

Nurturing the corporate entrepreneurship capability

M.J. Scheepers, J. Hough & J.Z. Bloom

ABSTRACT

Enterprises with well-developed entrepreneurial capabilities are able to sustain growth and innovation, which are critical competitive advantages in the 21st century. The purpose of this article was to determine whether the salient organisational factors, identified in international corporate entrepreneurship (CE) literature, that nurture CE capability are applicable in the South African context. A cross-sectional telephone survey of 315 South African companies indicated that the strategic leadership of the enterprise should support CE, encourage autonomy and provide rewards for entrepreneurial behaviour to strengthen CE capability.

Key words: corporate entrepreneurship, capabilities, organisational climate, innovation

INTRODUCTION

Many business executives concur that the ability to drive business growth and implement new and innovative ideas are several of the top priorities of organisations in the 21st century (Drucker 2002; Rigby 2003; Planting 2006; Morris, Kuratko & Covin 2008). However, the management of innovation and corporate entrepreneurship (CE) is complex, challenging and subject to risk (Ahmed 1998: 30). The implementation of innovation and CE cannot be achieved by paying 'lip service' to the ideal (Hof 2004). A holistic commitment to building the CE capability and a supportive organisational climate are needed for an organisation to become 'entrepreneurial' (Fahden 1998; Mokoena 1999).

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South African organisations face the pressures of sustaining growth, improving their international competitiveness and building their capacity to innovate (Porter 2004; NRF 2004; Hartley & Worthington-Smith 2004). Limited research has been conducted on the nature and management of CE in enterprises operating in South Africa (Scheepers & Hough 2004). The purpose of this paper is to determine whether the salient organisational factors, identified in international CE literature, that nurture the CE capability are applicable in the South African context. In order to achieve this objective, the CE literature is reviewed, the relationship between a supportive organisational climate and CE capability is examined, the methodology and research design are explained, the results are assessed and recommendations are made as to implications for theory and managerial practice.

CORPORATE ENTREPRENEURSHIP AS ORGANISATIONAL CAPABILITY

The resource-based view (RBV) suggests that variation in competitive markets stems from differences in the characteristics of competitors' resources and capabilities. Specifically, resources or capabilities that are valuable and difficult to imitate offer the potential for competitive advantage. However, to possess these resources alone is insufficient to gain a competitive advantage and create value; firms must effectively manage their resources and build unique capabilities to gain an advantage and realise value creation (Sirmon, Hitt & Ireland 2007). Value creation occurs as firms exceed their competitors' ability to provide solutions to customers' problems, while simultaneously maintaining or improving their long-term financial performance, thereby creating wealth for owners (Morrow, Sirmon, Hitt & Holcomb 2007).

The CE literature views the degree of entrepreneurial behaviour as a critical enterprise capability to create value for the enterprise's customers and owners (Leibold, Voelpel & Tekie 2004; Goosen, DeConing & Smit 2002, Covin & Slevin 1991; Zahra & Garvis 2000). Therefore, CE can be regarded as an intangible organisational capability embedded in an enterprise's culture, which contributes to building and renewing an enterprise's competitive advantages (Zahra & Covin 1995; Lee, Lee & Pennings 2001; Morrow et al. 2007). But, what exactly does CE refer to?

Defining corporate entrepreneurship

Corporate entrepreneurship (CE), generally, refers to the development of new business ideas and opportunities within large and established corporations (Birkenshaw

2003). In most cases, CE describes the total process whereby established enterprises act in innovative, risk-taking and proactive ways (Zahra 1993; Dess, Lumpkin & McGee 1999; Bouchard 2001). This behaviour has various outcomes. An outcome may result in a new product, service, process or business development. CE may be chosen as a strategy to result in increased financial performance. It also leads to other non-financial benefits, such as increased morale of employees, collaboration and a creative working environment (Hayton 2005). It may result in 'new' organisations being created as 'spin-out ventures' (Hornsby, Naffziger, Kuratko & Montagno 1993; Altman & Zacharckis 2003), or it may involve the restructuring and strategic renewal within an existing enterprise (Volberda, Baden-Fuller & Van den Bosch 2001). CE is a multi-dimensional phenomenon. Corporate venturing, intrapreneurship and strategic renewal are, therefore, different components of CE (Covin & Slevin 1989; Hisrich & Peters 2002), with 'intrapreneurship' referring to an individual acting in an entrepreneurial manner inside an existing firm. In this study, the authors propose that CE be regarded as a process through which both formal and informal initiatives are encouraged, aimed at the creation of new products, services, processes and businesses to improve and sustain a company's competitive position and financial performance.

