level. There were cases also where data collection assistants were engaged especially for collecting data from companies that were logistically challenging for the researcher to be directly involved, either at questionnaire distribution or collection stage.

Once copies of the original questionnaire went out to the respective selected organisations, a number of follow-ups were made to enhance response rate. In total, 1 620 questionnaires were distributed, out of which 651 (40.2%) were completed and collected.

4.11.2 Advantages and limitations of the data collection method used

The target that was set *a priori* for the study's sample size was at least 1 260 respondents from among the managers of participating organisations from various sectors. While the data collection method employed was aimed at ensuring a relatively high response rate, the target was still not achieved, although the researcher had personal contact with and assurance from senior executives in most of the participating companies. However this rapport assisted in securing a substantial number of completed questionnaires, as these executives took the responsibility of administering the questionnaires to their respective managers. In addition, frequent reminders and visits to respondents' work places for questionnaire completion helped in achieving the 651 responses. However, there were instances when batches of questionnaires were misplaced within target organisations, and even when replacements were made, the response was still poor. In some cases, individuals that were to assist with questionnaire distribution and collection simply never performed as expected.

4.12 Data analysis

4.12.1 Data analysis software

Data analysis was done using the International Business Machines (IBM) Statistical Package for Social Sciences (SPSS) software version 20. CFA and SEM were conducted using AMOS (**A**nalysis of **M**oment **S**tructures), version 20, a visual SEM technique for the IBM SPSS (some sections of the study were revised using later versions of AMOS). Important techniques used for data analysis included reliability and validity measures as well as confirmatory factor analysis. At the empirical stage of data analysis, variables were used for the purposes of testing and measurement of the postulated relationships according to Cooper and Schindler (2008:61).

4.12.2 Data cleaning and treatment of missing data

A data-cleaning process was undertaken to identify and remove any errors or inconsistencies from the data in order to improve data integrity or quality and have better study results (Burns & Burns, 2011). Collected data was cleaned and

appropriate remedies taken to enhance data analysis. As an initial step to detect and remove any errors and inconsistencies, all the completed questionnaires were manually inspected. Consequently five questionnaires which had incomplete data were excluded, leaving a total of 646 questionnaires to process. Further, IBM SPSS software was used for analysing the data in order to gain metadata about the data properties and detect any data quality problems such as data entry errors. Descriptive statistics were used to identify out-of-limit values, missing values, and outliers. The descriptive analysis showed that there was no missing data, an aspect which was also dealt with by excluding the five questionnaires that had incomplete or missing data.

4.12.3 Data analysis techniques: confirmatory factor analysis

This study attempted to achieve the following key research objectives:

- To empirically identify best predictors of sustainable CE by testing the postulated measurement and structural model
- To assess the construct validity and predictive power of the CECI as developed by Kuratko *et al* (1990), and the external environment antecedents as postulated by Zahra (1991) in relation to sustainable CE
- To make a contribution to CE domain on the basis of the study findings

The postulated model of predictors of sustainable CE is theory driven, based on previous study findings. Therefore to empirically address the above research objectives, as well as the attendant hypotheses, it was necessary for the study to use a confirmatory technique that would enable data analysis on the basis of *a priori* stated theoretical relationships between the observed measures and the underlying latent variable structure (Byrne, 2004). CFA was therefore the appropriate technique as the researcher already had some knowledge of the underlying measurement structure based on theory as well as empirical research (Byrne, 2004). Basically CFA is part of the statistical techniques known as structural equation modelling and is used for measurement model validation in path or structural analysis (Brown, 2006). CFA examines the nature of relationships between constructs based on simple

correlations (Hair *et al.*, 2010), and according to Brown (2006), it is used for four main purposes, namely:

- Psychometric evaluation of measurement
- Construct validation
- Testing method effects
- Testing measurement invariance, such as across groups or populations

According to Harrington (2009) and Koeske (1994), CFA is also appropriate for measuring structural (or factorial) construct validity, such as whether the construct is unidimensional or multidimensional and what the relationships are between the measurement items and the hypothesised latent variables. CFA provides evidence on the validity of individual measures based on evidence of construct validity, such as the model's overall fit, which makes it useful to test a measurement theory (Hair *et al.*, 2010:727). However, it is important to note that CFA has a stringent requirement of zero cross loading, which often leads to model modification to find a well-fitting model (Asparouhov & Muthén, 2009). Since CFA cannot examine the nature of relationships between constructs beyond simple correlations, a measurement theory (a series of relationships that suggest how measured variables represent a latent variable – a construct not measured directly) is therefore needed to examine these relationships (Hair *et al.*, 2010).

4.12.4 Data analysis techniques: structural equation modelling

The need for a measurement theory in order to examine the nature of relationships between constructs beyond simple correlations links CFA with SEM. Usually when conducting SEM, prior to assessing the structural model the first step would be to evaluate the measurement model and determine whether the measured variables accurately reflect the desired constructs or factors (Bollen & Arminger, 1991; Jackson, Gillapsy & Pure-Stephenson, 2009:6). In this respect, CFA essentially deals with the measurement model issues (pre-specified relationships between the measurement items and underlying factors), while SEM can be looked at as an extension of CFA and deals with relationships among several constructs on the basis of their *a priori* stated measurement structure (Yang, 2003:157).

Generally, SEM is a statistical modelling tool which does not designate a single statistical technique but rather refers to a family of related general linear modelling (GLM) procedures such as the analysis of variance (ANOVA) and multiple regression analysis (Kline, 2011:7; Lei & Wu, 2007:33). The term SEM describes a large number of statistical models that are used for empirically evaluating validity of substantive theories, and the technique is the most appropriate multivariate procedure for testing both construct validity and theoretical relationships among a set of concepts represented by variables that are measured with multiple items (Hair *et al.* (2010:627). Basically SEM “allows separate relationships for each of a set of dependent variables” thereby providing the best “estimation technique for a series of separate multiple regression equations estimated simultaneously” (Hair *et al.*, 2010:19).

SEM components

Basically SEM is a combination of factor analysis and path analysis (Weston & Gore, 2006:724) and involves the evaluation of the following two models, which are the components that characterise the technique (Blunch, 2013:10; Hair *et al.*, 2010:19; Schreiber *et al.*, 2006:34):

1. ***The measurement model:*** This specifies or describes the links between the latent (unobserved) variables and their respective manifest (observed) indicators, and enables the assessment of construct validity.
2. ***The path model (also known as structural model):*** This represents the structural theory or conceptual aspects of the structural relationships between stated constructs. It is the path model that relates exogenous variables to endogenous variables and is backed by theory, the researcher’s prior experience, or other guidelines. In other words, the structural model represents interrelationships between constructs in the model.

Put together, the measurement model and the path model form a composite model which is actually the full structural model (Weston & Gore, 2006). In this respect, by using SEM it is possible to examine the nomological (theoretical) “networks among the constructs of interest while taking into account measurement errors” (Yang, 2003:157). According to Kline (2011:11-12), SEM is a large-sample technique (N =

200), as using a small sample may result in technical problems in the analysis, as certain statistical estimates such as standard errors may be inaccurate. While SEM requires a large sample, the sample size requirements vary, depending on the following factors (Kline 2011:11-12):

- Model complexity
- Estimation method used
- The distribution characteristics of observed variables

SEM is also considered to be more versatile than other multivariate techniques, as it permits the measurement of several variables and their interrelationships simultaneously (Hoe, 2008:77). Furthermore, in this study, SEM was employed not just for testing the model empirically for its validity but also for providing insights into its re-specification. CFA and SEM were therefore used to analytically test a conceptually grounded theory of CE explaining how different measured items represent important measures of the phenomena. According to Hair *et al.* (2010:687-688), CFA and confirmatory processes can be used to test a proposed measurement theory while SEM is appropriate for empirically examining a theoretical model by involving both the measurement model and the structural model in one analysis. This study used Likert scale (ordinal) data, which can also be analysed using SEM provided the number of Likert categories is four or higher, the skew and kurtosis are within normal limits, and sample size is reasonably large (Garson, 2012).

4.13 Conclusion

This chapter has looked at research design and methodology in detail, clearly indicating the processes followed, including the development of the measurement scale for sustainable CE. The study analysed data using CFA and confirmatory processes as well as SEM. In terms of the research question to be addressed, the use of covariances (as opposed to correlations) was considered appropriate in order to gain superior statistical impact, as well as more flexibility due to the greater information content covariance matrices contain (Hair *et al.*, 2010:658).

The chapter that follows gives details on the measurement and structural model for sustainable CE.

CHAPTER 5: MEASUREMENT AND STRUCTURAL MODEL FOR SUSTAINABLE CORPORATE ENTREPRENEURSHIP

5.1 Introduction

The previous chapter, chapter 4, dealt with the research methodology in detail providing the research objectives, hypotheses for the study, data collection and analysis, construct operationalisation and measurement, and presented the postulated model for the study. The chapter also elaborated on the CFA and SEM procedures, the techniques used for data analysis.

This chapter builds on the previous chapter and presents the postulated measurement and structural model for sustainable CE. The chapter also presents the CFA/SEM procedure for the assessment of measurement validity and reliability, and provides selected model fit indices used for determining acceptable levels of goodness-of-fit. This study used maximum likelihood (ML) estimation method. In this respect, the chapter also provides basis to assess the biasness of the ML derived estimates for a given CFA model using Bayesian estimates. Furthermore, the chapter also deals with the issue of the study's categorical data in relation to the assumption of multivariate normality.

5.2 Assessment of measurement model validity

Consistent with the literature (Nunnally & Bernstein, 1994), the measurement model comprised multiple items that were used to determine respondents' perceptions of sustainable CE. The hypothesised model for the study was tested on the basis of the formed manifest variables (indicators) as described by Hair *et al.* (2010), which were subjected to a CFA.

For the constructs relating to organisational antecedents, the study initially formed eight manifest indicators from the management support items, five each from the rewards/reinforcement, time availability, and organisational boundaries items, and four from the work discretion/autonomy items. For the constructs relating to external

environment: three manifest indicators each were formed from the dynamism and heterogeneity items, and six from the hostility items. For entrepreneurial actions and sustained company performance, four manifest indicators each were formed, and five from sustainable CE items. Concepts and constructs were used in the theoretical presentation. The study tested the validity of the specified measurement model. According to Hair *et al.* (2010:664), the validity of a measurement model depends basically on two important factors: (1) establishing acceptable levels of GOF for the measurement model; and (2) finding specific evidence of construct validity. Therefore the study methodology aimed at establishing an acceptable level of goodness-of-fit (GOF) and construct validity tests. The study used CFA to confirm the measurement model.

5.2.1 Acceptable levels of goodness-of-fit

In order to establish GOF, the study reported on the following indices, which should provide adequate evidence of model fit (Hair *et al.* 2010:672; Hoe, 2008:77):

- **The chi-square (χ^2)** value (which is the only statistical test of the difference between matrices in SEM)
- **Degrees of freedom (DF)** (which represents the amount of mathematical information available to estimate model parameters). Since the χ^2 is highly sensitive to sample size, especially if sample size is > 200 , the ratio between χ^2 and degrees of freedom (χ^2/df), which appears as CMIN/DF in AMOS, was used to solve this limitation of χ^2 , and a ratio of 3 or less was considered to be a reasonably good indicator of model fit (Byrne, 2010; Hoe, 2008).
- At least one absolute index, such as the **root mean square error of approximation (RMSEA)**, which is one of the most widely used measures that attempt to correct for the tendency of the χ^2 GOF test statistic to reject models with a larger sample or a larger number of observed variables, as is the case with the proposed study. Values for RMSEA range from 0.00–1.00, with values ≤ 0.08 indicating acceptable model fit, although a more recent publication places a stringent upper limit of 0.07 (Steiger, 2007).

- At least one incremental index, such as the **comparative fit index (CFI)**, which is an improved version of the normed fit index (NFI). CFI values range from 0.00–1.00, with values for acceptable model fit ≥ 0.95 , although CFI ≥ 0.90 may still be meaningful (Bagozzi, 2010).
- The **standardised root mean square residual (SRMR)** version of the unstandardised RMR, which is the square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model (Hooper, Coughlan & Mullen, 2008). SRMR values range from 0.00–1.00. Values ≤ 0.08 would indicate acceptable fit, while values falling below 0.05 would be indicative of well-fitting models (Byrne, 2010; Hooper *et al.*, 2008).

The fit indices revealed whether the postulated model fitted the data or not. An inadequate fit of the model was further investigated to detect source of misfit. Focus of the assessment was on parameter estimates (assessing the fit of individual parameters), using the following three criteria (Byrne, 2010): feasibility of parameter estimates; appropriateness of standard errors; and statistical significance of parameter estimates.

a). *Feasibility of parameter estimates*

This was done by considering viability of estimated values for parameters (i.e., whether estimates indicate correct sign and size, and are consistent with theory (Byrne, 2010). According to Byrne (2010:67), parameters showing “unreasonable estimates are correlations > 1.00 , negative variances, and covariances or correlation matrices that are not positive definite”. Estimates not meeting the criteria were candidates for deletion, as they were considered not viable.

b). *Appropriateness of standard errors*

The second step was to look at the standard errors which indicate “the precision with which a parameter was estimated, with small values suggesting accurate estimation” (Byrne 2010:67). Excessively large or small standard errors are an indication of poor model fit, although currently there are no definitive criteria to determine “small” and “large” (Jöreskog & Sörbom, 1989).

c). Statistical significance of parameter estimates

The other step involved the testing of statistical significance. This was done through the assessment of critical ratio (CR) values of the parameter estimates. Those parameter estimates with $CR < 1.96$ in absolute terms were considered statistically nonsignificant.

5.2.2 Evidence of construct validity

Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure (Hair *et al.* 2010:708; Westen & Rosenthal, 2003:608-609). In this respect, construct validity essentially deals with the accuracy of the measurement itself, which is one of the primary objectives of CFA/SEM – assessing the construct validity of a proposed measurement theory (Hair *et al.* 2010:709).

As regards construct validity, the same correlation between two latent variables could be good or bad, depending on the expected or hypothesised relationship, which should also be backed by theory (Harrington, 2009:6). In this respect, the correlations of all the postulated relationships in the proposed model for sustainable CE were investigated accordingly. Construct validity was assessed by examining convergent, discriminant, nomological, and face validity, which according to Hair *et al.* (2010:709-710) are the four components that make up construct validity. The underlying theory is critical when making a decision about construct validity. Theoretical support rather than just empirical justification was the basis for model re-specification (Hair *et al.*, 2010:647). Relationships among all the variables were also examined using SEM.

5.2.3 Evidence of construct validity – Convergent validity

Convergent validity is the extent to which items that are indicators of a specific construct converge or share a high proportion of variance in common (Hair *et al.*, 2010:710). When indicators to latent variables correlate with each other to an acceptable extent, then convergent validity is achieved. On the basis of the measurement model's goodness of fit, the conventional rule of thumb suggests that convergent validity is indicated when the standardised factor loadings are at least

0.70 for all indicators (Garson, 2012). According to Van Dyne and LePine (1998:112), evidence of convergent validity can also be established “when each item has a statistically significant loading on its specified factor”.

Harrington (2009) posits that if variables A and B are measuring the same construct, then on the basis of theory, a high correlation of 0.87 would suggest good convergent validity, while a very low correlation of 0.36 would suggest that there is no evidence for convergent validity. When measures of the same construct are highly correlated, then there is evidence for convergent validity (Bagozzi, Yi, & Phillips, 1991). In this respect, correlations ≥ 0.50 are considered acceptable for establishing convergent validity (Van Saane, Sluiter, Verbeek & Frings-Dresen, 2003).

5.2.4 Evidence of construct validity – Discriminant validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs – the higher the discriminant validity, the more evidence that the construct is unique from other constructs and vice versa, while the presence of cross-loadings implies a discriminant validity problem (Hair *et al.*, 2010:710). In other words, discriminant validity is demonstrated when measures of different concepts are distinct, which is revealed in the presence of low correlations among the concepts (Bagozzi *et al.*, 1991). Unfortunately, different sources report different criteria of what could be considered as a low correlation. However, Brown (2006) indicates that correlations between constructs of ≥ 0.85 count for poor discriminant validity. According to Harrington (2009), if constructs A and B are theoretically separate constructs, then it is expected that correlation between these two constructs would be low or moderate in line with the theoretical grounding. A correlation of 0.36 would suggest evidence of discriminant validity, while a high correlation of 0.87 would suggest the absence of discriminant validity between the constructs (Harrington, 2009).

Basically in SEM, if the measurement model is found acceptable, such a model presents its own evidence of convergent and discriminant validity (Shook, Ketchen, Hult & Kacmar, 2004; Anderson & Gerbing, 1988). Acceptability of a measurement model would mean that it has significant factor loadings ≥ 0.70 and fit indices ≥ 0.90 , (Shook *et al.*, 2004:400).

5.2.5 Evidence of construct validity – Nomological validity

Nomological validity is concerned with how well the research findings fit with existing theory; in other words, the extent to which correlations among the constructs in a measurement theory make sense (Castleberry, Shepherd & Ridnour, 1999:32; Hair *et al.*, 2010:710). Construct correlations were therefore useful in this assessment. The nomological validity of the measurement was examined using structural equation modelling.

5.2.6 Evidence of construct validity – Face validity

Face validity (based solely on the researcher's judgement) is the extent to which the content of the items is consistent with the way the construct is defined (Hair *et al.*, 2010:710). This was critical for the study, as the measurement model combined scales previously used in different research undertakings. Face (or content) validity was considered during the stage of piloting the developed measurement instrument for sustainable CE.

5.2.7 Bayesian estimation of measurement models

Since the data used by the study was categorical, it was also considered appropriate to compare parameter estimates generated by both the ML and Bayesian estimation methods for all the CFA models (Byrne, 2010). In the Bayesian SEM output, the mean represents the parameter estimates, which with large samples can be close to the ML estimates (Arbuckle, 2007). The standard error (SE) values are the estimated standard errors that imply "how far the estimated posterior mean may lie from the true mean" and small SE values signify that they are very close to the true values (Byrne, 2010:155). The SD is the "likely distance between the posterior mean and the unknown true parameter", which is the equivalent of standard error in ML estimation (Byrne, 2010:155).

Therefore by comparing the Bayesian estimates with the ML estimates for a given CFA model, it is possible to assess the biasness of the ML derived estimates. If the Bayesian estimates were no different from the ML estimates, then this would speak well for the validity of the hypothesised CFA model (Byrne, 2010). The Bayesian

estimation method was used for each of the final CFA models of the measurement scales.

5.3 Assessment of measurement reliability

Measurement reliability refers to the consistency of scores on a particular measurement instrument (Streiner, 2003). The most widely used index for determining the reliability of a measurement scale is Cronbach's alpha, with a commonly accepted reliability threshold of coefficient alpha (α) ≥ 0.70 . However, John and Benet-Martinez (2000:346) argue that coefficient alpha of 0.70 is "not a benchmark every scale must pass", as it all depends on the construct being measured. Furthermore, John and Benet-Martinez (2000:346) state that a particular alpha could be "just right, or too low, or too high", in any given context. It is in fact evident that coefficient alphas of 0.60 or higher have been reported in published journals (Morgan, Gliner & Harmon, 2006). It is also considered that coefficient alphas > 0.9 are likely to be indicative of unnecessary rather than a desirable level of internal consistency (i.e. redundancy or narrowness in item content), particularly for scales that are short (John & Benet-Martinez, 2000; Streiner, 2003).

In the context of SEM (overall causal or CFA) models, acceptable reliabilities lower than the usually cited classic reliability of 0.70 may be obtained when the model fits satisfactorily (Bagozzi & Yi, 2012). Standardised loadings are used to measure individual indicator reliability with an ideal threshold of at least 0.70, giving a reliability of at least 0.50, that is, at least 50% explained variance in the respective measure as a function of its factor (Bagozzi & Yi, 2012). In fact, for complex models with many latent variables and indicators, satisfactory model fitting could be obtained even with loadings as low as 0.50; hence one should be mindful of this when assessing both indicator and composite reliability. For this reason, Bagozzi and Yi (2012:17) are of the view that "old standards for Cronbach's alpha and other formulae for reliability should not be applied rigidly to SEM, and indeed focus should be placed more on the hypotheses under tests in, and goodness-of-fit of, any SEM".

This study used measures of reliability in the context of SEM, that is, squared multiple correlations (SMCs), factor loadings, and error variances. According to Hooper *et al.* (2008), items that have SMCs less than 0.20 should be considered for deletion, as

such levels of SMC are an indication that the item is measuring something else. However, the study used Cronbach's alpha to confirm the measurement reliability obtained with the CFA procedures.

The sample for this study was based on different sectors, which are not homogeneous. It was therefore of interest to also determine the overall measurement scale reliability for each sector included in the study. This was also done for the purposes of determining whether the measurement scale for sustainable CE applied to the different sectors and to determine sectoral reliability. This was conducted merely by using Cronbach's alpha. The study assessed the full scale's measurement reliability for sustainable CE as well as for the individual subscales.

5.4 Assessment of multivariate normality and outliers

Based on the large sample theory, the conduct of SEM analyses is generally premised on the assumption that the data are multivariate normal (Byrne, 2010), which assumption is specifically required in the use of AMOS (Arbuckle, 2007). Of particular concern in the use of SEM is when the data are multivariate kurtotic, meaning both tails and peaks of the multivariate distribution of the observed variables differ from the ones that are characteristic of a multivariate normal distribution (Byrne, 2010). It is therefore procedurally expected that the normality of data is inspected prior to conducting any analysis.

The study estimated multivariate normality of the data and also considered the extent of skewness and kurtosis. Outliers are a likely cause of data skewness (McDonald & Ho, 2002). The study considered outliers as regards their inclusion or deletion, and they were detected from the univariate distribution of the variables. Factor scores can also be used to detect outliers (Bollen & Arminger, 1991). According to conventional rule of thumb, "data may be assumed to be normal if skew and kurtosis is within the range of +/- 1.0 (some say +/- 1.5 or even 2.0)" (Schumacker & Lomax, 2004:69).

5.4.1 Bootstrapping final SEM model: confirming ML parameter estimates

The study used maximum likelihood (ML) method of estimation, which requires that the data be continuous and multivariate normal. However, the data used by the study

was categorical and also could fail to meet the assumption of multivariate normality. ML is in fact considered “robust to moderate violations of the normality assumption” and for this reason “many researchers opt to use it when data are moderately nonnormal” (Weston & Gore, 2006:738). According to West *et al.* (1995), one approach that could be used in dealing with multivariate nonnormal data is to use the bootstrap procedure, which is basically a “resampling procedure by which the original sample is considered to represent the population” and can therefore be “used to generate an approximate standard error for many statistics that AMOS computes, albeit without having to satisfy the assumption of multivariate normality” (Byrne, 2010:331-335). Therefore bootstrap can be used to determine bias in parameter estimates and in cases when replication with additional sample data is not possible.

By comparing the initial ML standard errors with those reported for the bootstrapped samples, one can observe whether the standard errors are almost similar. If the standard errors are almost similar, it can be concluded that the ML generated parameter estimates can be relied upon, even though the assumption of multivariate normality was not met. Bootstrapped sample application was conducted for the final SEM model.

5.4.2 Structural model for sustainable CE

The hypotheses for the study were tested by estimating the structural model shown in Figure 5-1, which also shows the measurement portions. The model was tested to determine whether it fitted the data well and whether the hypotheses were supported. Although the postulated model only shows a direct influence of external environment (dynamism, hostility, and heterogeneity) on sustainable CE, it should be theoretically plausible that antecedents pertaining to the external environment could also have an indirect influence on sustainable CE through a company’s entrepreneurial actions. This is supported by the fact that research shows that external environment affects entrepreneurship at both the individual and organisational level (Covin & Slevin 1991).

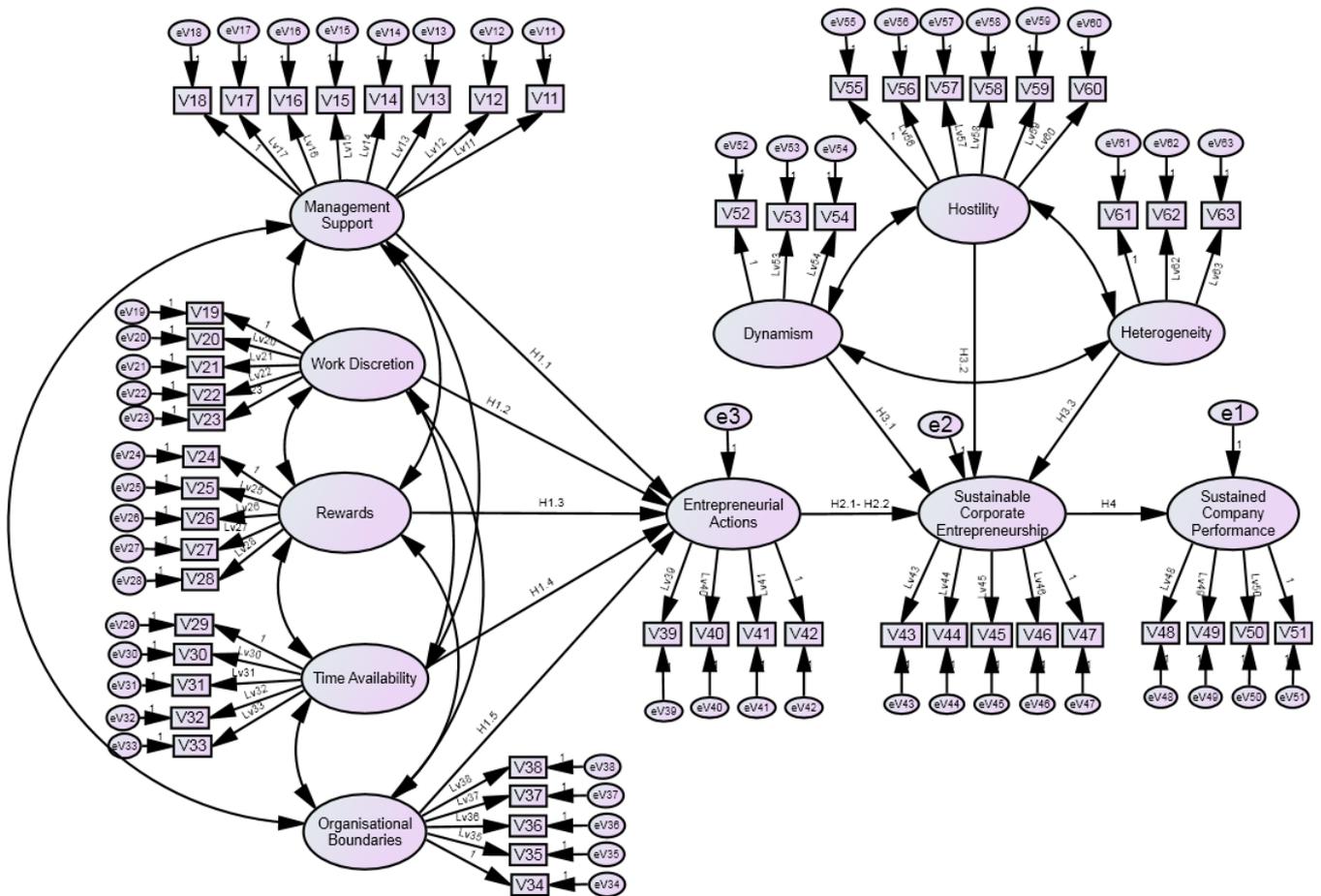


Figure 5-1: Measurement and structural model for sustainable CE

As earlier defined, entrepreneurial actions are the conduits through which companies exploit entrepreneurial opportunities unexploited by rivals (Kuratko *et al.*, 2005a:276), and these entrepreneurial actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways (Smith & Di Gregorio, 2002). According to Zahra (1986), companies innovate or venture in anticipation of, or response to, their external environment. It is therefore also theoretically plausible that external environment could have an indirect effect on sustainable CE through entrepreneurial actions.

The predictiveness of the structural model was also assessed in terms of the substantial strength of the structural paths or loadings, as opposed to just achieving statistical significance (Chin, 1998). According to Chin (1998), most of the loadings should be ≥ 0.60 , ideally ≥ 0.70 , meaning each measure is accounting for at least 50% variance of the underlying latent variable, while standardised structural paths

should be ≥ 0.20 in order to be considered meaningful. The standardised parameter estimates (factor loadings) were assessed to determine the variables with the greatest impact while the variances showed the indicators that contained the most (and least) measurement error (Weston & Gore, 2006).

5.5 Conclusion

The hypothesised model for sustainable CE had 11 latent variables, out of which 8 were independent variables while 3 were dependent variables. This chapter has presented the basis for the assessment of measurement model validity and reliability. Based on CE theory, the postulated measurement and structural model has also been presented showing all the hypothesised relationships among the variables.

CHAPTER 6: RESEARCH FINDINGS – NATURE AND FORM OF RESULTS

6.1 Introduction

This chapter presents the study findings on the basis of the research question and objectives, as well as postulated predictions, detailed research methodology, and model assessment provided in chapters 4 and 5. The chapter begins with an analysis of biographical characteristics of the sample, company data, and assessment of multivariate normality and outliers.

The chapter also deals with the validity and reliability of the empirical research instrument used. Since the study primarily used CFA and SEM procedures to assess measurement reliability and validity, these findings are reported under respective measurement model estimations. For each final measurement model assessed the chapter also indicates Bayesian derived estimates in order to make comparison with the ML derived estimates.

The study findings include results unfavourable to the hypotheses, as well as those that supported the hypotheses on the basis of the research question and objectives. Since this was an empirical study, the findings also included quantitative data, which has been presented as simply as possible, using the format for reporting results for SEM analyses as recommended by Kline (2011).

Furthermore, the findings of this research were communicated to the University of Pretoria. The final research results of the study are being published in a doctoral thesis, as prescribed by the University of Pretoria. It is also envisioned that the findings will be reported in appropriate publications relating to CE.

6.2 Data and measures

Before any analysis was conducted, the following items pertaining to the measurement scale for CE climate were reverse-coded: V29 (“During the past three months, my workload kept me from spending time on developing new ideas”), V30 (“I

have just the right amount of time and work load to do everything well”), V32 (“My job is structured in such a way that gives me very little time to think about wider organisational problems”), V35 (“There are many written rules and procedures that exist for doing my major tasks”), V36 (“My job description clearly specifies the standards of performance on which my job is evaluated”), and V37 (“I clearly know what level of work performance is expected from me in terms of quantity, quality and timeline of output”). Items V29, V30 and V32 were used to measure time availability, while items V35, V36, and V37 were for the subscale organisational boundaries.

Furthermore, by observation, item V23 (“I seldom have to follow the same work methods or steps for doing my major tasks from day to day”), under the factor work discretion, was deleted from the model as it was a repetition of item V38, which rightly belongs to the factor organisational boundaries. The analysis of characteristics of the sample and measures is presented below.

6.2.1 Biographical characteristics of sample

As can be seen from Table 6-1, the sample consisted of more men (66.7%) than women (33.3%), while in terms of management level of participants, those at senior management level were 19.2%, middle management 43.8%, and junior management 37%. A total of 75.5% managed others, leaving only 24.5% who were in management but did not manage others (that is, these were also managers but were not managing other people due to the nature of their operations. For instance, in some organisations such managers included Fund Managers, Human Resources Managers, Research and Documentation Managers, and Information Technology (IT) Managers).

In terms of educational level, the majority subgroup was for participants who reported that they had other qualification after grade 12 (47.5%), followed by those who indicated that they were degree holders (28.6%), those with postgraduate qualification (16.9%), grade 12 qualification (5.7%), and those with less than grade 12 qualification (1.2%). In terms of years spent at the company, 46.7% of the respondents had spent up to 5 years, 26.2% between 6 and 10 years while 27.1% had spent 10 years or more.

Table 6-1: Biographical characteristics of sample

Variable	Values	Frequency	Frequency %	Cumulative %
Gender	Male	431	66.7	66.7
	Female	215	33.3	100.0
	Total	646	100.0	
Age of respondents	Up to 25 yrs	290	44.9	44.9
	26 – 35 yrs	234	36.2	81.1
	36 – 45 yrs	116	18.0	99.1
	46 plus yrs	6	.9	100.0
	Total	646	100.0	
Management Level	Senior	124	19.2	19.2
	Middle	283	43.8	63.0
	Junior	239	37.0	100.0
	Total	646	100.0	
Managing Others	I manage others	488	75.5	75.5
	I don't manage others	158	24.5	100.0
	Total	646	100.0	
Level of Education	Less than Grade 12	8	1.2	1.2
	Grade 12	37	5.7	7.0
	Other qualification after Grade 12	307	47.5	54.5
	Degree	185	28.6	83.1
	Postgraduate qualification	109	16.9	100.0
	Total	646	100.0	
Years at the company	Up to 5 yrs	302	46.7	46.7
	6 – 10 yrs	169	26.2	72.9
	10 plus yrs	175	27.1	100.0
	Total	646	100.0	

6.2.2 Company data

The study involved companies in eight different economic sectors (see Table 6-2) represented as follows: Banking/financial sector (27.9%), service (23.2%), manufacturing (19.5%), agriculture/agro industry (11.8%), tourism/hospitality (7.6%), communication (5.6%), mining (2.3%), and energy (2.2%).

The age of companies ranged from 4 to 150 years (mean age 32.78; SD 23.99). In terms of venture life cycle, the sampled companies could be categorised as follows: 20.4% experiencing early growth (4–10 years), 11.9% at maturity phase (11–15 plus), and 67.6% at harvest/stability phase (16–20 plus years).

Table 6-2: Company data

Variable	Values	Frequency	Frequency %	Cumulative %
Sector	Agriculture/Agro industry	76	11.8	11.8
	Banking/Financial	180	27.9	39.6
	Tourism/hospitality	49	7.6	47.2
	Communication	36	5.6	52.8
	Energy	14	2.2	55.0
	Manufacturing	126	19.5	74.5
	Mining	15	2.3	76.8
	Service	150	23.2	100.0
	Total	646	100.0	
Age of company	4-10 yrs	132	20.4	20.4
	11-15 yrs	77	11.9	32.4
	16 plus yrs	437	67.6	100.0
	Total	646	100.0	
Number of Employees	Up to 100	127	19.7	19.7
	101 – 500	337	52.2	71.8
	501 or more	182	28.2	100.0
	Total	646	100.0	

6.2.3 Assessment of multivariate normality and outliers

Data normality was checked using skewness and kurtosis (Sharma & Sharma, 2013). Skewness ranged from 1.689 to -0.984 while kurtosis ranged from 5.106 to -1.504. Clearly the values were all within the recommended level (skewness maximum 2 and kurtosis maximum 7) for a CFA with maximum likelihood estimation (Curran, West & Finch, 1996; Sharma & Sharma, 2013; West, Finch, & Curran, P.J. 1995). See Appendix C for details on assessment of normality.

Nonetheless, although the distribution of the observed variables is univariate normal, there is still the possibility that the multivariate distribution is multivariate nonnormal (West *et al.*, 1995). This test was conducted by assessing the index of multivariate kurtosis and its critical ratio (CR), the bottom of the last two columns respectively in the AMOS output indicated in Appendix C (Byrne, 2010). The CR value represents Mardia's normalised estimate (z-statistic) of multivariate kurtosis and, according to Bentler (2005), values > 5.00 are indicative of data that are nonnormally distributed. In this respect, the sample's CR value of 43.248 was very suggestive of its multivariate nonnormality. Since using a maximum likelihood estimation method on data with evidence of multivariate kurtosis may give interpretational problems, one

has to use an alternative method of estimation that could handle nonnormal data (Byrne, 2010).

However, the alternative estimation method that the AMOS program has, the asymptotic distribution-free (ADF), was considered inappropriate, given the sample size of the data ($N = 646$) as the ADF requires very large samples of $N > 1,000$ (Byrne, 2010). As an alternative, the estimations were done using ML and validated with the Satorra-Bentler (S-B) robust method (available in the EQS program), which showed that although the issue of nonnormality in the data was not directly addressed, the final conclusion of the statistical estimates was still supported even with the more robust estimation method. In addition, all the final CFA models for the measurement scales were subjected to bootstrapping to compare with the ML derived estimates, and the results supported the ML derived estimates.

To detect any outliers, Mahalanobis squared distance values (D^2) were computed for each case. Outliers are cases whose scores are substantially different from all the others (Byrne, 2010). A review of the D^2 values (see Appendix D) showed minimal evidence of serious multivariate outliers and the data could therefore be analysed using the maximum likelihood estimation method and CFA processes.

6.2.4 Measurement reliability and validity

Before testing for a significant relationship in the structural model, researchers should firstly demonstrate that respective measurement models used in the study have a satisfactory level of reliability and validity (Bollen & Arminger, 1991; Fornell & Larcker, 1981:45; Hair *et al.*, 2010:693; Jackson *et al.*, 2009:6). In this respect, this study assessed each of the measurement models to determine their reliability and validity, and then proceed to analyse the proposed overall structural model. Measurement reliability and validity were assessed using CFA. Reliability, that is, the degree of consistency of an instrument (Said, Badru & Shahid, 2011), was measured using squared multiple correlations. Construct convergent validity was determined using factor loading values: an indicator is said to converge if it has high and significant factor loading value, and standardised path value ≥ 0.20 (Chin, 1998). Subscale reliability can be maximised by deleting the least reliable items, which may lead to an increase in alpha for the subscale (Raubenheimer, 2004).

Confirmatory factor analysis was performed to assess measurement reliability and validity for each of the five scales using Amos, version 20, maximum likelihood (ML) estimation procedure. Squared multiple correlations were used to measure item reliability (Bagozzi & Yi, 2012). As earlier indicated in Chapter 4, CFA is used for measurement model validation in path or structural analysis and examines the nature of relationships between constructs based on simple correlations mainly for conducting psychometric evaluation of measurement, construct validation, testing method effects, and testing measurement invariance (Brown, 2006; Hair *et al.*, 2010).

CFA is also appropriate for measuring structural (or factorial) construct validity, such as whether the construct is unidimensional or multidimensional and what are the relationships between the measurement items and the hypothesised latent variables (Harrington, 2009; Koeske, 1994). Furthermore, CFA provides evidence on the validity of individual measures based on evidence of construct validity, such as the model's overall fit, which makes it useful to test a measurement theory (Hair *et al.*, 2010:727).

Usually when conducting SEM, prior to assessing the structural model the first step would be to evaluate the measurement model using CFA and determine whether the measured variables accurately reflect the desired constructs or factors (Jackson *et al.*, 2009:6; Bollen & Arminger, 1991). In this respect, CFA essentially deals with the measurement model issues (prespecified relationships between the measurement items and underlying factors) while SEM can be looked at as an extension of CFA and deals with relationships among several constructs on the basis of their *a priori* stated measurement structure (Yang, 2003:157). Therefore the study proceeded with the analysis by conducting CFA procedures on the individual subscales before assessing the structural model or the hypothesised composite SEM model for SCE. The findings on measurement reliability and validity of the individual subscales are indicated in the evaluation sections for the respective measurement models.

6.3 Model estimation and specification

Model estimation and specification were done using CFA processes. The CFA processes were used to determine whether the hypothesised structure provided a good fit to the data, that is, whether a relationship existed between the observed

variables and the underlying latent or unobserved constructs. The findings are provided below.

6.3.1 Evaluation of hypothesised measurement model for CE climate

The model evaluation and the notes for the CE climate Model (Default model) are provided in this section. With a Chi-square (χ^2) of 2438.588 with $df = 314$ giving a p -value of 0.00, the model is clearly on the low side, as can be confirmed by the fit indices shown in Table 6-3.

Table 6-3: Fit indices of original CFA model for CE climate

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Hypothesised Model	2438.588	314	0.000	7.766	0.1056	0.763	0.102 PCLOSE (0.000)

The recommended thresholds for concluding acceptable fit based on these indices is $CFI \geq 0.95$, $SRMR \leq 0.08$, and $RMSEA \leq 0.07$ (Hooper *et al.*, 2008). The original model (Model 1) therefore needed to be respecified to fit better with the sample data. Figure 6-1 shows the output of the CFA model for CE climate with standardised estimates. Based on all 27 items, the initial estimates showed that 8 items had poor SMCs, as their reliability coefficients were low. According to Hooper *et al.* (2008), items that have SMCs less than 0.20 should be considered for deletion as such levels of SMC are an indication that the item is measuring something else. Items with SMCs < 0.20 were V14 (0.023), V15 (0.041) V16 (0.032), V17 (0.021), V18 (0.021), V21 (0.170), RV36 (0.027), RV37 (0.023), although their regression weights were statistically significant at the 0.001 level (two-tailed) as can be seen from Table 6-4.

Although item V21, pertaining to work discretion, had low SMCs, it had significant regression weight and variance. Further visual examination of item V21 (“in this organisation I am not subject to criticism and punishment resulting from mistakes made on the job”) showed that the item had appropriate theoretical content of the construct work discretion. The item was therefore maintained due to its theoretical support of the model.