Many authors subscribe to the view that *firm-level entrepreneurial orientation* serves as an indicator of CE capability. Firm-level entrepreneurial orientation is reflected by three dimensions: innovativeness, proactiveness and risk-taking (Miller & Friesen 1983; Covin & Slevin 1991; Zahra 1991; Knight 1997). However, some authors, such as Lumpkin and Dess (1996), argue that five dimensions, rather than three, should be used to capture entrepreneurial orientation, namely: autonomy, competitive aggressiveness, proactiveness, innovativeness and risk-taking. In contrast with their views, this paper argues that autonomy is an internal factor of a supportive organisational climate. Furthermore, competitive aggressiveness forms part of the proactiveness dimension and does not represent a separate dimension. Other researchers also support this view (Morris, Schindehutte & Allen 2005; Kreiser Marino & Weaver 2002).

The traditional school of thought views these three dimensions as contributing equally and in the same direction to entrepreneurial orientation (Miller & Friesen 1983; Zahra 1991; Barringer & Bluedorn 1999), while another school of thought led by Kreiser et al. (2002) and supported by Lumpkin and Dess (1996) argues that the three dimensions vary independently of one another. For the purposes of this paper, the authors subscribe to the views of Kreiser et al. (2002) in this regard. Each of these dimensions will now be analysed in more detail.

Generally speaking, *innovativeness* refers to the creation of new products, services, processes, technologies and business models (Morris & Kuratko 2002). However, this

definition refers only to the outcome of innovativeness. Knight (1997) and Kreiser et al. (2002) expand on this definition. They regard innovativeness as the capability, capacity and willingness of an enterprise to support creativity and experimentation to solve recurring customer problems. Innovation is not simply about generating creative ideas, but also involves the commercialisation, implementation and modification of existing products, systems and resources. Antoncic and Hisrich (2001) link the innovativeness dimension with technological leadership, supported by research and development (R&D), in developing new products, services and processes. Thus, innovativeness enables an enterprise to differentiate itself from its competitors, thereby developing unique sets of competencies within that firm.

Risk-taking involves the readiness to make resources available to exploit opportunities and launch projects with uncertain outcomes and tentative projected returns on investment. Risks can be minimised by the knowledge an entrepreneur or company has of the opportunity or technology, or unique capabilities or networks to exploit the opportunity (Morris & Kuratko 2002). Both 'irresponsible' risk-taking, such as incurring large unsecured debts, or inaction, such as no product development, represent risk. Therefore risk can be managed by engaging in experiments, test markets and trial runs. From these endeavours, the entrepreneurial enterprise could focus on learning why some initiatives are more successful than others. Part of such accelerated learning may involve minor failures, but it is also likely to ensure more sustainable successes in the long run (Morris & Kuratko 2002). Morrow et al. (2007) concur and argue that managers need to be sufficiently motivated to change existing resource portfolios and alter an enterprise's capabilities. Wright, Kroll, Krug and Pettus (2007) add that certain internal factors, such as compensation practices (for example, managerial option incentives) also encourage managers to take moderate, calculated risks.