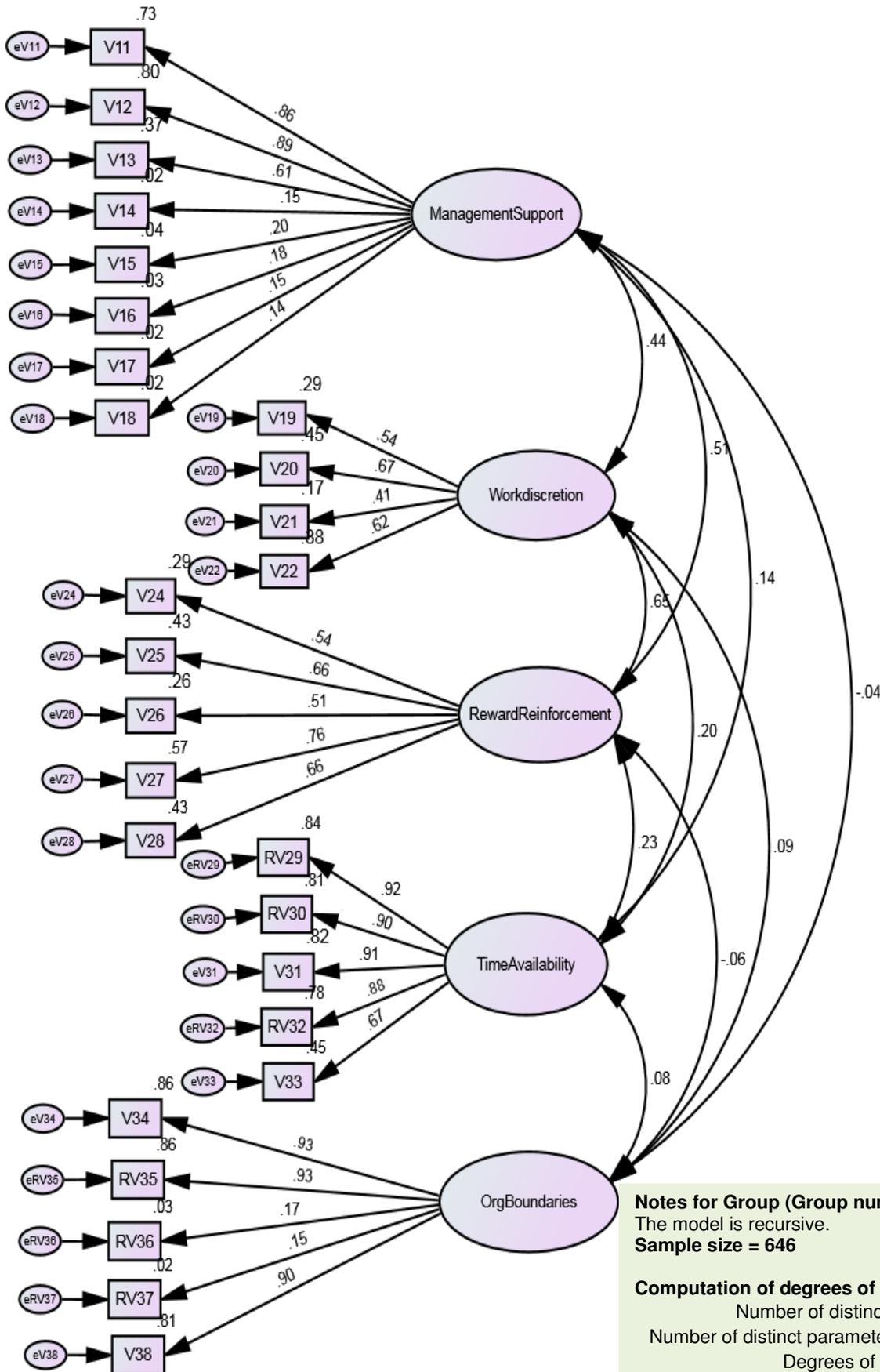


Figure 6-1: Output path diagram for hypothesised model for CE climate

Table 6-4: Output for original model for CE climate
Regression Weights for CFA Model of CECI: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
V15	<---	ManagementSupport	.113	.023	4.830	***	Lv15
V13	<---	ManagementSupport	.719	.044	16.171	***	Lv13
V31	<---	TimeAvailability	1.033	.028	36.874	***	Lv31
V34	<---	OrgBoundaries	1.000				
V27	<---	RewardReinforcement	1.000				
V26	<---	RewardReinforcement	.737	.068	10.867	***	Lv26
V25	<---	RewardReinforcement	.931	.070	13.268	***	Lv25
V24	<---	RewardReinforcement	.877	.081	10.793	***	Lv24
V28	<---	RewardReinforcement	.886	.056	15.916	***	Lv28
V33	<---	TimeAvailability	.772	.037	20.653	***	Lv33
V22	<---	Workdiscretion	1.180	.112	10.523	***	Lv22
V21	<---	Workdiscretion	.737	.092	8.014	***	Lv21
RV32	<---	TimeAvailability	.990	.028	34.906	***	Lrv32
RV30	<---	TimeAvailability	.943	.025	37.987	***	Lrv30
RV29	<---	TimeAvailability	1.000				
V11	<---	ManagementSupport	.970	.039	24.688	***	Lv11
V12	<---	ManagementSupport	1.000				
RV36	<---	OrgBoundaries	.164	.040	4.104	***	Lrv36
RV37	<---	OrgBoundaries	.159	.042	3.754	***	Lrv37
RV35	<---	OrgBoundaries	1.040	.026	39.868	***	Lrv35
V38	<---	OrgBoundaries	1.003	.027	37.315	***	Lv38
V16	<---	ManagementSupport	.095	.022	4.257	***	Lv16
V17	<---	ManagementSupport	.075	.022	3.470	***	Lv17
V18	<---	ManagementSupport	.078	.023	3.421	***	Lv18
V14	<---	ManagementSupport	.090	.025	3.629	***	par_23
V20	<---	Workdiscretion	1.251	.220	5.688	***	Lv20
V19	<---	Workdiscretion	1.000				

Standardised Regression Weights for CECI Model: (Group number 1 - Default model)

			Estimate
V15	<---	ManagementSupport	.203
V13	<---	ManagementSupport	.612
V31	<---	TimeAvailability	.906
V34	<---	OrgBoundaries	.925
V27	<---	RewardReinforcement	.755
V26	<---	RewardReinforcement	.511
V25	<---	RewardReinforcement	.655
V24	<---	RewardReinforcement	.537
V28	<---	RewardReinforcement	.659
V33	<---	TimeAvailability	.671
V22	<---	Workdiscretion	.615
V21	<---	Workdiscretion	.412
RV32	<---	TimeAvailability	.884
RV30	<---	TimeAvailability	.902
RV29	<---	TimeAvailability	.918

			Estimate
V11	<---	ManagementSupport	.855
V12	<---	ManagementSupport	.892
RV36	<---	OrgBoundaries	.165
RV37	<---	OrgBoundaries	.151
RV35	<---	OrgBoundaries	.928
V38	<---	OrgBoundaries	.901
V16	<---	ManagementSupport	.178
V17	<---	ManagementSupport	.147
V18	<---	ManagementSupport	.144
V14	<---	ManagementSupport	.152
V20	<---	Workdiscretion	.669
V19	<---	Workdiscretion	.543

Table 6-4 (continued)
Squared Multiple Correlations for CEC Model: (Group number 1 - Default model)

Estimate		Estimate	
V20	.448	V38	.811
V14	.023	V19	.295
V18	.021	V21	.170
V17	.021	V22	.379
V16	.032	V24	.289
RV37	.023	V25	.429
RV36	.027	V26	.261
RV29	.843	V27	.571
RV30	.813	V34	.856
RV32	.782	V31	.821
RV35	.861	V12	.796
V33	.450	V13	.375
V28	.434	V15	.041
V11	.731		

Covariances for CFA Model for CEC: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
ManagementSupport	<-->	Workdiscretion	.325	.047	6.875	***	par_22
ManagementSupport	<-->	OrgBoundaries	-.056	.056	-1.002	.316	par_24
OrgBoundaries	<-->	Workdiscretion	.069	.046	1.485	.137	par_25
ManagementSupport	<-->	TimeAvailability	.166	.050	3.290	.001	par_26
OrgBoundaries	<-->	RewardReinforcement	-.061	.048	-1.285	.199	par_27
ManagementSupport	<-->	RewardReinforcement	.491	.053	9.338	***	par_28
RewardReinforcement	<-->	Workdiscretion	.390	.044	8.764	***	par_29
TimeAvailability	<-->	OrgBoundaries	.096	.052	1.837	.066	par_30
TimeAvailability	<-->	RewardReinforcement	.211	.044	4.776	***	par_31
TimeAvailability	<-->	Workdiscretion	.145	.038	3.842	***	par_32

A review of the modification indices (MIs) showed that some changes could be made to the model to improve its fit. Items RV36 and RV37 were supposed to measure organisational boundaries; however, the MIs showed that the items were also highly correlated (M.I. = 512.617). Furthermore, both items also had very low factor score weights on organisational boundaries (0.010 for RV36 and 0.008 for RV37), and had zero factor score on other factors. These items were deleted from the scale and their elimination improved the overall fit indices for the model, while the other items were not significantly affected. Items V14, V15, V16, V17, and V18 were supposed to measure management support but showed very low item reliability. In addition, the modification indices also indicated highly significant correlations among these items. Visual inspection of the items showed that all the five items related to a specific kind of management support which relates to innovative projects. In fact deleting the items

tended to negatively affect the overall fit of the model with $\chi^2 = 1829.705$, $df = 199$, and $p\text{-value} = .000$ (CMIN/DF = 9.194, SRMR = .1107, CFI = .806, and RMSEA = .113).

This prompted interest in subjecting the subscale for CE climate to further investigation in order to assess its item reliability and factor dimensions, using SPSS with all its 27 items. The item reliability test for the CE climate measurement scale showed reliability of Cronbach's alpha = 0.77, which was above the cut-off threshold of 0.70. However, the Corrected Item-Total Correlations revealed that two items had negative and relatively low correlations with the scale as a whole, and their removal could improve the scale's reliability to $\alpha = 0.79$. These were items RV36 (-0.255) and RV37 (-0.211). With these two items removed, the measurement scale was subjected to exploratory factor analysis (EFA) using principal component analysis extraction method.

Through the EFA approach, the study desired to obtain correlated factor solutions as opposed to uncorrelated factor solutions, as it was considered that the underlying constructs of the CE climate scale were correlated. In this respect, oblique rotation approach (Direct Oblimin) was used as opposed to the orthogonal rotation approach, which would require the assumption that the underlying constructs were independent or uncorrelated (Pallant, 2010:185). For factor extraction, the study used principal component analysis, which is the most commonly used technique (Pallant, 2010:183).

The EFA showed that the CECI scale had in fact six (and not five) distinct dimensions with item V20 ("This organisation gives me the opportunity to make use of my abilities"), which was originally to measure work discretion, loading also on two other constructs: rewards/reinforcement (0.336), work discretion (0.315), and management support CE (-0.394). This item was therefore excluded from further analysis. The pattern matrix for the final EFA is presented in Table 6-5 clearly showing the scale's six dimensions with items V14, V15, V16, V17, and V18 all together loading on a factor management support relating to innovative projects, not as originally hypothesised. This suggested that management support was multidimensional, made up of two factors.

Table 6-5: Pattern matrix for CE climate subscale

Pattern Matrix^a

	Component					
	1	2	3	4	5	6
V31TimeAvailability	.928					
V29TimeAvailability	.926					
V30TimeAvailability	.915					
V32TimeAvailability	.902					
V33TimeAvailability	.743					
V27Rewards		.791				
V28Rewards		.717				
V25Rewards		.676				
V24Rewards		.621				
V26Rewards		.580				
V35Boundaries			.950			
V34Boundaries			.947			
V38Boundaries			.940			
V15Support				.751		
V17Support				.742		
V16Support				.734		
V18Support				.660		
V14Support				.438		
V19WorkDiscretion					.794	
V21WorkDiscretion					.779	
V22WorkDiscretion					.686	
V11Support						-.903
V12Support						-.866
V13Support						-.723

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 8 iterations.

According to Zahra (1991:277) and Hayton (2005:27), there are two aspects of CE, namely, internal and external CE. Whereas internal CE focuses on “reviving the existing business through innovation and venturing”, external CE focuses on “broadening and, sometimes, revising the concept of the business” (Zahra (1991:277)). Therefore, the latent variable management support was split into two constructs: management support (MS) for internal CE, composed of items V11, 12, and V13, and MS for external CE, composed of items V14, V15, V16, V17, and V18.

The resulting exploratory factor analysis of the six-dimensional scale showed highly satisfactory sampling adequacy with Kaiser-Meyer-Olkin (KMO) = 0.818 (KMO should be greater than 0.5 for a satisfactory factor analysis to proceed (Burns & Burns, 2008), and also satisfactory communalities ranging from 0.334 to 0.903 for the 24 items. Consequently, the revised six-dimensional CFA model of CE climate shown in Figure 6-2 replaced the originally hypothesised model and was therefore the one tested as the study's hypothesised measurement model for CE climate. The model (Model 2) was evaluated and showed good fit with $\chi^2 = 539.055$, $df = 237$, and P -value = 0.000 the fit indices confirm this (CMIN/DF = 2.274, SRMR = 0.0380, CFI = 0.959, and RMSEA = 0.044 (PCLOSE = 0.967). The estimation process converged and the solution was admissible. A look at the SMCs showed that all items had acceptable item reliability of at least 0.2, which is the cut-off value. The overall measurement reliability for the 24-item six-dimensional instrument with $\alpha = 0.80$ (mean 61.98; SD 11.593) was within highly acceptable range for assuming homogeneity of the items (Burns & Burns, 2011).

The reliability levels for all the six subscales were also generally acceptable, ranging from 0.67 to 0.94 as can be seen in Table 6-6: The factor organisational boundaries showed the highest reliability with $\alpha = 0.94$, while work discretion had the lowest (0.66).

Table 6-6: Reliability for CE climate measurement scale

	Cronbach's Alpha	N of Items
CE Climate Scale (Overall)	0.80	24
MS for internal CE	0.82	3
MS for external CE	0.70	5
Work discretion	0.66	3
Rewards/reinforcement	0.76	5
Time availability	0.93	5
Organisational boundaries	0.94	3

It was evident that the goodness-of-fit indices for Model 2 showed an improvement, although the MIs indicated that further improvement to the model could still be done. A lot of suggestions were indicated on introducing parameters that would improve model fit, although most of them tended to be meaningless and were therefore overlooked. Only those parameters that could be substantiated were considered meaningful for incorporation and parameters were added one at a time. Three error

covariances for eV27<-->eV28 (MI = 73.123), eV25<-->eV24 (MI = 48.591), and eV30<-->eV29 (MI = 37.889) were with reasonably large MIs. In reviewing the items associated with these three error parameters, it was considered that there was sufficient rationale for their inclusion (Byrne, 2010:91; Hooper *et al.*, 2008:56), although eV25<-->eV24 was not as prominent after the inclusion of eV27<-->eV28 in the model (CFA model 3). Only eV30<-->eV29 was still high and was therefore also incorporated in the model (CFA model 4).

The fit indices for CFA models 3 and 4 showed progressive and significant improvements to the model (see Table 6-7 for fit indices). Looking at the MIs accompanying CFA model 4, there were no further substantive indications for respecifying the model. Therefore model 4 was the final CFA model for the CE climate measurement instrument.

Table 6-7: Fit indices of respecified CFA models for CE climate

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Model 1	2438.588	314	0.000	7.766	0.1056	0.763	0.102 PCLOSE (0.000)
Model 2	539.055	237	0.000	2.274	0.0380	0.959	0.44 PCLOSE (0.967)
Model 3	423.462	236	0.000	1.794	0.0368	0.975	0.035 PCLOSE (1.000)
Model 4	357.405	235	0.000	1.521	0.0366	0.984	0.028 PCLOSE (1.000)

Turning to parameter estimates for the final CFA model (model 4) as presented in Table 6-8, the factor covariances were also assessed on the basis of significance of their respective critical ratio values (i.e. parameter estimate divided by an estimate of its standard error). Ten out of fifteen factor covariances of the hypothesised CE climate model were statistically significant on the basis of their critical ratio values > 1.96. The statistically significant covariances were MS for external CE and work discretion (3.401), organisational boundaries and work discretion (3.232), time availability and work discretion (3.433), rewards and work discretion (6.391), time availability and organisational boundaries (2.000), time availability and rewards/reinforcement (3.942), time availability and work discretion (3,430), MS for external CE and MS for internal CE (4.549), work discretion and MS for internal CE (3.513), rewards and MS for internal CE (8.529), and time availability and MS for internal CE (3.258). These factor covariances were also positive. Among all the

hypothesised links between the CECI antecedents, the strongest link was between rewards and MS for internal CE (8.529), followed by rewards and work discretion (6.391).

The five factor covariances that were statistically nonsignificant at the 0.050 level (two-tailed) are the following:

MS_External	<-->	OrgBoundaries	(0.506)
MS_External	<-->	TimeAvailability	(0.626)
OrgBoundaries	<-->	RewardReinforcement	(-1.287)
MS_External	<-->	RewardReinforcement	(1.579)
OrgBoundaries	<-->	MS_Internal	(-0.939)

These five factor covariances were candidates for deletion. However it was considered theoretically appropriate to keep them in the model as the dimensions of the CE climate were expected to have some level of linkage, not necessarily significant. In fact a model in which these nonsignificant factor covariances were delinked clearly showed that the model without them was not any better, with $\chi^2 = 362.339$, $df = 240$, $p\text{-value} = 0.000$, $CMIN/DF = 1.510$, $SRMR = 0.0393$, $CFI = 0.984$, and $RMSEA = 0.028$ ($PCLOSE = 1.000$). In terms of model comparison, Model 4 was also more parsimonious and presented the best fit to the data compared with all the other respecified models. Thus Model 4 was considered as the final CFA model for CE climate measurement instrument.

For all the revised CFA models tested, the estimation process converged and the solutions were admissible. Not all the models resulting from these model fitting procedures are displayed due to space constraints, although relevant aspects such as fit indices for each respecified model are reported and discussed. The final CFA model (model 4) is displayed as Figure 6-3 while its parameter estimates are indicated in Table 6-8.

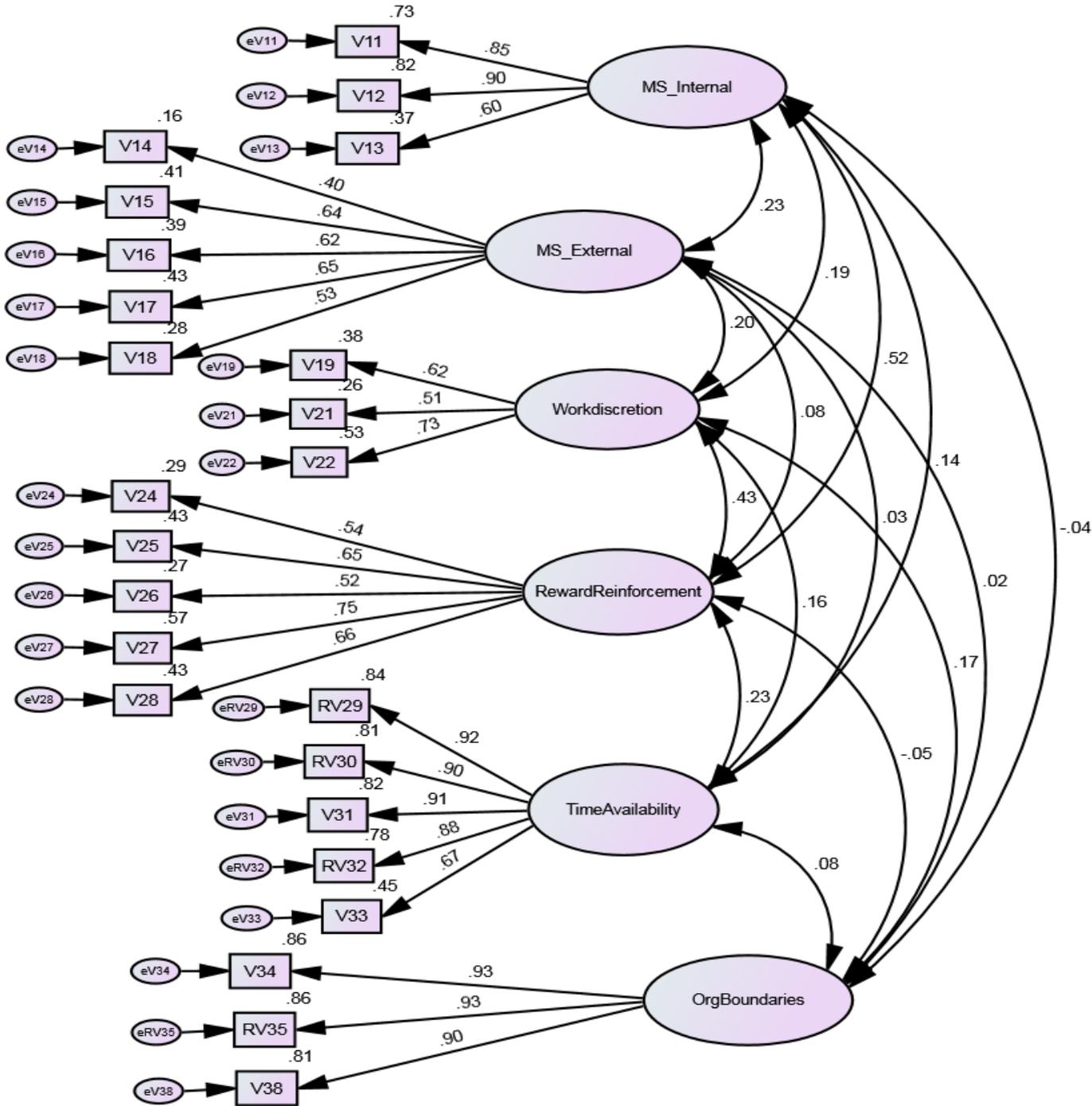


Figure 6-2: Path diagram for revised CFA model (Model 2) for CE Climate

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 300
 Number of distinct parameters to be estimated: 63
 Degrees of freedom (300 - 63): 237

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

Result (Default model)

Minimum was achieved
 Chi-square = 539.055
 Degrees of freedom = 237
 Probability level = .000

Based on the final CFA model, the findings showed that the factor organisational boundaries was only significantly linked to work discretion and time availability. Similarly, MS for external CE only had statistically significant links with work discretion and MS for internal CE. Work discretion was the only CE climate antecedent having its entire links with the other five organisational antecedents statistically significant, followed by time availability, which only had one nonsignificant link with MS for external CE. All the unstandardised parameter estimates (factor loadings) of the final model were statistically significant, as indicated by the critical values which were greater than 1.96, and all the estimates were positive as hypothesised.

The standardised factor loadings were also generally high, ranging from 0.398 to 0.927. Only item V14 (0.398) and V28 (0.485) had standardised factor loading below 0.50. All the error variances were significant. For the factor covariances, all except two were positive as expected. The two factor covariances that were negative (as well as statistically nonsignificant) were organisational boundaries <--> MS for internal CE, and organisational boundaries <--> rewards.

The standardised residual covariances (not shown) were examined and there were only two values above the cut-off absolute value of 2.58 (Byrne, 2010). These were the residual covariances between V22 and V28 (3.207), V26 and V14 (-2.697), and V28 and V32 (2.666). These were the only residual values showing statistically significant discrepancy between the hypothesised model and the data. In fact almost all the rest of the standardised residual covariances were less than two in absolute value.

The ML derived parameter estimates for the final CFA model for CE climate were also compared with the estimates derived using the Bayesian estimation method. The results for the Bayesian estimation are presented in Appendix E. The findings showed that the Bayesian estimates for the CE climate CFA model were no different from the ML estimates, which speaks well for the validity of the hypothesised CFA model for CE climate.

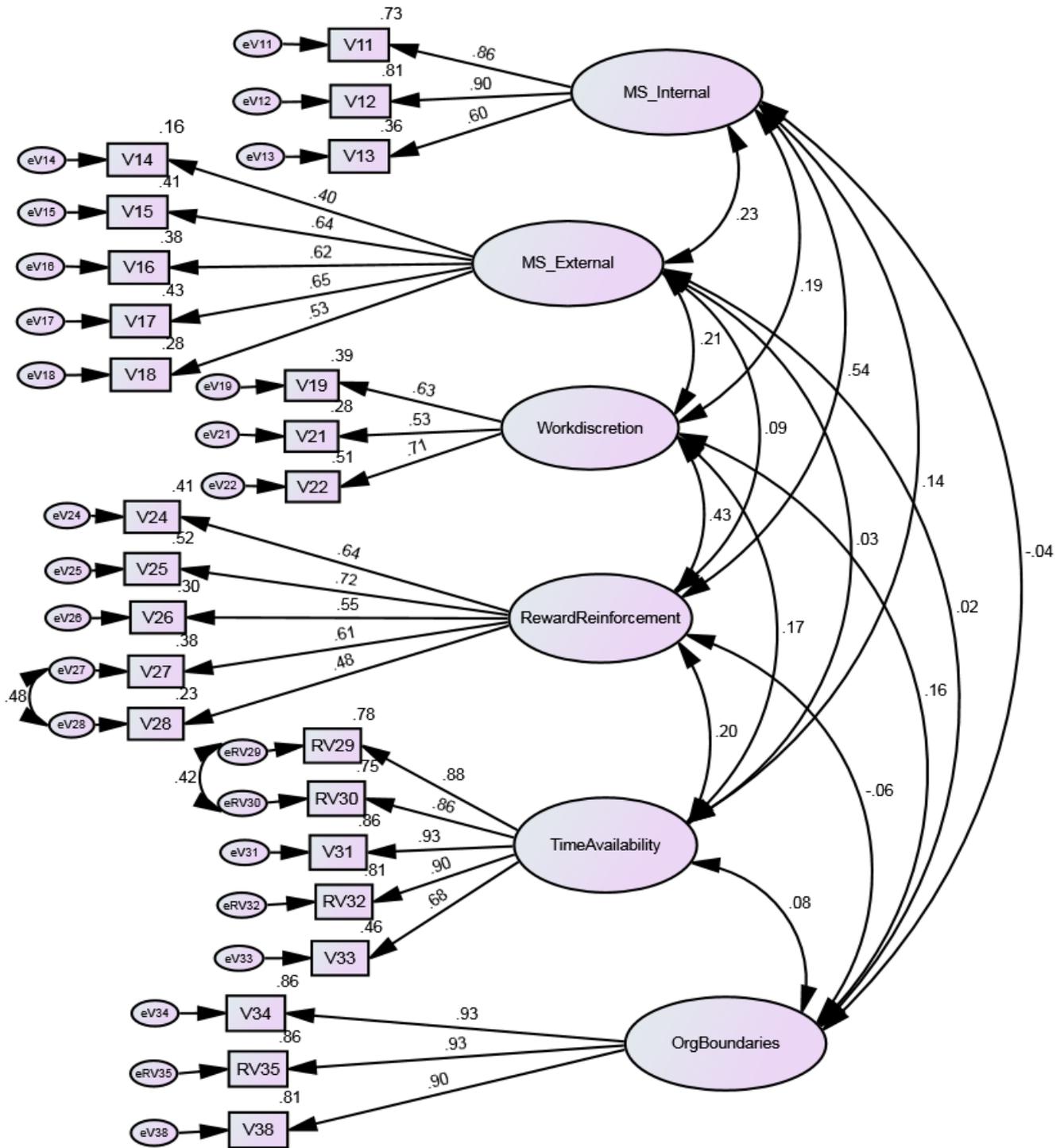


Figure 6-3: Final CFA model (Model 4) for CE climate (standardised estimates)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 300
 Number of distinct parameters to be estimated: 65
 Degrees of freedom (300 - 65): 235

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

(Default model)

Minimum was achieved
 Chi-square = 357.405
 Degrees of freedom = 235
 Probability level = .000

Table 6-8: Selected parameter estimates for final CFA model for CE climate

Regression Weights for the final CFA Model of CE Climate						
			Estimate	S.E.	C.R.	P Label
V15	<---	MS_External	1.079	.094	11.514	*** Lv15
V31	<---	TimeAvailability	1.100	.032	34.670	*** Lv31
V34	<---	OrgBoundaries	1.000			
V27	<---	RewardReinforcement	1.000			
V26	<---	RewardReinforcement	.978	.092	10.635	*** Lv26
V25	<---	RewardReinforcement	1.261	.100	12.600	*** Lv25
V24	<---	RewardReinforcement	1.285	.114	11.304	*** Lv24
V28	<---	RewardReinforcement	.802	.060	13.273	*** Lv28
V33	<---	TimeAvailability	.811	.040	20.171	*** Lv33
V22	<---	Workdiscretion	1.185	.125	9.466	*** Lv22
V21	<---	Workdiscretion	.815	.084	9.644	*** Lv21
RV32	<---	TimeAvailability	1.051	.032	33.305	*** Lrv32
RV30	<---	TimeAvailability	.941	.023	40.141	*** Lrv30
RV29	<---	TimeAvailability	1.000			
RV35	<---	OrgBoundaries	1.037	.026	39.861	*** Lrv35
V38	<---	OrgBoundaries	1.002	.027	37.410	*** Lv38
V16	<---	MS_External	.993	.090	10.993	*** Lv16
V18	<---	MS_External	.860	.084	10.213	*** Lv18
V19	<---	Workdiscretion	1.000			
V11	<---	MS_Internal	.962	.041	23.228	*** Lv11
V12	<---	MS_Internal	1.000			
V13	<---	MS_Internal	.702	.044	15.815	*** Lv13
V17	<---	MS_External	1.000			
V14	<---	MS_External	.704	.089	7.923	*** Lv14

Standardised Regression Weights for the final CFA Model for CE Climate			Estimate
V15	<---	MS_External	.642
V31	<---	TimeAvailability	.927
V34	<---	OrgBoundaries	.926
V27	<---	RewardReinforcement	.614
V26	<---	RewardReinforcement	.552
V25	<---	RewardReinforcement	.721
V24	<---	RewardReinforcement	.640
V28	<---	RewardReinforcement	.485
V33	<---	TimeAvailability	.677
V22	<---	Workdiscretion	.713
V21	<---	Workdiscretion	.525
RV32	<---	TimeAvailability	.902
RV30	<---	TimeAvailability	.864
RV29	<---	TimeAvailability	.882
RV35	<---	OrgBoundaries	.926
V38	<---	OrgBoundaries	.901
V16	<---	MS_External	.620
V18	<---	MS_External	.530
V19	<---	Workdiscretion	.626
V11	<---	MS_Internal	.856
V12	<---	MS_Internal	.901
V13	<---	MS_Internal	.604
V17	<---	MS_External	.653
V14	<---	MS_External	.398

Squared Multiple Correlations for the final CFA Model for CE Climate		Estimate
V14		.158
V18		.280
V17		.426
V16		.385
RV29		.778
RV30		.746
RV32		.813
RV35		.858
V33		.458
V28		.235
V11		.733
V38		.813
V19		.392
V21		.276
V22		.508
V24		.410
V25		.520
V26		.304
V27		.377
V34		.858
V31		.860
V12		.812
V13		.365
V15		.413

Table 6-8 (continued)
Covariances for the final CFA Model for CE Climate: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
MS_External	<-->	Workdiscretion	.058	.017	3.401	***	par_19
MS_External	<-->	OrgBoundaries	.010	.020	.506	.613	par_20
OrgBoundaries	<-->	Workdiscretion	.152	.047	3.232	.001	par_21
MS_External	<-->	TimeAvailability	.011	.018	.626	.532	par_22
OrgBoundaries	<-->	RewardReinforcement	-.051	.040	-1.287	.198	par_23
MS_External	<-->	RewardReinforcement	.022	.014	1.579	.114	par_24
RewardReinforcement	<-->	Workdiscretion	.241	.038	6.391	***	par_25
TimeAvailability	<-->	OrgBoundaries	.101	.051	2.000	.046	par_26
TimeAvailability	<-->	RewardReinforcement	.144	.036	3.942	***	par_27
TimeAvailability	<-->	Workdiscretion	.139	.041	3.430	***	par_28
MS_External	<-->	MS_Internal	.093	.020	4.549	***	par_29
Workdiscretion	<-->	MS_Internal	.160	.045	3.513	***	par_30
RewardReinforcement	<-->	MS_Internal	.421	.049	8.529	***	par_31
TimeAvailability	<-->	MS_Internal	.160	.049	3.258	.001	par_32
OrgBoundaries	<-->	MS_Internal	-.053	.056	-.938	.348	par_33
eV27	<-->	eV28	.455	.050	9.038	***	par_34
eRV30	<-->	eRV29	.127	.018	6.997	***	par_35

Variances for the final CFA Model for CE Climate: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
MS_External	.131	.017	7.691	***	par_36
TimeAvailability	1.040	.074	14.026	***	par_37
OrgBoundaries	1.401	.092	15.279	***	par_38
RewardReinforcement	.508	.068	7.481	***	par_39
Workdiscretion	.617	.092	6.705	***	par_40
MS_Internal	1.208	.091	13.348	***	par_41
eV15	.217	.017	13.088	***	par_42
eV13	1.038	.063	16.506	***	par_43
eV12	.280	.043	6.588	***	par_44
eV31	.205	.020	10.383	***	par_45
eV34	.231	.022	10.558	***	par_46
eV27	.838	.058	14.494	***	par_47
eV25	.743	.063	11.835	***	par_48
eV24	1.207	.086	13.956	***	par_49
eV22	.840	.094	8.899	***	par_50
eV21	1.076	.074	14.540	***	par_51
eV19	.958	.080	11.920	***	par_52
eV38	.325	.025	12.801	***	par_53
eV26	1.111	.072	15.405	***	par_54
eV11	.408	.043	9.521	***	par_55
eV28	1.063	.066	15.992	***	par_56
eV33	.810	.048	16.989	***	par_57
eRV35	.248	.024	10.561	***	par_58
eRV32	.264	.021	12.618	***	par_59
eRV30	.314	.022	14.036	***	par_60
eRV29	.297	.022	13.222	***	par_61
eV16	.207	.015	13.619	***	par_62
eV17	.176	.014	12.783	***	par_63
eV18	.249	.016	15.259	***	par_64
eV14	.346	.021	16.682	***	par_65

6.3.2 Evaluation of hypothesised measurement model for external environment

The solution for the initial model was inadmissible due to a negative variance (Heywood case) for one of the items, V56 (-0.41), and also all the indices showed poor fit, as can be seen from Table 6-9. There are a number of reasons for negative error variances (Chen, Bollen, Paxton, Curran & Kirby, 2001; Harris & Schaubroeck, 1990): (1) sampling fluctuations (sampling error), (2) violation of any number of statistical assumptions (such as linearity, normal distribution, (3) model indefiniteness (under-identification), (4) empirical under-identification, and (5) outliers/influential cases).

Table 6-9: Fit indices of original CFA model (Model 1) for external environment

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Hypothesised Model	522.172	51	0.000	10.239	0.1015	0.754	0.120 PCLOSE (0.000)

One way to deal with the Heywood case is to constrain the offending variance to zero, or any arbitrary small value greater than zero (Chen *et al.*, 2001; Harris & Schaubroeck, 1990; Sorbom & Jeroskog, 1982). And so the error variance for V56 was constrained to 0.30 and the model (Model 2) run again (see Figure 6-4).

Although the estimation process converged and the solution was admissible, the model fit indices for Model 2 showed a poor fit with $\chi^2 = 529.440$, $df = 52$, p -value = 0.000, CMIN/DF = 10.182, SRMR = 0.1018, CFI = 0.750, and RMSEA = 0.119 (PCLOSE = 0.000), necessitating model respecification to fit better with the sample data.

The SMCs for the respecified model (Model 2) showed that the following items had low reliability, looking at their SMC values, and their exclusion showed improvement to the model: Items with SMCs < 0.20 were V57 (0.002), V58 (0.003), V60 (0.004), V54 (0.043), V61 (0.070), and V55 (0.162), and also had low regression weights: V57 <--- hostility (0.044), V58 <--- hostility (0.059), V60 <--- hostility (-0.063), V54 <--- dynamism (0.209), V61 <--- heterogeneity (0.265), and V55 <--- hostility (0.403). All these items did not seem to measure their intended constructs, as indicated by their

low SMCs: Item V54 (“Our organisation must change its marketing practices frequently”) belonged to the construct dynamism; items V55 (“In our industry, actions of competitors are unpredictable”), V57 (“Declining markets for products are a major challenge in our industry”), V58 (“Tough price competition is a major challenge in our industry”), and V60 (“Our business environment causes a great deal of threat to the survival of our company”) all belonged to the construct hostility; and item V61 (“We are a highly organised conglomerate and operate in unrelated industries”) was supposed to measure heterogeneity. Item V61 may also have created a problem among respondents, although this was not observed during piloting of the measurement instrument. The parameter estimates for Model 2 are presented in Table 6-10.

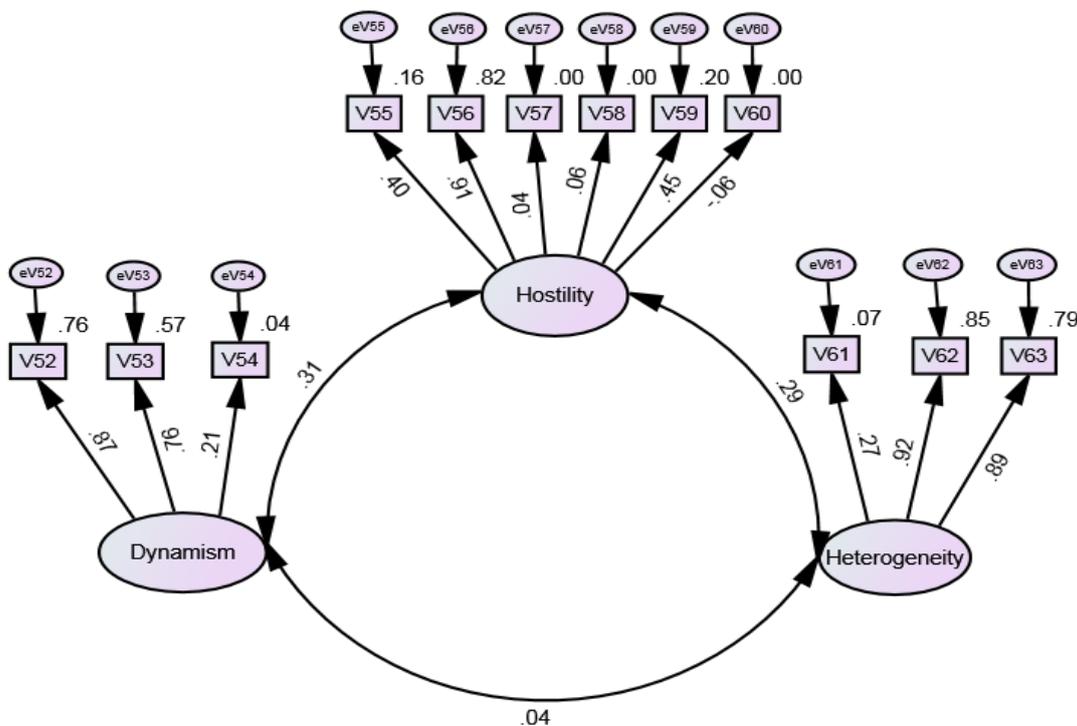


Figure 6-4: CFA model (Model 2) for external environment with error variance for V56 constrained

<p>Notes for Model (Default model) Computation of degrees of freedom (Default model) Number of distinct sample moments: 78 Number of distinct parameters to be estimated: 26 Degrees of freedom (78 - 26): 52</p>	<p>Notes for Group (Group number 1) The model is recursive. Sample size = 646</p>
<p>Result (Default model) Minimum was achieved Chi-square = 529.440 Degrees of freedom = 52 Probability level = .000</p>	

Table 6-10: Parameter estimates for CFA model (Model 2) for external environment

Regression Weights: (Group number 1 - Default model)							Standardized Regression Weights				
			Estimate	S.E.	C.R.	P	Label			Estimate	
V53	<---	Dynamism	0.858	0.101	8.483	***	Lv53	V53	<---	Dynamism	0.755
V62	<---	Heterogeneity	3.870	0.608	6.364	***	Lv62	V62	<---	Heterogeneity	0.919
V55	<---	Hostility	1.000					V55	<---	Hostility	0.403
V57	<---	Hostility	0.072	0.071	1.015	0.310	Lv57	V57	<---	Hostility	0.044
V59	<---	Hostility	1.055	0.138	7.667	***	Lv59	V59	<---	Hostility	0.451
V60	<---	Hostility	-0.112	0.077	-1.451	0.147	Lv60	V60	<---	Hostility	-0.063
V58	<---	Hostility	0.159	0.117	1.365	0.172	Lv58	V58	<---	Hostility	0.059
V56	<---	Hostility	2.179	0.219	9.969	***	Lv56	V56	<---	Hostility	0.906
V54	<---	Dynamism	0.404	0.089	4.551	***	Lv54	V54	<---	Dynamism	0.209
V52	<---	Dynamism	1.000					V52	<---	Dynamism	0.874
V63	<---	Heterogeneity	3.759	0.582	6.462	***	Lv63	V63	<---	Heterogeneity	0.886
V61	<---	Heterogeneity	1.000					V61	<---	Heterogeneity	0.265

Covariances: (Group number 1 - Default model)							Correlations				
			Estimate	S.E.	C.R.	P	Label		Estimate		
Dynamism	<-->	Heterogeneity	0.009	0.010	0.918	0.359	par_10	Dynamism	<-->	Heterogeneity	0.042
Heterogeneity	<-->	Hostility	0.049	0.012	4.178	***	par_11	Heterogeneity	<-->	Hostility	0.295
Dynamism	<-->	Hostility	0.115	0.022	5.298	***	par_12	Dynamism	<-->	Hostility	0.310

Variances (Group number 1 – Default model)						Squared Multiple Correlations	
	Estimate	S.E.	C.R.	P	Label		Estimate
Dynamism	0.479	0.064	7.532	***	par_13	V60	0.004
Heterogeneity	0.095	0.029	3.259	0.001	par_14	V59	0.204
Hostility	0.290	0.059	4.902	***	par_15	V58	0.003
eV56	0.300					V57	0.002
eV52	0.148	0.054	2.729	0.006	par_16	V56	0.821
eV53	0.265	0.042	6.279	***	par_17	V55	0.162
eV54	1.715	0.097	17.772	***	par_18	V63	0.785
eV61	1.255	0.070	17.808	***	par_19	V62	0.845
eV62	0.261	0.098	2.660	0.008	par_20	V61	0.070
eV63	0.367	0.094	3.916	***	par_21	V54	0.043
eV55	1.500	0.087	17.294	***	par_22	V53	0.570
eV57	0.774	0.043	17.952	***	par_23	V52	0.763
eV58	2.101	0.117	17.946	***	par_24		
eV59	1.264	0.074	17.081	***	par_25		
eV60	0.923	0.051	17.945	***	par_26		

However, a closer look at item V61 showed that the item might require revision as it seemed to be measuring a number of things, i.e., ‘conglomerate’, ‘highly organised conglomerate’, and ‘operate in unrelated industries’). Respondents may have looked

at the question from these different perspectives and responded accordingly, making it difficult to tell what the item was measuring.