Proactiveness reflects an action-orientation. Kreiser et al. (2002: 78) define 'proactiveness' as the "aggressive execution and follow-up actions to drive an enterprise toward the achievement of its objectives by whatever reasonable means required". As such, proactiveness has certain underlying attributes such as the enterprise's disposition towards its competitors, organisational pursuit of favourable business opportunities, its attitude to being a pioneer or fast follower and a high regard for the initiative of employees (Stevenson & Jarillo 1990; Lumpkin & Dess 1996; Knight 1997). Entrepreneurial enterprises have been conceptualised as showing "an aggressive competitive orientation" (Covin & Slevin 1989). A characteristic of a proactive enterprise therefore involves aggressive and unconventional tactics towards rival enterprises in the same market segment (Knight 1997). Proactive enterprises constantly seek new opportunities by anticipating future demand and developing products and services in anticipation of customer needs (Kreiser et al.

2002). Furthermore, they also show initiative in the development of new procedures and technologies.

The international CE literature acknowledges that innovativeness, risk-taking and proactiveness, as dimensions of the CE capability, are influenced by the organisational climate within an enterprise (Ahmed 1998; Morris & Kuratko 2002; Hornsby, Kuratko & Zahra 2002; Martins & Terblanche 2003; Zdunczyk & Blenkinsopp 2007).

INTERNAL FACTORS INFLUENCING THE ORGANISATIONAL CLIMATE

The ability of CE activities to improve an enterprise's long-term financial performance and create value over the longer term has attracted interest in the internal factors that facilitate entrepreneurial behaviour. Several researchers have attempted to identify key internal factors of the organisational climate that influence the CE capability (Burgelman 1983, 1984; Kanter 1989; Stevenson & Jarillo 1990; Elenkov, Judge & Wright 2005). Some of the internal factors discussed in the literature include organisational leadership; the culture and value system of the enterprise; structure and processes; systems and the availability of resources (see Covin & Slevin 1991; Damanpour 1991; Zahra 1991, 1993, 1995; Zahra & Covin 1995; Hornsby et al. 2002; Goosen 2002). These organisational factors, both individually and in combination, are understood to be important facilitators of CE activities.

Hornsby et al. (2002) expanded on the work of other authors and identified a set of organisational factors that are consistent throughout the literature. These factors are strategic leadership and support for CE; empowered, autonomous employees; the use of appropriate rewards for CE; the availability of resources, especially time; and a supportive organisational structure. Based on extensive research in the field, Hornsby et al. (2002) developed and refined the Corporate Entrepreneurship Assessment Instrument (CEAI) to assess these five internal factors.

Strategic leadership and support for corporate entrepreneurship

The first factor that fosters CE activities is strategic leadership and support for CE. This factor captures the encouragement and willingness of managers to facilitate CE activities within an enterprise (Hornsby et al. 1993; Goosen 2002). Managers play a key role in encouraging employees to believe that innovation is expected of all members of the organisation. Management support can take many forms, including championing innovative ideas, recognition of people who articulate ideas, providing

the necessary resources or expertise, such as seed money to kick-start ideas, or institutionalising the entrepreneurial activity within the firm's system and processes (Hornsby et al. 2002). These types of support should encourage employees to solve problems in innovative ways, seek opportunities in a proactive manner and embark on moderately risky projects; the following hypothesis is therefore postulated:

Hypothesis 1: Management support for CE is positively related to CE capability, represented by innovativeness, proactiveness and risk-taking.

Empowered, autonomous employees

The second organisational factor nurturing CE activities is the degree to which employees are empowered and function autonomously in their jobs. This factor refers to the discretion with which, and the extent to which, employees are empowered to make decisions about performing their own work in the way they believe is most effective. In entrepreneurial work environments, employees are allowed to make decisions about their work process and are seldom condemned for failures during the innovation process (Hornsby et al. 2002). This tolerance of failure should breed innovative, proactive and risk-taking behaviours among employees; the following hypothesis is therefore postulated:

Hypothesis 2: Autonomy and empowerment of employees is positively related to CE capability, represented by innovativeness, proactiveness and risk-taking.