This subscale was therefore also subjected to further investigation in order to assess its item reliability and factor dimensions using SPSS with all its 12 items. The item reliability test for the external environment measurement scale showed reliability of Cronbach's alpha = 0.51, which was below the cut-off threshold of 0.70. Furthermore, the analysis also showed that the same items had very low Corrected-Item-Total Correlations: V54 (0.020), V55 (-0.015), V57 (0.097), V58 (0.134), V60 (0.079), and V61 (0.054). Very low Corrected-Item-Total Correlations suggested that these items were measuring something else and their removal could improve the scale's reliability to $\alpha = 0.65$. All these six items with low Corrected-Item-Total Correlations were therefore excluded from further analysis. After deleting the items with low Corrected-Item-Total Correlations, the measurement scale's reliability also improved, as shown in Table 6-11, with $\alpha = 0.65$ (Mean: 15.43; SD: 4.16) although the reliability was lower than the cut-off. However, with the exception of hostility (2 items; $\alpha = 0.58$), the individual factors had reliability above the cut-off of 0.70: dynamism (2 items; $\alpha = 0.80$) and heterogeneity (2 items; $\alpha = 0.90$).

Table 6-11: Reliability for external environment measurement scale

	Cronbach's Alpha	N of Items
External Environment Scale (Overall)	0.65	6
Dynamism	0.80	2
Hostility	0.58	2
Heterogeneity	0.90	2

With the six items removed, the measurement scale was subjected to EFA using principal component analysis extraction method and oblique rotation approach (Direct Oblimin) for correlated factor solution. The EFA showed that the scale had three dimensions, as shown in Table 6-12, with items V52 and V53 loading on dynamism, V56 and V59 on hostility, and V62 and V63 on heterogeneity, as originally hypothesised. The resulting exploratory factor analysis of the revised measurement scale for external environment also showed acceptable sampling adequacy with KMO = 0.552, as well as satisfactory communalities ranging from 0.675 to 0.908 for the six items.

Table 6-12: Pattern matrix for external environment subscale

Pattern Matrix^a

	Component		
	1	2	3
V63Heterogeneity	.956		
V62Heterogeneity	.947		
V53Dynamism		.917	
V52Dynamism		.896	
V59Hostility			.916
V56Hostility			.730

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalisation.

a. Rotation converged in 4 iterations.

Once EFA was finalised, the revised hypothesised model for external environment with six items was subjected to CFA procedures. It was, however, noted that items V54, V55, V57, V58, V60, and V61 with very low Corrected-Item-Total Correlations were also identified, when the initial model was subjected to CFA procedure, as having SMCs below the cut-off of 0.2 and low regression weights, thus justifying their elimination from further analysis. Consequently, the revised CFA model (Model 3) of external environment shown in Figure 6-5 (Model 3) was evaluated and showed generally acceptable fit, with $\chi^2 = 24.135$, $df = 7$, and P -value = 0.001, although the χ^2 ratio (3.448) was below acceptable threshold ≤ 3.00 . The elimination of these items from the model did not significantly affect the other items, while the overall fit indices for the model improved, as shown in Table 6-13. Estimation process for the respecified model converged and its solution was admissible.

Once the items with low reliability were excluded from the model, the modification indices did not show any substantive or meaningful indication for respecifying the model. However, assessment of the parameter estimates presented in Table 6-14, specifically the factor covariances of the model, showed that only two of the three factor covariances were statistically significant based on their CR values. These were dynamism <--> hostility (5.842) and heterogeneity <--> hostility (6.528). The factor covariance dynamism <--> heterogeneity (1.084) was statistically nonsignificant, and there was low correlation (0.042) between the two factors.

Nonetheless, all the three factor covariances were found to be positive. The nonsignificant factor covariance between dynamism and heterogeneity was not delinked but maintained in the model taking into account the interaction among the external environment variables. In fact a model in which the nonsignificant factor covariance was delinked did not have a statistically significant Chi-squared compared to that for Model 3 with $\chi^2 = 24.135$ versus $\chi^2 = 25.282$ ($\Delta\chi^2 = 1.147$). Therefore Model 3 (see Figure 6-5) was taken as the final CFA model for external environment. The fit indices as indicated in Table 6-13 showed that the respecified and final model (Model 3) was much better with all the indices except for χ^2 ratio (3.448), which was beyond acceptable threshold of ≤ 3.00 .

Table 6-13: Fit indices of respecified CFA model for external environment

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Model 2	529.440	52	0.000	10.182	0.1018	0.750	0.119 PCLOSE (0.000)
Model 3	24.135	7	0.001	3.448	0.0291	0.987	0.062 PCLOSE (0.208)

All the parameter estimates, the unstandardised regression weights, factor covariances, and variances of exogenous variables were significant (see Table 6-14). With the exception of only one factor loading, all the standardised factor loadings were above 0.70. The standardised residual covariances were examined and they were all found to be above the cut-off value of 2.58, meaning that there was no residual value showing statistically significant discrepancy between the hypothesised model and the data.

The correlations among the three constructs were also low, ranging from 0.051 to 0.328, proving discriminant validity (Bagozzi *et al.*, 1991; Brown, 2006), while nomological validity was also established as the positive correlations among the constructs made theoretical sense (Hair *et al.*, 2010).

The Bayesian estimation was also conducted for the final CFA model for external environment and the results are presented in Appendix E. The findings showed that the Bayesian estimates for the final CFA model were no different from the ML estimates, which speaks well for the validity of the hypothesised CFA model for external environment.

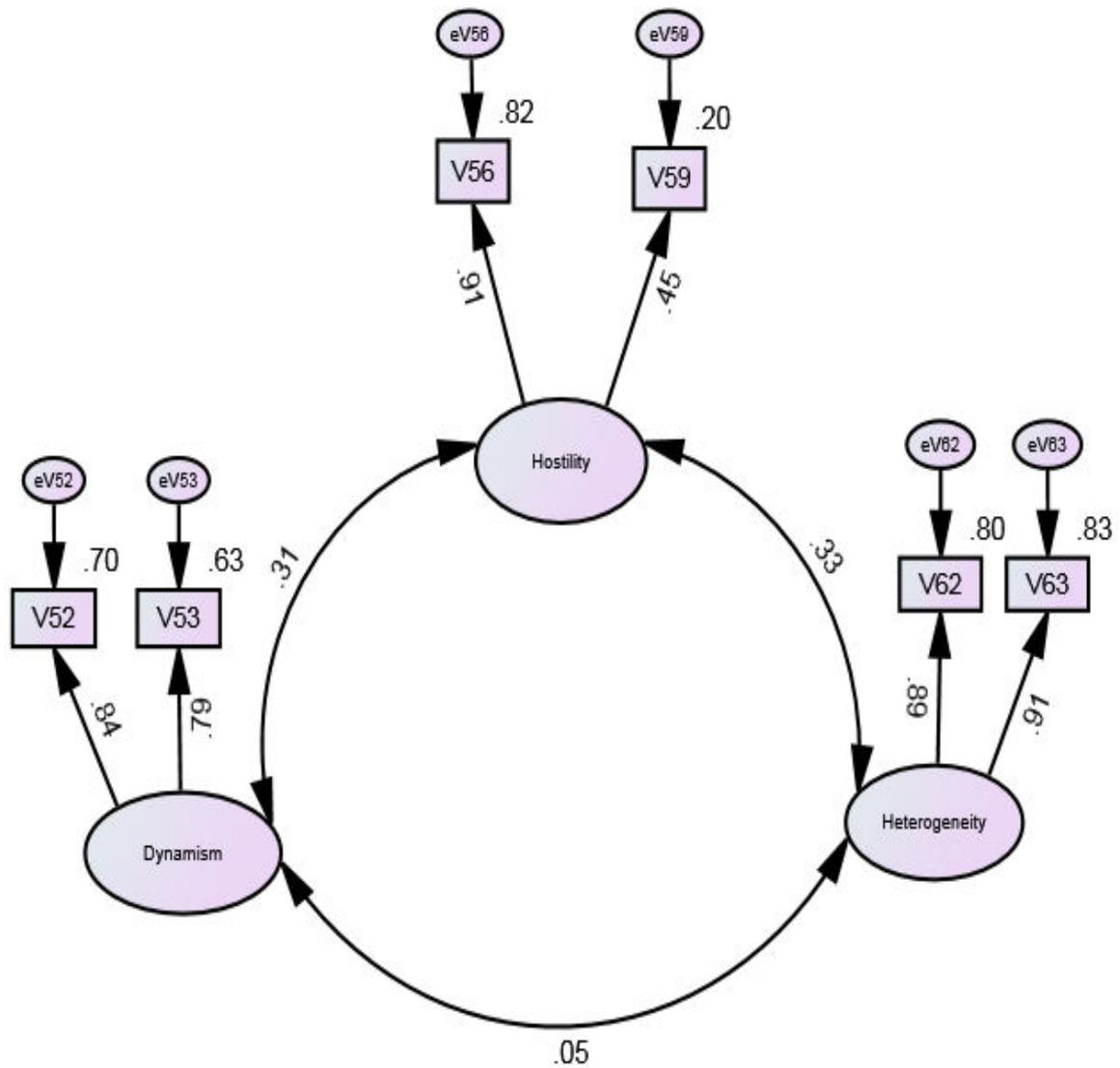


Figure 6-5: Final CFA model (Model 3) for external environment

Notes for Model (Default model)	Notes for Group (Group number 1)
<p>Computation of degrees of freedom (Default model)</p> <p>Number of distinct sample moments: 27</p> <p>Number of distinct parameters to be estimated: 20</p> <p>Degrees of freedom (27 - 20): 7</p>	<p>The model is recursive. Sample size = 646</p>
<p>Result (Default model)</p> <p>Minimum was achieved</p> <p>Chi-square = 24.135</p> <p>Degrees of freedom = 7</p> <p>Probability level = .001</p>	

Table 6-14: Parameter estimates for the final CFA model for external environment

Regression Weights: (Group number 1 - Default model)						
			Estimate	S.E.	C.R.	P
V53	<---	Dynamism	.940	.132	7.115	***
V62	<---	Heterogeneity	1.000			
V52	<---	Dynamism	1.000			
V63	<---	Heterogeneity	1.031	.092	11.261	***
V59	<---	Hostility	.483	.043	11.253	***
V56	<---	Hostility	1.000			

Covariances: (Group number 1 - Default model)						
			Estimate	S.E.	C.R.	P
Heterogeneity	<-->	Hostility	.444	.068	6.528	***
Dynamism	<-->	Hostility	.241	.041	5.842	***
Dynamism	<-->	Heterogeneity	.039	.036	1.084	.278

Standardised Regression Weights: (Group number 1 - Default model)			
			Estimate
V53	<---	Dynamism	.791
V62	<---	Heterogeneity	.892
V52	<---	Dynamism	.835
V63	<---	Heterogeneity	.913
V59	<---	Hostility	.449
V56	<---	Hostility	.906

Correlations: (Group number 1 - Default model)			
			Estimate
Heterogeneity	<-->	Hostility	.328
Dynamism	<-->	Hostility	.311
Dynamism	<-->	Heterogeneity	.051

Variances: (Group number 1 - Default model)					
	Estimate	S.E.	C.R.	P	Label
Dynamism	.437	.068	6.409	***	par_7
Heterogeneity	1.340	.146	9.148	***	par_8
Hostility	1.375	.093	14.743	***	par_9
eV56	.300				
eV52	.190	.060	3.138	.002	par_10
eV53	.232	.054	4.277	***	par_11
eV62	.344	.116	2.969	.003	par_12
eV63	.286	.122	2.334	.020	par_13
eV59	1.267	.074	17.057	***	par_14

Squared Multiple Correlations	
	Estimate
V59	.202
V56	.821
V63	.833
V62	.796
V53	.625
V52	.697

Standardised Residual Covariances (Group number 1 - Default model)						
	V59	V56	V63	V62	V53	V52
V59	.000					
V56	.007	-.001				
V63	.874	-.094	.000			
V62	1.691	-.185	.000	.000		
V53	-2.394	.330	.905	.069	.000	
V52	-.738	.029	-.675	-.074	.000	.000

6.3.3 Evaluation of hypothesised measurement model for entrepreneurial actions

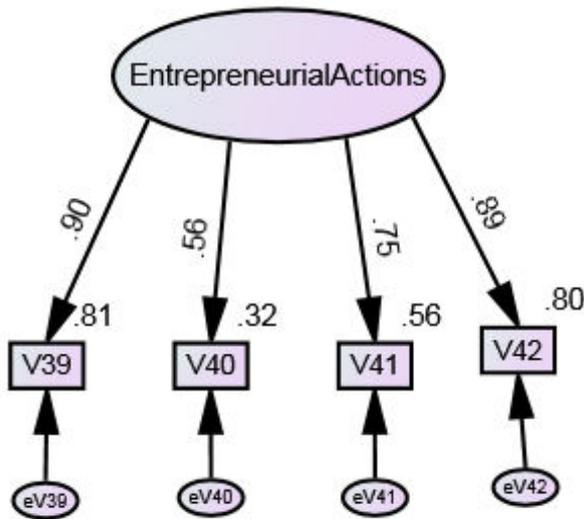
The findings showed that the CFA model (see Figure 6-6) for entrepreneurial actions fitted the data very well, as can be seen from Table 6-15 for the fit indices and Table 6-16 for parameter estimates. The estimation process for the model converged and the solution was admissible. The SMCs for the individual items ranged from 0.316 to 0.805 for all the four items, while the scale's internal consistency was also excellent, with reliability of $\alpha = 0.85$ (4 items) well above the threshold for assuming item homogeneity.

Table 6-15: Fit indices of CFA model for entrepreneurial actions

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Hypothesised Model	2.981	2	0.225	1.491	0.0088	0.999	0.028 PCLOSE (0.645)

All the parameter estimates were significant, as can be seen in Table 6-16. The standardised factor loadings for all the four items ranged from 0.562 to 0.897, suggesting convergent validity. There were also no post-hoc modifications indicated from the analysis due to the excellent fit indices, therefore the model was not respecified. No statistically significant discrepancy was indicated between the hypothesised model and the data as all the standardised residual covariances were below 2.58.

The ML parameter estimates were also confirmed to be valid through a comparison with the ones derived using the Bayesian estimation method. The results are presented in Appendix E. The findings showed that the Bayesian estimates for the final CFA model for entrepreneurial actions were no different from the ML estimates, which speaks well for the validity of the hypothesised CFA model.



Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 14
 Number of distinct parameters to be estimated: 12
 Degrees of freedom (14 - 12): 2

Result (Default model)

Minimum was achieved
 Chi-square = 2.981
 Degrees of freedom = 2
 Probability level = .225

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

Figure 6-6: CFA model for entrepreneurial actions

Table 6-16: Parameter estimates for CFA model for entrepreneurial actions

Regression Weights: (Group number 1 - Default model)						Standardized Regression Weights			
		Estimate	S.E.	C.R.	P	Label		Estimate	
V40 <---	EntrepreneurialActions	0.645	0.042	15.286	***	Lv40	V40 <---	EntrepreneurialActions	0.562
V39 <---	EntrepreneurialActions	1.000					V39 <---	EntrepreneurialActions	0.897
V41 <---	EntrepreneurialActions	0.783	0.034	22.795	***	Lv41	V41 <---	EntrepreneurialActions	0.750
V42 <---	EntrepreneurialActions	0.958	0.033	28.734	***	Lv42	V42 <---	EntrepreneurialActions	0.893

Squared Multiple Correlations		Variances					
	Estimate		Estimate	S.E.	C.R.	P	Label
V42	.797	EntrepreneurialActions	1.180	0.085	13.956	***	par_4
V39	.805	eV41	0.563	0.036	15.489	***	par_5
V40	.316	eV40	1.063	0.062	17.099	***	par_6
V41	.562	eV42	0.276	0.029	9.392	***	par_7
		eV39	0.285	0.032	9.050	***	par_8

Standardized Residual Covariances				
	V42	V39	V40	V41
V42	.000			
V39	.027	.000		
V40	.193	-.350	.000	
V41	-.164	.082	.461	.000

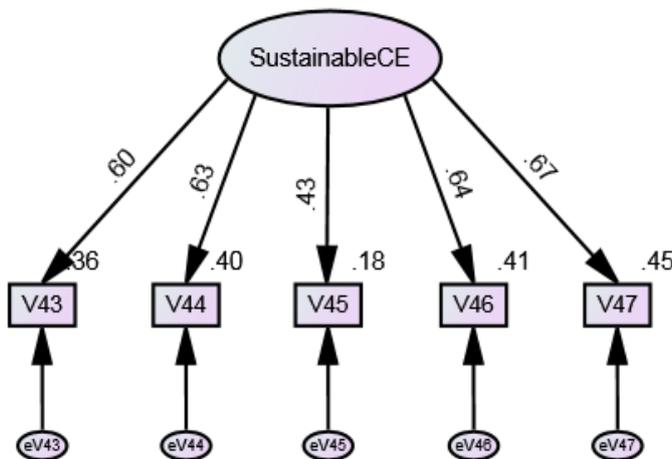
6.3.4 Evaluation of hypothesised measurement model for sustainable CE

Although the estimation process for the hypothesised model converged and the solution was admissible, the model for sustainable CE shown in Figure 6-7 had poor fit, as can be seen from fit indices in Table 6-17, and hence needed modification.

Table 6-17: Fit indices of original CFA model for sustainable CE

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Hypothesised Model	55.283	5	0.000	11.057	0.0492	0.920	0.125 PCLOSE (0.000)

An inspection of item reliability showed that the SMC for V45 (0.181) was lower than the acceptable threshold of ≥ 0.20 . However, its standardised path coefficient of 0.426 was statistically significant, showing that it was associated to sustainable CE.



Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 15
 Number of distinct parameters to be estimated: 10
 Degrees of freedom (15 - 10): 5

Result (Default model)

Minimum was achieved
 Chi-square = 55.283
 Degrees of freedom = 5
 Probability level = .000

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

Figure 6-7: Original CFA model for sustainable CE

According to Chin (1998), standardised paths should be ≥ 0.20 , ideally above 0.30, to be considered meaningful for discussion. Also further investigation of the overall reliability of the scale using Cronbach’s alpha showed that the scale sustainable CE was marginally more reliable with item V45 ($\alpha = 0.731$) than without it ($\alpha = 0.730$), as can be seen from Table 6-18. In fact, deleting item V45 did not translate into an overall improvement in the model, although some of the fit indices showed good fit ($\chi^2 = 18.395$, d.f. = 2, CMIN/DF = 9.198, SRMR = 0.0318, CFI = 0.968, and RMSEA

= 0.113 (PCLOSE = 0.010). This item was therefore not deleted due to its theoretical content in relation to the model with reliability $\alpha = 0.73$ (mean 14.31; SD 4.258). However, the MIs showed that the model could be improved. A look at the error covariances showed relatively large MIs for all of them: eV44 <--> eV45 (MI = 27.710), eV46 <--> eV43 (MI = 10.916), eV46 <--> eV44 (MI = 12.129), and eV47 <--> eV45 (MI = 9.190).

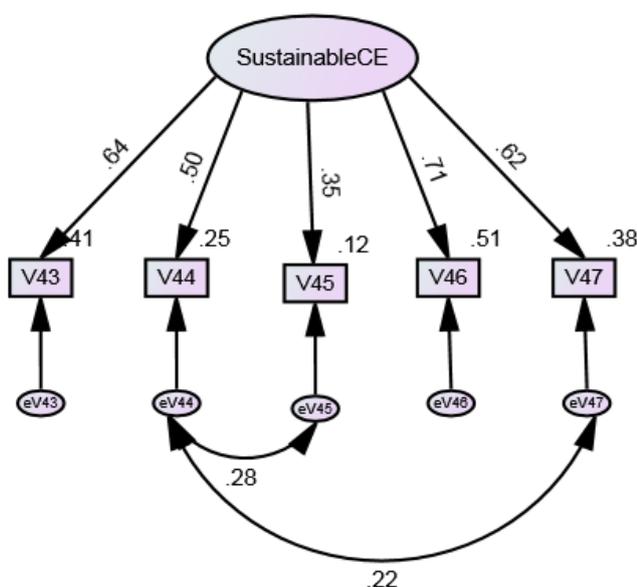
Table 6-18: Reliability statistics for sustainable CE

Reliability Statistics			Item Statistics			
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	Mean	Std. Deviation	N	
.731	.731	5	V43CEntprnshp	2.33	1.179	646
			V44CEntprnshp	3.28	1.292	646
			V45CEntprnshp	3.39	1.196	646
			V46CEntprnshp	2.37	1.178	646
			V47CEntprnshp	2.95	1.282	646
Scale Statistics						
Mean	Variance	Std. Deviation	N of Items			
14.31	18.135	4.258	5			
Inter-Item Correlation Matrix						
	V43CEntprnshp	V44CEntprnshp	V45CEntprnshp	V46CEntprnshp	V47CEntprnshp	
V43CEntprnshp	1.000	.346	.247	.456	.376	
V44CEntprnshp	.346	1.000	.399	.337	.456	
V45CEntprnshp	.247	.399	1.000	.235	.214	
V46CEntprnshp	.456	.337	.235	1.000	.452	
V47CEntprnshp	.376	.456	.214	.452	1.000	
Item-Total Statistics						
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
V43CEntprnshp	11.98	12.589	.497	.271	.684	
V44CEntprnshp	11.03	11.642	.547	.325	.663	
V45CEntprnshp	10.93	13.455	.370	.177	.730	
V46CEntprnshp	11.95	12.422	.520	.311	.675	
V47CEntprnshp	11.36	11.818	.530	.323	.670	

The error covariance between items V44 (“Our organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities”) and V45 (“Our organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes”) was considered meaningful. Altering internal processes, structures, and/or capabilities may to some extent be part of an organisation’s initiatives to alter how it competes.

Thus on the basis of theoretical backing these two items were correlated (Byrne, 2010:91; Hooper *et al.*, 2008:56) and, compared with Model 1, the model (Model 2) showed some improvement with $\chi^2 = 22.820$, $df = 4$, p -value = 0.000, (CMIN/DF = 5.705, SRMR = 0.0281, CFI = 0.979, RMSEA = 0.125 (PCLOSE = 0.000) although the fit was still poor.

However, the MIs showed that once $eV44 \leftrightarrow eV45$ was included in the model, the rest of the error covariances with high MI values were no longer prominent except for $eV44 \leftrightarrow eV47$ (MI = 11.417). The link between items V44 ("Our organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market") and V47 ("Our organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market") was also considered meaningful. Again, strategies to improve an organisation's operational efficiencies may actually be blended with improvements in internal processes, structures, and/or capabilities. Therefore the error terms for these two items were also linked in a step-by-step approach after effecting the link between the error terms for items V44 and V45. The respecified model (Model 3), as indicated in Figure 6-8, showed excellent fit between the model and the sample data (see Table 6-19).



Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	20
Number of distinct parameters to be estimated:	17
Degrees of freedom (20 - 17):	3

Result (Default model)

Minimum was achieved
 Chi-square = 3.618
 Degrees of freedom = 3
 Probability level = .306

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

Figure 6-8: Final CFA model for sustainable CE

Table 6-19: Fit indices of CFA model for sustainable CE

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Model 1	55.283	5	0.000	11.057	0.0492	0.920	0.125 PCLOSE (0.000)
Model 2	22.820	4	0.000	5.705	0.0281	0.970	0.125 PCLOSE (0.000)
Model 3	3.618	3	0.306	1.206	0.0123	0.999	0.018 PCLOSE (0.790)

The MIs showed that there were no further indications for respecifying the model and so Model 3 was considered the best and final CFA model for sustainable CE. The estimation process for both Models 2 and 3 converged and the solutions were admissible. Parameter estimates for the final model were all statistically significant, while all the standardised residual covariances showed no sign of significant discrepancy between the hypothesised model and the data as shown in Table 6-20.

Except for item V45 with factor loading = 0.351, the rest of the items had their standardised factor loadings ranging from 0.500–0.712. The ML parameter estimates for the final CFA model for sustainable CE were also confirmed to be valid through a comparison with the ones derived using the Bayesian estimation method. The results are presented in Appendix E. The findings showed that the Bayesian estimates for the final CFA model for sustainable CE were no different from the ML estimates, thus validating the hypothesised CFA model.

Table 6-20: Parameter estimates for respecified CFA model for sustainable CE

Regression Weights: (Group number 1 - Default model)							Standardised Regression Weights: (Group number 1 - Default model)				
			Estimate	S.E.	C.R.	P	Label			Estimate	
V47	<---	SustainableCE	1.044	.098	10.702	***	Lv47	V47	<---	SustainableCE	.615
V46	<---	SustainableCE	1.111	.100	11.132	***	Lv46	V46	<---	SustainableCE	.712
V44	<---	SustainableCE	.855	.094	9.117	***	Lv44	V44	<---	SustainableCE	.500
V43	<---	SustainableCE	1.000					V43	<---	SustainableCE	.641
V45	<---	SustainableCE	.556	.079	7.050	***	par_4	V45	<---	SustainableCE	.351
Covariances							Correlations				
			Estimate	S.E.	C.R.	P	Label			Estimate	
eV47	<-->	eV44	.247	.057	4.296	***	par_5	eV47	<-->	eV44	.218
eV44	<-->	eV45	.345	.055	6.317	***	par_6	eV44	<-->	eV45	.276

Table 6-20 (continued)

Variances						Squared Multiple Correlations	
	Estimate	S.E.	C.R.	P	Label		Estimate
SustainableCE	.570	.077	7.359	***	par_7	V45	.123
eV47	1.020	.078	13.148	***	par_8	V43	.411
eV46	.683	.067	10.161	***	par_9	V44	.250
eV44	1.249	.082	15.178	***	par_10	V46	.507
eV43	.818	.065	12.661	***	par_11	V47	.378
eV45	1.253	.074	16.921	***	par_12		

Standardised Residual Covariances					
	V45	V43	V44	V46	V47
V45	.000				
V43	.551	.000			
V44	-.012	.621	-.005		
V46	-.375	-.013	-.449	.000	
V47	-.055	-.426	-.013	.329	.000

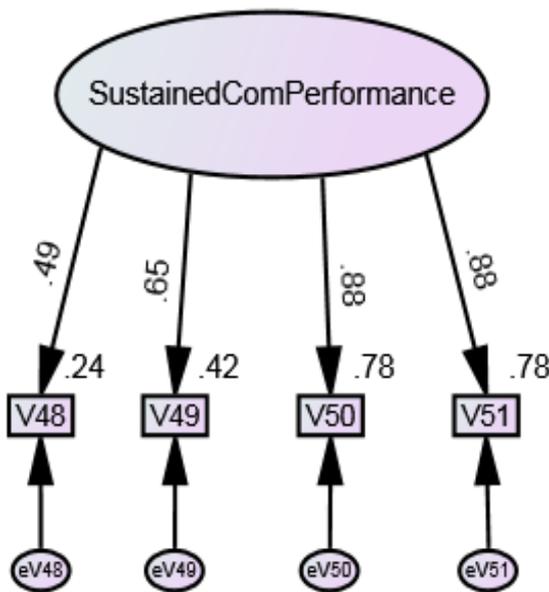
6.3.5 Evaluation of hypothesised measurement model for sustained company performance

The CFA model for sustained company performance shown in Figure 6-9 fitted the data very well, as can be seen from Table 6-21 for the fit indices and Table 6-22 for parameter estimates. The estimation process for the model converged and the solution was admissible. This model was not respecified as there were no post-hoc modifications indicated from the analysis due to the excellent fit indices. The measurement validity and reliability were also confirmed.

The SMCs for the individual items were all acceptable, ranging from 0.238 to 0.782 for all the four items. The scale's internal consistency was also good, with reliability of $\alpha = 0.81$ (mean 11.81; SD 4.020), which was above the threshold for assuming item homogeneity.

Table 6-21: Fit indices of final CFA model for sustained company performance

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Hypothesised Model	3.751	2	0.153	1.875	0.0103	0.998	0.037 PCLOSE (0.557)



Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 14
 Number of distinct parameters to be estimated: 12
 Degrees of freedom (14 - 12): 2

Result (Default model)

Minimum was achieved
 Chi-square = 3.751
 Degrees of freedom = 2
 Probability level = .153

Notes for Group (Group number 1)

The model is recursive.
 Sample size = 646

Figure 6-9: CFA model for sustained company performance

All the parameter estimates for the hypothesised model were positive as expected, and significant, with the standardised regression weights ranging from 0.488 to 0.885 (only item V48 (0.488) had its estimate lower than 0.50). The standardised residual covariances showed no sign of significant discrepancy between the hypothesised model and the data, as shown in Table 6-22.

The final CFA model for sustained company performance was also subjected to Bayesian estimation to compare the parameter estimates with those derived using ML estimation. The results are presented in Appendix E. The findings showed that the Bayesian estimates for the final CFA model for sustained company performance were similar to those derived using ML estimation, which speaks well for the validity of the hypothesised CFA model.

Table 6-22: Parameter estimates for CFA model for sustained company performance

Regression Weights: (Group number 1 - Default model)						
		Estimate	S.E.	C.R.	P	Label
V48	<--- SustainedComPerformance	1.000				
V49	<--- SustainedComPerformance	1.492	.134	11.138	***	Lv49
V50	<--- SustainedComPerformance	2.015	.161	12.545	***	Lv50
V51	<--- SustainedComPerformance	2.039	.163	12.542	***	Lv51

Standardised Regression Weights		Estimate
V48	<--- SustainedComPerformance	.488
V49	<--- SustainedComPerformance	.651
V50	<--- SustainedComPerformance	.885
V51	<--- SustainedComPerformance	.882

Squared Multiple Correlations		Estimate
V51		.778
V48		.238
V49		.423
V50		.782

Variances					
	Estimate	S.E.	C.R.	P	Label
SustainedComPerformance	.314	.050	6.248	***	par_4
eV50	.355	.044	8.040	***	par_5
eV49	.953	.059	16.277	***	par_6
eV48	1.008	.058	17.260	***	par_7
eV51	.374	.045	8.218	***	par_8

Standardised Residual Covariances				
	V51	V48	V49	V50
V51	.000			
V48	-.370	.000		
V49	.251	-.357	.000	
V50	-.013	.456	-.193	.000

6.4 The composite SEM model for sustainable CE

With all the measurement models validated through CFA, the next step was to fit the structural model, the full SEM model, using path analysis. Since CFA cannot examine the nature of relationships between constructs beyond simple correlations, a measurement theory (a series of relationships that suggest how measured variables represent a latent variable) is therefore needed to examine these relationships (Hair *et al.*, 2010). The need for a measurement theory in order to examine the nature of relationships between constructs beyond simple correlations links CFA with SEM. While CFA essentially deals with the measurement model issues (prespecified relationships between the measurement items and underlying factors), SEM is basically an extension of CFA and deals with relationships among several constructs on the basis of their *a priori* stated measurement structure (Yang, 2003:157). Therefore, the research proceeded to evaluate the composite SEM model for SCE.

The final full scale for predicting sustainable CE and sustained company performance had 43 items with overall reliability of $\alpha = 0.82$ (mean 113.27; SD 17.107), which was highly acceptable. The reliability scores for each subscale as well as the overall

measurement scale are presented in Table 6-23 and the scores clearly confirm that all the subscales were reliable.

Table 6-23: Measurement scale reliability scores

Scale	Cronbach's Alpha	N of Items
CE Climate Scale (Overall)	0.80	24
<i>MS for internal CE</i>	<i>0.82</i>	<i>3</i>
<i>MS for external CE</i>	<i>0.70</i>	<i>5</i>
<i>Work discretion</i>	<i>0.66</i>	<i>3</i>
<i>Rewards/reinforcement</i>	<i>0.76</i>	<i>5</i>
<i>Time availability</i>	<i>0.93</i>	<i>5</i>
<i>Organisational boundaries</i>	<i>0.94</i>	<i>3</i>
External environment	0.65	6
Dynamism	0.80	2
Hostility	0.58	2
Heterogeneity	0.90	2
Entrepreneurial actions	0.85	4
Corporate entrepreneurship	0.73	5
Sustained company performance	0.81	4
Overall measurement scale	0.82	43

6.4.1 Sectoral reliability of overall measurement scale

The overall measurement scale with 43 items was also assessed for sectoral reliability using Cronbach's Alpha to see if the full scale for measuring sustainable CE and sustained company performance applied to all the participating sectors. The results are shown in Table 6-24.

The results showed that except for mining sector ($\alpha = 0.49$), all the participating sectors had reliability above the cut-off of 0.70, with energy sector (0.90) being the highest, followed by manufacturing (0.87), service (0.82), agriculture (0.79), banking/financial (0.78), communication (0.77), and tourism/hospitality (0.77). However, looking at the number of participants per sector, it is clear some of the sectors had very low participation, which could have affected the reliability.

Table 6-24: Sectoral reliability of the overall measurement scale

Reliability Statistics				
Sector	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
Agriculture/Agro industry	.794	.792	42	
Banking/Financial	.780	.753	42	
Tourism/hospitality	.767	.747	42	
Communication	.769	.751	42	
Energy	.896	.869	42	
Manufacturing	.871	.857	42	
Mining	.491	.526	42	
Service	.821	.812	42	

Scale Statistics				
Sector	Mean	Variance	Std. Deviation	N of Items
Agriculture/Agro industry	111.61	216.962	14.730	42
Banking/Financial	108.25	203.284	14.258	42
Tourism/hospitality	114.92	207.285	14.397	42
Communication	136.22	193.892	13.925	42
Energy	104.14	533.055	23.088	42
Manufacturing	111.58	368.022	19.184	42
Mining	121.13	62.410	7.900	42
Service	108.15	243.996	15.620	42

Sector	N	Valid	Missing	N of cases
Agriculture/ Agro industry	N	Valid		76
		Missing		0
Banking/ Financial	N	Valid		180
		Missing		0
Tourism/ hospitality	N	Valid		49
		Missing		0
Communication	N	Valid		36
		Missing		0
Energy	N	Valid		14
		Missing		0
Manufacturing	N	Valid		126
		Missing		0
Mining	N	Valid		15
		Missing		0
Service	N	Valid		150
		Missing		0
				646

6.4.2 Model fit and respecification

With the exception of CFI (0.895), the fit indices for the initial composite SEM model for sustainable CE fitted the data well with $\chi^2 = 2309.446$, $df = 828$, $p\text{-value} = 0.000$, $CMIN/DF = 2.789$, $SRMR = 0.0649$, and $RMSEA = 0.053$ ($PCLOSE = 0.012$). The CFI (0.894) was slightly lower than the recent cut-off criterion of $CFI \geq 0.95$ (Hooper *et al.*, 2008). However, the estimation process for the SEM model converged and the solution was admissible. The measurement model for external environment was considered the weaker part of the full SEM model as it had relatively low overall reliability ($\alpha = 0.65$) compared with the other measurement models in the full composite structural model. The structural model was recursive, implying it was a straightforward model with uncorrelated disturbances, and all causal effects were unidirectional (Kline, 2011:106).

The postulated composite SEM model did not have any covariances specified among the exogenous variables for external environment (dynamism, hostility, and heterogeneity) and those for the internal environment (MS for internal CE, MS for external CE, work discretion, rewards/reinforcement, time availability, and organizational boundaries). Theoretically there should be no significant relationship between the two sets of exogenous variables, and this was confirmed by assessing covariance between the internal and external environment exogenous variables. The findings presented in Table 6-25 showed that the covariances were all below or equal to 0.099, thus confirming the conceptual model of no significant relationship between these two environments.

Table 6-25: Covariances among exogenous variables in the external environment and internal organisational environment

		MS_External	MS_Internal	Workdiscretion	Reward/ Reinforcement	Time Availability	Org Boundaries
Hostility	Pearson Correlation	-0.038	0.083 [*]	-0.020	0.021	0.044	0.020
	Sig. (2-tailed)	0.330	0.035	0.609	0.591	0.263	0.604
	Sum of Squares and Cross-products	-6.207	33.721	-7.448	7.230	17.526	9.617
	Covariance	-0.010	0.052	-0.012	0.011	0.027	0.015
	N	646	646	646	646	646	646
Heterogeneity	Pearson Correlation	-0.032	0.093 [*]	-0.028	0.037	-0.008	-0.062
	Sig. (2-tailed)	0.415	0.019	0.478	0.344	0.831	0.113
	Sum of Squares and Cross-products	-8.797	63.775	-17.499	21.537	-5.646	-49.784
	Covariance	-0.014	0.099	-0.027	0.033	-0.009	-0.077
	N	646	646	646	646	646	646
Dynamism	Pearson Correlation	-0.099 [*]	-0.086 [*]	0.073	0.079 [*]	0.102 ^{**}	0.058
	Sig. (2-tailed)	0.012	0.030	0.064	0.044	0.009	0.142
	Sum of Squares and Cross-products	-19.229	-41.989	32.450	32.593	48.931	32.789
	Covariance	-0.030	-0.065	0.050	0.051	0.076	0.051
	N	646	646	646	646	646	646

An assessment of the parameter estimates, specifically the structural paths of the model, showed that all but three of these structural paths (see Table 6-26) were statistically significant as indicated by their critical values.

The following were the nonsignificant structural paths and their critical ratio values < 1.96:

EntrepreneurialActions	<---	Workdiscretion	(0.371)
EntrepreneurialActions	<---	RewardReinforcement	(1.554)
EntrepreneurialActions	<---	OrgBoundaries	(0.821)

Further the following three structural paths were shown to be negative and were all statistically significant:

EntrepreneurialActions	<---	TimeAvailability	(-1.956)
EntrepreneurialActions	<---	MS_External	(-2.346)
SustainableCE	<---	Hostility	(-5.042)

There were several MI indications for adjusting the model but most of them were meaningless from a theoretical viewpoint and so were not incorporated. For instance, MIs indicated the following three factor covariances to be specified: MS_External <--> Hostility (MI = 9.950), TimeAvailability <--> Hostility (MI = 14.337), and MS_Internal <--> Heterogeneity (MI = 5.256). These were not added as they were not theoretically substantive. There was also an MI indication for specifying the error covariance eV43 <--> eV49 (MI = 265.166). However, this was not done as items V43 and V49 belonged to two different concepts. Item V43 (“Our organisation regularly and continuously introduces new products and services or enters new markets”) belonged to sustainable CE, while item V49 (“Our organisation's percentage of sales generated by new products/services last year grew relative to major competitors”) belonged to sustained company performance.

Since it is expected that the introduction of new products or services should lead to an increase in sales generated from new products or services, the items showed strong correlation. However it was not considered theoretically appropriate to introduce these correlations in the model as the items belonged to two different constructs and were therefore not measuring the same thing. Therefore, although the items statistically correlated, these error terms were not specified in the model. It was also considered that there was no indication for discriminant problem, as the items did not seem to have strong cross-loadings.

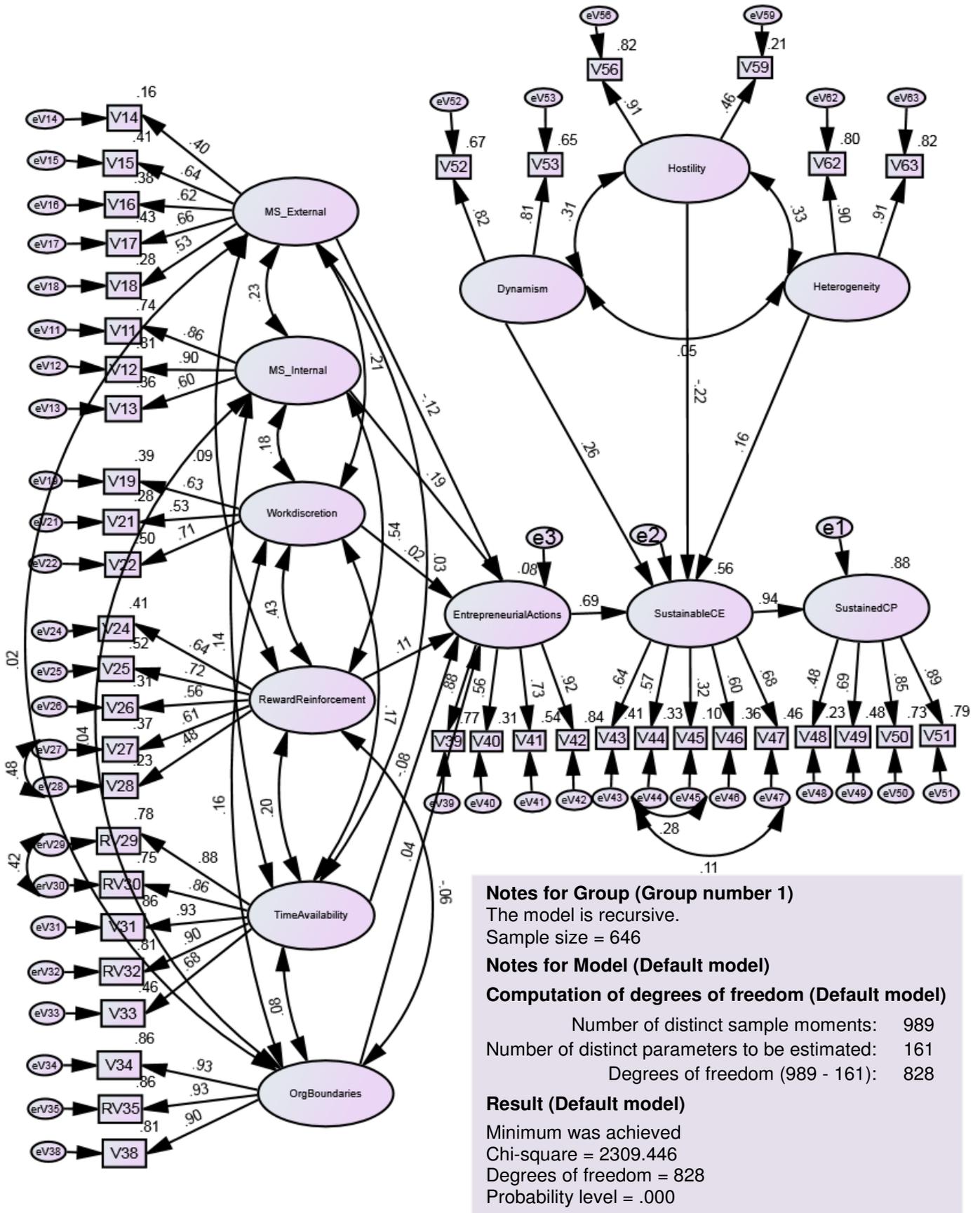


Figure 6-10: The full composite SEM model for sustainable CE

Nonetheless, a close inspection of the MIs relating to the structural parameters, specifically the regression weights or structural paths, showed that the model could be improved. There were nine new structural paths that were not originally hypothesised but were statistically significant and the direction of their paths was of a predictive nature on the respective endogenous variables, as shown in Table 6-27. The modification indices also showed that all the three environmental factors (dynamism, hostility, and heterogeneity) had statistically significant influential links with entrepreneurial actions, and not just sustainable CE. However, contrary to the hypothesised positive link, the path from hostility to sustainable CE was negative.