Rewards for corporate entrepreneurship

A third organisational factor encouraging entrepreneurial behaviour is the appropriate use of rewards for CE. Rewards and reinforcement develop the motivation of individuals to engage in innovative, proactive and moderate risk-taking behaviour (Fry 1987; Kanter 1989; Goosen 2002). Theorists therefore stress that an effective reward system that spurs entrepreneurial activity should be in line with set goals, provide timeous feedback, emphasise the responsibility of the individual and provide performance-based incentives. The use of appropriate rewards can also develop managers' inclination to get involved with uncertain, risky entrepreneurial projects. Innovative organisations are characterised by providing rewards based on performance, offering challenges, increasing responsibilities and promoting the ideas of innovative people throughout the organisation (Kuratko & Hodgetts 2004); the following hypothesis is therefore postulated:

Hypothesis 3: Rewards for CE are positively related to CE capability, represented by innovativeness, proactiveness and risk-taking.

Time and resource availability

The fourth organisational factor nurturing the CE capability is the availability of resources, which seems to be best portrayed by time availability. To consider acting in entrepreneurial ways, employees need to perceive resources as accessible for CE activities (Pinchot 1985; Covin & Slevin 1991; Kreiser et al. 2002). For new and innovative ideas to thrive, individuals should have time to incubate their ideas. Organisations should be reasonable in assigning the workload of their employees and allow employees to work with others on solving long-term problems. In entrepreneurial work environments, employees are allowed to conduct creative, entrepreneurial experiments in a limited portion of their work time (Von Hippel 1977; Kanter 1989; Morris 1998). The following hypothesis can thus be postulated with regard to time and resource availability:

Hypothesis 4: Time availability is positively related to innovativeness and proactiveness.

Supportive organisational structure and organisational boundaries

The final organisational factor facilitating CE is the existence of a supportive organisational structure and fluid boundaries (Lumpkin & Dess 1996; Morris 1998). A supportive organisational structure provides the administrative means by which ideas are appraised, selected and executed (Goosen 2002). However, a bureaucratic organisational structure leads to perceived boundaries, creating obstacles to CE activities. In such organisations, people tend to focus on their department's problems and fail to see the bigger picture. People should be encouraged to look at the organisation from a holistic perspective. Organisations should avoid having standard operating procedures for all major parts of jobs and should reduce dependence on narrow job descriptions and rigid performance standards (Kuratko, Montagno & Hornsby 1990; Hornsby et al. 2002). The following hypothesis can thus be postulated:

Hypothesis 5: Supportive organisational structures and boundaries are positively related to innovativeness and proactiveness.

To summarise, the key factors of a supportive organisational climate nurturing CE should be characterised by strategic leadership and support for CE, rewards for CE, empowered employees who enjoy intrapreneurial freedom and autonomy, resource and time availability for CE, a supportive organisational structure and limited boundaries between departments.

RESEARCH DESIGN AND METHODOLOGY

Sample and data collection

Initially, a pilot study was conducted to assess the face validity and reliability of the measurement instrument. Middle and senior level managers of 41 established companies, involved with innovation and based in Gauteng, were interviewed. Based on the results of the pilot study, the questionnaire was refined. Thereafter, data were collected by means of a cross-sectional telephone survey between August and October 2005.

The population of the study included all companies involved with e-business. A non-probability, judgement sampling procedure was used in order to achieve the objectives of the study. The following criteria were used to select the sample: (1) awareness of innovation practices and processes, which is represented by participating in the annual South African e-business survey conducted by Trialogue (Hartley & Worthington-Smith 2004); (2) extensive users of e-business systems for information, administrative or commercial purposes, since technological changes over the last five years have forced many enterprises to overcome technological challenges in an innovative manner (Hartley & Worthington-Smith 2004); and (3) accessibility to firms, since few comprehensive and up-to-date databases exist in South Africa. These companies were identified as those in the information and communication technology (ICT) industry, listed on the JSE and operating in South Africa.

A comprehensive list of e-business system users was not available. The sample was therefore selected from JSE-listed companies at the end of 2004, as well as ICT companies from the database of IT Web (Hartley 2005; IT Web 2005). JSE companies totalled 300 firms; while ICT companies totalled 424 firms. Nine companies appeared on both lists, and the sample thus comprised 715 companies. All the companies in the sample were contacted. The key respondent (informant) interviewed in the JSE-listed companies was the Information Technology (IT) Manager or the Chief Information Officer (CIO), while the Chief Executive Officer (CEO) or Sales Manager was the key respondent in non-JSE-listed ICT companies.

A total of 315 useable questionnaires was collected, after a three-month survey period, resulting in a response rate of 44%, which compares well with similar studies (Barringer & Bluedorn 1999; Goosen 2002; Visser 2003). The responding firms represented a broad cross-section of JSE and ICT firms.

Measures

The survey instrument included scales designed to assess CE capability and the internal factors that support entrepreneurial behaviour. Collecting data on the size, age and sub-sample group of the companies permitted the preparation of a profile for the sample. The measurement instrument was developed to assess the dimensions of the CE capability and the internal factors influencing the organisational climate within South African enterprises. Each of the multi-item measures was based on a nine-point Likert scale, since it is easier for respondents to visualise a nine-point scale than a seven-point scale during a telephone interview.

Corporate entrepreneurship capability

In order to ensure the validity and reliability of the measurement instrument, it was essential to define the key dimensions of CE capability. Items from existing measuring instruments that proved reliable and valid in previous research studies were used and adapted, where possible. Care was taken to ensure that each variable in the measurement instrument was represented by at least three items. Useful existing research instruments were the Entrepreneurial Performance Index (EPI) of Morris and Sexton (1996) and the ENTRESALE (Kwandwalla 1977; Miller & Friesen 1983; Covin & Slevin 1989; Knight 1997). The scale contains items that assess perceptions of a firm's tendency towards innovative, risk-taking and proactive behaviour. The mean score, calculated as the average of nine items, was used to assess the CE capability of a company.

The following items were included in the measuring instrument:

- *Innovativeness*. Three items measure the relative innovativeness of a company: emphasis on R&D or marketing of existing products, the number of new products and degree of change in product lines over last two years. Respondents were asked to indicate the extent to which their companies reflect these types of behaviour. The mean score, calculated as the average of three items, was used to assess a company's relative innovativeness.
- *Risk-taking*. Three items assess the relative risk-taking propensity of a company: the degree of risk (low versus high) of projects; the strategic posture (wait-and-see or bold and aggressive) of the company and the type of behaviour to achieve goals (cautious versus bold). The items requested respondents to specify the extent to which their companies reflect these types of characteristics. The mean score, calculated as the average of three items, measured a company's relative risk-taking propensity.
- *Proactiveness*. Three items gauged the proactiveness dimension of a company: posture towards competitors, initiator of action, and first-to-market or follower

strategy. Respondents were required to signify the extent to which their companies reflect these types of actions. The mean score, calculated as the average of three items, was used to determine the relative proactiveness of a company.

Internal factors influencing organisational climate

The internal factors that support an entrepreneurial organisational climate were assessed, using the Corporate Entrepreneurship Assessment Instrument (CEAI) of Hornsby et al. (2002), which was developed and refined over a number of years. The CEAI was also cross-culturally validated on American and Canadian managers. The five factors that were identified are briefly discussed:

- *Strategic leadership and management support for CE.* The CEAI has 17 items to measure management support for CE; these items were reduced to 15 items (Cronbach alpha coefficient = 0.92) to prevent respondent fatigue. In this study, management support for CE was conceptualised as the willingness of the organisation and management to adopt new ideas or methods; the extent to which promotion possibilities were linked to entrepreneurial behaviour; the experience of managers with the innovation process; their attitude towards risk and encouragement to develop new ideas. Respondents were asked to assess how supportive the company and management team in the company were of entrepreneurial behaviour. The mean score, averaged across the 15 items, assessed the degree of management support for CE in a company.
- *Empowered and autonomous employees.* For this study, the autonomy that employees enjoy in their jobs was measured by nine items (Cronbach alpha coefficient = 0.85). The scale asked respondents to indicate their agreement or disagreement with statements pertaining to their own decision-making authority and responsibility in their jobs; the attitude of the company towards failure; and the extent of freedom that employees enjoy to use their own initiative.
- *Rewards for CE.* The CEAI has six items measuring rewards for CE, only five of which were used, since respondents in the pilot study indicated that two items were repetitive (Cronbach alpha coefficient = 0.88). Respondents were required to specify their agreement or disagreement with statements pertaining to non-monetary rewards such as an increase in job responsibilities; recognition; removal of obstacles in the workplace by managers; and monetary rewards linked to performance. The mean score, averaged across the five items, indicates the level of recognition and reward associated with CE inside a company.
- *Time availability.* Five items were used to determine the availability of time resources to employees to engage in CE activities (Cronbach alpha coefficient