As *a priori* stated, although not part of the study's hypothesised relationships, it was expected that the effect of environmental factors could actually filter down to the internal entrepreneurial process and actions that result from the behaviour of the entrepreneurial team, while the resultant impact could be negative or positive depending on the preparedness of the affected organisation. Therefore, the structural paths to entrepreneurial actions from dynamism, hostility, and heterogeneity were established as they were in line with the entrepreneurship theory in relation to the effects of external environment on an organisation (Antoncic & Hisrich 2001; Li & Liu, 2014; Zahra, 1991).

All these nine links were therefore considered substantive and were to be added to the model one at a time, with the underlying structure respecification focusing on the path associated with the largest MI. It should however be emphasised that the additional structural paths were not added based on chance but rather on theory which guided the process. Therefore although these structural paths were initially excluded from the hypothesised relationships as they were not considered to be strong links, the links were in fact indicated in Chapter 3 dealing with literature review for the study. Following this outcome, a post-hoc modelling process was undertaken based on theory, taking into account substantive indications from MIs, specifically the structural path parameter estimates. In this case the structural path from dynamism to entrepreneurial actions with largest MI (MI = 26.402) was the first one to be added and the model respecified (Model 2). The fit indices for Model 2 showed some slight improvement in the model with $\chi^2 = 2280.988$, $df = 827$, $p\text{-value} = 0.000$, $CMIN/DF = 2.758 = SRMR = 0.0622$, $CFI = 0.896$, and $RMSEA = 0.052$ ($PCLOSE = 0.076$).

Table 6-26: Selected parameter estimates for the full SEM Model (Model 1)

Regression Weights			Estimate	S.E.	C.R.	P	Label
EntrepreneurialActions	<---	MS_External	-.351	.150	-2.346	.019	par_46
EntrepreneurialActions	<---	OrgBoundaries	.032	.039	.821	.411	H1.5
EntrepreneurialActions	<---	TimeAvailability	-.087	.045	-1.956	.050	H1.4
EntrepreneurialActions	<---	RewardReinforcement	.166	.107	1.554	.120	H1.3
EntrepreneurialActions	<---	Workdiscretion	.032	.085	.371	.711	H1.2
EntrepreneurialActions	<---	MS_Internal	.186	.056	3.295	***	H1.1
SustainableCE	<---	EntrepreneurialActions	.492	.036	13.571	***	H2.1-H2.2
SustainableCE	<---	Hostility	-.141	.028	-5.042	***	H3.2
SustainableCE	<---	Heterogeneity	.104	.025	4.184	***	H3.3
SustainableCE	<---	Dynamism	.297	.052	5.660	***	H3.1
SustainedCP	<---	SustainableCE	1.356	.085	15.965	***	H4

Standardised Regression Weights			Estimate
EntrepreneurialActions	<---	MS_External	-.121
EntrepreneurialActions	<---	OrgBoundaries	.035
EntrepreneurialActions	<---	TimeAvailability	-.084
EntrepreneurialActions	<---	RewardReinforcement	.111
EntrepreneurialActions	<---	Workdiscretion	.023
EntrepreneurialActions	<---	MS_Internal	.192
SustainableCE	<---	EntrepreneurialActions	.692
SustainableCE	<---	Hostility	-.218
SustainableCE	<---	Heterogeneity	.161
SustainableCE	<---	Dynamism	.255
SustainedCP	<---	SustainableCE	.939

Covariances for the Full SEM Model for Sustainable CE			Estimate	S.E.	C.R.	P	Label
MS_Internal	<-->	OrgBoundaries	-.052	.056	-.932	.351	par_44
OrgBoundaries	<-->	Workdiscretion	.153	.047	3.225	.001	par_45
Hostility	<-->	Heterogeneity	.447	.067	6.658	***	par_47
Hostility	<-->	Dynamism	.236	.040	5.915	***	par_48
Heterogeneity	<-->	Dynamism	.040	.035	1.131	.258	par_49
Workdiscretion	<-->	MS_External	.059	.017	3.411	***	par_50
MS_Internal	<-->	TimeAvailability	.160	.049	3.268	.001	par_51
RewardReinforcement	<-->	MS_External	.022	.014	1.568	.117	par_52
RewardReinforcement	<-->	Workdiscretion	.240	.038	6.381	***	par_53
TimeAvailability	<-->	OrgBoundaries	.101	.051	1.999	.046	par_54
MS_Internal	<-->	RewardReinforcement	.418	.049	8.516	***	par_55
TimeAvailability	<-->	RewardReinforcement	.143	.036	3.937	***	par_56
TimeAvailability	<-->	Workdiscretion	.140	.041	3.424	***	par_57
TimeAvailability	<-->	MS_External	.011	.018	.637	.524	par_58
OrgBoundaries	<-->	RewardReinforcement	-.051	.040	-1.287	.198	par_61
MS_Internal	<-->	MS_External	.093	.020	4.547	***	par_62
MS_Internal	<-->	Workdiscretion	.160	.046	3.509	***	par_63
OrgBoundaries	<-->	MS_External	.010	.021	.505	.613	par_64
eV44	<-->	eV47	.112	.043	2.619	.009	par_42
eV44	<-->	eV45	.336	.051	6.582	***	par_43
erV30	<-->	erV29	.127	.018	6.977	***	par_59
eV28	<-->	eV27	.459	.050	9.101	***	par_60

The next path with largest MI was from MS for internal CE to sustainable CE (MI = 19.632) and the respecified model (Model 3) looked better. The rest were linked as follows: time availability and sustainable CE (Model 4), Heterogeneity and entrepreneurial actions (Model 5), hostility and entrepreneurial actions (Model 6), organisational boundaries and sustainable CE (Model 7), and MS for external CE and sustained company performance (Model 8). The structural link flowing from rewards/reinforcement to sustainable CE and the one from time availability to sustained company performance were not included in the model as they resolved once the other links were established. For all the respecified SEM models, the fit indices are presented in Table 6-28.

Table 6-27: Selected AMOS output for SEM Model 1: Modification indices

			M.I.	Par Change
EntrepreneurialActions	<---	Dynamism	26.402	.374
EntrepreneurialActions	<---	Heterogeneity	6.461	-.097
EntrepreneurialActions	<---	Hostility	22.985	.190
SustainableCE	<---	RewardReinforcement	10.660	.127
SustainableCE	<---	OrgBoundaries	7.106	-.056
SustainableCE	<---	TimeAvailability	9.243	-.074
SustainableCE	<---	MS_Internal	19.246	.103
SustainedCP	<---	MS_External	8.167	.262
SustainedCP	<---	TimeAvailability	6.253	-.072

Table 6-28: Fit indices of the composite SEM model for sustainable CE

Model	χ^2	d.f	P	CMIN/DF	SRMR	CFI	RMSEA
Model 1	2244.040	787	0.000	2.851	0.0657	0.895	0.054 PCLOSE (0.012)
Model 2	2280.988	827	0.000	2.758	0.0622	0.896	0.052 PCLOSE (0.076)
Model 3	2259.266	826	0.000	2.735	0.0605	0.897	0.052 PCLOSE (0.114)
Model 4	2243.065	825	0.000	2.719	0.0583	0.898	0.052 PCLOSE (0.147)
Model 5	2232.728	824	0.000	2.710	0.0573	0.899	0.051 PCLOSE (0.169)
Model 6	2210.414	823	0.000	2.686	0.0575	0.900	0.051 PCLOSE (0.233)
Model 7	2205.576	822	0.000	2.683	0.0573	0.901	0.051 PCLOSE (0.241)
Model 8	2200.978	821	0.000	2.681	0.0574	0.901	0.051 PCLOSE (0.248)

Once the new but substantive parameters to the model were added, an inspection of the model was conducted to see if there were any redundant structural paths among the originally hypothesised ones. This was done through an inspection of their respective parameter estimates which showed that all but four of these structural paths were statistically significant as indicated by their critical values (see Table 6-29 for details). The following were the nonsignificant structural paths and their critical ratio values < 1.96 :

EntrepreneurialActions <---	Workdiscretion	(0.414)
EntrepreneurialActions <---	RewardReinforcement	(1.433)
EntrepreneurialActions <---	OrgBoundaries	(0.801)

For the purposes of parsimony, such structural paths are to be deleted from the model (Byrne, 2010). However, all these structural paths were considered to be of theoretically substantive interest and were therefore not removed from the model (Schumacker & Lomax, 2010). In fact, deleting these paths showed that the model without these structural paths, albeit some slight improvement in parsimony (Model 8: PCFI = 0.819 and ECVI = 3.933 versus Model 9: PCFI = 0.822 and ECVI = 3.931), did not have a better fit with $\chi^2 = 2205.706$, $df = 824$, $CMIN/DF = 2.677$, $SRMR = 0.0586$, $CFI = 0.901$, and $RMSEA = 0.051$ in comparison to Model 8 with $\chi^2 = 2200.978$, $df = 821$, $CMIN/DF = 2.681$, $SRMR = 0.0573$, $CFI = 0.901$, and $RMSEA = 0.051$. The final model shown in Figure 6-11 was therefore estimated with the statistically nonsignificant structural paths included. The model respecification was conducted on the basis of theory as opposed to sample specific variations driven by MIs. Only those respecifications deemed substantive and meaningful were considered. The final SEM model can be said to be far from being fully saturated, especially as only four correlations between error terms were permitted for such a complex model with 43 indicator items. The final SEM model also proved to have acceptable construct validity: The model's discriminant validity was confirmed by its relatively low correlations among the constructs, ranging from -0.062 to 0.539 (Bagozzi *et al.*, 1991; Brown, 2006), while its nomological validity was established as the correlations among the constructs made theoretical sense (Hair *et al.*, 2010:710). Construct convergent validity was confirmed by the model's high and significant factor loading values and standardised path values ≥ 0.20 (Chin, 1998) as shown in Table 6-29.

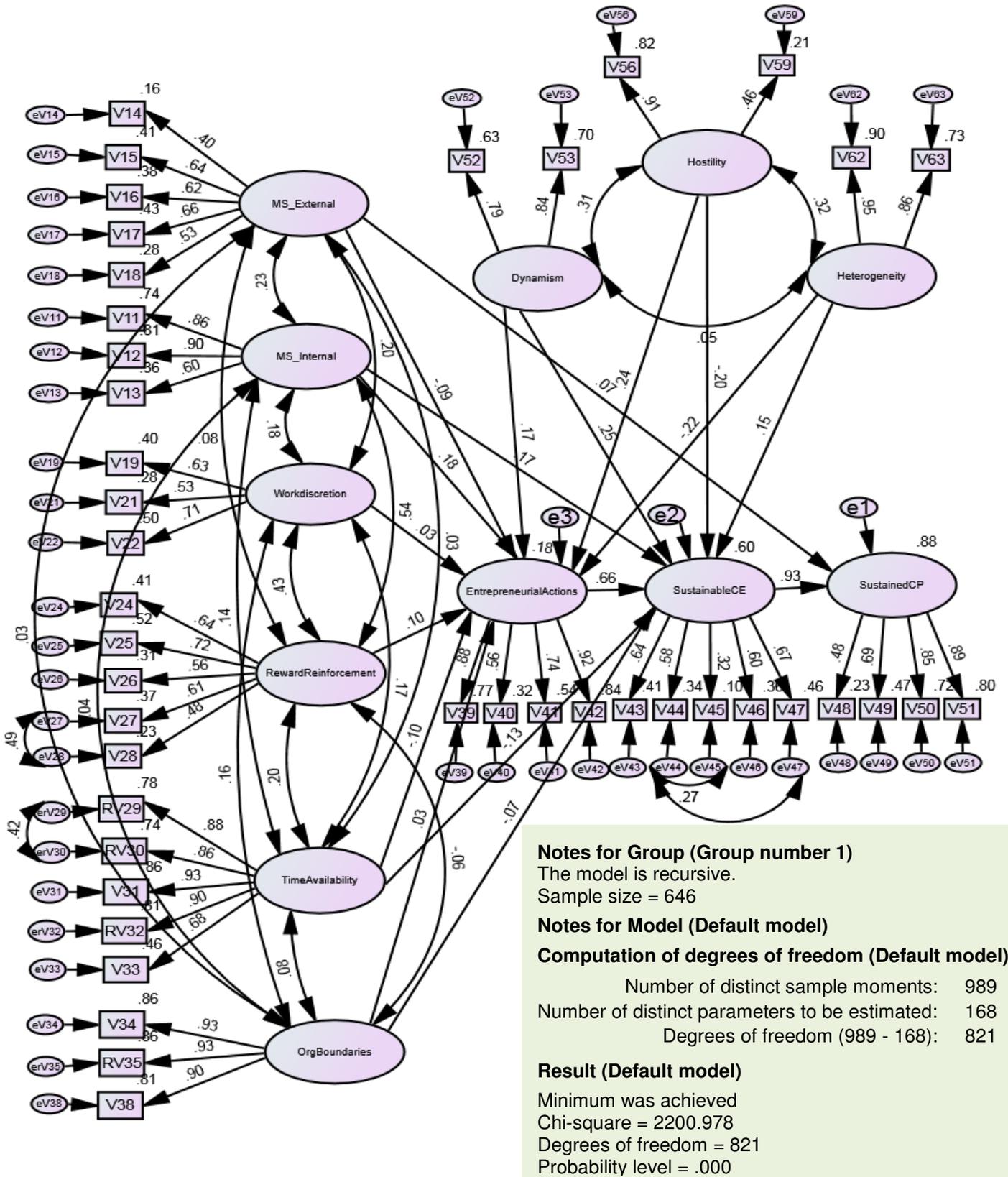


Figure 6-11: Final composite SEM model for Sustainable CE

Table 6-29: Selected AMOS Output for final SEM model (Model 8)

Structural paths (regression weights)			Estimate	S.E.	C.R.	P	Label
EntrepreneurialActions	<---	MS_External	-.272	.144	-1.892	.059	par_47
EntrepreneurialActions	<---	Dynamism	.286	.082	3.485	***	par_52
EntrepreneurialActions	<---	Heterogeneity	-.186	.038	-4.942	***	par_57
EntrepreneurialActions	<---	Hostility	.213	.045	4.754	***	par_58
EntrepreneurialActions	<---	OrgBoundaries	.030	.037	.801	.423	H1.5
EntrepreneurialActions	<---	TimeAvailability	-.102	.043	-2.367	.018	H1.4
EntrepreneurialActions	<---	RewardReinforcement	.147	.103	1.433	.152	H1.3
EntrepreneurialActions	<---	Workdiscretion	.034	.082	.414	.679	H1.2
EntrepreneurialActions	<---	MS_Internal	.170	.054	3.135	.002	H1.1
SustainableCE	<---	EntrepreneurialActions	.467	.036	12.929	***	H2.1-H2.2
SustainableCE	<---	Hostility	-.129	.028	-4.657	***	H3.2
SustainableCE	<---	MS_Internal	.115	.025	4.568	***	par_44
SustainableCE	<---	Heterogeneity	.092	.023	3.924	***	H3.3
SustainableCE	<---	Dynamism	.294	.051	5.771	***	H3.1
SustainableCE	<---	TimeAvailability	-.093	.025	-3.693	***	par_59
SustainableCE	<---	OrgBoundaries	-.046	.021	-2.223	.026	par_63
SustainedCP	<---	SustainableCE	1.351	.084	16.072	***	H4
SustainedCP	<---	MS_External	.200	.094	2.134	.033	par_51

Standardised regression weights			Estimate
EntrepreneurialActions	<---	MS_External	-0.093
EntrepreneurialActions	<---	Dynamism	0.169
EntrepreneurialActions	<---	Heterogeneity	-0.216
EntrepreneurialActions	<---	Hostility	0.235
EntrepreneurialActions	<---	OrgBoundaries	0.033
EntrepreneurialActions	<---	TimeAvailability	-0.098
EntrepreneurialActions	<---	RewardReinforcement	0.098
EntrepreneurialActions	<---	Workdiscretion	0.025
EntrepreneurialActions	<---	MS_Internal	0.176
SustainableCE	<---	EntrepreneurialActions	0.661
SustainableCE	<---	Hostility	-0.201
SustainableCE	<---	MS_Internal	0.168
SustainableCE	<---	Heterogeneity	0.151
SustainableCE	<---	Dynamism	0.246
SustainableCE	<---	TimeAvailability	-0.126
SustainableCE	<---	OrgBoundaries	-0.073
SustainedCP	<---	SustainableCE	0.934
SustainedCP	<---	MS_External	0.067

Table 6-29 (continued)
Factor covariances

			Estimate	S.E.	C.R.	P	Label
MS_Internal	<-->	OrgBoundaries	-.052	.056	-.933	.351	par_45
OrgBoundaries	<-->	Workdiscretion	.152	.047	3.217	.001	par_46
Hostility	<-->	Heterogeneity	.458	.068	6.780	***	par_48
Hostility	<-->	Dynamism	.227	.039	5.745	***	par_49
Heterogeneity	<-->	Dynamism	.040	.035	1.126	.260	par_50
Workdiscretion	<-->	MS_External	.059	.017	3.382	***	par_53
MS_Internal	<-->	TimeAvailability	.160	.049	3.266	.001	par_54
RewardReinforcement	<-->	MS_External	.021	.014	1.516	.129	par_55
RewardReinforcement	<-->	Workdiscretion	.240	.038	6.378	***	par_56
TimeAvailability	<-->	OrgBoundaries	.101	.051	2.000	.045	par_60
MS_Internal	<-->	RewardReinforcement	.419	.049	8.541	***	par_61
TimeAvailability	<-->	RewardReinforcement	.142	.036	3.922	***	par_62
TimeAvailability	<-->	Workdiscretion	.140	.041	3.424	***	par_64
TimeAvailability	<-->	MS_External	.011	.018	.614	.539	par_65
OrgBoundaries	<-->	MS_External	.011	.021	.552	.581	par_66
OrgBoundaries	<-->	RewardReinforcement	-.052	.040	-1.301	.193	par_69
MS_Internal	<-->	MS_External	.091	.020	4.476	***	par_70
MS_Internal	<-->	Workdiscretion	.160	.046	3.503	***	par_71
eV44	<-->	eV47	.107	.043	2.500	.012	par_42
eV44	<-->	eV45	.326	.051	6.421	***	par_43
erV30	<-->	erV29	.128	.018	7.030	***	par_67
eV28	<-->	eV27	.460	.050	9.127	***	par_68

Factor correlations

			Estimate
MS_Internal	<-->	OrgBoundaries	-.040
OrgBoundaries	<-->	Workdiscretion	.163
Hostility	<-->	Heterogeneity	.317
Hostility	<-->	Dynamism	.309
Heterogeneity	<-->	Dynamism	.052
Workdiscretion	<-->	MS_External	.204
MS_Internal	<-->	TimeAvailability	.143
RewardReinforcement	<-->	MS_External	.082
RewardReinforcement	<-->	Workdiscretion	.429
TimeAvailability	<-->	OrgBoundaries	.084
MS_Internal	<-->	RewardReinforcement	.539
TimeAvailability	<-->	RewardReinforcement	.196
TimeAvailability	<-->	Workdiscretion	.173
TimeAvailability	<-->	MS_External	.029
OrgBoundaries	<-->	MS_External	.026
OrgBoundaries	<-->	RewardReinforcement	-.062
MS_Internal	<-->	MS_External	.229
MS_Internal	<-->	Workdiscretion	.185

6.4.3 Parameter estimates of final SEM model

The parameter estimates for the final SEM model are given in detail as Appendix F. Looking at the structural paths of the final model (see Figure 6-11 and Table 6-29), there were in total 18 paths, out of which 14 were statistically significant. The four structural paths that were not statistically significant and their standardised regression weights were the paths from work discretion to entrepreneurial actions (0.025), organisational boundaries to entrepreneurial actions (0.033), and MS for external CE to entrepreneurial actions, which was also negative (-0.093), and rewards to entrepreneurial actions (0.098).

The following six structural paths and their standardised regression weights were negative:

EntrepreneurialActions	<---	TimeAvailability	(-0.098)
EntrepreneurialActions	<---	Heterogeneity	(-0.216)
EntrepreneurialActions	<---	MS_External	(-0.093)
SustainableCE	<---	OrgBoundaries	(-0.073)
SustainableCE	<---	Hostility	(-0.201)
SustainableCE	<---	TimeAvailability	(-0.126)

All but four of the eleven originally hypothesised prediction paths (taking into account the split of the factor management support) were statistically significant, while two had negative (but statistically significant) parameter estimates contrary to *a priori* stated prediction, namely: the path from time availability to entrepreneurial actions and from hostility to sustainable CE.

As earlier indicated, items V29, V30 and V32, measuring time availability, were reverse-coded into RV29, RV30 and RV32, before data analysis as they were not phrased in the same direction with items V31 and V33. As can be seen from Table 6-30, it is clear that the median was 2 for all items and the means were all between 2 and 2.5, indicating that respondents tended to disagree with all statements, therefore indicating limited time availability.

Table 6-30: Statistics for Latent Variable Time Availability

		Statistics				
		RV29	RV30	V31	RV32	V33
N	Valid	646	646	646	646	646
	Missing	0	0	0	0	0
Mean		2.325	2.375	2.200	2.361	2.370
Median		2	2	2	2	2
Std. Deviation		1.157	1.112	1.211	1.190	1.223
Minimum		1	1	1	1	1
Maximum		5	5	5	5	5

The relationship between time availability and entrepreneurial actions was further assessed using normal correlation, which showed that the result is positive but weak (0.017). Studying the descriptives presented in Table 6-31 revealed that items V39 and V42 were negatively correlated with almost all the time availability items (RV29, RV30, and RV32 indicates the reverse scored items) and thus provide the information for the negative path coefficient.

The path to entrepreneurial actions from MS for external CE (originally part of the factor management support) also showed a negative and statistically nonsignificant link (CR = -1.892). The other three statistically nonsignificant but positive paths originally hypothesised were paths from work discretion to entrepreneurial actions (CR = 0.414), organisational boundaries to entrepreneurial actions (CR = 0.801), and from rewards to entrepreneurial actions (CR = 1.433). Out of the newly added structural paths, three were negatively linked to their respective dependent variables, namely entrepreneurial actions <--- heterogeneity (CR = -4.942), sustainable CE <--- organisational boundaries (CR = -2.223), and sustainable CE <--- time availability (CR = -3.693).

The predictiveness of the model was also assessed in terms of the substantial strength of the structural paths or loadings, as opposed to just achieving statistical significance (Chin, 1998). Looking at the predictive structural paths, it was observed that most of the standardised regression weights were ≤ 0.60 , meaning each measure was not actually accounting for at least 50% variance of the underlying latent variable, although 10 out of 18 of these standardised paths showed that their estimates were greater than the absolute value of 0.20. However, for the individual

latent variables' loadings with respect to their respective indicator variables, their standardised estimates ranged from 0.323 to 0.950, which was generally considered to be of high magnitude.

Interestingly, some structural paths not originally predicted had standardised regression weights slightly higher (as well as statistically significant) than some of the originally predicted paths. Regarding predictors for entrepreneurial actions, newly linked predictor hostility (0.235) had the highest influence, followed by MS for internal CE (0.176), and another newly linked predictor, dynamism (0.169).

Table 6-31: Time availability and entrepreneurial actions

		Correlations								
		RV29	RV30	V31	RV32	V33	V39	V40	V41	V42
RV29	Pearson Correlation	1.000	0.861**	0.809**	0.804**	0.610**	-0.030	0.022	0.007	-0.057
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.448	0.584	0.854	0.147
	N	646	646	646	646	646	646	646	646	646
RV30	Pearson Correlation	0.861**	1.000	0.810**	0.766**	0.584**	-0.021	0.048	0.004	-0.052
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.600	0.227	0.920	0.185
	N	646	646	646	646	646	646	646	646	646
V31	Pearson Correlation	0.809**	0.810**	1.000	0.838**	0.628**	-0.014	0.052	0.054	-0.042
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.719	0.188	0.168	0.290
	N	646	646	646	646	646	646	646	646	646
RV32	Pearson Correlation	0.804**	0.766**	0.838**	1.000	0.598**	-0.018	0.070	0.034	-0.028
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.648	0.075	0.394	0.481
	N	646	646	646	646	646	646	646	646	646
V33	Pearson Correlation	0.610**	0.584**	0.628**	0.598**	1.000	0.020	0.135**	0.033	0.002
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.604	0.001	0.397	0.957
	N	646	646	646	646	646	646	646	646	646
V39	Pearson Correlation	-0.030	-0.021	-0.014	-0.018	0.020	1.000	0.489**	0.677**	0.802**
	Sig. (2-tailed)	0.448	0.600	0.719	0.648	0.604		0.000	0.000	0.000
	N	646	646	646	646	646	646	646	646	646
V40	Pearson Correlation	0.022	0.048	0.052	0.070	0.135**	0.489**	1.000	0.441**	0.510**
	Sig. (2-tailed)	0.584	0.227	0.188	0.075	0.001	0.000		0.000	0.000
	N	646	646	646	646	646	646	646	646	646
V41	Pearson Correlation	0.007	0.004	0.054	0.034	0.033	0.677**	0.441**	1.000	0.662**
	Sig. (2-tailed)	0.854	0.920	0.168	0.394	0.397	0.000	0.000		0.000
	N	646	646	646	646	646	646	646	646	646
V42	Pearson Correlation	-0.057	-0.052	-0.042	-0.028	0.002	0.802**	0.510**	0.662**	1.000
	Sig. (2-tailed)	0.147	0.185	0.290	0.481	0.957	0.000	0.000	0.000	
	N	646	646	646	646	646	646	646	646	646

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

Although there were added paths for predicting sustainable CE, entrepreneurial actions remained the strongest predictor (0.661) followed by dynamism (0.246) and MS for internal CE (0.168). Also for predicting sustained company performance, the originally hypothesised predictor, sustainable CE (0.934), had a stronger influence compared with the other predictor, MS for external CE (0.067).

All the factor and error variances were significant. All the residual covariances were relatively small – it is expected that if the model is correct the values for the residual covariances should be small, with absolute values < 0.10 (Kline, 2011). Also most of the standardised residual covariances were less than 2.58 (except largely for a few items that had a total of 18 of their associated standardised residuals greater than the cut-off). According to Hair *et al.* (2010:771), basically standardised residuals less than the absolute value of 2.5 do not suggest a problem with the model, while residuals greater than the absolute value of 4.0 suggest a potentially unacceptable degree of error.

Furthermore Hair *et al.* (2010:771) indicate that standardised residual covariances between the absolute values of 2.5 and 4.0 deserve some attention although they may not suggest any changes to the model in a situation where no other problems are associated with the items of concern. Item V59 had seven standardised residual covariances greater than the absolute value of 4.0 followed by items V56, V48, and V49 which had one each (see Appendix F). Generally the standardised residual covariances indicated that there was not so much discrepancy between the hypothesised model and the sample data. Therefore, on the basis of this information, it can be concluded that the model as a whole tended to be well fitting. See Appendix F for detailed ML parameter estimates for the final SEM model.

6.4.4 Squared multiple correlations of final SEM model

The squared multiple correlations for the three dependent variables were also assessed: entrepreneurial actions (0.182), sustainable CE (0.601), and sustained company performance (0.877). The SMC coefficients “indicate the amount of variance explained, predicted, or accounted for in the dependent variable by the set of independent predictor variables” (Schumacker & Lomax, 2010:127). Accordingly, the predictors of entrepreneurial actions in the model explain only 18.2% of its

variance; the predictors of sustainable CE explain 60.1% of its variance; and the predictors of sustained company performance explain 87.7% of its variance.

6.4.5 Direct and indirect effects

The effects of the variables were also assessed to determine the strength of the relationships of the predictors among the dependent variables, entrepreneurial actions, sustainable CE, and sustained company performance, as can be seen in Table 6-31. Detailed matrices for the direct and indirect effects, as well as the total effects, are presented in Appendix F. The study findings showed that, while all the predictors had some direct effects on entrepreneurial actions, hostility (0.235) had the largest positive direct influence, followed by MS for internal CE (0.176), dynamism (0.169), rewards (0.98), and work discretion (0.025), while heterogeneity (-0.216), time availability (-0.098), and MS for external CE (-0.093) were found to be directly detrimental to entrepreneurial actions. There were also no indirect effects on entrepreneurial actions from any of the predictor variables.

Entrepreneurial actions (0.661) had the strongest total positive influence on sustainable CE, followed by dynamism (0.357), and MS for internal CE (0.283). Heterogeneity (0.008) was found to have very little total effect on sustainable CE. In terms of direct effects on sustainable CE, the construct entrepreneurial actions (0.661) was found to be the most influential predictor and all its effect on the variable was direct, followed by dynamism (0.246), MS for internal CE (0.168), and heterogeneity (0.151). To confirm mediation in relation to entrepreneurial actions, the study also used Sobel test, an inferential technique which is the product of coefficients approach (Hayes, 2009:411). The Sobel test indicated a value of 10.87 and a *p* value of 0.00, which suggested significant mediation (see Appendix H).

Hostility (0.156) had the strongest indirect influence on sustainable CE, followed by MS for internal CE (0.116), and dynamism (0.112). However, hostility (-0.201) was also found to be directly detrimental to sustainable CE, followed by time availability (-0.126), and organisational boundaries (-0.073). Rewards (0.065), organisational boundaries (0.022), and work discretion (0.016) were found to have little indirect influence on sustainable CE. MS for external CE, rewards and work discretion had no direct influence on sustainable CE.

Table 6-32: Selected Amos Output: Direct, Indirect, and Total Effects

Standardized Total Effects (Group number 1 - Default model)												
	Dynamism	Heterogeneity	MS_External	Work Discretion	Rewards/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
EntrepreneurialActions	0.169	-0.216	-0.093	0.025	0.098	0.033	-0.098	0.176	0.235	0	0	0
SustainableCE	0.357	0.009	-0.062	0.017	0.065	-0.051	-0.191	0.284	-0.045	0.661	0	0
SustainedCP	0.334	0.008	0.009	0.016	0.061	-0.048	-0.179	0.265	-0.042	0.617	0.934	0
Standardized Direct Effects (Group number 1 - Default model)												
	Dynamism	Heterogeneity	MS_External	Work Discretion	Rewards/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
EntrepreneurialActions	0.169	-0.216	-0.093	0.025	0.098	0.033	-0.098	0.176	0.235	0	0	0
SustainableCE	0.246	0.151	0	0	0	-0.073	-0.126	0.168	-0.201	0.661	0	0
SustainedCP	0	0	0.067	0	0	0	0	0	0	0	0.934	0
Standardized Indirect Effects (Group number 1 - Default model)												
	Dynamism	Heterogeneity	MS_External	Work Discretion	Rewards/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
EntrepreneurialActions	0	0	0	0	0	0	0	0	0	0	0	0
SustainableCE	0.112	-0.142	-0.062	0.017	0.065	0.022	-0.065	0.116	0.156	0	0	0
SustainedCP	0.334	0.008	-0.058	0.016	0.061	-0.048	-0.179	0.265	-0.042	0.617	0	0

For sustained company performance, sustainable CE (0.934) was the most influential predictor and all its effect was direct, followed by entrepreneurial actions (0.617) whose effect was all indirect. The next predictor with strong total direct effect on sustained company performance was dynamism (0.334), followed by MS for internal CE (0.265). Rewards (0.061), work discretion (0.016), MS for external CE (0.009), and heterogeneity (0.008) had very little total effect on sustained company performance and, with the exception of MS for external CE (0.067), had no direct effect on the variable. Only sustainable CE and MS for external CE had direct effect on sustained company performance. Time availability (-0.179) had the most indirectly detrimental effect on sustained company performance, followed by MS for external CE (-0.058), organisational boundaries (-0.048), and hostility (-0.042).

6.4.6 Bootstrap results of final SEM model: Comparing with ML parameter estimates

The study used maximum likelihood method of estimation, which requires that the data be continuous and multivariate normal. The data used for this study was categorical and also did not meet the assumption of multivariate normality. Accordingly, the bootstrap was performed as a way of dealing with multivariate nonnormal data (West *et al.*, 1995). Selected bootstrap results (factor loading

standard errors and bias-corrected percentile method factor loading confidence intervals) are presented as Appendix G. By comparing the ML standard errors with those reported for the bootstrapped samples, it was observed that the standard errors were almost similar. Therefore the ML generated parameter estimates can be relied upon even though the assumption of multivariate normality was not met.

6.4.7 The robust estimates

Given the multivariate nonnormality of the data, the ML derived estimates were also compared with those derived using the Satorra-Bentler robust method (detailed output not shown due to space constraints) in order to ascertain whether the ML estimates were reliable and therefore interpretable. Taken as a whole, the findings showed that the estimates derived using ML and Satorra-Bentler robust methods were fairly close.

Table 6-33: Selected EQS Output for Model 8: Goodness-of-fit statistics

GOODNESS OF FIT SUMMARY FOR METHOD = ML			
CHI-SQUARE =	2200.988	BASED ON	821 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS			.00000
FIT INDICES			

COMPARATIVE FIT INDEX (CFI)	=		.913
ROOT MEAN-SQUARE RESIDUAL (RMR)	=		.082
STANDARDIZED RMR	=		.057
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)	=		.051
90% CONFIDENCE INTERVAL OF RMSEA	(.048,		.054)
GOODNESS OF FIT SUMMARY FOR METHOD = ROBUST			
SATORRA-BENTLER SCALED CHI-SQUARE =	2050.7969	ON	821 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS			.00000
FIT INDICES			

COMPARATIVE FIT INDEX (CFI)	=		.893
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)	=		.048
90% CONFIDENCE INTERVAL OF RMSEA	(.046,		.051)

In terms of goodness-of-fit statistics, the ML derived uncorrected χ^2 value was 2200.988 with 821 degrees of freedom, while the Satorra-Bentler χ^2 value was 2050.797 as shown in Table 6-33, giving $\Delta\chi^2 = 150.191$. The discrepancy between

these two χ^2 values clearly showed the extent to which the data were nonnormally distributed. The Satorra-Bentler robust method also showed a reduction in CFI (0.893), while there was an improvement in RMSEA (0.048; 90% CI. 0.46, 0.51). Therefore it can be concluded that the ML derived estimates were reliable and interpretable.

6.5 Conclusion

This chapter has focused on giving detailed research findings pertinent to addressing the research objective and hypothesised predictions. The study methodology used CFA procedures to assess the reliability and validity of the hypothesised measurement models. All the CFA models for the hypothesised measurement models showed acceptable reliability and validity (although for the external environment scale reliability was slightly below 0.70).

Once the CFA models for the respective measurement scales were validated, the final full composite SEM model was assessed on the basis of the hypothesised structural paths to determine *a priori* stated predictions. The model ran successfully and presented acceptable fit. The final SEM model was also subjected to bootstrap estimation to compare the ML derived estimates in order to have a robust basis for the interpretation of the parameter estimates. The ML derived estimates were also compared with those derived using the EQS Satorra-Bentler robust method. This process confirmed that the ML derived estimates were reliable and therefore interpretable.

The next chapter discusses the findings in detail on the basis of the research objective and also highlights outcomes both favourable and unfavourable to the *a priori* stated hypotheses.

CHAPTER 7: DISCUSSION OF FINDINGS, CONCLUSION, RECOMMENDATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTION

7.1 Introduction

Merton (1968:103) once said that “empirical research goes far beyond the passive role of verifying and testing theory; it does more than confirm or refute hypotheses. Research plays an active role: it performs at least four major functions which help shape the development of theory. It initiates, it reformulates, it deflects, and it clarifies theory”.

A detailed data analysis was conducted in chapter 6 of this study, in line with the research objectives and the postulated predictions. In addition, the biographical characteristics of the sample, company data, and multivariate normality were all assessed. All the hypothesised measurement models were individually evaluated during the model estimation and specification procedures, which provided basis for assessing measurement validity and reliability.

The full composite SEM model for the study was also evaluated on the basis of the postulated predictions, and this provided basis for accepting or rejecting the hypotheses. The assessment procedures as well as findings to the assessments conducted were all reported, providing basis for discussion.

This chapter discusses the study findings in detail as regards the implications for both theory and practice on the basis of the research objective and also highlights outcomes both favourable and unfavourable to the *a priori* stated hypotheses. The chapter also discusses implications of the findings and highlights the study's contribution to CE literature. Furthermore, the chapter provides some recommendations arising out of the study findings and acknowledges a number of study limitations. Suggestions for future research direction are also provided.

7.1.1 The study objective and research question

Although the literature reveals that CE scholars have tried to enhance our understanding of what makes an organisation entrepreneurial by investigating the corporate environment and its impact on corporate venturing (Shepherd & Krueger, 2002:167), there tends to be no empirical work conducted specifically on the predictability of sustainable CE and sustained company performance. This study sought to fill this gap by determining predictability of sustainable CE and sustained company performance using key organisational antecedents and external environmental factors affecting CE, using SEM to express the dependence relationships among independent and dependent variables.

SEM was also used to distinguish independent variables with more predictive power on sustainable CE, which in turn affects sustained company performance. The main purpose of the study was to undertake an empirical study to determine the predictability of sustainable CE and sustained company performance, and dwelt on the following specific research questions:

- What factors influence sustainable CE which should result in sustained company performance?
- Can the level of sustainable CE and sustained company performance be predicted?
- Which of the contextual influences in the external environment and the internal organisational climate could be considered to be the best predictors of sustainable CE?

In this regard, the following were the research objectives:

- To empirically identify best predictors of sustainable CE by testing the postulated measurement and structural models
- To assess the validity and predictive power of the CECI as developed by Kuratko *et al* (1990) (and later refined by Hornsby *et al.*, (2002)), and the

external environment antecedents as postulated by Zahra (1991) in relation to sustainable CE and sustained company performance

- To make a contribution to CE domain on the basis of the study findings
- To contribute to the Zambian literature on entrepreneurship, specifically sustainable CE.

7.2 Discussion of findings

The discussion of findings and broad conclusions made was based on previous research findings and the investigation of this research. Furthermore, the research objectives and research question guided the discussion, while lessons from results of the study and substantive significance of the findings were also incorporated.

7.2.1 Data and measures

The sample comprised managers from eight different economic sectors, while the companies that participated had been in existence for at least four years. In terms of biographical characteristics of the sample, the majority were middle management, followed by junior and senior management respectively, while the majority managed others. The fact that the majority were middle management added value to the research, as middle managers play an important and strategic role in instigating entrepreneurship within an organisation (Kuratko *et al.*, 2007; Ren & Guo, 2011).

In addition, most of the management respondents in the sample had a non-degree qualification beyond grade 12 (47.5%), while a good number of them had university degrees and postgraduate qualifications (45.5%), and a few of them (6.9%) had qualification only up to grade 12 or below. Therefore, on the basis of these biographical characteristics, it can be said that the sample was appropriate for the study.

Regarding data normality, assessment of skewness and kurtosis showed that the data could be processed using confirmatory factor analysis with maximum likelihood estimation, as all the skewness and kurtosis values were within the recommended level. However the data did not meet the assumption of multivariate normality,

although a comparison of the ML derived estimates with those derived using the Satorra-Bentler robust method showed that the final conclusions of the ML statistical estimates were still supported even with the more robust estimation method. This was also confirmed by bootstrapping the sample. Regarding outliers, the Mahalanobis squared distance values (D^2) showed minimal evidence of serious multivariate outliers. Therefore the ML estimates were considered acceptable and interpretable.

7.2.2 Measurement models and research hypotheses

The assessment of measurement model reliability and validity was conducted using CFA procedures. The findings suggested that the measurement models used in the study had acceptable construct validity and reliability. All the measurement scales showed evidence of convergent validity in that each item had a statistically significant loading on its specified factor (Van Dyne & LePine, 1998).

7.2.3 Summary of results relating to tested hypotheses

The research hypotheses to be tested were grounded on sound CE theory as earlier elaborated. Table 7-1 provides a summary of the tested hypotheses regarding their rejection or acceptance. Out of the twelve hypotheses to be tested (taking into account the splitting of the factor management support (MS) into two separate dimensions, namely, MS for internal CE and MS for external CE), nine were accepted while only three were rejected.

The following were the three rejected hypotheses:

- H_{1.1}(b): Management support for external CE is positively related to entrepreneurial actions.
- H_{1.4}: Time availability for CE is positively related to entrepreneurial actions.
- H_{3.2}: Environmental hostility will be positively related to sustainable CE.