= 0.47). Respondents had to indicate their agreement or disagreement with statements regarding the time employees have to work on wider organisational problems other than simply their job responsibilities and workload. Again, the mean score, averaged across the five items, indicates the availability of time inside companies to focus on entrepreneurial problem-solving.

- *Organisational boundaries*. Five items were used to determine how bureaucratic companies were with regard to employee job descriptions and performance outputs (Cronbach alpha coefficient = 0.68). Respondents were requested to signal their agreement or disagreement with statements focusing on the certainty of employees with respect to job expectations; and standard procedures, performance standards and outcomes of tasks. Again, the mean score, averaged across the five items, indicates the extent of the bureaucracy that employees perceive to exist inside a company. Although Hornsby et al. (2002) named this factor 'organisational boundaries', a more accurate name reflecting the items contained in this factor might be the 'bureaucratic nature of the job and performance certainty'. However, in keeping with the theoretical foundation and CEAI terminology, the term 'organisational boundaries' will be used in this article.

Data reliability and validity

Measurement instruments need to be evaluated for their reliability and validity. Each of these evaluation criteria is discussed in the following sub-sections.

Reliability

As reported in the previous section, Cronbach's alpha coefficient was calculated to assess the internal consistency of the measurement instrument. The Cronbach alpha coefficient values were 0.68, 0.69, 0.77 and 0.66 for innovativeness, risk-taking, proactiveness and the degree of CE respectively, as shown in Table 1. The Cronbach alpha coefficients for the internal factors were 0.92, 0.85, 0.88 and 0.68 for strategic leadership and management support for CE, autonomy of employees, rewards for CE and organisational boundaries. These coefficients would appear to satisfy Nunnally's (1978) suggested minimum criterion for internal reliability. Coefficients lower than 0.50 are regarded as questionable, coefficients close to 0.70 as acceptable, and coefficients of 0.80 as good (Sekaran 1992). All the measures in the survey exceeded this minimum threshold with the exception of time availability (Cronbach alpha co-efficient = 0.47). Therefore, time availability as a construct was excluded from further data analysis.

Validity

'Validity' refers to the extent to which an item or set of measures correctly represents the constructs of a study. It is therefore concerned with how well the construct is defined by the item(s) (Hair, Bush & Ortinau 2000). In this study, theoretical and observational meaningfulness and discriminant validity were examined:

- *Theoretical and observational meaningfulness.* At a basic level, validity is established by developing measures from well-grounded theory. Although entrepreneurship is an established research topic, the resurgence of interest in entrepreneurship is a fairly recent phenomenon (Wortman 1987). Thus, although the CE capability construct has good reliability and has performed well in previous studies, it is based on a stream of literature that is still developing. Similarly, the internal factors of a supportive organisational climate included in the study are based on recent literature (Hornsby et al. 2002). As a result, the theoretical validity of the CE construct is still in its formative stage.
- *Discriminant validity.* Discriminant validity shows that a measure is distinct and is empirically different from other measures. The findings of an exploratory factor analysis indicated that the eigenvalues of all constructs exceed one. There is thus support for the discriminant validity of the measures used in this study.

Data analysis and findings

Data analysis was conducted using STATISTICA (StatSoft 2007) and LISREL (Jöreskog & Sörbom 1998). Descriptive statistics (mean, standard deviation and co-efficient of variance) were used to describe the data. Correlation coefficients were used to determine the associations between constructs (see Tables 1 and 2). Additionally, structural equation modelling was used to achieve the objectives of the study. The findings of these analyses are subsequently presented.