Table 7-1: Summary of results relating to tested hypotheses

Hypothesis Tested		Accepted/ Rejected
H ₁	The more entrepreneurial the organisational climate is perceived to be, the more the individual will take entrepreneurial actions.	
H _{1.1} (a)	Management support for internal CE is positively related to entrepreneurial actions.	Accepted
H _{1.1} (b)	Management support for external CE is positively related to entrepreneurial actions.	<i>Rejected</i>
H _{1.2}	Work discretion/autonomy is positively related to entrepreneurial actions.	Accepted
H _{1.3}	Rewards/reinforcement is positively related to entrepreneurial actions.	Accepted
H _{1.4}	Time availability for CE is positively related to entrepreneurial actions.	<i>Rejected</i>
H _{1.5}	Organisational boundaries for CE will be positively related to entrepreneurial actions.	Accepted
H _{2.1}	Entrepreneurial actions will mediate the relationships between the perceptions of a corporate entrepreneurial climate and sustainable CE.	Accepted
H _{2.2}	Entrepreneurial actions will be positively related to sustainable CE.	Accepted
H ₃	External environmental characteristics are positively associated with sustainable CE.	
H _{3.1}	Environmental dynamism will be positively related to sustainable CE.	Accepted
H _{3.2}	Environmental hostility will be positively related to sustainable CE.	<i>Rejected</i>
H _{3.3}	Environmental heterogeneity will be positively related to sustainable CE.	Accepted
H ₄	Sustainable CE positively influences sustained company performance.	Accepted

The study findings regarding the individual measurement models and research hypotheses tested are discussed below.

7.2.4 The CECI and sustainable CE

The relationship between the organisational antecedents and sustainable CE was hypothesised to be mediated by entrepreneurial actions. According to theory, the construct *entrepreneurial actions* was expected to influence sustainable CE (Morris *et al.*, 2011).

H₁: The more entrepreneurial the organisational climate is perceived to be, the more the individual will take entrepreneurial actions.

Except for time availability and MS for external CE (part of the original management support variable), all the other organisational antecedents were positively associated with entrepreneurial actions, which mediated their effect on sustainable CE; two (MS for internal CE and time availability) had statistically significant links with entrepreneurial actions, although the path from time availability was negative. The links with entrepreneurial actions from organisational boundaries, rewards, and work discretion were statistically nonsignificant. In this respect, among the organisational antecedents, MS for internal CE was found to be the best predictor for entrepreneurial actions and also had significant direct links with sustainable CE. In other words, MS for internal CE predicts both entrepreneurial actions and sustainable CE.

The composite reliability of the CECI proved to be high ($\alpha = 0.80$), while all its six constructs were also found to have moderate to high internal consistency: MS for internal CE (3 items; $\alpha = 0.82$), MS for external CE (5 items; $\alpha = 0.70$), work discretion (3 items; $\alpha = 0.66$), rewards/reinforcement (5 items; 0.76), time availability (5 items; $\alpha = 0.93$), and organisational boundaries (3 items; $\alpha = 0.94$). The CECI also proved to have discriminant validity, as correlations among the constructs were relatively low, ranging from -0.061 to 0.537 (Bagozzi *et al.*, 1991; Brown, 2006), while nomological validity was also established as the correlations among the constructs made theoretical sense (Hair *et al.*, 2010:710).

Previous research findings have found the CECI to be inconsistent as a measure of CE, yielding between four- to eight-factor solutions (Brizek, 2003; Hornsby *et al.*, 2008; Hornsby *et al.*, 2013; Van Wyk & Adonisi, 2011). The study by Van Wyk and

Adonisi (2011:3052) yielded an eight-factor 26-item solution with moderate to high internal consistency: management support and risk taking (5 items; $\alpha = 0.82$), rewards/reinforcement (4 items; $\alpha = 0.75$), innovative initiatives (2 items; $\alpha = 0.84$), financial support (3 items; $\alpha = 0.73$), sufficient time (2 items; 0.76), organisational boundaries (2 items; $\alpha = 0.81$), and inadequate time (3 items; $\alpha = 0.67$).

Another more recent study by Hornsby *et al.* (2013) assessing the CEI's content, structural, and convergent validity, also excluded organisational boundaries as it was problematic, ending up with only a four-factor CFA model of the CEAI with composite score $\alpha = 0.84$ (18 items), while all the four constructs had moderate to high internal consistency: management support (5 items; $\alpha = 0.72$), work discretion (5 items; $\alpha = 0.84$), rewards/reinforcement (3 items; $\alpha = 0.79$), and time availability (5 items; $\alpha = 0.74$). The findings in relation to individual sub-hypotheses are discussed below.

H_{1.1}: Management support for CE is positively related to entrepreneurial actions

Due to the splitting of the factor *management support*, which was found to have two separate dimensions (MS for internal CE and MS external CE), this hypothesis was accordingly split into two sub-hypotheses relating to the two dimensions.

Both sub-hypotheses were tested. In accordance with the postulated relationship, MS for internal CE was found to positively and statistically significantly predict entrepreneurial actions, while MS for external CE had a negative and statistically nonsignificant link with entrepreneurial actions. On the basis of the sample data, these findings seem to indicate that MS for external CE does not predict internal entrepreneurial actions within an organisation. In other words, MS for external CE, which focuses on supporting innovative projects, may not lead to enhanced non-project entrepreneurial activities within a company. One possible explanation for this seemingly ambiguous finding could be precisely in the context of internal and external CE.

According to Zahra (1991:277), internal CE focuses on “reviving the existing business through innovation and venturing” while external CE focuses on “broadening and, sometimes, revising the concept of the business”. In this respect, MS for external CE

is aimed at promoting project-based entrepreneurial activities and not internal entrepreneurial activities within the main organisational domain, and is therefore not positively associated with internal entrepreneurial actions, although ultimately it also works to improve sustained company performance directly.

H_{1.2}: Work discretion/autonomy is positively related to entrepreneurial actions

This hypothesis was supported, although work discretion was found to be a weak predictor of entrepreneurial actions in that the prediction was statistically nonsignificant. In this study, work discretion only had direct effect on entrepreneurial actions, although not significant. However the factor still played an important role in the model. This was clearly illustrated by the relatively poor fit that resulted when the variable's nonsignificant path with entrepreneurial actions was excluded from the model. In addition, work discretion was found to be the only CECI factor whose entire links with the other CECI factors were statistically significant. The links were also positive. It is therefore important to note that although work discretion may not have a strong direct influence on entrepreneurial actions, the factor tends to play an important role, as it also indirectly influences sustainable CE and sustained company performance through the other CECI factors it has significant relationships with.

In the initial search for specific organisational antecedents for manager's entrepreneurial behaviour, only three factors (top management support, rewards, and organisational structure) were found to be the most important antecedents (Hornsby *et al.*, 2013). Work discretion and time availability were only included later as the other two organisational antecedents appropriate for determining managers' entrepreneurial behaviour (Hornsby *et al.*, 2013; Hornsby, Kuratko & Montagno, 1999).

Therefore, as recently noted by Hornsby *et al.* (2013), work discretion (top management's commitment to tolerate failure, provide decision-making latitude and freedom from excessive oversight and to delegate authority and responsibility to managers) still plays an important role as one of the organisational antecedents. The findings of this study also showed work discretion to have a stable structure, as only one item (V20) that cross loaded was deleted from this subscale out of the four items (excluding item V23 which was removed as it did not belong to this factor), although

its reliability with $\alpha = 0.66$ was moderate. All of its three items had standardised factor loadings > 0.5 , ranging from 0.524 to 0.715. These findings regarding the influence of work discretion on entrepreneurial actions, and also its relationship with all the other CECI antecedents, show that the factor is critical in enhancing sustainable CE. The results tend to indicate that entrepreneurship thrives in an atmosphere of autonomy, where people are not punished for the mistakes resulting from their venturing into unfamiliar ground or for making decisions without prior approval on what they considered worthwhile for enhancing the organisation's competitiveness and performance.

H_{1.3}: Rewards/reinforcement is positively related to entrepreneurial actions

The hypothesised relationship was supported, although rewards/reinforcement was found to be a weak predictor of entrepreneurial actions in that the prediction was statistically nonsignificant. However, among all the CECI factors, rewards/reinforcement was found to be the second-highest factor with direct effect on entrepreneurial actions. In this respect, it is also important to note that rewards/reinforcement plays a critical role in instigating heightened entrepreneurial activities directly in an organisation. In other words, the more a person feels that top management develops and uses systems that reward performance, highlight significant achievement, and encourage pursuit of challenging work (Hornsby *et al.*, 2013), the more likely it is that that person will engage in organisational entrepreneurial activities.

According to the findings, rewards/reinforcement also indirectly influences sustainable CE and sustained company performance. As a CECI construct, rewards/reinforcement was also found to have a stable structure with high reliability ($\alpha = 0.76$) above the 0.70 threshold, and all but one of its items with standardised factor loadings > 0.5 .

H_{1.4}: Time availability for CE is positively related to entrepreneurial actions

This hypothesis was not supported; time availability was found to be negatively statistically significantly linked to entrepreneurial actions. In other words, on the basis of the sample data, availability of time tends not to be used for entrepreneurial

actions within the organisation. As earlier noted, two items measuring entrepreneurial actions, namely: items V39 (“In our organisation, the number of improvements implemented without organisational approval was on the increase over the past six months.”) and V42 (“I am satisfied with the outcomes of my organisation’s entrepreneurial activities as they meet expectation.”) were negatively correlated with almost all the time availability items and thus provide the information for the negative path coefficient.

These findings reveal the possibility of negative consequences resulting from availability of unstructured or free time in organisations that may not really be entrepreneurially focused. In such organisations, managers may not spend the available unstructured time undertaking entrepreneurial innovations but rather doing other unrelated activities or routines. In relation to the CECI, time availability was found to have a very stable structure, with very high internal consistency ($\alpha = 0.93$), while all its five items had high standardised factor loadings ranging from 0.677 to 0.927.

H_{1.5}: Organisational boundaries for CE will be positively related to entrepreneurial actions

This hypothesis was supported, although the prediction was weak. In addition, among the CECI factors, organisational boundaries tended to be strongly related to only time availability and work discretion. While recent studies (Brizek, 2003; Hornsby *et al.*, 2008; Hornsby *et al.*, 2009; Hornsby *et al.*, 2013; Van Wyk & Adonisi, 2011) have found organisational boundaries problematic, this study found the factor to have the highest internal consistency (3 items; $\alpha = 0.94$) among all the six factors of the CECI.

However, contrary to expectations, organisational boundaries also had negative covariance with MS for internal CE and rewards/reinforcement, although statistically nonsignificant. An explanation for this finding could be that more of organisational boundaries may not necessarily imply more of MS for internal CE and rewards/reinforcement, and vice versa. As Goodale *et al.* (2011:124) posit, “not all corporate entrepreneurial behaviour is good for the organisation”. This implies the

need for a balancing approach (Morris *et al.*, 2009) when establishing CE climate within an organisation.

7.2.5 Entrepreneurial actions and sustainable CE

H_{2.1}: Entrepreneurial actions will mediate the relationships between the individual's perceptions of a corporate entrepreneurial climate and sustainable CE.

This hypothesis was supported. Entrepreneurial actions mediated the effects of individual's perceptions of a CE climate on sustainable CE. The Sobel test confirmed that there was significant mediation. Although time availability and MS for external CE showed negative effects, all the other CECI constructs (i.e., MS for internal CE, work discretion, rewards, organisational boundaries) had positive effects on entrepreneurial actions, albeit in varying degrees.

It is expected that different organisations will exhibit different levels of entrepreneurial actions, as the organisational antecedents will interact or combine differently in any given company (Morris *et al.* 2011:74). The mediated (indirect) effect of entrepreneurial actions on sustained company performance was also high, signifying its important role in instigating continuous organisational improvements.

H_{2.2}: Entrepreneurial actions will be positively related to sustainable CE

This hypothesis was supported. Entrepreneurial actions strongly predicted sustainable CE. Entrepreneurial actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways (Smith & Di Gregorio, 2002).

The construct entrepreneurial actions was also found to have a very stable structure, with high internal consistency (4 items; $\alpha = 0.85$). The new item added to the scale by the researcher improved the scale, as the Cronbach's alpha if the item was deleted clearly showed that the scale for entrepreneurial actions would be at its lowest ($\alpha = 0.77$) without it. This is the item relating to managers' perceived satisfaction regarding the entrepreneurial activity being undertaken, that is, whether or not the activity

meets expectations in order for it to be sustained or discontinued (Morris *et al.* 2011:74).

The findings affirm an important aspect of entrepreneurial actions that can lead to sustainable CE. In this respect, whether or not an activity meets expectations necessarily acts as a gauge for assessing whether the type of CE within the organisation is sustainable or not.

7.2.6 The external environmental factors and sustainable CE

H₃: External environmental characteristics are positively associated with sustainable CE.

The main hypothesis for external environment was partially supported, as two of its factors (dynamism and heterogeneity) positively and statistically significantly predicted sustainable CE, while hostility was negatively and statistically significantly related to sustainable CE. With two items per factor, the external environment measurement scale also tended to be the weaker link of the SEM model, as its composite reliability was only moderate (6 items; $\alpha = 0.65$). This was due to the subscale hostility, which had reliability (2 items; $\alpha = 0.58$) below 0.70, while dynamism (2 items; $\alpha = 0.80$) and heterogeneity (2 items; $\alpha = 0.90$) had high reliability. Previous research (Zahra 1991) found the reliability of dynamism (3 items; $\alpha = 0.79$), hostility (6 items; $\alpha = 0.82$), and heterogeneity (3 items; $\alpha = 0.85$) to be high.

The external environment brings challenges and new opportunities for organisations to respond creatively through CE strategy (Zahra (1991:262). Thus if organisations do not prepare to respond positively to these challenges and opportunities, they are likely to be negatively affected. It is therefore theoretically possible for any of the external environmental antecedents to have detrimental effect on organisations that do not engage in continuous renewal of their products or services in order to remain buoyant amidst drastic environmental changes (Yang, 2012; Zahra, 1995).

To a very large extent, company survival and competitiveness will depend on the extent to which the company conscientiously incorporates external environment in its

CE strategy. The findings that relate to individual sub-hypotheses for external environment are discussed below.

H_{3.1}: Environmental dynamism will be positively related to sustainable CE

This hypothesis was supported. According to the findings, dynamism (the largely unpredictable imperfections in the competitive markets) is the strongest predictor of sustainable CE among all the predictor variables. In addition, dynamism also strongly predicts entrepreneurial actions (only second to MS for internal CE) and also has the strongest indirect effect on sustained company performance.

The findings are consistent with previous research, in which dynamism was found to have a positive influence on CE strategy as “changes in the external markets create new windows of opportunity” (Zahra, 1991:263). Dynamism has also been found to have a positive relationship with new venture creation and innovation, while entrepreneurial actions in an uncertain environment are dependent on an individual’s risk propensity (Aldrich, 2000; Hit *et al.*, 2011:61).

This shows that market imperfections are a very strong source for entrepreneurial opportunities, which largely arise from unpredictability in the industry and actions of customers. The challenge is that many companies tend to have little capacity to effectively respond to and tap these opportunities due to resource constraints (Simseki *et al.*, 2007). However, it is important for organisations to realise how resourceful external dynamism is in relation to instigating sustainable CE.

The findings regarding the reliability of the subscale environmental dynamism (0.80) are also consistent with previous research ($\alpha = 0.79$) by Zahra (1991).

H_{3.2}: Environmental hostility will be positively related to sustainable CE.

This hypothesis was not supported. In this study, hostility was negatively related to sustainable CE. In other words, increased hostility was a threat to sustainable CE and, consequently, organisational survival. Although some previous research findings found a positive relationship between hostility and CE (Zahra, 1991; 1993a), there are also indications that hostility (increased rivalry in the industry or depressed

demand for an organisation's products or services) does threaten organisational survival (Li & Liu, 2014; Zahra, 1991), as it negatively affects an organisation's goals and mission (Antoncic & Hisrich 2001:504; Miller & Friesen, 1984). Zahra (1993a:335) further posits that increased competitive "rivalry may raise environmental hostility and force companies to conserve resources, rather innovate". Therefore, for an organisation that does not have the capability to respond innovatively to such intense rivalry and scarce emerging opportunities, hostility can have detrimental effects and such an organisation becomes a victim rather than a beneficiary of a hostile environment.

However, hostility was found to have the strongest unmediated (direct) as well as mediated (indirect) effect on entrepreneurial actions, and indirectly influenced sustainable CE through the mediation of entrepreneurial actions. The factor's overall mediated effect on sustained company performance was negative. One explanation of these study findings could be that this is due to hostility's strong detrimental unmediated effect on sustainable CE. The other reason may be that, while increased rivalry in the industry or depressed demand for a company's products or services could be directly detrimental to sustainable CE, hostility tends to strongly work well as a predictor when such effects in the external environment are incorporated in the company's entrepreneurial actions. According to Zahra and Garvis (2000), although environmental hostility may positively influence company performance, the relationship may not be linear, while Miller and Friesen (1984) indicate that excessive hostility has the potential to reduce the company's profits. Therefore the study results also confirm previous research findings, in which intensified hostility was found to have an eroding effect on the profits, as affected organisations have to spend more on cushioning activities such as enhancing market position, brand name recognition, and customer loyalty (Zahra & Garvis, 2000:476).

H_{3.3}: Environmental heterogeneity will be positively related to sustainable CE.

This hypothesis was supported; heterogeneity was found to have a positive relationship with sustainable CE. The findings confirm results of previous research already discussed in Chapter 3, which deals with CE theory. However environmental heterogeneity was also found to have a strong but detrimental effect on entrepreneurial actions. Some previous research findings show that environmental

heterogeneity does not positively moderate the performance of companies emphasising CE strategy (Dess *et al.*, 1997:688).

As a result of the strongly unfavourable mediated effect through entrepreneurial actions, heterogeneity's total effect on sustainable CE and sustained company performance was almost completely offset, notwithstanding its sound direct influence on sustainable CE. One explanation about these findings could be that, much as the diversity and variations in customers' needs and buying behaviours (Saly, 2001) present opportunities for innovation, market development, and new venture creation, the same contextual influences have the potential to slow down sustained company performance if not incorporated in the company's entrepreneurial actions or if the company has low entrepreneurial intensity.

It is also evident that companies faced with increased volatility may adopt a survival strategy that re-deploys resources or spends more on new product innovations and market development in order to be more competitive, thereby reducing company performance (Jiao *et al.*, 2013; Li & Liu, 2014). This negative impact of environmental heterogeneity on sustainable CE could be mitigated by an organisation's entrepreneurial actions in response to the opportunities perceived for exploitation by management.

7.2.7 Sustainable CE and sustained company performance

H₄: Sustainable CE positively influences sustained company performance.

This hypothesis was supported; sustainable CE strongly predicted sustained company performance. These findings are consistent with previous research regarding the relationship between CE and company performance (Covin & Slevin, 1991; Zahra & Covin, 1995; Zahra & Garvis, 2000).

7.2.8 Predicting sustainable CE and sustained company performance

The SEM model used for predicting sustainable CE and sustained company performance incorporated organisational antecedents and the external environmental factors with a total of nine predictor variables. Entrepreneurial actions mediated the

effects of both the internal and external environments on sustainable CE, which in turn was a strong predictor of sustained company performance. However, of the CECI antecedents, MS for internal CE was the best predictor for both entrepreneurial actions and sustainable CE, while MS for external CE only strongly directly influenced sustained company performance. The rest of the CECI antecedents tended to be weak predictors. Among the external environmental factors, dynamism was the best predictor of sustainable CE, followed by heterogeneity, while hostility was the best predictor for entrepreneurial actions, followed by dynamism. Overall, the SEM model showed acceptable measurement reliability and construct validity.

7.3 Statistical power of the final SEM model

According to Mcquitty (2004), it is important to determine the minimum sample size required in order to achieve a desired level of statistical power with a given model before data is collected. However, it is generally agreed that a sample size of 10 participants for every free parameter estimated is ideal, although the needed sample size is affected by the normality of the data and method of estimation used by researchers (Schreiber *et al.*, 2006).

The postulated SEM model had 126 distinct parameters to be tested, which accordingly required a sample size of 1 260 in order to achieve appropriate statistical power. However, the sample size that was used for testing the model was only 646. Furthermore, for the final SEM model which had 168 distinct parameters to be tested, an ideal sample size would have been 1 680 (i.e. 168 parameters x 10 participants) in order to achieve appropriate statistical power. This means that for the study to achieve the expected statistical power, 1 034 more cases would have been needed. Therefore, given the information at hand, it can be concluded that the model fit achieved with $\chi^2 = 2200.978$, $df = 821$, $CMIN/DF = 2.681$, $SRMR = 0.0574$, $CFI = 0.901$, and $RMSEA = 0.051$ is really good for the sample size of 646 participants.

The weakness in statistical power may also have contributed to the generally low loadings for the predictive structural paths of the latent variables. However, the weakness in the external environment measurement scale could, among other factors, have also caused this structural weakness.

7.4 Lessons from results of the study

A number of lessons can be drawn from the research findings, the overall being that sustainable CE and sustained company performance can be predicted using antecedents in both the external environment and internal organisational environment. Regarding the CECI, previous research found the measurement instrument to be inconsistent, to the extent that the construct *organisational boundaries* had to be omitted from further analysis (Hornsby et al., 2013). In this study, contrary to findings of previous research, not only did the CECI have a stable structure but also all its dimensions had acceptable reliabilities, with organisational boundaries being the highest ($\alpha = 0.94$) among all the six (and not five) factors of the CECI. Out of the initial 27 items (excluding item V23 which was a repetition of item V38), 23 items (88.89%) were found to have acceptable item reliability, with SMC > 0.20.

Previous research has also highlighted the stimulating effect of contextual influences in the external environment (dynamism, hostility, and heterogeneity) on CE. However, the direction of the influence of external environment on an organisation will largely depend on the organisation's entrepreneurial posture and proactiveness, and as Zahra (1993a; 1991) posits, the magnitude of the effect will also vary from organisation to organisation even within a given demographic and socioeconomic context.

7.5 Substantive significance of the findings

To our knowledge, the hypothesised composite SEM model for predicting sustainable CE and sustained company performance has never been tested before. The model, with 12 latent variables and five measurement scales, has been shown to possess adequate psychometric properties in a large sample drawn from the population of company managers in Zambia. Both construct validity and adequacy of reliability for all the respective scales were largely supported by the findings through the CFA procedures.

Overall, although some of the hypothesised predictors were found to be weak, findings have generally shown that sustainable CE can be predicted using both the

internal organisational antecedents and the external environmental factors. The findings have also shown that the construct *entrepreneurial actions* strongly predicts sustainable CE, which in turn also has a strong influence on sustained company performance. In addition, although there is a need for further research, the study validated the measurement scale for predicting sustainable CE and sustained company performance, as evidenced by acceptable fit indices, reliability and statistically significant factor loadings.

Regarding the CECI, the findings show that the measurement scale is composed of six and not five dimensions. Management support as originally constructed has been shown to comprise two dimensions, herein referred to as management support for internal CE and management support for external CE. These findings are consistent with theory on corporate entrepreneurial behaviour within established organisations as regards management's strategic role in not only instigating internal entrepreneurial innovations, but also pursuing opportunities relating to new venture creation, new product innovations, and market development. This allows the company to be more competitive and enjoy continuous performance improvement, especially in an uncertain and volatile environment (Kuratko *et al.*, 2007; Ren & Guo, 2011; Srivastava & Lee, 2005; Zahra, 1991). The separation of two distinct dimensions of management support (MS for internal CE and MS for external CE) highlights the critical role management support plays in instigating both internal and external sustainable CE, which results in sustained company performance.

Regarding the individual measurement instruments for the study, it is also important to note that (with the exception of the newly developed subscale for sustainable CE and the inclusion of one new item on the subscale for company performance and another item for entrepreneurial actions) the measurement instruments used in this study were developed and applied elsewhere in different demographic and cultural contexts than the Zambian situation. Many measurement instruments fail the test of intercultural psychometric portability (Dolnicar & Grün, 2007; Van Wyk & Adonisi, 2011). The findings have therefore validated the measurement instruments applied in this study to maintain their psychometric attributes across cultures and countries. However, there is still need for more conceptual and field work for further refinement of the instrument for measuring sustainable CE and sustained company performance. For instance, the CECI should clearly portray management's role in promoting both

internal and external aspects of sustainable CE. Such steps should include subjecting the scale to further validation.

7.6 Knowledge advancement in corporate entrepreneurship

The study has made valuable contribution to advancing the state of knowledge in CE:

Firstly, so far there has been very little empirical research conducted on sustainable CE as postulated in this study. The study was therefore aimed at filling this gap, hence its value as regards contributing to the body of knowledge.

Secondly, prior research had been conducted using CFA procedures to assess the CECI (Hornsby *et al.*, 2013), while an exploratory study involving the external environment measurement scale was conducted by Zahra (1991) to determine predictors and financial outcomes of CE using correlations and canonical analysis. However, to the best of our knowledge, the SEM model used in this study has never been applied before in this manner, while the respective measurement models have also not been rigorously subjected to a CFA procedure as regards their use for predicting sustainable CE and sustained company performance. This in itself is a valuable contribution to the body of knowledge in the field. In this respect, the study findings have opened a new chapter in CE that will hopefully catalyse scholarly interest in cross-validation testing of the model using data from different demographic and cross-cultural contexts.

Thirdly, the study also introduced new items for the subscales *entrepreneurial actions* and *sustained company performance* in the context of sustainable CE, which in fact proved to enhance the subscales' internal consistency. In addition, the newly developed subscale for sustainable CE also proved to have a stable structure, although it may require further refinement.

Fourthly, the study used data collected from Zambia, where the composite measurement instrument for sustainable CE had never been tested before. All the subscales of the measurement instrument were used for the first time in that country. The study therefore also served as a validation mechanism for the measurement

instruments in a different demographic and cultural context. The results showed that the respective subscales had stable structures.

Fifthly, as regards the study objectives and research question, the research findings are fundamentally useful for enhancing teaching materials and educational activities and provoking further research on the subject to broaden knowledge advancement in CE.

7.7 New questions and issues posed

The findings of this research raise a number of new questions and issues. The study's main objective was to determine predictors of sustainable CE and sustained company performance, taking into account both the external environmental factors and internal organisational antecedents as mediated by entrepreneurial actions. Among the CECI predictors, only management support for internal CE was indicated as the best predictor for sustainable CE, while management support for external CE was indicated as the best predictor for sustained company performance. These results raise concern as regards the effectiveness of the other CECI variables in predicting sustainable CE.

There are also issues relating to the factor *organisational boundaries*, which had negative covariance with MS for internal CE and rewards/reinforcement, and was also negatively linked to entrepreneurial actions. The study postulated covariances among the antecedents without specifying the direction of these relationships. Through further research, it would be important to establish if this is how the construct *organisational boundaries* relates to these antecedents or whether the relationships vary depending on the entrepreneurial behaviour of the organisation. Contrary to the theoretical prediction, the findings also show that time availability is negatively related to entrepreneurial actions as well as sustainable CE, while MS for external CE is also negatively linked to internal entrepreneurial actions. Although a possible explanation has been given for these negative structural relationships, it would be conceptually worthwhile to investigate these relationships further using different data.

As regards the environmental factors, heterogeneity had a detrimental direct effect, while showing positive indirect influence on sustainable CE through entrepreneurial actions. On the other hand, hostility positively influenced entrepreneurial actions while directly negatively affecting sustainable CE, with the resultant negative effect on sustained company performance. Again, although a possible explanation for these findings has been given, the findings raise interest in the way these factors affect sustainable CE, which calls for more research to enhance our understanding on the effect of these external contextual influences on organisational entrepreneurial behaviour.

The measurement scale for external environment tended to be the weaker link of the structural model for predicting sustainable CE and sustained company performance, with its composite reliability of $\alpha = 0.65$ only moderate, largely due to poor reliability of the hostility subscale ($\alpha = 0.58$). Four of the six items of the hostility subscale had poor item reliability and were therefore removed from further analysis. This calls for scholarly effort to refine the external environment measurement scale for predicting sustainable CE.

7.8 Management implications of the findings

The research findings do have valuable management implications for organisations desiring to achieve sustainable CE and sustained company performance. Overall, the findings clearly show that sustainable CE and sustained company performance can be predicted. Therefore, companies desiring to attain sustainable CE should pay particular attention to the contextual influences in both the internal and external environments (Zahra, 1991).

As CE strategy is to be spearheaded by top management, the findings place special responsibility upon management, who must believe that such a strategy works both for them and for the entire organisation (Ireland *et al.*, 2009:36). In this respect, management must therefore proactively motivate the entire organisation to embrace such an entrepreneurial posture through entrepreneurial cognitions, strategic vision, and appropriate human resource management practices.

7.8.1 Management implications of findings relating to external environment

In the context of external environment, management should develop a keen interest in proactively scanning the dynamic changes, as these have been found to have the strongest influence on sustainable CE and also influence entrepreneurial actions. Such influences include changes in social, political, competitive rivalry, economic, and technological factors, as well as government regulation (Zahra 1993a). The study findings have shown that this is the most influential source of entrepreneurial opportunities for innovative company renewal, rebranding, new product innovation, or market development.

According to Hayton (2005:21), the more complex and dynamic the external environment, the more entrepreneurial an organisation must become “in order to identify new opportunities for sustained superior performance”. This calls for appropriate human resource management practices that will instigate entrepreneurially driven organisational learning through “collaboration, creativity and individual commitment”, fostered by “individual risk acceptance and the encouragement of discretionary entrepreneurial contributions” (Hayton (2005:21). However, since such changes in the competitive markets are unpredictable, and many companies are found unprepared (Li & Liu, 2014), organisations would do well to equip themselves with appropriate dynamic capabilities in a turbulent environment in order to tap the opportunities and be more competitive (Jiao *et al.*, 2013). In this respect, those organisations that are more entrepreneurially oriented, and have slack resources, are likely to have advantage in tapping the opportunities.

Hostility was found to be the best predictor for entrepreneurial actions among both the CECI and external environmental factors. Therefore top managers need to continuously familiarise themselves with industrial rivalry and assess demand for their products or services in order to understand available opportunities and ensure that such observations are clearly at the core of their entrepreneurial actions. The more accurately managers interpret a hostile environment and appropriately incorporate it in their entrepreneurial strategies, the greater will be the influence of entrepreneurial actions on sustainable CE, resulting in enhanced continuous improvement in company performance. Management should also realise that a non-proactive approach, relying on serendipity, in their response to opportunities in the external

environmental conditions may not really yield the desired entrepreneurial outcomes. Therefore, although opportunities for entrepreneurial actions might be seen in the contextual external environment, there could be no guarantee for success without a proactive CE strategy (Ireland *et al.*, 2009:36).

As regards heterogenic factors in the external environment, the study found these factors to have a positive relationship with sustainable CE, while at the same time having a strong but detrimental effect on entrepreneurial actions. Under a heterogenic external business environment, changes or developments in one market create new pockets of demand for an organisation's product in related areas (Zahra, 1991:263), so management should undertake first-mover initiatives to explore new entrepreneurial opportunities. Failure to do so may result in the organisation's bearing the strong unfavourable and detrimental effect on entrepreneurial actions.

Organisations not prepared to proactively exploit opportunities in this kind of business environment may find themselves suffering further consequences of scaled-down company performance due to the knock-on effect on sustainable CE arising from the negative heterogenic effects on entrepreneurial actions. Faced with such increased volatility, an organisation may choose to adopt a survival strategy that re-deploys resources or spends more on new product innovations and market development in order to be more competitive, thereby reducing company performance (Jiao *et al.*, 2013; Li & Liu, 2014). Therefore, managers should bear in mind that although the diversity and variations in customers' needs and buying behaviours present opportunities for innovation, market development, and new venture creation, these very factors have the potential to slow down sustained company performance if they are not proactively incorporated in the company's entrepreneurial actions, or if the company has low entrepreneurial intensity.

7.8.2 Management implications of findings relating to organisational antecedents

In the context of the internal organisational antecedents, implications of the study findings seem to indicate that management should pay particular attention to supporting both internal and external aspects of CE in order to achieve sustainable CE and sustained company performance. While management support for internal CE

strongly influences entrepreneurial actions of the organisation's core business and, through sustainable CE, improves sustained company performance, on the other hand management support for external CE tends to strongly influence company performance directly. Management should also realise that while the other organisational antecedents may not be strong predictors of entrepreneurial actions or sustainable CE, they play a coherent and catalytic role through their combined effect and should therefore be promoted also.

However, the findings seem to be cautionary about the pursuit of sustainable CE strategy vis-a-vis the organisational antecedents: the CECI factors should not be pursued one at a time, but holistically, if their influence is to be strong enough as a strategy for sustainable CE. However, management should also bear in mind that in implementing sustainable CE strategy, a balancing approach (Morris *et al.*, 2009) is required since "not all corporate entrepreneurial behaviour is good for the organisation" (Goodale *et al.*, 2011:124).

In relation to organisational boundaries, the findings showed that the factor was only significantly linked to work discretion and time availability. In this respect, the results tend to suggest that flexible and supportive organisational boundaries that are useful in promoting entrepreneurial activity (Kuratko *et al.*, 2014:39) are largely most effective through work discretion and time availability in relation to the organisational antecedents. Similarly, MS for external CE only had statistically significant links with work discretion and MS for internal CE. Therefore, on the basis of the findings, management should realise that the influence of organisational boundaries in promoting sustainable CE is more effective in an organisation that highly espouses work discretion and time availability for entrepreneurial activities, while MS for external CE should be pursued having in mind the important role of work discretion as well as the linkage between external and internal CE.

It is critical for management to take note of the important role of work discretion in galvanising the organisational climate, in that it is the only organisational antecedent all of whose links with the other five organisational antecedents were statistically significant (followed by time availability, which only had one nonsignificant link with MS for external CE). Work discretion, the extent to which employees perceive top-level management's commitment to tolerating failure, providing decision-making

latitude and freedom from excessive oversight, and delegating authority and responsibility to lower level managers and workers (Kuratko *et al.*, 2014:38), leverages achievement of sustainable CE. This is because entrepreneurial outcomes are often a product of those with discretion for entrepreneurial experimentation arising from scanning both the external and internal environments for opportunities and threats (Hornsby *et al.*, 2009:239; Kraut *et al.*, 2005). Work discretion empowers individuals with freedom to pursue entrepreneurial actions regardless of the organisational rules, thereby fostering CE (Kuratko *et al.*, 2014:38).

Regarding the positive relationship between work discretion/autonomy and entrepreneurial actions, the findings empirically augment March's (1991:78) argument and McGrath's (2001:128) empirical evidence that less managerial oversight tends to be associated with higher variety. Entrepreneurial activities tend to thrive more in an environment that allows some degree of autonomy, which also propagates increased levels of creativity and innovation.

Similarly, time availability had statistically significant links with MS for internal CE, work discretion, rewards, and organisational boundaries. The study findings confirmed previous research (e.g., Hornsby *et al.*, 2013; Kuratko *et al.*, 2014) regarding the importance of time availability in relation to the organisational climate for entrepreneurial activities. In this respect the study findings also showed that time availability for managers (or the perception that management evaluates workloads to ensure that individuals and groups have the extra time needed to pursue innovations, and that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals (Hornsby *et al.*, 2013:943)) positively works together with the other organisational antecedents, especially if valuable time is spent on the most salient tasks which may in turn influence entrepreneurial actions.

However, the study findings also showed that the availability of this unstructured or free time tends not to be used for entrepreneurial actions within the organisation. One possible interpretation of this finding could be that when an organisation is not really entrepreneurially focused, managers may spend the time available for entrepreneurial innovations doing other unrelated activities, which could include activities of a personal nature or non-entrepreneurial organisational undertakings such as standard procedures or business-as-usual traditional practices. In this

respect, the findings seem to suggest that, for the purposes of achieving the intended entrepreneurial benefits, companies wishing to embrace CE should not think of establishing the climate for sustainable CE on a piecemeal basis but in totality, in order for the organisational antecedents to have harmonised enhancing effects on company competitiveness and performance.

Management should realise that there is really not much gain for the organisation that ensures time is available for innovations if its internal climate is not entrepreneurial enough, that is, if the organisation has not embraced all the other dimensions for creating a favourable CE climate. This implies that the organisational antecedents for CE do not work on a “pick-some leave-some” basis, as they are a complete CE prescription. In fact a piecemeal approach on CE while clinging on to traditional practices tends to result in undesirable outcomes, as the CE strategy is made ineffective (Thornberry, 2001). It is therefore important for management to note the possible directly detrimental effect of time availability to entrepreneurial actions, especially when the available free time is used for routines and not for considering opportunities for entrepreneurial innovation that may ordinarily not be pursued due to their required work schedules. Furthermore, this inappropriate use of the available unstructured time lowers both sustainable CE and sustained company performance. In fact the study findings showed that available unstructured time had the most indirectly detrimental effect on sustained company performance.

In the context of entrepreneurial actions, top-level management has an important role to play in influencing these actions within established organisations. Management should ensure that the internal organisational environment favours entrepreneurial behaviour in the entire organisation in order to avoid limiting entrepreneurial actions to only the top level. For an organisation to be labelled entrepreneurial, it is necessary for entrepreneurial actions to filter down to the entire organisation in terms of innovativeness, risk taking, and proactiveness.

7.8.3 Management implications of findings relating to entrepreneurial actions

The findings showed that entrepreneurial actions play an important role in instigating continuous organisational improvements directly through their strong effect on sustainable CE. In fact, among all the model’s predictor variables, entrepreneurial

actions had the strongest direct influence on sustainable CE, followed by dynamism, and MS for internal CE. In this respect, since entrepreneurial actions are the conduit through which CE is practised in established organisations (Hitt *et al.*, 2001), management should ensure that its entrepreneurial actions proactively incorporate both the explorative and exploitative entrepreneurial activities.

An organisation's entrepreneurial actions should necessarily incorporate developments in the external environment such as changes in the market, while taking into account the internal environmental factors. Additionally, management should be able to assess whether or not an entrepreneurial activity meets expectations in order for it to be sustained or discontinued (Morris *et al.* 2011:74). This assessment is critical, as it would help management to take timely decisions should there be a need for making changes in the CE strategy. Therefore, whether or not an activity meets expectations necessarily acts as a gauge for assessing whether the type of CE within the organisation is sustainable or not.

The indication of the findings that entrepreneurial actions are the strongest predictor of sustainable CE also implies that management should ensure that entrepreneurial behaviours that promote on-going innovation are embraced by the organisation at all levels. This is important, as entrepreneurial actions constitute a fundamental behaviour of organisations by which they move into new markets, seize new customers, and/or combine existing resources in new ways (Smith & Di Gregorio, 2002).

7.8.4 Management implications of findings relating to sustainable CE

According to the findings, sustainable CE was the most influential predictor of sustained company performance, with all its effect being direct, followed by entrepreneurial actions, whose effect was all indirect. These findings clearly affirm the existing link between sustainable CE and sustained company performance. In other words, on-going improvements or enduring entrepreneurial capabilities within organisations in areas such as differentiation or cost leadership in enterprise, quick response to any change, and new strategic direction or new ways of working or learning (Mokaya, 2012:138) is likely to bring about sustainable competitive advantage and sustained performance. In order for an organisation to benefit from

this strong influence of sustainable CE on sustained company performance, management should realise that a strategy for sustainable CE necessarily requires a two-pronged approach that incorporates both the internal and external dimensions of CE.

7.8.5 Management implications of findings relating to sustained company performance

The findings showed that the hypothesised model was appropriate for predicting sustained company performance, taking into account the influence on sustainable CE of factors in the external business environment and the organisational antecedents. However, the respective predictor variables in these two environments had varying effects on sustainable CE, implying that their contribution to sustained company performance also varied. For instance, among the predictor variables in these two environments, dynamism was found to have the strongest total direct effect on sustained company performance, followed by MS for internal CE.

In comparison, rewards (0.063), work discretion (0.015), MS for external CE (0.009), and heterogeneity (0.008) had very little total effect respectively on sustained company performance. However, the findings also clearly showed that the hypothesised composite model for predicting sustainable CE and sustained company performance gave better prediction when all the hypothesised predictor variables (including those with weak prediction) were part of the model, as opposed to when some of the predictor variables were excluded.

These findings have important management implications: that is, that the variables for predicting sustainable CE and sustained company performance all work together, albeit in different ways and with varying effects. In other words, a strategy for sustainable CE and sustained company would necessarily require management to incorporate not just the variables considered to be the most influential on sustainable CE, but to holistically and proactively incorporate even those variables considered to have a weak influence. For instance, while the links with entrepreneurial actions from organisational boundaries, rewards, and work discretion were statistically nonsignificant, MS for internal CE was found to be the best predictor for entrepreneurial actions and also significantly influenced sustainable CE. In other

words, MS for internal CE predicts both entrepreneurial actions and sustainable CE, while the other CEI variables only work through entrepreneurial actions. In this respect, management should be aware that what gives better outcomes as regards sustainable CE is not a single variable but the interactive effect among all the factors. These organisational antecedents work together to bring about enhanced entrepreneurial behaviour of managers, while MS for internal CE also significantly directly influences sustainable CE.

Furthermore, among all the organisational antecedents and external environment variables, only MS for external CE, had a direct effect on sustained company performance. In other words managers' entrepreneurial initiatives pertaining to corporate venturing activities that lead to the creation of semi-autonomous or autonomous organisational entities that reside outside the existing organisational domain (Covin & Miles, 2007:183; Phan *et al.*, 2009:198-199; Sharma & Chrisman, 1999:19-20) do have a direct effect on sustained company performance. Therefore in order to achieve sustained company performance, management should embark on entrepreneurial initiatives that do not just lead to the creation of new businesses within the corporate business but also external to the corporate business.

Both the internal and external CE phenomena are critical to the achievement of both sustainable CE and sustained company performance. The nature of explorative and exploitative entrepreneurial activities that management pursues should therefore have a strategic mix of both internal CE activities that focus on the existing business and external CE activities that lead to the creation of semi-autonomous or autonomous organisational entities residing outside the existing organisation.

Overall, the findings showed that of all the variables in the model, only sustainable CE and MS for external CE had a direct effect on sustained company performance, while MS for external CE also worked indirectly through sustainable CE. This also goes to show the important role that management support for external CE initiatives plays in achieving sustained company performance: it is the only single predictor variable in the model that was found to have direct influence on sustained company performance while also directly influencing sustainable CE.

7.9 Study's contribution to CE literature

This study attempted to empirically determine predictors of sustainable CE and sustained company performance in relation to antecedents in both the external environment and internal organisational environment using structural equation modelling. The findings revealed a number of salient aspects of the study in line with the stated objectives. In this respect, the contributions of the study are numerous and include the following:

- The objectives of the study as described in Chapter 1 were achieved.
- The study contributes to the limited empirical research that exists on sustainable CE; to our knowledge, the hypothesised composite SEM model for predicting sustainable CE and sustained company performance has never been tested before.
- This study applied an advanced statistical technique such as SEM to CE, while the respective measurement models were rigorously subjected to CFA procedures as regards their use for predicting sustainable CE and sustained company performance.
- The study introduced new items for the subscales entrepreneurial actions and sustained company performance. Although these subscales may still need further refinement, the new items that were introduced improved their reliability.
- This study used data collected from Zambia, where the composite measurement instrument for sustainable CE had never been tested before. The findings showed that the respective subscales as well as the composite measurement instrument applied in this study maintained their psychometric attributes across cultures and countries. Many psychometric instruments fail this test of intercultural psychometric portability (Dolnicar & Grün, 2007; Van Wyk & Adonisi, 2011).
- Finally, the findings as regards the study objectives and research questions are fundamentally useful for enhancing teaching materials and educational

activities, and hope to provoke further research on the subject to broaden knowledge advancement in CE.

7.10 Conclusion

The results from this study suggest that, as applied in the Zambian context through the sample data used, the composite measurement instrument, with all the respective subscales, is psychometrically and parsimoniously sound and therefore acceptable for predicting sustainable CE and sustained company performance. Construct validity for the respective subscales was evidenced by the acceptable fit indices, generally high and statistically significant factor loadings, as well as reliability above the acceptable threshold. The good news is that the study results suggest that sustainable CE and sustained company performance are achievable and empirically predictable. However, the study findings are subject to cross-validation using an independent sample.

To our knowledge, the hypothesised composite SEM model for sustainable CE had never been tested before. The model, with 12 latent variables and subscales, has been shown to possess adequate psychometric properties in a large sample drawn from the population of company managers in a developing country. Both construct validity and adequacy of reliability for all the scales were largely supported by the findings from the CFA modelling.

Therefore, based on the study findings from this full SEM application, we can conclude that CE climate (MS for internal CE; MS for external CE; work discretion; rewards/reinforcement; time availability; and organisational boundaries, barriers and bureaucracies), and external environment (dynamism; hostility; and heterogeneity), are compelling determinants of sustainable CE which leads to sustained company performance. The internal organisational antecedents largely work through entrepreneurial actions, while the external contextual influences have a direct effect on sustainable CE as well as indirect effects through entrepreneurial actions.

As highlighted, the findings of this study have valuable management implications in relation to the pursuit of sustainable CE and sustained company performance.

7.11 Recommendations

This study attempted to determine predictors of sustainable CE and sustained company performance taking into account both the external and internal environments. The findings of the study are encouraging, although there is still need for further conceptual as well as field work in different demographic and cross-cultural contexts to refine the prediction model used.

The field of sustainable CE is fairly new (Shepherd & Patzelt, 2011) and would therefore require more conceptual and field work for further refinement of the measurement tools used for predicting sustainable CE and sustained company performance. It is expected that such scholarly efforts would also result in further refinement and validation of the constructs used for predicting sustainable CE and sustained company performance. Enhanced operational definitions of the constructs used would also add scholarly value to subsequent research in this field while benefiting also entrepreneurship education materials.

7.12 Limitations of the study

This study has a number of limitations which in fact create opportunities for new research direction.

Firstly, the research targeted only those participants who were in management (senior managers, middle managers, and junior managers) for the purpose of capturing managers' entrepreneurial behaviour or actions. Therefore, once the industry strata had been identified, the selection of participating individuals was done using a non-probability sampling method in order to satisfactorily meet sampling objectives (Cooper & Schindler, 2008:396). However, the use of non-probability sampling procedures does not reflect a true cross-section of the population and is therefore acknowledged as a limitation of this study.

Secondly, to analyse the data, this study used SEM processes, which are considered to be a confirmatory rather than exploratory procedure, with the following three alternative approaches (Asparouhov & Muthén, 2009; Ender, 2012; Garson, 2012):

(1) strictly confirmatory approach (the SEM goodness-of-fit tests are used to determine consistency of the pattern of variances and covariances in the data compared with the *a priori* hypothesised model by the researcher, and no further modifications to the model are made); (2) Alternative models approach (the researcher tests two or more models to determine the model with the best fit); and (3) model development approach (a combination of confirmatory and exploratory procedures where a model is initially tested using SEM, found to be unsuitable, and then subjected to respecification on the basis of indications by the SEM modification indices in order to come up with an acceptable model. This study used the model development approach, which in fact is mainly used in most SEM research (Garson, 2012). The major weakness of this approach is that models developed through this exploratory SEM approach are post hoc and may therefore not fit new data since they are a creation out of the uniqueness of the initial dataset (Garson, 2012; Kline 2011). Although this weakness may be overcome by using a cross-validation strategy, where the model is developed using a calibration data sample and then confirmed using an independent validation sample (Garson, 2012), this was not done in this study and therefore stands as one of the limitations.

Thirdly, the piloting of the measurement instrument should have been much more comprehensive, using a relatively large sample size. This was not done, however, due to the cost implications, and is therefore another important limitation of the study. In addition, it is very likely that the contextual meaning of some of the items for the respective measurement instruments may have been interpreted differently by some respondents, thereby detracting from the intended outcome in terms of responses. The piloting phase could have dealt with this aspect also.

Fourthly, although the subscales used in this study, specifically the measurement instruments for CE climate (CECI), external environment, company performance, and entrepreneurial actions were used in previously published research, a number of items would require restructuring. Therefore the overall measurement instrument for the study has limitations in a number of respects and would need refinement of item construction and subsequent validation using data from cross-cultural contexts. There are a number of items in the overall measurement instrument which tend to be double-barrelled, and this has the potential to introduce measurement error. For instance, item V30 (time availability): “I have just the right amount of time and

workload to do everything well”. This item has dimensions of time, workload, and quality of work. Item V53 (Dynamism): “in our industry, methods of production change often and in major ways”, is another example of a double-barrelled item, as it measures both regularity and extent of change. Generally, there is an opportunity to improve item construction for the entire measurement instrument. The measurement scale for external environment tended to be generic, while leaving out other particular and equally important aspects of the construct when broadly operationalised. Other variables pertaining to external business environment such as national culture, networking, and economic incentives should be incorporated as well. In addition, the operationalisation of the included variables (dynamism, hostility, and heterogeneity) should also be refined to enhance construct validity and reliability. This is also applicable to the CECI and the other subscales. In this respect, future research could test a more comprehensive composite model that includes variables that are not part of the model tested in this study.

Fifthly, the study assessed construct validity (discriminant, convergent, and nomological validity) using CFA and SEM procedures, a common practice among SEM researchers (Brown, 2006; Hair *et al.*, 2010; Jackson *et al.*, 2009). The study did not confirm the validity findings using other contemporary methods, such as assessing discriminant validity using average variance extracted (AVE) as suggested by Fornell and Larcker (1981). This in itself could be considered as a study limitation since the validity findings were not confirmed, specifically discriminant validity, using AVE, or indeed any other methods.

Sixthly, all measures in the model were based on perceptions, for instance, company performance was not measured using any objective criteria. However, the use of such subjective, self-report measures of performance, or generally measures based on perceptions, is consistent with past research practices (Covin & Slevin, 1989; Matsuno *et al.*, 2002:24; Poon *et al.*, 2006:69). It has also been empirically shown that top managers’ perceptions of the performance of their organisation are highly consistent with their organisations’ actual performance as indicated by objective measures (Dess & Robinson, 1984; Wall *et al.*, 2004).

Seventhly, although the fit for the final SEM model was good, the model lacked the expected statistical power as its sample size was only 646, instead of an ideal

sample of 1 680 (i.e.168 parameters x 10 participants). This may also have contributed to the generally low loadings for the predictive structural paths of the latent variables.

7.13 Future research direction

The study used a model for predicting sustainable CE and sustained company performance that, to the best of our knowledge, has not been tested yet. However the findings of this study were not cross-validated to check if the model could fit new data. As such, replication of the study using new data is a necessary step to follow in order to validate the model.

Furthermore, it seems more work needs to be done to refine the CE climate instrument as well as the measurement instrument for contextual influences in the external environment. Regarding the CECI, the study findings have shown that the instrument has six and not five dimensions as originally indicated (Hornsby *et al.* 2002). As for the measurement scale for external environment, the study findings seem to indicate item refinement particularly for the construct *hostility*. It would therefore be appropriate to direct future scholarly efforts at validating the study findings using a new dataset and enhanced measurement models.

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APPENDIX A
Sustainable Corporate Entrepreneurship Assessment
Instrument (SCEAI)

SUSTAINABLE CORPORATE ENTREPRENEURSHIP ASSESSEMENT INSTRUMENT (SCEAI)

Dear respondent,

I am pleased to inform you that you have been selected to participate in completing this questionnaire on corporate entrepreneurship. The study is about sustainable corporate entrepreneurship environment and uses the Sustainable Corporate Entrepreneurship Assessment Instrument (SCEAI).

What is Corporate Entrepreneurship (CE)? Briefly stated, CE is a process whereby an individual or a group of individuals, in association with an existing organisation like your employer, instigate organisational renewal or create a new business within the organisation to enhance its profitability and competitiveness. CE involves risk taking, proactiveness and innovation in your company. Thus CE is entrepreneurship inside your company. In case you are interested to read more on CE, kindly see the attached one-page document.

What is the SCEAI? This is a specifically designed research instrument to measure opinions and feelings of management regarding corporate entrepreneurship activities within their respective organisations.

Who may complete the questionnaire: Any member of staff at management level with interest in corporate entrepreneurship may complete this questionnaire.

Confidentiality: Please note that your responses to this questionnaire are strictly confidential and will be used only for the intended research purpose. In this respect, it is optional to indicate your name.

Are there any right or wrong answers? You may be pleased to note that there is no right or wrong answer in this questionnaire. You are simply requested to give your honest opinions and perceptions based on your actual organisational experiences.

Your cooperation is therefore highly appreciated.

		FOR OFFICE USE			
1 RESPONDENT NUMBER	<input type="text"/> <input type="text"/> <input type="text"/>	V1 <input type="text"/> <input type="text"/> <input type="text"/> 1-3			
A Biographic Information					
2 What is your management level? 1 = Senior Management 2 = Middle Management 3 = Junior Management	<input type="text"/>	V2 <input type="text"/> 4			
3 Your gender: 1 = Male 2 = Female	<table border="1" style="width: 40px; height: 40px; text-align: center; border-collapse: collapse;"> <tr><td>1</td></tr> <tr><td>2</td></tr> </table>	1	2	V3 <input type="text"/> 5	
1					
2					
4 What is your age?	<input type="text"/>	V4 <input type="text"/> 6			
5 How many years have you been at the organisation (full time)?	<input type="text"/>	V5 <input type="text"/> 7			
6 What is the highest level of education that you completed? 1 = Less than Grade 12 2 = Grade 12 3 = Other qualifications after Grade 12	<table border="1" style="width: 40px; height: 60px; text-align: center; border-collapse: collapse;"> <tr><td>1</td></tr> <tr><td>2</td></tr> <tr><td>3</td></tr> </table>	1	2	3	V6 <input type="text"/> 8
1					
2					
3					

4 = Degree
5 = Post graduate qualification

7 Which category best describes your current position?
1 = I manage others
2 = I don't manage others

Company Data

8 Which sector does your company belong?
1 = Agriculture/Agro industry
2 = Banking/Financial
3 = Tourism/hospitality
4 = Communication
5 = Energy
6 = Manufacturing
7 = Mining
8 = Service

9 For how long has your company been operating?

10 How many employees does your organisation have?

V7 9

V8 10

V9 11

V10 12

Example	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
Our organisation practices good management principles. (1 = Strongly disagree; 5 = Strongly agree)	1	2	3	4	5
An example where you wanted to "Strongly agree":	1	2	3	4	5
Please indicate on a scale of 1 to 5 the extent to which you agree or disagree with each of the following statements.					

Part 1: Corporate entrepreneurship Climate

Section 1: Management Support for Corporate Entrepreneurship

11 My organisation is quick to use improved work methods that are developed by workers.

V11 13

12 My organisation encourages the development of new ideas for the improvement of the corporation.

V12 14

13 Upper management is aware of and very receptive to my ideas and suggestions.

V13 15

14 Those actively working on projects are allowed to make decisions without going through elaborate justification and approval procedures.

V14 16

15	There are several options within the organisation for individuals to get financial support for their innovative projects and ideas.	1	2	3	4	5	V15	<input type="text"/>	17
16	Individual risk takers are recognized and encouraged for the willingness to champion new projects, whether eventually successful or not.	1	2	3	4	5	V16	<input type="text"/>	18
17	My organisation supports many small and experimental projects, realising that some will undoubtedly fail.	1	2	3	4	5	V17	<input type="text"/>	19
18	Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.	1	2	3	4	5	V18	<input type="text"/>	20
Section 2: Work Discretion									
19	I feel like I am my own boss and do not have to double-check all my decisions with someone else.	1	2	3	4	5	V19	<input type="text"/>	21
20	This organisation gives me the opportunity to make use of my abilities.	1	2	3	4	5	V20	<input type="text"/>	22
21	In this organisation I am not subject to criticism and punishment resulting from mistakes made on the job.	1	2	3	4	5	V21	<input type="text"/>	23
22	I have much autonomy on my job and am left on my own to do my own work.	1	2	3	4	5	V22	<input type="text"/>	24
23	I seldom have to follow the same work methods or steps for doing my major tasks from day to day.	1	2	3	4	5	V23	<input type="text"/>	25
Section 3: Rewards/Reinforcement									
24	The rewards I receive are dependent upon my work performance.	1	2	3	4	5	V24	<input type="text"/>	26
25	My manager/ supervisor will increase my job responsibilities if I am performing well in my job.	1	2	3	4	5	V25	<input type="text"/>	27
26	Individuals running or initiating successful innovative projects receive additional rewards and compensation for their ideas and efforts beyond the standard reward system.	1	2	3	4	5	V26	<input type="text"/>	28
27	My manager/supervisor would tell his/her boss if my work was outstanding.	1	2	3	4	5	V27	<input type="text"/>	29
28	My manager/supervisor helps me get my work done by removing obstacles and roadblocks.	1	2	3	4	5	V28	<input type="text"/>	30

Section 4: Time Availability

29	During the past three months, my workload kept me from spending time on developing new ideas.	1	2	3	4	5	V29	<input type="text"/>	31
30	I have just the right amount of time and work load to do everything well.	1	2	3	4	5	V30	<input type="text"/>	32
31	I always seem to have plenty of time for innovation and experimentation.	1	2	3	4	5	V31	<input type="text"/>	33
32	My job is structured in such a way that gives me very little time to think about wider organisational problems.	1	2	3	4	5	V32	<input type="text"/>	34
33	In this organisation my co-worker and I always find time for Long-term problem solving.	1	2	3	4	5	V33	<input type="text"/>	35
Section 5: Organisational boundaries, Barriers and Bureaucracies									
34	In the past three months, I had to follow very little standard operating procedures or practices to do my major tasks.	1	2	3	4	5	V34	<input type="text"/>	36
35	There are many written rules and procedures that exist for doing my major tasks.	1	2	3	4	5	V35	<input type="text"/>	37
36	My job description clearly specifies the standards of performance on which my job is evaluated.	1	2	3	4	5	V36	<input type="text"/>	38
37	I clearly know what level of work performance is expected from me in terms of quantity, quality and timeline of output.	1	2	3	4	5	V37	<input type="text"/>	39
38	I seldom have to follow the same work methods or steps for doing my major tasks.	1	2	3	4	5	V38	<input type="text"/>	40
Part 2: Entrepreneurial Actions									
39	In our organisation, the number of improvements implemented without organisational approval were on the increase over the past six months.	1	2	3	4	5	V39	<input type="text"/>	41
40	Over the past six months, the number of new ideas suggested in our organisation increased greatly.	1	2	3	4	5	V40	<input type="text"/>	42
41	In our organisation, the number of new ideas implemented without official organisational approval was on the increase in the past six months.	1	2	3	4	5	V41	<input type="text"/>	43
42	I am satisfied with the outcomes of my organisation's entrepreneurial activities as they meet expectation.	1	2	3	4	5	V42	<input type="text"/>	44

Part 3: Corporate Entrepreneurship

43	Our organisation regularly and continuously introduces new products and services or enters new markets.	1	2	3	4	5	V43	<input type="text"/>	45
44	Our organisation seeks to sustain or improve its competitive standing by altering its internal processes, structures, and/or capabilities.	1	2	3	4	5	V44	<input type="text"/>	46
45	Our organisation seeks to redefine its relationship with its markets or industry competitors by fundamentally altering how it competes.	1	2	3	4	5	V45	<input type="text"/>	47
46	Our organisation proactively creates a new product market arena that others have not recognised or actively sought to exploit.	1	2	3	4	5	V46	<input type="text"/>	48
47	Our organisation applies entrepreneurial thinking to the design or redesign of its core business model(s) in order to improve operational efficiencies or otherwise differentiate itself from industry competitors in ways valued by the market.	1	2	3	4	5	V47	<input type="text"/>	49

Part 4: Company Performance

48	Our organisation's primary market share grew last year.	1	2	3	4	5	V48	<input type="text"/>	50
49	Our organisation's percentage of sales generated by new products/services last year grew relative to major competitors.	1	2	3	4	5	V49	<input type="text"/>	51
50	Last year, our organisation's return on investment (ROI) grew relative to major competitors.	1	2	3	4	5	V50	<input type="text"/>	52
51	I am satisfied with the performance of my organisation as the outcomes are equitable and/or meet expectation.	1	2	3	4	5	V51	<input type="text"/>	53

Part 5: External Environmental Factors
Section 1: Dynamism

52	The rate of product obsolescence in our industry is high.	1	2	3	4	5	V52	<input type="text"/>	54
53	In our industry, methods of production change often and in major ways.	1	2	3	4	5	V53	<input type="text"/>	55
54	Our firm must change its marketing practices frequently.	1	2	3	4	5	V54	<input type="text"/>	56

Section 2: Hostility

55	In our industry, actions of competitors are unpredictable.	1	2	3	4	5	V55	<input type="text"/>	57
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56	In our industry, demand and customer tastes are unpredictable.	1	2	3	4	5	V56	<input type="text"/>	58
57	Declining markets for products are a major challenge in our industry.	1	2	3	4	5	V57	<input type="text"/>	59
58	Tough price competition is a major challenge in our industry.	1	2	3	4	5	V58	<input type="text"/>	60
59	Government interference is a major challenge in our industry.	1	2	3	4	5	V59	<input type="text"/>	61
60	Our business environment causes a great deal of threat to the survival of our company.	1	2	3	4	5	V60	<input type="text"/>	62
Section 3: Heterogeneity									
61	We are a highly organised conglomerate and operate in unrelated industries.	1	2	3	4	5	V61	<input type="text"/>	63
62	Customers' buying habits vary a great deal from one line of our business to the other.	1	2	3	4	5	V62	<input type="text"/>	64
63	Market dynamism and uncertainty vary a great deal from one line of our business to the other.	1	2	3	4	5	V63	<input type="text"/>	65

Thank you for your time and participation

Source of the Questionnaire:

Measurement instrument for Corporate Entrepreneurship Climate adapted from the Corporate Entrepreneurship Assessment Instrument (CEAI) of Morris, M.H., Kuratko, D.F. & Covin, J. 2008. Corporate entrepreneurship and innovation. Mason, OH: South-Western, USA;

Measurement instrument for entrepreneurial actions adapted from Kuratko, D.F., Hornsby, J.S. & Bishop, J.w. 2005. Managers' corporate entrepreneurial actions and job satisfaction;

Measures for sustainable corporate entrepreneurship adapted from forms of corporate entrepreneurship as listed by Morris, M.H., Kuratko, D.F. & Covin, J. 2008. Corporate entrepreneurship and innovation. Mason, OH: South-Western, USA;

Measures for company performance adapted from Matsuno, K., Mentzer, J.T. & Ozsomer, A. 2002. The effects of entrepreneurial proclivity and market orientation on business performance. Journal of Marketing, 66 (July): 18-32, and;

Measurement for environment adapted from Zahra, S.A. 1991. Predictors and financial outcomes of corporate entrepreneurship. An exploratory study. Journal of Business Venturing, 6:259-285.

**INTRODUCTION LETTER FROM THE BUSINESS MANAGEMENT DEPARTMENT
OF THE UNIVERSITY OF PRETORIA – ACCOMPANYING QUESTIONNAIRE**



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty Of Economic And Management Sciences

22 September 2011

To whom it may concern

**DATA COLLECTION – PHD RESEARCH
CHARLES MUWE MUNGULE**

I hereby declare that Charles Muwe Mungule, student number 29482730 is a registered PhD student in the Department of Business Management at the University of Pretoria.

We hereby request permission to collect data from your institution for his PhD research. This will be treated with confidentiality.

Kind regards



Prof JJ van Vuuren
Coordinator Chair in Entrepreneurship
Department of Business Management
Faculty of Economic and Management Sciences
University of Pretoria

A HALF-PAGE BRIEF EXPLANATION OF WHAT CORPORATE ENTREPRENEURSHIP IS – ACCOMPANYING QUESTIONNAIRE

CORPORATE ENTREPRENEURSHIP

Charles Muwe Mungule

*University of Pretoria, Faculty of Economic and Management Sciences,
Department of Business Management, South Africa
August 2011*

The concept of corporate entrepreneurship (CE) has a wide range of interpretations and terminologies. Simply stated, CE is a term used to describe entrepreneurial behaviour inside established mid-sized and large organisations, and centres on re-energising and enhancing the firm's ability to acquire innovative skills and capabilities appropriate for creating new businesses within the firm in order to improve organisational profitability and competitive advantage. CE involves risk-taking, proactiveness and innovation.

For CE to take place within an established organisation, employees have to be nurtured as corporate entrepreneurs by top management so that they can freely engage in entrepreneurial actions. It is the responsibility of top management to facilitate and promote entrepreneurial behaviour, including the championing of innovative ideas, providing the resources and creating structures employees require to take entrepreneurial actions. In association with their organisation, employees engage in successful identification and exploitation of new business opportunities which results in organisational survival and renewal as well as enhanced competitive advantage. These opportunities could be drawn from within the organisation or identified from the independent context. An organisation's entrepreneurial actions take place at different levels such as corporate, division (business unit) or project levels and can be formal or informal intended to create new businesses within the organisation through product and process innovations and market development.

Although the environment within an organisation should be supportive of CE, it is important to note that external factors such as challenges within the industry, market conditions, consumer behaviour, technological advancement, and the existing legal/regulatory framework do also affect CE.

It is expected that successful CE should lead to sustained entrepreneurial performance in form of organisational growth, job and wealth creation, and profitability, which in essence bring about socioeconomic development. CE also brings about enhanced human resource development through improved skills among the corporate entrepreneurs.

APPENDIX B
Author's Biography

AUTHOR'S BIOGRAPHY

Charles Muwe Mungule was born on the 17th of August 1965 in Mazabuka, Zambia. He matriculated at Kafue Boys Secondary School in 1985. He obtained the BA degree in Economics and Business Studies in 1990 at the University of Zambia and a Masters degree in Economics in 2000 at the same University.

Charles' working career started 1990 when he joined Lusaka City Council as Projects Economist, moving on to join the Zambia Privatisation Agency (ZPA) early in 1993 as Business Analyst where he later became one of the ZPA's Senior Technical Officers responsible for conducting business, economic and financial analyses for privatization transactions. In 1998 he signed up as Commercial Manager for a one-year mission with the European Development Fund (EDF) Wildlife Project where he was involved in the commercialization of Zambia's National Parks and Wildlife Service (NPWS) to establish the Zambia Wildlife Authority (ZAWA).

He later decided to venture into consultancy and in 2002 relocated to Namibia where he established and successfully managed a business and development consulting firm known as Premier Consult cc, an enterprise he ran as Managing Director for about ten years before he decided to relocate back to Zambia. Under Premier Consult, Charles undertook several high profile consulting assignments in Southern Africa as well as South Sudan in the areas of economic, business, development, training/workshop facilitation, strategic planning, project management, and research.

In 2010, Charles joined the German Technical Cooperation (GIZ) in Lusaka where he worked as National Expert responsible for coordinating the Efficiency Task Force component (non-revenue water, accounting & billing, and energy efficiency). Later in 2012 he joined the Citizens Economic Empowerment Commission (CEEC), an initiative of the Government Republic of Zambia, as its Director for Empowerment Programmes and was responsible for coordinating the planning and implementation of CEEC's broad-based and equitable economic empowerment programs for the targeted citizens. Currently, Charles is a business and development consultant.

Charles is married to Matimba and they have four children.

APPENDIX C

Assessment of Normality of Data

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
RV36	1.000	5.000	-.975	-10.000	-.119	-.611
RV29	1.000	5.000	.997	10.222	-.068	-.346
RV30	1.000	5.000	1.016	10.416	.042	.218
RV32	1.000	5.000	.934	9.575	-.265	-1.358
RV37	1.000	5.000	-.984	-10.093	-.252	-1.295
RV35	1.000	5.000	.315	3.235	-1.313	-6.735
V51	1.000	5.000	.209	2.146	-1.321	-6.773
V42	1.000	5.000	.845	8.670	-.270	-1.384
V33	1.000	5.000	.705	7.230	-.751	-3.849
V28	1.000	5.000	-.920	-9.438	-.265	-1.361
V11	1.000	5.000	-.411	-4.213	-1.180	-6.053
V38	1.000	5.000	.207	2.120	-1.361	-6.980
V43	1.000	5.000	.864	8.864	-.307	-1.575
V44	1.000	5.000	-.372	-3.813	-1.165	-5.975
V45	1.000	5.000	-.452	-4.633	-.975	-5.001
V46	1.000	5.000	.784	8.042	-.409	-2.098
V47	1.000	5.000	.200	2.048	-1.259	-6.454
V19	1.000	5.000	.683	7.000	-.839	-4.300
V20	1.000	5.000	-.643	-6.596	-.895	-4.587
V21	1.000	5.000	.838	8.593	-.490	-2.513
V22	1.000	5.000	.151	1.544	-1.401	-7.182
V60	1.000	5.000	1.254	12.856	1.420	7.282
V59	1.000	5.000	.978	10.027	-.175	-.895
V58	1.000	5.000	-.101	-1.040	-1.489	-7.637
V57	1.000	5.000	1.435	14.718	2.606	13.361
V56	1.000	5.000	.302	3.092	-1.239	-6.353
V55	1.000	5.000	-.571	-5.856	-1.028	-5.274
V24	1.000	5.000	-.094	-.967	-1.504	-7.714
V25	1.000	5.000	-.651	-6.678	-.855	-4.386
V26	1.000	5.000	.597	6.120	-.861	-4.415
V27	1.000	5.000	-.687	-7.044	-.551	-2.827
V63	1.000	5.000	-.557	-5.710	-.922	-4.730
V62	1.000	5.000	-.629	-6.454	-.865	-4.435
V61	1.000	5.000	1.221	12.522	.713	3.658
V54	1.000	5.000	-.423	-4.341	-1.156	-5.928
V53	1.000	5.000	1.493	15.312	3.340	17.127
V52	1.000	5.000	1.689	17.323	4.215	21.615
V48	1.000	5.000	-.630	-6.464	-.679	-3.480
V49	1.000	5.000	.588	6.031	-.921	-4.724
V50	1.000	5.000	.226	2.320	-1.144	-5.865
V39	1.000	5.000	.942	9.660	-.122	-.627
V40	1.000	5.000	.191	1.959	-1.212	-6.217
V41	1.000	5.000	.807	8.279	-.110	-.564
V34	1.000	5.000	.304	3.121	-1.280	-6.561
V31	1.000	5.000	.891	9.135	-.422	-2.164
V12	1.000	5.000	-.644	-6.601	-.876	-4.491
V13	1.000	5.000	-.057	-.583	-1.384	-7.095
V14	1.000	5.000	1.365	14.001	5.106	26.181
V15	1.000	5.000	.865	8.872	2.570	13.179
V16	1.000	5.000	.867	8.894	3.849	19.733
V17	1.000	4.000	.509	5.219	2.274	11.658
V18	1.000	5.000	.804	8.247	3.100	15.896
Multivariate					258.042	43.248

APPENDIX D

Assessment of multivariate outliers

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
82	140.164	.000	.000
34	137.785	.000	.000
349	131.275	.000	.000
429	116.929	.000	.000
543	112.053	.000	.000
184	111.574	.000	.000
475	111.061	.000	.000
245	109.231	.000	.000
355	108.486	.000	.000
17	107.313	.000	.000
148	100.173	.000	.000
368	98.561	.000	.000
479	96.651	.000	.000
25	96.311	.000	.000
396	95.794	.000	.000
539	95.570	.000	.000
146	95.044	.000	.000
109	93.980	.000	.000
172	93.430	.000	.000
542	93.045	.000	.000
609	92.750	.000	.000
130	91.982	.001	.000
108	91.675	.001	.000
443	91.270	.001	.000
526	90.914	.001	.000
255	90.451	.001	.000
449	89.633	.001	.000
308	87.842	.001	.000
75	87.212	.002	.000
559	86.229	.002	.000
171	85.483	.002	.000
387	85.476	.002	.000
168	83.623	.004	.000
33	83.574	.004	.000
61	83.041	.004	.000
256	82.933	.004	.000
378	82.056	.005	.000
9	81.889	.005	.000
213	81.845	.005	.000
254	81.002	.006	.000
16	80.021	.008	.000
2	80.013	.008	.000
50	79.683	.008	.000
634	79.562	.008	.000
13	79.460	.008	.000
386	79.355	.009	.000
519	79.182	.009	.000
496	79.105	.009	.000
331	79.084	.009	.000
211	78.867	.010	.000
294	78.833	.010	.000
124	78.324	.011	.000
41	78.324	.011	.000

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Observation number	Mahalanobis d-squared	p1	p2
22	78.317	.011	.000
58	77.746	.012	.000
420	77.563	.012	.000
579	77.503	.012	.000
272	77.443	.013	.000
160	77.246	.013	.000
398	76.803	.014	.000
44	76.629	.015	.000
96	76.324	.016	.000
228	76.192	.016	.000
235	76.164	.016	.000
495	75.977	.017	.000
55	75.875	.017	.000
329	75.680	.018	.000
12	75.641	.018	.000
379	75.440	.018	.000
572	75.362	.019	.000
330	75.328	.019	.000
344	75.268	.019	.000
18	74.977	.020	.000
287	74.968	.020	.000
90	74.957	.020	.000
48	74.851	.021	.000
602	74.794	.021	.000
276	74.735	.021	.000
77	74.389	.022	.000
135	74.365	.023	.000
40	74.302	.023	.000
472	74.207	.023	.000
500	74.139	.024	.000
26	74.098	.024	.000
292	73.833	.025	.000
392	73.684	.026	.000
320	73.110	.028	.000
467	73.020	.029	.000
67	72.912	.029	.000
488	72.763	.030	.000
541	72.721	.030	.000
85	72.590	.031	.000
76	72.486	.032	.000
295	72.164	.034	.000
280	72.149	.034	.000
145	72.127	.034	.000
334	71.723	.036	.000
259	71.563	.037	.000
28	71.356	.039	.000
8	71.082	.040	.000

APPENDIX E

Bayesian SEM for the CFA Models

Selected output for Bayesian estimation of final CFA Model for CE climate

	Mean	S.E.	S.D.	C.S.	Skewness	Kurtosis	Min	Max	Name
Regression weights									
V15<--MS_External	1.077	0.002	0.092	1.000	0.287	0.430	0.731	1.506	Lv15
V31<--TimeAvailability	1.099	0.001	0.031	1.000	0.099	0.236	0.978	1.238	Lv31
V26<--RewardReinforcement	0.973	0.003	0.090	1.001	0.328	0.388	0.616	1.436	Lv26
V25<--RewardReinforcement	1.247	0.006	0.100	1.002	0.437	0.120	0.915	1.682	Lv25
V24<--RewardReinforcement	1.276	0.003	0.110	1.000	0.325	0.362	0.858	1.802	Lv24
V28<--RewardReinforcement	0.799	0.001	0.059	1.000	0.208	0.287	0.561	1.059	Lv28
V33<--TimeAvailability	0.809	0.001	0.039	1.000	0.168	0.281	0.637	1.006	Lv33
V22<--Workdiscretion	1.161	0.003	0.118	1.000	0.463	0.852	0.749	1.898	Lv22
V21<--Workdiscretion	0.802	0.001	0.081	1.000	0.304	0.479	0.488	1.206	Lv21
RV32<--TimeAvailability	1.050	0.001	0.031	1.000	0.126	0.295	0.923	1.182	Lrv32
RV30<--TimeAvailability	0.940	0.000	0.022	1.000	0.058	0.225	0.848	1.061	Lrv30
RV35<--OrgBoundaries	1.035	0.001	0.025	1.000	0.145	0.294	0.941	1.157	Lrv35
V38<--OrgBoundaries	1.001	0.001	0.026	1.000	0.109	0.195	0.894	1.118	Lv38
V16<--MS_External	0.989	0.003	0.088	1.000	0.371	0.375	0.696	1.441	Lv16
V18<--MS_External	0.853	0.002	0.082	1.000	0.300	0.209	0.552	1.223	Lv18
V11<--MS_Internal	0.959	0.001	0.040	1.000	0.111	0.282	0.800	1.152	Lv11
V13<--MS_Internal	0.701	0.001	0.043	1.000	0.091	0.231	0.530	0.930	Lv13
V14<--MS_External	0.700	0.003	0.087	1.001	0.297	0.264	0.387	1.132	Lv14
Intercepts									
V15	1.669	0.001	0.023	1.000	0.085	0.163	1.582	1.764	
V13	2.995	0.001	0.048	1.000	-0.091	0.269	2.790	3.226	
V12	3.595	0.001	0.046	1.000	0.006	0.188	3.361	3.783	
V31	2.203	0.001	0.046	1.000	0.128	0.327	2.003	2.391	
V34	2.761	0.001	0.048	1.000	-0.104	0.224	2.529	2.946	
V27	3.492	0.001	0.044	1.000	0.047	0.155	3.317	3.693	
V26	2.512	0.002	0.048	1.001	0.145	0.170	2.309	2.714	
V25	3.510	0.001	0.048	1.000	-0.020	0.234	3.315	3.740	
V24	3.047	0.001	0.055	1.000	-0.089	0.205	2.783	3.285	
V22	2.852	0.001	0.050	1.000	0.077	0.224	2.655	3.070	
V21	2.288	0.002	0.048	1.001	-0.128	-0.015	2.082	2.485	
V19	2.343	0.001	0.048	1.000	0.063	0.191	2.123	2.570	
V38	2.822	0.001	0.051	1.000	-0.070	0.252	2.610	3.043	
V11	3.316	0.001	0.047	1.000	0.002	0.219	3.114	3.515	
V28	3.593	0.001	0.045	1.000	0.065	0.266	3.410	3.796	
V33	2.371	0.001	0.047	1.000	0.053	0.206	2.157	2.580	
RV35	2.765	0.001	0.050	1.000	-0.092	0.282	2.534	2.971	
RV32	2.362	0.001	0.045	1.000	0.047	0.346	2.128	2.554	
RV30	2.375	0.001	0.042	1.000	0.086	0.328	2.186	2.573	
RV29	2.325	0.001	0.044	1.000	0.055	0.308	2.136	2.521	
V16	1.678	0.000	0.022	1.000	-0.084	0.298	1.571	1.769	
V17	1.718	0.001	0.021	1.000	0.088	0.180	1.629	1.800	
V18	1.666	0.001	0.023	1.001	0.115	0.069	1.583	1.763	
V14	1.722	0.001	0.024	1.001	0.129	0.055	1.625	1.833	
Covariances									
MS_External<->Workdiscretion	0.060	0.000	0.017	1.000	0.284	0.485	-0.007	0.152	
MS_External<->OrgBoundaries	0.012	0.001	0.021	1.002	-0.166	-0.067	-0.071	0.109	
OrgBoundaries<->Workdiscretion	0.159	0.001	0.047	1.000	0.071	0.291	-0.049	0.348	
MS_External<->TimeAvailability	0.013	0.001	0.018	1.001	-0.112	0.056	-0.082	0.109	
OrgBoundaries<->RewardReinforcement	-0.053	0.001	0.041	1.001	0.004	0.208	-0.275	0.129	
MS_External<->RewardReinforcement	0.023	0.001	0.014	1.001	-0.098	0.139	-0.036	0.085	
RewardReinforcement<->Workdiscretion	0.246	0.001	0.038	1.001	0.384	0.250	0.120	0.429	
TimeAvailability<->OrgBoundaries	0.105	0.001	0.051	1.000	-0.067	0.299	-0.105	0.355	
TimeAvailability<->RewardReinforcement	0.150	0.002	0.038	1.001	0.083	0.126	-0.006	0.320	
TimeAvailability<->Workdiscretion	0.143	0.001	0.040	1.000	0.076	0.301	-0.032	0.360	
MS_Internal<->MS_External	0.094	0.000	0.020	1.000	0.191	0.325	0.021	0.185	
MS_Internal<->Workdiscretion	0.163	0.001	0.046	1.000	0.178	0.310	-0.040	0.422	
MS_Internal<->RewardReinforcement	0.431	0.001	0.049	1.000	0.151	0.147	0.226	0.653	
MS_Internal<->TimeAvailability	0.165	0.002	0.050	1.000	-0.039	0.138	-0.031	0.370	
MS_Internal<->OrgBoundaries	-0.053	0.001	0.056	1.000	-0.087	0.413	-0.308	0.191	
eV27<->eV28	0.463	0.001	0.050	1.000	0.205	0.338	0.268	0.699	
eRV30<->eRV29	0.128	0.001	0.019	1.002	0.283	-0.044	0.049	0.211	
Variances									
MS_External	0.135	0.000	0.017	1.000	0.248	0.314	0.073	0.212	
TimeAvailability	1.065	0.002	0.074	1.000	0.285	0.251	0.786	1.454	
OrgBoundaries	1.438	0.002	0.091	1.000	0.131	0.268	1.088	1.843	
RewardReinforcement	0.527	0.002	0.067	1.000	0.167	0.266	0.296	0.872	
Workdiscretion	0.652	0.002	0.092	1.000	0.354	0.473	0.307	1.071	
MS_Internal	1.233	0.004	0.091	1.001	0.309	0.079	0.902	1.683	
eV15	0.220	0.000	0.016	1.000	0.221	0.318	0.155	0.301	
eV13	1.050	0.002	0.062	1.001	0.279	0.273	0.822	1.376	
eV12	0.280	0.002	0.042	1.001	0.116	0.115	0.087	0.456	
eV31	0.208	0.000	0.019	1.000	0.145	0.331	0.122	0.296	
eV34	0.232	0.001	0.022	1.001	0.363	0.216	0.159	0.329	
eV27	0.848	0.002	0.058	1.001	0.335	0.279	0.637	1.141	
eV25	0.757	0.002	0.062	1.000	0.038	0.261	0.515	1.062	
eV24	1.217	0.003	0.085	1.000	0.322	0.310	0.866	1.564	
eV22	0.858	0.003	0.093	1.001	0.082	0.256	0.472	1.267	
eV21	1.086	0.002	0.072	1.000	0.263	0.279	0.798	1.398	
eV19	0.961	0.004	0.080	1.001	-0.038	0.196	0.600	1.330	
eV38	0.330	0.001	0.025	1.000	0.058	0.143	0.224	0.441	
eV26	1.129	0.005	0.074	1.002	0.028	-0.162	0.863	1.451	
eV11	0.413	0.001	0.042	1.000	0.146	0.262	0.254	0.616	
eV28	1.078	0.001	0.065	1.000	0.156	0.242	0.833	1.353	
eV33	0.818	0.001	0.047	1.000	0.301	0.260	0.642	1.055	
eRV35	0.252	0.001	0.023	1.000	0.113	0.181	0.156	0.355	
eRV32	0.269	0.001	0.021	1.001	0.066	0.204	0.184	0.372	
eRV30	0.316	0.001	0.023	1.002	0.343	-0.064	0.234	0.434	
eRV29	0.301	0.000	0.022	1.000	0.244	0.437	0.215	0.422	
eV16	0.210	0.000	0.015	1.000	0.126	0.304	0.154	0.282	
eV17	0.179	0.000	0.014	1.000	0.091	0.217	0.126	0.241	
eV18	0.251	0.001	0.016	1.001	0.305	0.484	0.186	0.332	
eV14	0.349	0.001	0.020	1.000	0.143	0.341	0.275	0.487	

Selected output for Bayesian estimation of final CFA model for external environment