Descriptive statistics

Descriptive statistics are used to profile the sample, describe the data and determine associations between constructs.

Profile of the sample

The respondents ($n = 315$) to the telephone interviews represented a broad cross-section of listed JSE and ICT companies. More JSE companies (61%) participated in the survey than ICT companies (39%). Listed ICT companies were grouped with

the other ICT companies for the analyses, since their strategies, internal culture and perceptions of the external environment are more likely to be similar to unlisted ICT companies in the same industry than to other listed companies in different industries (McGahan & Porter 1997; Sutcliffe & Huber 1998). The size and age of responding companies are shown in Figure 1. The number of permanent employees determined company size. Answers provided by respondents were categorised into eight categories, as shown in Figure 1a. The largest category (35%) includes companies with one to 99 employees. However, when the categories above 200 employees (usually considered as large companies) are taken into account, 56% of the respondents employ 200 or more employees.

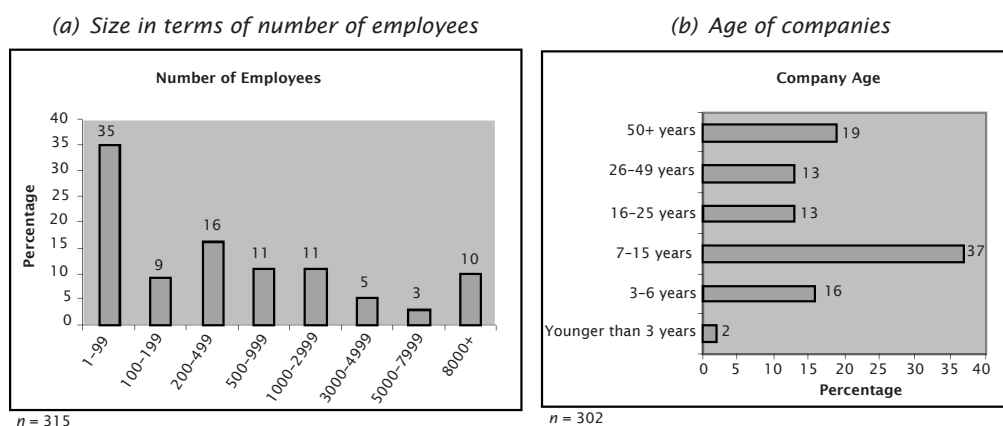


Figure 1: Size and age of companies

Companies were also categorised according to their age, or years in existence. Respondents' answers were categorised into six categories as shown in Figure 1b. The largest group of respondents (37%) fall into the category of seven to 15 years of age. Companies younger than seven years include 18% of the respondents, and companies older than 15 years include 45% of the respondents. It should also be noted that only 2% (seven of the 302 companies) had existed for less than three years.

The mean (M), standard deviation (SD), coefficients of variation (CV) and Cronbach alpha coefficients ($C\alpha$) for the constructs are shown in Table 1. The standard deviation indicates how the observations are spread about the mean. The coefficient of variation describes the extent of the dispersion relative to the mean of

the observations for a selection of random variables. From Table 1, it can be seen that respondents held similar perceptions of proactiveness ($CV = 24.60$), while they held differing perceptions regarding risk-taking ($CV = 36.09$). Regarding the internal factors, respondents showed the highest level of consensus regarding the autonomy they enjoyed in their jobs ($CV = 21.76$), while they had widely differing perceptions regarding organisational boundaries (highest $CV = 44.78$).