	Mean	S.E.	S.D.	C.S.	Skewness	Kurtosis	Min	Max	Name
Regression weights									
V53<--Dynamism	0.928	0.002	0.141	1.000	0.391	0.503	0.431	1.652	Lv53
V63<--Heterogeneity	1.029	0.001	0.096	1.000	0.284	0.342	0.628	1.511	Lv63
V59<--Hostility	0.482	0.000	0.043	1.000	0.001	-0.052	0.317	0.654	Lv59
Intercepts									
V52	1.725	0.000	0.032	1.000	-0.002	-0.023	1.568	1.851	
V53	1.800	0.000	0.031	1.000	-0.014	-0.026	1.675	1.940	
V62	3.444	0.000	0.052	1.000	-0.022	0.000	3.238	3.666	
V63	3.410	0.000	0.052	1.000	-0.014	0.013	3.208	3.627	
V56	2.721	0.001	0.052	1.000	-0.001	0.026	2.523	2.934	
V59	2.333	0.000	0.050	1.000	0.006	0.012	2.100	2.535	
Covariances									
Hostility<->Heterogeneity	0.444	0.001	0.070	1.000	0.143	0.000	0.171	0.755	
Hostility<->Dynamism	0.240	0.000	0.042	1.000	0.098	0.023	0.087	0.421	
Dynamism<->Heterogeneity	0.037	0.000	0.036	1.000	0.004	0.095	-0.127	0.198	
Variances									
Dynamism	0.458	0.001	0.076	1.000	0.505	0.680	0.226	0.875	
Heterogeneity	1.374	0.002	0.155	1.000	0.259	0.174	0.843	2.144	
Hostility	1.398	0.001	0.095	1.000	0.222	0.113	1.038	1.853	
eV52	0.178	0.001	0.069	1.000	-0.600	1.198	-0.262	0.428	
eV53	0.239	0.001	0.058	1.000	-0.295	0.443	-0.049	0.439	
eV62	0.335	0.002	0.125	1.000	-0.253	0.457	-0.383	0.790	
eV63	0.292	0.002	0.131	1.000	-0.239	0.360	-0.336	0.834	
eV59	1.279	0.001	0.075	1.000	0.200	0.027	1.006	1.620	

Selected output for Bayesian estimation of final CFA model for entrepreneurial actions

	Mean	S.E.	S.D.	C.S.	Skewness	Kurtosis	Min	Max	Name
Regression weights									
V40<--EntrepreneurialActions	0.646	0.000	0.043	1.000	0.055	0.035	0.474	0.845	Lv40
V41<--EntrepreneurialActions	0.784	0.000	0.035	1.000	0.064	0.053	0.633	0.968	Lv41
V42<--EntrepreneurialActions	0.960	0.000	0.033	1.000	0.109	0.044	0.818	1.116	Lv42
Intercepts									
V41	2.343	0.000	0.045	1.000	0.019	-0.005	2.161	2.546	
V40	2.828	0.000	0.049	1.000	0.009	0.002	2.605	3.048	
V39	2.248	0.000	0.048	1.000	0.014	-0.020	2.045	2.454	
V42	2.313	0.000	0.046	1.000	0.013	-0.001	2.127	2.520	
Variances									
EntrepreneurialActions	1.186	0.000	0.086	1.000	0.209	0.080	0.842	1.568	
eV41	0.570	0.000	0.037	1.000	0.218	0.099	0.409	0.737	
eV40	1.073	0.000	0.063	1.000	0.222	0.112	0.834	1.400	
eV42	0.278	0.000	0.030	1.000	0.131	0.108	0.153	0.433	
eV39	0.289	0.000	0.032	1.000	0.127	0.033	0.165	0.427	

Selected output for Bayesian estimation of final CFA model for sustainable CE

	Mean	S.E.	S.D.	C.S.	Skewness	Kurtosis	Min	Max	Name
Regression weights									
V47<--SustainableCE	1.064	0.001	0.104	1.000	0.278	0.210	0.682	1.601	Lv47
V46<--SustainableCE	1.133	0.001	0.107	1.000	0.340	0.258	0.758	1.675	Lv46
V44<--SustainableCE	0.869	0.001	0.096	1.000	0.243	0.195	0.464	1.393	Lv44
V45<--SustainableCE	0.566	0.000	0.081	1.000	0.168	0.117	0.245	0.985	
Intercepts									
V47	2.954	0.000	0.051	1.000	0.013	-0.013	2.746	3.169	
V46	2.365	0.000	0.047	1.000	0.011	0.012	2.157	2.586	
V44	3.278	0.000	0.051	1.000	0.003	0.018	3.040	3.492	
V43	2.328	0.000	0.046	1.000	0.013	0.012	2.146	2.518	
V45	3.387	0.000	0.047	1.000	-0.001	0.015	3.176	3.588	
Covariances									
eV47<-->eV44	0.252	0.000	0.059	1.000	0.093	0.066	-0.023	0.574	
eV44<-->eV45	0.350	0.000	0.056	1.000	0.108	0.029	0.117	0.598	
Variances									
SustainableCE	0.560	0.001	0.079	1.000	0.217	0.053	0.288	0.922	
eV47	1.034	0.000	0.080	1.000	0.130	0.016	0.694	1.392	
eV46	0.689	0.000	0.070	1.000	0.054	0.098	0.404	1.012	
eV44	1.270	0.001	0.085	1.000	0.167	0.084	0.944	1.672	
eV43	0.833	0.000	0.066	1.000	0.112	0.038	0.562	1.152	
eV45	1.269	0.000	0.076	1.000	0.222	0.073	0.990	1.660	

Selected output for Bayesian estimation of final CFA model for sustained company performance

	Mean	S.E.	S.D.	C.S.	Skewness	Kurtosis	Min	Max	Name
Regression weights									
V49<--SustainedComPerformance	1.518	0.001	0.142	1.000	0.425	0.411	1.044	2.288	Lv49
V50<--SustainedComPerformance	2.055	0.001	0.170	1.000	0.503	0.622	1.529	3.118	Lv50
V51<--SustainedComPerformance	2.079	0.001	0.176	1.000	0.527	0.694	1.529	3.165	Lv51
Intercepts									
V50	2.859	0.000	0.051	1.000	0.013	-0.002	2.658	3.080	
V49	2.552	0.000	0.051	1.000	0.000	0.004	2.340	2.755	
V48	3.591	0.000	0.045	1.000	-0.005	0.009	3.399	3.779	
V51	2.810	0.000	0.051	1.000	0.021	0.012	2.602	3.032	
Variances									
SustainedComPerformance	0.310	0.000	0.051	1.000	0.272	0.119	0.133	0.560	
eV50	0.359	0.000	0.045	1.000	0.066	0.061	0.165	0.559	
eV49	0.964	0.000	0.060	1.000	0.236	0.119	0.738	1.272	
eV48	1.019	0.000	0.059	1.000	0.205	0.075	0.802	1.293	
eV51	0.378	0.000	0.047	1.000	0.088	0.053	0.180	0.593	

APPENDIX F

Parameter Estimates for Final SEM Model (Model 8)

Maximum Likelihood Estimates

Regression Weights for the Final SEM Model

			Estimate	S.E.	C.R.	P	Label
EntrepreneurialActions	<---	MS_External	-.272	.144	-1.892	.059	par_47
EntrepreneurialActions	<---	Dynamism	.286	.082	3.485	***	par_52
EntrepreneurialActions	<---	Heterogeneity	-.186	.038	-4.942	***	par_57
EntrepreneurialActions	<---	Hostility	.213	.045	4.754	***	par_58
EntrepreneurialActions	<---	OrgBoundaries	.030	.037	.801	.423	H1.5
EntrepreneurialActions	<---	TimeAvailability	-.102	.043	-2.367	.018	H1.4
EntrepreneurialActions	<---	RewardReinforcement	.147	.103	1.433	.152	H1.3
EntrepreneurialActions	<---	Workdiscretion	.034	.082	.414	.679	H1.2
EntrepreneurialActions	<---	MS_Internal	.170	.054	3.135	.002	H1.1
SustainableCE	<---	EntrepreneurialActions	.467	.036	12.929	***	H2.1-H2.2
SustainableCE	<---	Hostility	-.129	.028	-4.657	***	H3.2
SustainableCE	<---	MS_Internal	.115	.025	4.568	***	par_44
SustainableCE	<---	Heterogeneity	.092	.023	3.924	***	H3.3
SustainableCE	<---	Dynamism	.294	.051	5.771	***	H3.1
SustainableCE	<---	TimeAvailability	-.093	.025	-3.693	***	par_59
SustainableCE	<---	OrgBoundaries	-.046	.021	-2.223	.026	par_63
SustainedCP	<---	SustainableCE	1.351	.084	16.072	***	H4
SustainedCP	<---	MS_External	.200	.094	2.134	.033	par_51
V13	<---	MS_Internal	.700	.044	15.862	***	Lv13
V31	<---	TimeAvailability	1.101	.032	34.694	***	Lv31
V34	<---	OrgBoundaries	1.000				
V27	<---	RewardReinforcement	1.000				
V26	<---	RewardReinforcement	.990	.093	10.649	***	Lv26
V25	<---	RewardReinforcement	1.263	.100	12.595	***	Lv25
V19	<---	Workdiscretion	1.000				
V28	<---	RewardReinforcement	.799	.061	13.188	***	Lv28
V33	<---	TimeAvailability	.811	.040	20.175	***	Lv33
V22	<---	Workdiscretion	1.171	.125	9.355	***	Lv22
RV32	<---	TimeAvailability	1.051	.032	33.325	***	Lrv32
RV30	<---	TimeAvailability	.940	.023	40.134	***	Lrv30
V12	<---	MS_Internal	1.000				
RV35	<---	OrgBoundaries	1.038	.026	39.845	***	Lrv35
V38	<---	OrgBoundaries	1.003	.027	37.382	***	Lv38
V15	<---	MS_External	1.073	.093	11.552	***	Lv15
V16	<---	MS_External	.982	.089	11.010	***	Lv16
V17	<---	MS_External	1.000				
V18	<---	MS_External	.854	.083	10.233	***	Lv18
V21	<---	Workdiscretion	.814	.084	9.654	***	Lv21
V42	<---	EntrepreneurialActions	1.005	.033	30.355	***	Lv42
V41	<---	EntrepreneurialActions	.789	.035	22.534	***	Lv41
V40	<---	EntrepreneurialActions	.663	.043	15.379	***	Lv40
V39	<---	EntrepreneurialActions	1.000				
V46	<---	SustainableCE	.943	.072	13.131	***	Lv46
V45	<---	SustainableCE	.514	.069	7.431	***	Lv45
V44	<---	SustainableCE	.997	.080	12.469	***	Lv44
V43	<---	SustainableCE	1.000				
V47	<---	SustainableCE	1.151	.082	14.080	***	Lv47
V50	<---	SustainedCP	1.000				
V49	<---	SustainedCP	.815	.043	19.076	***	Lv49
V63	<---	Heterogeneity	.909	.069	13.236	***	Lv63
V51	<---	SustainedCP	1.067	.037	28.797	***	Lv51
V48	<---	SustainedCP	.510	.041	12.567	***	Lv48
V62	<---	Heterogeneity	1.000				
V53	<---	Dynamism	1.049	.100	10.439	***	Lv53
V52	<---	Dynamism	1.000				
V11	<---	MS_Internal	.966	.041	23.550	***	Lv11
V24	<---	RewardReinforcement	1.296	.115	11.315	***	Lv24
RV29	<---	TimeAvailability	1.000				
V14	<---	MS_External	.700	.088	7.947	***	Lv14
V56	<---	Hostility	1.000				
V59	<---	Hostility	.492	.043	11.471	***	Lv59

Standardized Regression Weights for the Final SEM Model

			Estimate
EntrepreneurialActions	<---	MS_External	-.093
EntrepreneurialActions	<---	Dynamism	.169
EntrepreneurialActions	<---	Heterogeneity	-.216
EntrepreneurialActions	<---	Hostility	.235
EntrepreneurialActions	<---	OrgBoundaries	.033
EntrepreneurialActions	<---	TimeAvailability	-.098
EntrepreneurialActions	<---	RewardReinforcement	.098
EntrepreneurialActions	<---	Workdiscretion	.025
EntrepreneurialActions	<---	MS_Internal	.176
SustainableCE	<---	EntrepreneurialActions	.661
SustainableCE	<---	Hostility	-.201
SustainableCE	<---	MS_Internal	.168
SustainableCE	<---	Heterogeneity	.151
SustainableCE	<---	Dynamism	.246
SustainableCE	<---	TimeAvailability	-.126
SustainableCE	<---	OrgBoundaries	-.073
SustainedCP	<---	SustainableCE	.934
SustainedCP	<---	MS_External	.067
V13	<---	MS_Internal	.601
V31	<---	TimeAvailability	.927
V34	<---	OrgBoundaries	.926
V27	<---	RewardReinforcement	.611
V26	<---	RewardReinforcement	.556
V25	<---	RewardReinforcement	.719
V19	<---	Workdiscretion	.629
V28	<---	RewardReinforcement	.481
V33	<---	TimeAvailability	.677
V22	<---	Workdiscretion	.708
RV32	<---	TimeAvailability	.902
RV30	<---	TimeAvailability	.863
V12	<---	MS_Internal	.900
RV35	<---	OrgBoundaries	.927
V38	<---	OrgBoundaries	.901
V15	<---	MS_External	.643
V16	<---	MS_External	.617
V17	<---	MS_External	.657
V18	<---	MS_External	.529
V21	<---	Workdiscretion	.527
V42	<---	EntrepreneurialActions	.916
V41	<---	EntrepreneurialActions	.738
V40	<---	EntrepreneurialActions	.564
V39	<---	EntrepreneurialActions	.877
V46	<---	SustainableCE	.602
V45	<---	SustainableCE	.323
V44	<---	SustainableCE	.580
V43	<---	SustainableCE	.638
V47	<---	SustainableCE	.675
V50	<---	SustainedCP	.851
V49	<---	SustainedCP	.688
V63	<---	Heterogeneity	.857
V51	<---	SustainedCP	.894
V48	<---	SustainedCP	.482
V62	<---	Heterogeneity	.950
V53	<---	Dynamism	.835
V52	<---	Dynamism	.791
V11	<---	MS_Internal	.858
V24	<---	RewardReinforcement	.643
RV29	<---	TimeAvailability	.882
V14	<---	MS_External	.398
V56	<---	Hostility	.906
V59	<---	Hostility	.457

Covariances for the Final SEM Model

			Estimate	S.E.	C.R.	P	Label
MS_Internal	<-->	OrgBoundaries	-.052	.056	-.933	.351	par_45
OrgBoundaries	<-->	Workdiscretion	.152	.047	3.217	.001	par_46
Hostility	<-->	Heterogeneity	.458	.068	6.780	***	par_48
Hostility	<-->	Dynamism	.227	.039	5.745	***	par_49
Heterogeneity	<-->	Dynamism	.040	.035	1.126	.260	par_50
Workdiscretion	<-->	MS_External	.059	.017	3.382	***	par_53
MS_Internal	<-->	TimeAvailability	.160	.049	3.266	.001	par_54
RewardReinforcement	<-->	MS_External	.021	.014	1.516	.129	par_55
RewardReinforcement	<-->	Workdiscretion	.240	.038	6.378	***	par_56
TimeAvailability	<-->	OrgBoundaries	.101	.051	2.000	.045	par_60
MS_Internal	<-->	RewardReinforcement	.419	.049	8.541	***	par_61
TimeAvailability	<-->	RewardReinforcement	.142	.036	3.922	***	par_62
TimeAvailability	<-->	Workdiscretion	.140	.041	3.424	***	par_64
TimeAvailability	<-->	MS_External	.011	.018	.614	.539	par_65
OrgBoundaries	<-->	MS_External	.011	.021	.552	.581	par_66
OrgBoundaries	<-->	RewardReinforcement	-.052	.040	-1.301	.193	par_69
MS_Internal	<-->	MS_External	.091	.020	4.476	***	par_70
MS_Internal	<-->	Workdiscretion	.160	.046	3.503	***	par_71
eV44	<-->	eV47	.107	.043	2.500	.012	par_42
eV44	<-->	eV45	.326	.051	6.421	***	par_43
erV30	<-->	erV29	.128	.018	7.030	***	par_67
eV28	<-->	eV27	.460	.050	9.127	***	par_68

Correlations for the Final SEM Model

			Estimate
MS_Internal	<-->	OrgBoundaries	-.040
OrgBoundaries	<-->	Workdiscretion	.163
Hostility	<-->	Heterogeneity	.317
Hostility	<-->	Dynamism	.309
Heterogeneity	<-->	Dynamism	.052
Workdiscretion	<-->	MS_External	.204
MS_Internal	<-->	TimeAvailability	.143
RewardReinforcement	<-->	MS_External	.082
RewardReinforcement	<-->	Workdiscretion	.429
TimeAvailability	<-->	OrgBoundaries	.084
MS_Internal	<-->	RewardReinforcement	.539
TimeAvailability	<-->	RewardReinforcement	.196
TimeAvailability	<-->	Workdiscretion	.173
TimeAvailability	<-->	MS_External	.029
OrgBoundaries	<-->	MS_External	.026
OrgBoundaries	<-->	RewardReinforcement	-.062
MS_Internal	<-->	MS_External	.229
MS_Internal	<-->	Workdiscretion	.185
eV44	<-->	eV47	.107
eV44	<-->	eV45	.274
erV30	<-->	erV29	.418
eV28	<-->	eV27	.485

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Variances for the Final SEM Model

	Estimate	S.E.	C.R.	P	Label
MS_Internal	1.205	.090	13.389	***	par_115
TimeAvailability	1.040	.074	14.028	***	par_116
OrgBoundaries	1.398	.092	15.254	***	par_117
RewardReinforcement	.503	.068	7.446	***	par_118
Workdiscretion	.624	.093	6.705	***	par_119
MS_External	.133	.017	7.748	***	par_120
Heterogeneity	1.519	.143	10.651	***	par_121
Dynamism	.392	.048	8.222	***	par_122
Hostility	1.372	.093	14.732	***	par_123
e3	.921	.071	12.908	***	par_124
e2	.225	.030	7.387	***	par_125
e1	.145	.037	3.942	***	par_126
eV56	.300				
eV13	1.044	.063	16.579	***	par_127
eV12	.284	.042	6.828	***	par_128
eV31	.205	.020	10.394	***	par_129
eV34	.234	.022	10.660	***	par_130
eV25	.748	.063	11.917	***	par_131
eV24	1.200	.086	13.922	***	par_132
eV22	.851	.095	8.930	***	par_133
eV19	.952	.081	11.733	***	par_134
eV38	.325	.025	12.797	***	par_135
eV26	1.103	.072	15.340	***	par_136
eV11	.402	.042	9.517	***	par_137
eV28	1.069	.067	16.043	***	par_138
eV33	.810	.048	16.991	***	par_139
erV35	.246	.024	10.451	***	par_140
erV32	.264	.021	12.622	***	par_141
erV30	.315	.022	14.067	***	par_142
erV29	.297	.022	13.242	***	par_143
eV15	.217	.017	13.117	***	par_144
eV16	.208	.015	13.717	***	par_145
eV17	.175	.014	12.699	***	par_146
eV18	.249	.016	15.287	***	par_147
eV21	1.073	.074	14.480	***	par_148
eV53	.187	.040	4.693	***	par_149
eV52	.235	.037	6.286	***	par_150
eV63	.453	.093	4.893	***	par_151
eV62	.164	.108	1.520	.129	par_152
eV42	.219	.026	8.527	***	par_153
eV41	.585	.037	15.737	***	par_154
eV46	.883	.054	16.318	***	par_155
eV44	1.103	.067	16.470	***	par_156
eV43	.821	.052	15.903	***	par_157
eV45	1.280	.073	17.608	***	par_158
eV47	.892	.057	15.603	***	par_159
eV50	.451	.035	12.906	***	par_160
eV48	1.015	.058	17.384	***	par_161
eV49	.869	.055	15.903	***	par_162
eV51	.336	.033	10.250	***	par_163
eV39	.338	.030	11.385	***	par_164
eV40	1.059	.062	17.157	***	par_165
eV27	.843	.058	14.563	***	par_166
eV14	.346	.021	16.687	***	par_167
eV59	1.255	.074	17.004	***	par_168

Squared Multiple Correlations for the Final SEM Model

	Estimate
EntrepreneurialActions	.182
SustainableCE	.601
SustainedCP	.877
V59	.209
V56	.821
V14	.158
V51	.800
V48	.232
V49	.474
V50	.723
V47	.455
V43	.407
V44	.337
V45	.104
V46	.362
V39	.769
V40	.318
V41	.545
V42	.838
V62	.902
V63	.735
V52	.625
V53	.697
V21	.278
V18	.280
V17	.431
V16	.381
V15	.413
RV29	.778
RV30	.745
RV32	.813
RV35	.860
V33	.458
V28	.231
V11	.736
V38	.813
V19	.396
V22	.501
V24	.413
V25	.517
V26	.309
V27	.374
V34	.857
V31	.860
V12	.809
V13	.361

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Standardized Residual Covariances for the Final SEM Model

	V59	V56	V14	V51	V48	V49	V50	V47	V43	V44	V45	V46	V39	V40	V41	V42	V62	V63	V52	V53	V21	V18	V17	V16	V15	RV29	RV30	RV32	RV35	V33	V28	V11	V38	V19	V22	V24	V25	V26	V27	V34	V31	V12	V13										
V59	0.00																																																				
V56	-0.16	0.03																																																			
V14	-0.61	-3.84	0.00																																																		
V51	-4.25	0.33	-0.70	0.03																																																	
V48	-10.86	-6.35	0.02	-0.38	0.01																																																
V49	-5.77	0.17	-0.74	-0.64	-0.69	0.02																																															
V50	-5.34	0.25	0.09	0.41	0.98	-0.39	0.03																																														
V47	-3.58	2.22	0.53	0.18	-1.45	1.25	0.28	0.05																																													
V43	-3.73	2.52	-2.71	-1.16	-1.40	8.29	-1.11	-1.24	0.05																																												
V44	-8.85	-2.10	0.92	-0.10	3.02	-0.19	-0.28	0.03	-0.55	0.03																																											
V45	-7.57	-2.73	-2.00	-1.05	4.79	-2.11	-1.33	-0.09	1.04	0.01	0.01																																										
V46	-3.01	0.61	-0.79	-0.27	-0.56	0.43	-0.74	1.12	1.74	-0.26	1.03	0.04																																									
V39	-2.72	-0.36	-0.27	0.45	-1.98	-2.08	-0.27	-0.25	-0.67	-1.05	0.09	0.16	0.03																																								
V40	-2.76	-1.30	0.30	0.94	0.62	-2.14	-0.72	0.40	-1.85	-0.81	0.89	-3.44	-0.12	0.01																																							
V41	2.09	1.00	-1.51	-0.46	-3.47	-1.66	-1.37	-0.47	-0.14	-1.99	-1.08	-1.47	0.65	0.59	0.02																																						
V42	-2.41	0.84	-1.30	2.02	-0.07	-1.30	0.61	0.15	0.36	0.06	0.26	-0.10	0.02	-0.13	-0.28	0.03																																					
V62	1.52	-0.38	0.31	0.39	-4.37	1.35	-0.80	2.15	-0.84	0.44	-1.11	-0.31	-0.39	-6.03	0.24	0.97	0.00																																				
V63	1.12	0.52	0.16	1.36	-3.05	1.90	0.64	3.28	-0.79	1.17	-1.51	-0.31	0.86	-4.92	1.31	2.37	0.00	0.00																																			
V52	-0.62	0.37	-1.19	-1.13	-0.41	1.62	-0.65	-0.51	3.17	-0.09	0.55	-1.26	-1.78	0.71	1.69	0.31	-0.10	-0.59	0.00																																		
V53	-2.59	0.06	0.02	-0.46	0.21	2.06	0.54	-0.30	2.84	0.11	0.95	-1.47	-0.03	1.36	1.11	0.85	-0.07	0.89	0.00	0.00																																	
V21	0.83	-0.14	0.08	0.31	0.93	-1.23	1.01	-0.10	-0.36	-0.25	1.23	1.56	0.90	-0.97	0.53	0.62	-0.43	-1.50	-1.26	-0.13	0.00																																
V18	-3.00	-2.84	-0.09	0.28	-0.05	-0.26	0.32	-1.20	-1.66	0.79	-0.51	0.67	1.56	0.54	-0.20	0.59	-2.70	-2.44	-0.95	-0.68	0.18	0.00																															
V17	-0.42	-1.25	-0.69	-1.38	-0.35	-1.67	-1.11	-2.13	-2.72	-0.89	-0.65	-0.56	-1.14	-0.53	-1.47	-1.68	0.54	1.12	-0.55	0.33	-0.04	0.48	0.00																														
V16	-2.03	-2.67	-0.06	0.74	0.93	-1.52	0.57	1.24	-1.77	1.16	0.85	1.22	1.00	1.75	0.14	0.25	-1.86	-1.95	-1.83	1.08	-0.27	0.53	-0.43	0.00																													
V15	-1.07	-2.08	0.42	-0.44	-0.37	-0.64	-0.35	0.20	-2.24	-0.47	-1.01	1.00	-0.15	1.28	-1.42	-0.71	-0.64	-0.70	-1.14	-0.39	0.17	-1.02	0.29	0.28	0.00																												
RV29	3.43	2.91	0.28	-0.47	-2.03	-0.54	0.25	2.09	0.11	-1.84	0.30	0.70	0.22	1.17	1.00	-0.43	0.99	0.10	0.42	0.04	0.12	-0.53	0.80	-0.61	0.95	0.00																											
RV30	2.96	2.17	0.58	-0.07	-1.86	0.12	0.51	2.34	0.58	-1.56	-0.65	-0.17	0.43	1.82	0.90	-0.33	0.64	-0.17	0.75	-0.03	-0.27	-1.27	0.67	-0.83	0.53	0.00	0.00																										
RV32	3.77	3.37	0.33	-0.39	-2.24	-0.01	0.35	2.74	0.50	-2.04	-0.15	0.82	0.54	2.42	1.69	0.33	1.41	0.90	0.97	1.24	1.19	-1.34	0.49	-1.10	0.77	0.18	-0.24	0.00																									
RV35	-0.05	-0.13	1.77	-0.43	1.06	-0.03	0.11	-0.58	-0.36	-1.12	-0.37	-0.99	-0.16	0.60	0.85	-0.09	0.14	-0.69	0.29	1.11	-1.00	0.94	-0.25	0.12	-0.24	-0.21	0.62	0.24	0.00																								
V33	2.97	2.49	-0.08	0.74	-1.16	-0.06	0.18	1.89	0.71	-1.78	-1.23	0.92	1.27	3.92	1.48	0.83	-0.83	-1.46	1.06	1.14	1.65	-2.57	0.05	-1.52	-0.09	0.29	0.00	-0.26	-0.59	0.00																							
V28	2.02	1.88	-0.85	-1.53	-0.79	-2.23	-1.85	0.37	-0.68	-0.74	1.71	0.95	-0.61	1.98	0.65	-0.89	-1.15	-1.54	2.22	0.75	-0.57	0.99	-1.07	-0.41	1.45	2.35	2.07	2.69	0.34	2.34	0.00																						
V11	-1.34	2.14	1.42	0.70	1.55	-1.15	-0.56	2.02	-1.42	2.11	2.48	1.49	-1.19	2.07	0.46	1.31	2.34	2.91	0.93	2.14	-0.54	-0.58	-0.55	-0.46	0.23	1.39	-0.01	0.65	0.49	1.00	-0.14	0.00																					
V38	-0.18	0.18	1.48	0.53	1.10	0.55	0.88	-0.68	0.41	-0.48	-0.65	0.91	0.41	0.26	0.37	0.31	-0.29	-0.76	1.36	2.05	-0.54	1.38	-0.38	-0.80	-0.51	-1.34	-0.33	-0.66	-0.01	-1.22	0.37	0.30	0.00																				
V19	-0.84	-2.47	1.12	0.09	1.46	-0.49	0.73	-0.38	0.13	-0.01	2.30	1.13	1.88	0.71	1.42	0.43	-0.74	-0.79	0.92	1.49	0.91	2.15	0.09	0.60	-0.63	-1.52	-1.01	-0.79	-1.26	-1.14	0.63	-0.40	0.31	0.00																			
V22	-0.14	-1.12	-0.76	-0.98	1.36	-1.77	-0.05	-0.79	-0.21	0.31	2.63	3.05	-0.96	-0.25	-0.44	-1.10	-1.05	-1.88	1.98	0.93	-0.42	-0.16	0.65	-1.29	-0.34	0.39	-0.44	1.03	0.07	1.45	3.27	0.51	0.76	-0.16	0.00																		
V24	-1.09	0.99	-1.64	1.94	1.80	2.29	1.35	1.48	2.58	0.60	2.04	2.38	0.08	-0.66	0.58	0.99	1.60	0.29	1.40	1.71	-1.08	-0.20	-1.85	-0.18	0.85	-0.73	-0.45	-1.61	-1.27	-0.37	-1.97	-0.99	-0.05	-0.81	-0.11	0.00																	
V25	-1.37	-0.06	-0.64	0.70	0.94	-0.33	-0.44	0.46	0.39	0.47	2.59	1.92	-1.14	0.67	-0.61	-0.21	0.63	-0.12	1.38	1.84	0.23	-0.02	-1.06	0.87	1.47	-0.43	-1.05	-0.01	-0.49	1.59	0.32	-1.20	0.27	-0.38	0.69	1.13	0.00																
V26	-0.54	1.42	-2.68	1.88	0.33	0.01	1.14	3.08	1.76	2																																											

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Total Effects for the Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions	0.286	-0.186	-0.272	0.034	0.147	0.030	-0.102	0.170	0.213			
SustainableCE	0.428	0.005	-0.127	0.016	0.069	-0.033	-0.141	0.194	-0.029	0.467		
SustainedCP	0.578	0.007	0.028	0.021	0.093	-0.044	-0.190	0.262	-0.039	0.631	1.351	
V59									0.492			
V56									1.000			
V14			0.700									
V51	0.617	0.007	0.030	0.023	0.099	-0.047	-0.203	0.280	-0.042	0.674	1.442	1.067
V48	0.295	0.004	0.014	0.011	0.047	-0.022	-0.097	0.134	-0.020	0.322	0.689	0.510
V49	0.471	0.006	0.023	0.017	0.076	-0.036	-0.155	0.214	-0.032	0.514	1.101	0.815
V50	0.578	0.007	0.028	0.021	0.093	-0.044	-0.190	0.262	-0.039	0.631	1.351	1.000
V47	0.493	0.006	-0.146	0.018	0.079	-0.037	-0.162	0.223	-0.033	0.538	1.151	
V43	0.428	0.005	-0.127	0.016	0.069	-0.033	-0.141	0.194	-0.029	0.467	1.000	
V44	0.427	0.005	-0.127	0.016	0.068	-0.032	-0.140	0.194	-0.029	0.466	0.997	
V45	0.220	0.003	-0.065	0.008	0.035	-0.017	-0.072	0.100	-0.015	0.240	0.514	
V46	0.404	0.005	-0.120	0.015	0.065	-0.031	-0.133	0.183	-0.027	0.441	0.943	
V39	0.286	-0.186	-0.272	0.034	0.147	0.030	-0.102	0.170	0.213	1.000		
V40	0.190	-0.123	-0.180	0.022	0.097	0.020	-0.068	0.113	0.141	0.663		
V41	0.226	-0.146	-0.214	0.027	0.116	0.024	-0.081	0.134	0.168	0.789		
V42	0.287	-0.186	-0.273	0.034	0.148	0.030	-0.103	0.171	0.214	1.005		
V62		1.000										
V63		0.909										
V52	1.000											
V53	1.049											
V21				0.814								
V18			0.854									
V17			1.000									
V16			0.982									
V15			1.073									
RV29							1.000					
RV30							0.940					
RV32							1.051					
RV35						1.038						
V33							0.811					
V28					0.799							
V11								0.966				
V38						1.003						
V19												
V22				1.171								
V24					1.296							
V25					1.263							
V26					0.990							
V27					1.000							
V34						1.000						
V31							1.101					
V12								1.000				
V13								0.700				

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Standardised Total Effects for Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward/ Reinforceme	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions	0.169	-0.216	-0.093	0.025	0.098	0.033	-0.098	0.176	0.235			
SustainableCE	0.357	0.009	-0.062	0.017	0.065	-0.051	-0.191	0.284	-0.045	0.661		
SustainedCP	0.334	0.008	0.009	0.016	0.061	-0.048	-0.179	0.265	-0.042	0.617	0.934	
V59									0.457			
V56									0.906			
V14			0.398									
V51	0.298	0.007	0.008	0.014	0.054	-0.043	-0.160	0.237	-0.038	0.552	0.835	0.894
V48	0.161	0.004	0.005	0.008	0.029	-0.023	-0.086	0.128	-0.020	0.297	0.450	0.482
V49	0.230	0.005	0.007	0.011	0.042	-0.033	-0.123	0.183	-0.029	0.425	0.643	0.688
V50	0.284	0.007	0.008	0.013	0.052	-0.041	-0.152	0.226	-0.036	0.525	0.794	0.851
V47	0.241	0.006	-0.042	0.011	0.044	-0.035	-0.129	0.192	-0.031	0.446	0.675	
V43	0.228	0.005	-0.039	0.011	0.041	-0.033	-0.122	0.181	-0.029	0.421	0.638	
V44	0.207	0.005	-0.036	0.010	0.038	-0.030	-0.111	0.165	-0.026	0.383	0.580	
V45	0.115	0.003	-0.020	0.005	0.021	-0.017	-0.062	0.092	-0.015	0.213	0.323	
V46	0.215	0.005	-0.037	0.010	0.039	-0.031	-0.115	0.171	-0.027	0.397	0.602	
V39	0.148	-0.189	-0.082	0.022	0.086	0.029	-0.086	0.154	0.206	0.877		
V40	0.095	-0.122	-0.053	0.014	0.055	0.019	-0.056	0.099	0.133	0.564		
V41	0.125	-0.159	-0.069	0.019	0.072	0.025	-0.073	0.130	0.174	0.738		
V42	0.155	-0.197	-0.085	0.023	0.090	0.030	-0.090	0.161	0.216	0.916		
V62		0.950										
V63		0.857										
V52	0.791											
V53	0.835											
V21				0.527								
V18			0.529									
V17			0.657									
V16			0.617									
V15			0.643									
RV29							0.882					
RV30							0.863					
RV32							0.902					
RV35						0.927						
V33							0.677					
V28					0.481							
V11								0.858				
V38						0.901						
V19				0.629								
V22				0.708								
V24					0.643							
V25					0.719							
V26					0.556							
V27					0.611							
V34						0.926						
V31							0.927					
V12								0.900				
V13								0.601				

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Direct Effects for the Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions	0.286	-0.186	-0.272	0.034	0.147	0.030	-0.102	0.170	0.213			
SustainableCE	0.294	0.092				-0.046	-0.093	0.115	-0.129	0.467		
SustainedCP			0.200								1.351	
V59									0.492			
V56									1.000			
V14			0.700									
V51												1.067
V48												0.510
V49												0.815
V50												1.000
V47											1.151	
V43											1.000	
V44											0.997	
V45											0.514	
V46											0.943	
V39										1.000		
V40										0.663		
V41										0.789		
V42										1.005		
V62		1.000										
V63		0.909										
V52	1.000											
V53	1.049											
V21				0.814								
V18			0.854									
V17			1.000									
V16			0.982									
V15			1.073									
RV29							1.000					
RV30							0.940					
RV32							1.051					
RV35						1.038						
V33							0.811					
V28					0.799							
V11								0.966				
V38						1.003						
V19				1.000								
V22				1.171								
V24					1.296							
V25					1.263							
V26					0.990							
V27					1.000							
V34						1.000						
V31							1.101					
V12								1.000				
V13								0.700				

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Standardised Direct Effects for Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions	0.169	-0.216	-0.093	0.025	0.098	0.033	-0.098	0.176	0.235			
SustainableCE	0.246	0.151				-0.073	-0.126	0.168	-0.201	0.661		
SustainedCP			0.067								0.934	
V59									0.457			
V56									0.906			
V14			0.398									
V51												0.894
V48												0.482
V49												0.688
V50												0.851
V47											0.675	
V43											0.638	
V44											0.580	
V45											0.323	
V46											0.602	
V39										0.877		
V40										0.564		
V41										0.738		
V42										0.916		
V62		0.950										
V63		0.857										
V52	0.791											
V53	0.835											
V21				0.527								
V18			0.529									
V17			0.657									
V16			0.617									
V15			0.643									
RV29							0.882					
RV30							0.863					
RV32							0.902					
RV35						0.927						
V33							0.677					
V28					0.481							
V11								0.858				
V38						0.901						
V19				0.629								
V22				0.708								
V24					0.643							
V25					0.719							
V26					0.556							
V27					0.611							
V34						0.926						
V31							0.927					
V12												
V13								0.601				

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Indirect Effects for the Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions												
SustainableCE	0.134	-0.087	-0.127	0.016	0.069	0.014	-0.048	0.079	0.100			
SustainedCP	0.578	0.007	-0.172	0.021	0.093	-0.044	-0.190	0.262	-0.039	0.631		
V51	0.617	0.007	0.030	0.023	0.099	-0.047	-0.203	0.280	-0.042	0.674	1.442	
V48	0.295	0.004	0.014	0.011	0.047	-0.022	-0.097	0.134	-0.020	0.322	0.689	
V49	0.471	0.006	0.023	0.017	0.076	-0.036	-0.155	0.214	-0.032	0.514	1.101	
V50	0.578	0.007	0.028	0.021	0.093	-0.044	-0.190	0.262	-0.039	0.631	1.351	
V47	0.493	0.006	-0.146	0.018	0.079	-0.037	-0.162	0.223	-0.033	0.538		
V43	0.428	0.005	-0.127	0.016	0.069	-0.033	-0.141	0.194	-0.029	0.467		
V44	0.427	0.005	-0.127	0.016	0.068	-0.032	-0.140	0.194	-0.029	0.466		
V45	0.220	0.003	-0.065	0.008	0.035	-0.017	-0.072	0.100	-0.015	0.240		
V46	0.404	0.005	-0.120	0.015	0.065	-0.031	-0.133	0.183	-0.027	0.441		
V39	0.286	-0.186	-0.272	0.034	0.147	0.030	-0.102	0.170	0.213			
V40	0.190	-0.123	-0.180	0.022	0.097	0.020	-0.068	0.113	0.141			
V41	0.226	-0.146	-0.214	0.027	0.116	0.024	-0.081	0.134	0.168			
V42	0.287	-0.186	-0.273	0.034	0.148	0.030	-0.103	0.171	0.214			
V59												
V56												
V14												
V62												
V63												
V52												
V53												
V21												
V18												
V17												
V16												
V15												
RV29												
RV30												
RV32												
RV35												
V33												
V28												
V11												
V38												
V19												
V22												
V24												
V25												
V26												
V27												
V34												
V31												
V12												
V13												

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Standardised Indirect Effects for the Final SEM Model

	Dynamism	Heterogeneity	MS_External	Work Discretion	Reward/ Reinforcement	Org Boundaries	Time Availability	MS_Internal	Hostility	Entrepreneurial Actions	Sustainable CE	Sustained CP
Entrepreneurial Actions												
SustainableCE	0.112	-0.142	-0.062	0.017	0.065	0.022	-0.065	0.116	0.156			
SustainedCP	0.334	0.008	-0.058	0.016	0.061	-0.048	-0.179	0.265	-0.042	0.617		
V51	0.298	0.007	0.008	0.014	0.054	-0.043	-0.160	0.237	-0.038	0.552	0.835	
V48	0.161	0.004	0.005	0.008	0.029	-0.023	-0.086	0.128	-0.020	0.297	0.450	
V49	0.230	0.005	0.007	0.011	0.042	-0.033	-0.123	0.183	-0.029	0.425	0.643	
V50	0.284	0.007	0.008	0.013	0.052	-0.041	-0.152	0.226	-0.036	0.525	0.794	
V47	0.241	0.006	-0.042	0.011	0.044	-0.035	-0.129	0.192	-0.031	0.446		
V43	0.228	0.005	-0.039	0.011	0.041	-0.033	-0.122	0.181	-0.029	0.421		
V44	0.207	0.005	-0.036	0.010	0.038	-0.030	-0.111	0.165	-0.026	0.383		
V45	0.115	0.003	-0.020	0.005	0.021	-0.017	-0.062	0.092	-0.015	0.213		
V46	0.215	0.005	-0.037	0.010	0.039	-0.031	-0.115	0.171	-0.027	0.397		
V39	0.148	-0.189	-0.082	0.022	0.086	0.029	-0.086	0.154	0.206			
V40	0.095	-0.122	-0.053	0.014	0.055	0.019	-0.056	0.099	0.133			
V41	0.125	-0.159	-0.069	0.019	0.072	0.025	-0.073	0.130	0.174			
V42	0.155	-0.197	-0.085	0.023	0.090	0.030	-0.090	0.161	0.216			
V59												
V56												
V14												
V62												
V63												
V52												
V53												
V21												
V18												
V17												
V16												
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RV29												
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RV35												
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V28												
V11												
V38												
V19												
V22												
V24												
V25												
V26												
V27												
V34												
V31												
V12												
V13												

APPENDIX G

Parameter Estimates for the Final SEM Model (Model 8)

Bootstrap Results

Bootstrap Standard Errors: Unstandardized Regression Weights

Parameter			SE	SE-SE	Mean	Bias	Bias
EntrepreneurialActions	<---	MS_External	0.146	0.005	-0.264	0.007	0.007
EntrepreneurialActions	<---	Dynamism	0.087	0.003	0.290	0.004	0.004
EntrepreneurialActions	<---	Heterogeneity	0.043	0.001	-0.185	0.001	0.002
EntrepreneurialActions	<---	Hostility	0.049	0.002	0.212	-0.001	0.002
EntrepreneurialActions	<---	OrgBoundaries	0.042	0.001	0.033	0.003	0.002
EntrepreneurialActions	<---	TimeAvailability	0.042	0.001	-0.101	0.001	0.002
EntrepreneurialActions	<---	RewardReinforcement	0.124	0.004	0.151	0.005	0.006
EntrepreneurialActions	<---	Workdiscretion	0.097	0.003	0.025	-0.009	0.004
EntrepreneurialActions	<---	MS_Internal	0.056	0.002	0.167	-0.003	0.002
SustainableCE	<---	EntrepreneurialActions	0.040	0.001	0.472	0.005	0.002
SustainableCE	<---	Hostility	0.030	0.001	-0.126	0.003	0.001
SustainableCE	<---	MS_Internal	0.028	0.001	0.116	0.001	0.001
SustainableCE	<---	Heterogeneity	0.026	0.001	0.094	0.002	0.001
SustainableCE	<---	Dynamism	0.056	0.002	0.291	-0.004	0.003
SustainableCE	<---	TimeAvailability	0.027	0.001	-0.094	-0.001	0.001
SustainableCE	<---	OrgBoundaries	0.022	0.001	-0.046	0.000	0.001
SustainedCP	<---	SustainableCE	0.099	0.003	1.352	0.000	0.004
SustainedCP	<---	MS_External	0.117	0.004	0.202	0.003	0.005
V13	<---	MS_Internal	0.041	0.001	0.701	0.001	0.002
V31	<---	TimeAvailability	0.040	0.001	1.104	0.004	0.002
V34	<---	OrgBoundaries	0.000	0.000	1.000	0.000	0.000
V27	<---	RewardReinforcement	0.000	0.000	1.000	0.000	0.000
V26	<---	RewardReinforcement	0.092	0.003	0.988	-0.002	0.004
V25	<---	RewardReinforcement	0.092	0.003	1.266	0.003	0.004
V19	<---	Workdiscretion	0.000	0.000	1.000	0.000	0.000
V28	<---	RewardReinforcement	0.061	0.002	0.802	0.003	0.003
V33	<---	TimeAvailability	0.045	0.001	0.811	0.001	0.002
V22	<---	Workdiscretion	0.157	0.005	1.186	0.016	0.007
RV32	<---	TimeAvailability	0.040	0.001	1.055	0.004	0.002
RV30	<---	TimeAvailability	0.024	0.001	0.942	0.001	0.001
V12	<---	MS_Internal	0.000	0.000	1.000	0.000	0.000
RV35	<---	OrgBoundaries	0.026	0.001	1.037	-0.002	0.001
V38	<---	OrgBoundaries	0.028	0.001	1.002	-0.001	0.001
V15	<---	MS_External	0.094	0.003	1.082	0.009	0.004
V16	<---	MS_External	0.116	0.004	0.989	0.007	0.005
V17	<---	MS_External	0.000	0.000	1.000	0.000	0.000
V18	<---	MS_External	0.117	0.004	0.866	0.012	0.005
V21	<---	Workdiscretion	0.081	0.003	0.818	0.004	0.004
V42	<---	EntrepreneurialActions	0.036	0.001	1.006	0.001	0.002
V41	<---	EntrepreneurialActions	0.038	0.001	0.790	0.001	0.002
V40	<---	EntrepreneurialActions	0.042	0.001	0.666	0.004	0.002
V39	<---	EntrepreneurialActions	0.000	0.000	1.000	0.000	0.000
V46	<---	SustainableCE	0.082	0.003	0.945	0.002	0.004
V45	<---	SustainableCE	0.068	0.002	0.514	0.000	0.003
V44	<---	SustainableCE	0.090	0.003	0.991	-0.006	0.004
V43	<---	SustainableCE	0.000	0.000	1.000	0.000	0.000
V47	<---	SustainableCE	0.097	0.003	1.149	-0.002	0.004
V50	<---	SustainedCP	0.000	0.000	1.000	0.000	0.000
V49	<---	SustainedCP	0.049	0.002	0.814	0.000	0.002
V63	<---	Heterogeneity	0.084	0.003	0.914	0.004	0.004
V51	<---	SustainedCP	0.032	0.001	1.068	0.002	0.001
V48	<---	SustainedCP	0.040	0.001	0.508	-0.002	0.002
V62	<---	Heterogeneity	0.000	0.000	1.000	0.000	0.000
V53	<---	Dynamism	0.111	0.004	1.057	0.009	0.005
V52	<---	Dynamism	0.000	0.000	1.000	0.000	0.000
V11	<---	MS_Internal	0.040	0.001	0.967	0.001	0.002
V24	<---	RewardReinforcement	0.123	0.004	1.297	0.001	0.006
RV29	<---	TimeAvailability	0.000	0.000	1.000	0.000	0.000
V14	<---	MS_External	0.101	0.003	0.708	0.008	0.005
V56	<---	Hostility	0.000	0.000	1.000	0.000	0.000
V59	<---	Hostility	0.048	0.002	0.489	-0.003	0.002

Bias–Correlated Percentile Method Confidence Intervals: Unstandardised Regression Weights

Parameter			Estimate	Lower	Upper	P
EntrepreneurialActions	<---	MS_External	-0.272	-0.510	-0.027	0.074
EntrepreneurialActions	<---	Dynamism	0.286	0.145	0.410	0.006
EntrepreneurialActions	<---	Heterogeneity	-0.186	-0.249	-0.109	0.005
EntrepreneurialActions	<---	Hostility	0.213	0.136	0.291	0.004
EntrepreneurialActions	<---	OrgBoundaries	0.030	-0.043	0.089	0.626
EntrepreneurialActions	<---	TimeAvailability	-0.102	-0.164	-0.026	0.020
EntrepreneurialActions	<---	RewardReinforcement	0.147	-0.046	0.359	0.204
EntrepreneurialActions	<---	Workdiscretion	0.034	-0.138	0.185	0.728
EntrepreneurialActions	<---	MS_Internal	0.170	0.083	0.266	0.008
SustainableCE	<---	EntrepreneurialActions	0.467	0.406	0.532	0.006
SustainableCE	<---	Hostility	-0.129	-0.187	-0.086	0.002
SustainableCE	<---	MS_Internal	0.115	0.073	0.166	0.004
SustainableCE	<---	Heterogeneity	0.092	0.052	0.132	0.006
SustainableCE	<---	Dynamism	0.294	0.212	0.399	0.002
SustainableCE	<---	TimeAvailability	-0.093	-0.134	-0.046	0.007
SustainableCE	<---	OrgBoundaries	-0.046	-0.083	-0.010	0.029
SustainedCP	<---	SustainableCE	1.351	1.214	1.554	0.002
SustainedCP	<---	MS_External	0.200	0.003	0.384	0.086
V13	<---	MS_Internal	0.700	0.636	0.775	0.004
V31	<---	TimeAvailability	1.101	1.035	1.171	0.005
V34	<---	OrgBoundaries	1.000	1.000	1.000	...
V27	<---	RewardReinforcement	1.000	1.000	1.000	...
V26	<---	RewardReinforcement	0.990	0.867	1.185	0.002
V25	<---	RewardReinforcement	1.263	1.128	1.431	0.003
V19	<---	Workdiscretion	1.000	1.000	1.000	...
V28	<---	RewardReinforcement	0.799	0.694	0.899	0.005
V33	<---	TimeAvailability	0.811	0.739	0.885	0.005
V22	<---	Workdiscretion	1.171	0.939	1.439	0.005
RV32	<---	TimeAvailability	1.051	0.992	1.122	0.005
RV30	<---	TimeAvailability	0.940	0.900	0.978	0.006
V12	<---	MS_Internal	1.000	1.000	1.000	...
RV35	<---	OrgBoundaries	1.038	0.998	1.084	0.002
V38	<---	OrgBoundaries	1.003	0.953	1.045	0.004
V15	<---	MS_External	1.073	0.914	1.227	0.007
V16	<---	MS_External	0.982	0.786	1.177	0.005
V17	<---	MS_External	1.000	1.000	1.000	...
V18	<---	MS_External	0.854	0.658	1.047	0.007
V21	<---	Workdiscretion	0.814	0.677	0.942	0.006
V42	<---	EntrepreneurialActions	1.005	0.946	1.065	0.005
V41	<---	EntrepreneurialActions	0.789	0.724	0.851	0.004
V40	<---	EntrepreneurialActions	0.663	0.590	0.729	0.006
V39	<---	EntrepreneurialActions	1.000	1.000	1.000	...
V46	<---	SustainableCE	0.943	0.798	1.064	0.006
V45	<---	SustainableCE	0.514	0.396	0.631	0.004
V44	<---	SustainableCE	0.997	0.862	1.183	0.002
V43	<---	SustainableCE	1.000	1.000	1.000	...
V47	<---	SustainableCE	1.151	1.025	1.364	0.002
V50	<---	SustainedCP	1.000	1.000	1.000	...
V49	<---	SustainedCP	0.815	0.736	0.897	0.003
V63	<---	Heterogeneity	0.909	0.757	1.053	0.006
V51	<---	SustainedCP	1.067	1.016	1.121	0.005
V48	<---	SustainedCP	0.510	0.452	0.585	0.002
V62	<---	Heterogeneity	1.000	1.000	1.000	...
V53	<---	Dynamism	1.049	0.898	1.256	0.004
V52	<---	Dynamism	1.000	1.000	1.000	...
V11	<---	MS_Internal	0.966	0.905	1.037	0.004
V24	<---	RewardReinforcement	1.296	1.114	1.521	0.003
RV29	<---	TimeAvailability	1.000	1.000	1.000	...
V14	<---	MS_External	0.700	0.542	0.890	0.004
V56	<---	Hostility	1.000	1.000	1.000	...
V59	<---	Hostility	0.492	0.408	0.563	0.004

Bootstrap Standard Errors: Standardized Regression Weights

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
EntrepreneurialActions	<---	MS_External	0.049	0.002	-0.090	0.003	0.002
EntrepreneurialActions	<---	Dynamism	0.051	0.002	0.172	0.003	0.002
EntrepreneurialActions	<---	Heterogeneity	0.049	0.002	-0.215	0.001	0.002
EntrepreneurialActions	<---	Hostility	0.053	0.002	0.236	0.000	0.002
EntrepreneurialActions	<---	OrgBoundaries	0.046	0.001	0.037	0.004	0.002
EntrepreneurialActions	<---	TimeAvailability	0.040	0.001	-0.097	0.001	0.002
EntrepreneurialActions	<---	RewardReinforcement	0.081	0.003	0.101	0.002	0.004
EntrepreneurialActions	<---	Workdiscretion	0.072	0.002	0.021	-0.004	0.003
EntrepreneurialActions	<---	MS_Internal	0.057	0.002	0.173	-0.003	0.003
SustainableCE	<---	EntrepreneurialActions	0.040	0.001	0.663	0.002	0.002
SustainableCE	<---	Hostility	0.045	0.001	-0.196	0.004	0.002
SustainableCE	<---	MS_Internal	0.038	0.001	0.168	0.000	0.002
SustainableCE	<---	Heterogeneity	0.040	0.001	0.154	0.003	0.002
SustainableCE	<---	Dynamism	0.045	0.001	0.242	-0.004	0.002
SustainableCE	<---	TimeAvailability	0.037	0.001	-0.127	-0.001	0.002
SustainableCE	<---	OrgBoundaries	0.035	0.001	-0.073	0.000	0.002
SustainedCP	<---	SustainableCE	0.019	0.001	0.933	0.000	0.001
SustainedCP	<---	MS_External	0.040	0.001	0.068	0.001	0.002
V13	<---	MS_Internal	0.030	0.001	0.601	0.000	0.001
V31	<---	TimeAvailability	0.010	0.000	0.927	0.000	0.000
V34	<---	OrgBoundaries	0.012	0.000	0.926	0.001	0.001
V27	<---	RewardReinforcement	0.036	0.001	0.611	0.000	0.002
V26	<---	RewardReinforcement	0.034	0.001	0.553	-0.003	0.002
V25	<---	RewardReinforcement	0.034	0.001	0.718	-0.001	0.002
V19	<---	Workdiscretion	0.048	0.002	0.628	-0.001	0.002
V28	<---	RewardReinforcement	0.044	0.001	0.482	0.001	0.002
V33	<---	TimeAvailability	0.030	0.001	0.676	-0.001	0.001
V22	<---	Workdiscretion	0.048	0.002	0.710	0.002	0.002
RV32	<---	TimeAvailability	0.017	0.001	0.902	0.000	0.001
RV30	<---	TimeAvailability	0.023	0.001	0.863	0.000	0.001
V12	<---	MS_Internal	0.017	0.001	0.900	0.000	0.001
RV35	<---	OrgBoundaries	0.010	0.000	0.927	-0.001	0.000
V38	<---	OrgBoundaries	0.015	0.000	0.902	0.000	0.001
V15	<---	MS_External	0.045	0.001	0.643	0.001	0.002
V16	<---	MS_External	0.051	0.002	0.617	0.000	0.002
V17	<---	MS_External	0.037	0.001	0.654	-0.002	0.002
V18	<---	MS_External	0.061	0.002	0.530	0.001	0.003
V21	<---	Workdiscretion	0.045	0.001	0.526	-0.001	0.002
V42	<---	EntrepreneurialActions	0.015	0.000	0.915	0.000	0.001
V41	<---	EntrepreneurialActions	0.026	0.001	0.737	-0.001	0.001
V40	<---	EntrepreneurialActions	0.033	0.001	0.565	0.001	0.001
V39	<---	EntrepreneurialActions	0.016	0.001	0.876	-0.001	0.001
V46	<---	SustainableCE	0.036	0.001	0.602	0.001	0.002
V45	<---	SustainableCE	0.039	0.001	0.323	0.000	0.002
V44	<---	SustainableCE	0.030	0.001	0.576	-0.004	0.001
V43	<---	SustainableCE	0.036	0.001	0.639	0.001	0.002
V47	<---	SustainableCE	0.030	0.001	0.672	-0.002	0.001
V50	<---	SustainedCP	0.016	0.001	0.850	0.000	0.001
V49	<---	SustainedCP	0.032	0.001	0.688	-0.001	0.001
V63	<---	Heterogeneity	0.041	0.001	0.858	0.001	0.002
V51	<---	SustainedCP	0.014	0.000	0.895	0.000	0.001
V48	<---	SustainedCP	0.031	0.001	0.480	-0.002	0.001
V62	<---	Heterogeneity	0.045	0.001	0.950	0.000	0.002
V53	<---	Dynamism	0.043	0.001	0.837	0.002	0.002
V52	<---	Dynamism	0.045	0.001	0.790	-0.001	0.002
V11	<---	MS_Internal	0.023	0.001	0.858	0.000	0.001
V24	<---	RewardReinforcement	0.036	0.001	0.640	-0.002	0.002
RV29	<---	TimeAvailability	0.022	0.001	0.881	-0.001	0.001
V14	<---	MS_External	0.056	0.002	0.401	0.003	0.003
V56	<---	Hostility	0.004	0.000	0.906	0.000	0.000
V59	<---	Hostility	0.040	0.001	0.456	-0.001	0.002

Bias–Correlated Percentile Method Confidence Intervals: Standardised Regression Weights

Parameter			Estimate	Lower	Upper	P
EntrepreneurialActions	<---	MS_External	-0.093	-0.174	-0.011	0.069
EntrepreneurialActions	<---	Dynamism	0.169	0.074	0.244	0.008
EntrepreneurialActions	<---	Heterogeneity	-0.216	-0.291	-0.127	0.004
EntrepreneurialActions	<---	Hostility	0.235	0.141	0.312	0.005
EntrepreneurialActions	<---	OrgBoundaries	0.033	-0.049	0.102	0.611
EntrepreneurialActions	<---	TimeAvailability	-0.098	-0.155	-0.026	0.018
EntrepreneurialActions	<---	RewardReinforcement	0.098	-0.029	0.242	0.193
EntrepreneurialActions	<---	Workdiscretion	0.025	-0.100	0.141	0.743
EntrepreneurialActions	<---	MS_Internal	0.176	0.084	0.266	0.008
SustainableCE	<---	EntrepreneurialActions	0.661	0.600	0.725	0.005
SustainableCE	<---	Hostility	-0.201	-0.289	-0.135	0.002
SustainableCE	<---	MS_Internal	0.168	0.112	0.236	0.003
SustainableCE	<---	Heterogeneity	0.151	0.086	0.221	0.004
SustainableCE	<---	Dynamism	0.246	0.180	0.329	0.002
SustainableCE	<---	TimeAvailability	-0.126	-0.179	-0.064	0.007
SustainableCE	<---	OrgBoundaries	-0.073	-0.134	-0.018	0.024
SustainedCP	<---	SustainableCE	0.934	0.898	0.961	0.006
SustainedCP	<---	MS_External	0.067	0.003	0.137	0.077
V13	<---	MS_Internal	0.601	0.552	0.653	0.004
V31	<---	TimeAvailability	0.927	0.909	0.941	0.005
V34	<---	OrgBoundaries	0.926	0.904	0.944	0.006
V27	<---	RewardReinforcement	0.611	0.554	0.669	0.004
V26	<---	RewardReinforcement	0.556	0.508	0.620	0.002
V25	<---	RewardReinforcement	0.719	0.663	0.771	0.005
V19	<---	Workdiscretion	0.629	0.556	0.716	0.003
V28	<---	RewardReinforcement	0.481	0.396	0.546	0.006
V33	<---	TimeAvailability	0.677	0.629	0.727	0.003
V22	<---	Workdiscretion	0.708	0.627	0.781	0.006
RV32	<---	TimeAvailability	0.902	0.870	0.925	0.007
RV30	<---	TimeAvailability	0.863	0.823	0.896	0.006
V12	<---	MS_Internal	0.900	0.868	0.924	0.007
RV35	<---	OrgBoundaries	0.927	0.909	0.944	0.004
V38	<---	OrgBoundaries	0.901	0.874	0.923	0.005
V15	<---	MS_External	0.643	0.566	0.714	0.004
V16	<---	MS_External	0.617	0.531	0.699	0.005
V17	<---	MS_External	0.657	0.594	0.717	0.003
V18	<---	MS_External	0.529	0.412	0.613	0.007
V21	<---	Workdiscretion	0.527	0.448	0.596	0.004
V42	<---	EntrepreneurialActions	0.916	0.888	0.939	0.004
V41	<---	EntrepreneurialActions	0.738	0.688	0.776	0.005
V40	<---	EntrepreneurialActions	0.564	0.497	0.608	0.007
V39	<---	EntrepreneurialActions	0.877	0.851	0.902	0.004
V46	<---	SustainableCE	0.602	0.528	0.647	0.009
V45	<---	SustainableCE	0.323	0.254	0.382	0.005
V44	<---	SustainableCE	0.580	0.535	0.637	0.002
V43	<---	SustainableCE	0.638	0.564	0.690	0.007
V47	<---	SustainableCE	0.675	0.633	0.734	0.002
V50	<---	SustainedCP	0.851	0.824	0.878	0.003
V49	<---	SustainedCP	0.688	0.630	0.735	0.004
V63	<---	Heterogeneity	0.857	0.775	0.920	0.006
V51	<---	SustainedCP	0.894	0.869	0.915	0.006
V48	<---	SustainedCP	0.482	0.433	0.534	0.003
V62	<---	Heterogeneity	0.950	0.885	1.044	0.002
V53	<---	Dynamism	0.835	0.762	0.910	0.004
V52	<---	Dynamism	0.791	0.716	0.859	0.004
V11	<---	MS_Internal	0.858	0.815	0.893	0.005
V24	<---	RewardReinforcement	0.643	0.587	0.708	0.003
RV29	<---	TimeAvailability	0.882	0.843	0.912	0.005
V14	<---	MS_External	0.398	0.295	0.481	0.007
V56	<---	Hostility	0.906	0.900	0.911	0.005
V59	<---	Hostility	0.457	0.386	0.520	0.004

Bootstrap Standard Errors: Covariances

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
MS_Internal	<-->	OrgBoundaries	0.060	0.002	-0.058	-0.005	0.003
OrgBoundaries	<-->	Workdiscretion	0.051	0.002	0.146	-0.007	0.002
Hostility	<-->	Heterogeneity	0.066	0.002	0.457	-0.001	0.003
Hostility	<-->	Dynamism	0.045	0.001	0.227	0.000	0.002
Heterogeneity	<-->	Dynamism	0.037	0.001	0.039	-0.001	0.002
Workdiscretion	<-->	MS_External	0.020	0.001	0.060	0.001	0.001
MS_Internal	<-->	TimeAvailability	0.051	0.002	0.163	0.004	0.002
RewardReinforcement	<-->	MS_External	0.015	0.000	0.022	0.000	0.001
RewardReinforcement	<-->	Workdiscretion	0.042	0.001	0.238	-0.002	0.002
TimeAvailability	<-->	OrgBoundaries	0.054	0.002	0.102	0.000	0.002
MS_Internal	<-->	RewardReinforcement	0.057	0.002	0.422	0.002	0.003
TimeAvailability	<-->	RewardReinforcement	0.039	0.001	0.142	-0.001	0.002
TimeAvailability	<-->	Workdiscretion	0.043	0.001	0.135	-0.005	0.002
TimeAvailability	<-->	MS_External	0.019	0.001	0.013	0.002	0.001
OrgBoundaries	<-->	MS_External	0.024	0.001	0.013	0.001	0.001
OrgBoundaries	<-->	RewardReinforcement	0.043	0.001	-0.054	-0.003	0.002
MS_Internal	<-->	MS_External	0.020	0.001	0.093	0.001	0.001
MS_Internal	<-->	Workdiscretion	0.048	0.002	0.160	0.000	0.002
eV44	<-->	eV47	0.046	0.001	0.110	0.003	0.002
eV44	<-->	eV45	0.050	0.002	0.327	0.001	0.002
erV30	<-->	erV29	0.044	0.001	0.128	0.000	0.002
eV28	<-->	eV27	0.057	0.002	0.461	0.001	0.003

Bias–Correlated Percentile Method Confidence Intervals: Covariances

Parameter			Estimate	Lower	Upper	P
MS_Internal	<-->	OrgBoundaries	-0.052	-0.143	0.057	0.478
OrgBoundaries	<-->	Workdiscretion	0.152	0.075	0.249	0.002
Hostility	<-->	Heterogeneity	0.458	0.345	0.567	0.004
Hostility	<-->	Dynamism	0.227	0.156	0.301	0.004
Heterogeneity	<-->	Dynamism	0.040	-0.024	0.100	0.284
Workdiscretion	<-->	MS_External	0.059	0.024	0.091	0.006
MS_Internal	<-->	TimeAvailability	0.160	0.071	0.243	0.007
RewardReinforcement	<-->	MS_External	0.021	-0.006	0.045	0.205
RewardReinforcement	<-->	Workdiscretion	0.240	0.174	0.313	0.003
TimeAvailability	<-->	OrgBoundaries	0.101	0.016	0.185	0.046
MS_Internal	<-->	RewardReinforcement	0.419	0.331	0.522	0.004
TimeAvailability	<-->	RewardReinforcement	0.142	0.085	0.215	0.003
TimeAvailability	<-->	Workdiscretion	0.140	0.077	0.226	0.002
TimeAvailability	<-->	MS_External	0.011	-0.020	0.041	0.599
OrgBoundaries	<-->	MS_External	0.011	-0.032	0.046	0.740
OrgBoundaries	<-->	RewardReinforcement	-0.052	-0.119	0.026	0.308
MS_Internal	<-->	MS_External	0.091	0.057	0.122	0.005
MS_Internal	<-->	Workdiscretion	0.160	0.086	0.241	0.004
eV44	<-->	eV47	0.107	0.027	0.179	0.029
eV44	<-->	eV45	0.326	0.244	0.404	0.005
erV30	<-->	erV29	0.128	0.063	0.209	0.003
eV28	<-->	eV27	0.460	0.357	0.539	0.005

Bootstrap Standard Errors: Correlations

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
MS_Internal	<-->	OrgBoundaries	0.046	0.001	-0.044	-0.004	0.002
OrgBoundaries	<-->	Workdiscretion	0.055	0.002	0.157	-0.006	0.002
Hostility	<-->	Heterogeneity	0.048	0.002	0.317	0.000	0.002
Hostility	<-->	Dynamism	0.043	0.001	0.307	-0.002	0.002
Heterogeneity	<-->	Dynamism	0.048	0.002	0.051	-0.001	0.002
Workdiscretion	<-->	MS_External	0.063	0.002	0.208	0.004	0.003
MS_Internal	<-->	TimeAvailability	0.044	0.001	0.146	0.003	0.002
RewardReinforcement	<-->	MS_External	0.056	0.002	0.083	0.001	0.003
RewardReinforcement	<-->	Workdiscretion	0.063	0.002	0.427	-0.002	0.003
TimeAvailability	<-->	OrgBoundaries	0.044	0.001	0.084	0.000	0.002
MS_Internal	<-->	RewardReinforcement	0.046	0.001	0.541	0.002	0.002
TimeAvailability	<-->	RewardReinforcement	0.048	0.002	0.195	-0.001	0.002
TimeAvailability	<-->	Workdiscretion	0.052	0.002	0.168	-0.005	0.002
TimeAvailability	<-->	MS_External	0.052	0.002	0.034	0.004	0.002
OrgBoundaries	<-->	MS_External	0.055	0.002	0.029	0.003	0.002
OrgBoundaries	<-->	RewardReinforcement	0.052	0.002	-0.065	-0.003	0.002
MS_Internal	<-->	MS_External	0.043	0.001	0.233	0.004	0.002
MS_Internal	<-->	Workdiscretion	0.054	0.002	0.185	0.001	0.002
eV44	<-->	eV47	0.044	0.001	0.110	0.003	0.002
eV44	<-->	eV45	0.040	0.001	0.275	0.001	0.002
erV30	<-->	erV29	0.091	0.003	0.410	-0.008	0.004
eV28	<-->	eV27	0.045	0.001	0.486	0.001	0.002

Bias–Correlated Percentile Method Confidence Intervals: Correlations

Parameter			Estimate	Lower	Upper	P
MS_Internal	<-->	OrgBoundaries	-0.040	-0.108	0.044	0.460
OrgBoundaries	<-->	Workdiscretion	0.163	0.076	0.255	0.002
Hostility	<-->	Heterogeneity	0.317	0.233	0.393	0.005
Hostility	<-->	Dynamism	0.309	0.238	0.379	0.003
Heterogeneity	<-->	Dynamism	0.052	-0.030	0.129	0.288
Workdiscretion	<-->	MS_External	0.204	0.080	0.294	0.007
MS_Internal	<-->	TimeAvailability	0.143	0.061	0.209	0.008
RewardReinforcement	<-->	MS_External	0.082	-0.023	0.163	0.205
RewardReinforcement	<-->	Workdiscretion	0.429	0.328	0.538	0.003
TimeAvailability	<-->	OrgBoundaries	0.084	0.009	0.150	0.058
MS_Internal	<-->	RewardReinforcement	0.539	0.461	0.619	0.005
TimeAvailability	<-->	RewardReinforcement	0.196	0.122	0.278	0.003
TimeAvailability	<-->	Workdiscretion	0.173	0.093	0.274	0.002
TimeAvailability	<-->	MS_External	0.029	-0.061	0.110	0.635
OrgBoundaries	<-->	MS_External	0.026	-0.077	0.108	0.740
OrgBoundaries	<-->	RewardReinforcement	-0.062	-0.136	0.032	0.318
MS_Internal	<-->	MS_External	0.229	0.148	0.293	0.008
MS_Internal	<-->	Workdiscretion	0.185	0.095	0.274	0.004
eV44	<-->	eV47	0.107	0.029	0.173	0.029
eV44	<-->	eV45	0.274	0.210	0.343	0.004
erV30	<-->	erV29	0.418	0.239	0.545	0.005
eV28	<-->	eV27	0.485	0.402	0.552	0.006

Bootstrap Standard Errors: Variances

Parameter	SE	SE-SE	Mean	Bias	SE-Bias
MS_Internal	0.080	0.003	1.203	-0.002	0.004
TimeAvailability	0.081	0.003	1.038	-0.002	0.004
OrgBoundaries	0.057	0.002	1.398	-0.001	0.003
RewardReinforcement	0.069	0.002	0.505	0.002	0.003
Workdiscretion	0.101	0.003	0.625	0.001	0.005
MS_External	0.022	0.001	0.133	0.000	0.001
Heterogeneity	0.156	0.005	1.519	0.000	0.007
Dynamism	0.068	0.002	0.397	0.005	0.003
Hostility	0.060	0.002	1.376	0.004	0.003
e3	0.082	0.003	0.895	-0.025	0.004
e2	0.038	0.001	0.222	-0.002	0.002
e1	0.041	0.001	0.143	-0.002	0.002
eV56	0.000	0.000	0.300	0.000	0.000
eV13	0.063	0.002	1.041	-0.003	0.003
eV12	0.044	0.001	0.282	-0.002	0.002
eV31	0.025	0.001	0.206	0.001	0.001
eV34	0.038	0.001	0.231	-0.002	0.002
eV25	0.073	0.002	0.748	0.000	0.003
eV24	0.101	0.003	1.201	0.001	0.005
eV22	0.114	0.004	0.839	-0.012	0.005
eV19	0.100	0.003	0.947	-0.004	0.004
eV38	0.048	0.002	0.322	-0.002	0.002
eV26	0.068	0.002	1.101	-0.002	0.003
eV11	0.060	0.002	0.401	-0.001	0.003
eV28	0.074	0.002	1.067	-0.001	0.003
eV33	0.062	0.002	0.807	-0.003	0.003
erV35	0.034	0.001	0.247	0.001	0.002
erV32	0.044	0.001	0.263	-0.001	0.002
erV30	0.049	0.002	0.314	-0.001	0.002
erV29	0.051	0.002	0.297	0.000	0.002
eV15	0.022	0.001	0.216	-0.001	0.001
eV16	0.026	0.001	0.206	-0.002	0.001
eV17	0.015	0.000	0.175	0.000	0.001
eV18	0.030	0.001	0.249	0.000	0.001
eV21	0.081	0.003	1.071	-0.002	0.004
eV53	0.042	0.001	0.183	-0.004	0.002
eV52	0.041	0.001	0.234	-0.001	0.002
eV63	0.118	0.004	0.446	-0.007	0.005
eV62	0.143	0.005	0.160	-0.005	0.006
eV42	0.038	0.001	0.219	0.000	0.002
eV41	0.045	0.001	0.582	-0.003	0.002
eV46	0.061	0.002	0.879	-0.004	0.003
eV44	0.061	0.002	1.106	0.003	0.003
eV43	0.068	0.002	0.819	-0.002	0.003
eV45	0.056	0.002	1.276	-0.004	0.003
eV47	0.071	0.002	0.895	0.004	0.003
eV50	0.044	0.001	0.450	-0.001	0.002
eV48	0.052	0.002	1.011	-0.003	0.002
eV49	0.071	0.002	0.866	-0.003	0.003
eV51	0.042	0.001	0.334	-0.002	0.002
eV39	0.035	0.001	0.337	0.000	0.002
eV40	0.067	0.002	1.053	-0.006	0.003
eV27	0.061	0.002	0.842	-0.001	0.003
eV14	0.045	0.001	0.344	-0.001	0.002
eV59	0.078	0.002	1.249	-0.006	0.003

Bias–Correlated Percentile Method Confidence Intervals: Variances

Parameter	Estimate	Lower	Upper	P
MS_Internal	1.205	1.080	1.333	0.003
TimeAvailability	1.040	0.908	1.186	0.003
OrgBoundaries	1.398	1.300	1.491	0.004
RewardReinforcement	0.503	0.402	0.628	0.004
Workdiscretion	0.624	0.480	0.809	0.003
MS_External	0.133	0.099	0.172	0.004
Heterogeneity	1.519	1.288	1.813	0.003
Dynamism	0.392	0.277	0.497	0.006
Hostility	1.372	1.275	1.468	0.005
e3	0.921	0.801	1.066	0.001
e2	0.225	0.171	0.296	0.002
e1	0.145	0.085	0.224	0.002
eV56	0.300	0.300	0.300	...
eV13	1.044	0.943	1.150	0.003
eV12	0.284	0.219	0.360	0.003
eV31	0.205	0.167	0.251	0.004
eV34	0.234	0.178	0.304	0.002
eV25	0.748	0.630	0.874	0.003
eV24	1.200	1.023	1.358	0.005
eV22	0.851	0.679	1.044	0.002
eV19	0.952	0.767	1.097	0.005
eV38	0.325	0.260	0.418	0.002
eV26	1.103	0.984	1.213	0.003
eV11	0.402	0.307	0.509	0.004
eV28	1.069	0.947	1.189	0.004
eV33	0.810	0.712	0.922	0.003
erV35	0.246	0.192	0.305	0.004
erV32	0.264	0.201	0.351	0.003
erV30	0.315	0.240	0.404	0.003
erV29	0.297	0.222	0.388	0.003
eV15	0.217	0.184	0.255	0.002
eV16	0.208	0.175	0.269	0.001
eV17	0.175	0.149	0.198	0.005
eV18	0.249	0.206	0.306	0.002
eV21	1.073	0.945	1.218	0.003
eV53	0.187	0.108	0.247	0.004
eV52	0.235	0.165	0.302	0.005
eV63	0.453	0.265	0.678	0.002
eV62	0.164	-0.148	0.368	0.309
eV42	0.219	0.164	0.290	0.003
eV41	0.585	0.525	0.674	0.002
eV46	0.883	0.791	0.994	0.002
eV44	1.103	0.998	1.198	0.007
eV43	0.821	0.721	0.940	0.003
eV45	1.280	1.191	1.369	0.003
eV47	0.892	0.768	1.005	0.005
eV50	0.451	0.379	0.523	0.004
eV48	1.015	0.927	1.110	0.003
eV49	0.869	0.759	1.001	0.003
eV51	0.336	0.279	0.416	0.002
eV39	0.338	0.281	0.399	0.003
eV40	1.059	0.957	1.180	0.002
eV27	0.843	0.746	0.951	0.003
eV14	0.346	0.279	0.427	0.003
eV59	1.255	1.145	1.403	0.002

Bootstrap Standard Errors: Squared Multiple Correlations

Parameter	SE	SE-SE	Mean	Bias	SE-Bias
EntrepreneurialActions	0.036	0.001	0.200	0.019	0.002
SustainableCE	0.038	0.001	0.610	0.009	0.002
SustainedCP	0.033	0.001	0.879	0.001	0.001
V59	0.037	0.001	0.210	0.001	0.002
V56	0.006	0.000	0.821	0.000	0.000
V14	0.045	0.001	0.164	0.005	0.002
V51	0.025	0.001	0.801	0.001	0.001
V48	0.030	0.001	0.231	-0.001	0.001
V49	0.043	0.001	0.474	0.000	0.002
V50	0.027	0.001	0.723	0.000	0.001
V47	0.040	0.001	0.453	-0.002	0.002
V43	0.046	0.001	0.409	0.003	0.002
V44	0.035	0.001	0.333	-0.004	0.002
V45	0.025	0.001	0.106	0.002	0.001
V46	0.043	0.001	0.364	0.002	0.002
V39	0.028	0.001	0.768	-0.002	0.001
V40	0.037	0.001	0.321	0.003	0.002
V41	0.039	0.001	0.544	0.000	0.002
V42	0.028	0.001	0.838	-0.001	0.001
V62	0.086	0.003	0.905	0.003	0.004
V63	0.070	0.002	0.738	0.003	0.003
V52	0.071	0.002	0.626	0.001	0.003
V53	0.072	0.002	0.703	0.006	0.003
V21	0.046	0.001	0.279	0.001	0.002
V18	0.064	0.002	0.285	0.005	0.003
V17	0.048	0.002	0.430	-0.002	0.002
V16	0.062	0.002	0.383	0.002	0.003
V15	0.058	0.002	0.416	0.003	0.003
RV29	0.038	0.001	0.777	-0.001	0.002
RV30	0.039	0.001	0.745	0.000	0.002
RV32	0.030	0.001	0.814	0.001	0.001
RV35	0.019	0.001	0.859	-0.001	0.001
V33	0.040	0.001	0.458	0.000	0.002
V28	0.043	0.001	0.234	0.003	0.002
V11	0.039	0.001	0.737	0.000	0.002
V38	0.027	0.001	0.813	0.001	0.001
V19	0.060	0.002	0.397	0.001	0.003
V22	0.068	0.002	0.506	0.005	0.003
V24	0.046	0.001	0.411	-0.002	0.002
V25	0.048	0.002	0.517	0.000	0.002
V26	0.037	0.001	0.307	-0.002	0.002
V27	0.043	0.001	0.375	0.001	0.002
V34	0.023	0.001	0.858	0.001	0.001
V31	0.018	0.001	0.860	0.000	0.001
V12	0.031	0.001	0.810	0.000	0.001
V13	0.036	0.001	0.362	0.001	0.002

Bias–Correlated Percentile Method Confidence Intervals: Squared Multiple Correlations

Parameter	Estimate	Lower	Upper	P
EntrepreneurialActions	0.182	0.108	0.219	0.059
SustainableCE	0.601	0.529	0.654	0.017
SustainedCP	0.877	0.815	0.928	0.006
V59	0.209	0.149	0.270	0.004
V56	0.821	0.810	0.830	0.005
V14	0.158	0.087	0.232	0.007
V51	0.800	0.756	0.837	0.006
V48	0.232	0.187	0.285	0.003
V49	0.474	0.397	0.540	0.004
V50	0.723	0.679	0.771	0.003
V47	0.455	0.401	0.538	0.002
V43	0.407	0.318	0.476	0.007
V44	0.337	0.287	0.406	0.002
V45	0.104	0.064	0.146	0.005
V46	0.362	0.279	0.419	0.009
V39	0.769	0.724	0.813	0.004
V40	0.318	0.247	0.370	0.007
V41	0.545	0.474	0.602	0.005
V42	0.838	0.788	0.882	0.004
V62	0.902	0.783	1.089	0.002
V63	0.735	0.601	0.846	0.006
V52	0.625	0.512	0.737	0.004
V53	0.697	0.581	0.828	0.004
V21	0.278	0.201	0.355	0.004
V18	0.280	0.170	0.376	0.007
V17	0.431	0.352	0.514	0.003
V16	0.381	0.282	0.488	0.005
V15	0.413	0.320	0.510	0.004
RV29	0.778	0.710	0.832	0.005
RV30	0.745	0.677	0.803	0.006
RV32	0.813	0.757	0.856	0.007
RV35	0.860	0.825	0.890	0.004
V33	0.458	0.395	0.529	0.003
V28	0.231	0.157	0.298	0.006
V11	0.736	0.664	0.797	0.005
V38	0.813	0.764	0.852	0.005
V19	0.396	0.309	0.513	0.003
V22	0.501	0.393	0.610	0.006
V24	0.413	0.345	0.502	0.003
V25	0.517	0.440	0.595	0.005
V26	0.309	0.258	0.384	0.002
V27	0.374	0.307	0.448	0.004
V34	0.857	0.816	0.891	0.006
V31	0.860	0.825	0.886	0.005
V12	0.809	0.754	0.854	0.007
V13	0.361	0.305	0.426	0.004

APPENDIX H

Regression Outputs for Entrepreneurial Actions Mediation using Sobel Test

University of Pretoria etd – Mungule, CM (2015)

REGRESSION

```

/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT CP
/METHOD=ENTER EntAction.
  
```

Regression

Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value	Definition of Missing
Handling	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time
	Memory Required
	Additional Memory Required for Residual Plots

Notes

Output Created	27-MAY-2015 14:32:41
Comments	
Input	E:\2014\up 2014\jurie en mungule\PhD Data set_Final_Amos_2.sav
	DataSet3
	<none>
	<none>
	<none>
	646
Missing Value	User-defined missing values are treated as missing.
Handling	Statistics are based on cases with no missing values for any variable used.
	Cases Used

University of Pretoria etd – Mungule, CM (2015)

Syntax	REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT CP /METHOD=ENTER EntAction.	
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,02
	Memory Required	5440 bytes
	Additional Memory Required for Residual Plots	0 bytes

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	EntAction ^b	.	Enter

- a. Dependent Variable: CP
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.505 ^a	.255	.254	.86795

- a. Predictors: (Constant), EntAction

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	166.248	1	166.248	220.683	.000 ^b
	Residual	485.148	644	.753		
	Total	651.396	645			

- a. Dependent Variable: CP
b. Predictors: (Constant), EntAction

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.709	.090		18.892	.000
EntAction	.511	.034	.505	14.855	.000

a. Dependent Variable: CP

```

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT CE
/METHOD=ENTER EntAction.
  
```

Regression
Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value Handling	Definition of Missing
	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time
	Memory Required
	Additional Memory Required for Residual Plots

Notes

Output Created		27-MAY-2015 14:33:06
Comments		
Input	Data	E:\2014\up 2014\jurie en mungule\PhD Data set_Final_Amos_2.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	646
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT CE /METHOD=ENTER EntAction.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,02
	Memory Required	5440 bytes
	Additional Memory Required for Residual Plots	0 bytes

 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	EntAction ^b	.	Enter

a. Dependent Variable: CE

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.480 ^a	.231	.230	.74758

a. Predictors: (Constant), EntAction

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ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107.959	1	107.959	193.173	.000 ^b
	Residual	359.914	644	.559		
	Total	467.873	645			

a. Dependent Variable: CE

b. Predictors: (Constant), EntAction

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.860	.078		23.872	.000
	EntAction	.412	.030	.480	13.899	.000

a. Dependent Variable: CE

```

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT CP
/METHOD=ENTER EntAction CE.
  
```

Regression

Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value	Definition of Missing
Handling	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time
	Memory Required
	Additional Memory Required for Residual Plots

Notes

Output Created		27-MAY-2015 14:35:05
Comments		
Input	Data	E:\2014\up 2014\jurie en mungule\PhD Data set_Final_Amos_2.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	646
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT CP /METHOD=ENTER EntAction CE.
Resources	Processor Time	00:00:00,00
	Elapsed Time	00:00:00,00
	Memory Required	5888 bytes
	Additional Memory Required for Residual Plots	0 bytes

 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	CE, EntAction ^b	.	Enter

a. Dependent Variable: CP

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.741 ^a	.549	.548	.67580

a. Predictors: (Constant), CE, EntAction

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	357.731	2	178.866	391.639	.000 ^b
	Residual	293.665	643	.457		
	Total	651.396	645			

a. Dependent Variable: CP

b. Predictors: (Constant), CE, EntAction

 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.352	.097		3.644	.000
	EntAction	.211	.031	.208	6.898	.000
	CE	.729	.036	.618	20.476	.000

a. Dependent Variable: CP