Table 1: Descriptive statistics for the CE capability and internal factor constructs

Variables	$C\alpha$	M	SD	CV
CE capability	0.66	16.75	3.92	23.40
Innovativeness	0.68	16.94	5.33	31.46
Risk-taking	0.69	14.99	5.41	36.09
Proactiveness	0.77	18.33	4.51	24.60
Internal factors	0.70	30.85	4.71	15.27
Management support for CE	0.92	46.38	11.13	23.77
Autonomy	0.85	29.27	6.37	21.76
Rewards for CE	0.88	34.47	7.97	23.12
Organisational boundaries	0.69	16.97	7.6	44.78

Note: $n = 315$

The correlation matrix shown in Table 2 was used to determine associations between constructs. The findings indicate that correlations are statistically significant ($p < 0.05$) between innovativeness, risk-taking and proactiveness, the three dimensions of the CE capability. Three of the four internal factors, namely management support for CE, autonomy of employees and rewards for CE, also show statistically significant correlations between themselves and the dimensions of the CE capability ($p < 0.05$). Proactiveness is also correlated with organisational boundaries at the 90% confidence level ($p < 0.10$).

As the correlation matrix indicates, the intercorrelations among the dimensions of the CE capability included in the study are significant, but lower than 0.60; multicollinearity is thus not considered to be a problem in this dataset (Hair, Black, Babin, Anderson & Tatham 2006). A high level of multicollinearity can result in unstable regression coefficients in linear regression models (Pedhazur 1982). After the descriptive analysis, structural equation modelling was used to assess the relationships between constructs.

Table 2: Correlation matrix for the variables assessed

Variable	1	2	3	4	5	6	7
1. Innovativeness							
2. Risk-taking	0.34*						
3. Proactiveness	0.42**	0.42**					
4. CE capability	0.77**	0.77**	0.77**				
5. Management support for CE	0.29**	0.29**	0.31**	0.38**			
6. Autonomy	0.18**	0.29**	0.14**	0.27**	0.55**		
7. Rewards for CE	0.30**	0.18**	0.13*	0.27**	0.53**	0.44**	
8. Organisational boundaries	0.04	-0.02	0.03 [†]	0.02	-0.21**	-0.24**	-0.14*

Note:

$n = 315$

$+p < 0.01$; * $p < 0.05$; ** $p < 0.01$

Structural equation modelling

Based on the CE literature, it was decided to construct a simple structural equation model (SEM) of the influence of the organisational climate factors on the CE capability. Figure 2 shows the influence of the internal factors as an exogenous construct on the endogenous construct of CE capability.

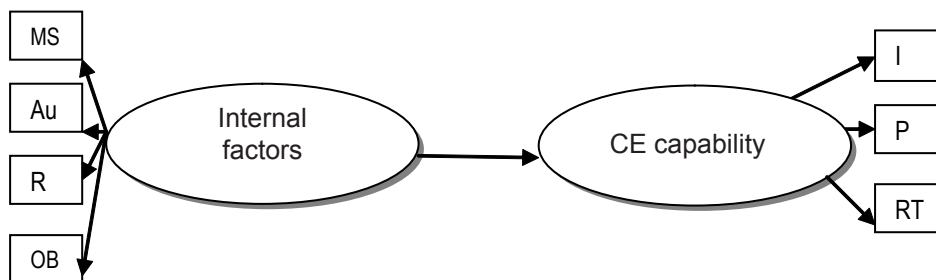


Figure 2: An illustration of the theoretical relationship between the internal factors and the corporate entrepreneurship capability

Figure 2 illustrates that the internal factors are measured by management support for CE (MS), autonomy of employees (Au), rewards for CE (R) and organisational boundaries (OB). The exogenous construct influences the endogenous variable of CE capability, assessed by innovativeness (I), proactiveness (P) and risk-taking (RT). The model shown in Figure 2 was tested, using STATISTICA 7.1 (Statsoft 2007) and LISREL (Jöreskog, & Sörbom 1998). The fit indices of the proposed SEM model indicated a weak fit. The weak fit could perhaps be ascribed to incorrect

model specification. The measure that indicated low parameter estimates was organisational boundaries. In view of the fact that the items in this measure seem to focus on the specification of individual level job description and work performance outcomes and not specifically on inter-organisational cooperation, the decision was made to eliminate this measure from further analysis. Adonisi (2003) also showed that this measure of the CEAI scale is sometimes problematic. The model was therefore modified by omitting the measure, which did not contribute significantly to relationships between key constructs. The model used for the analysis, together with the results, is shown in Figure 3.

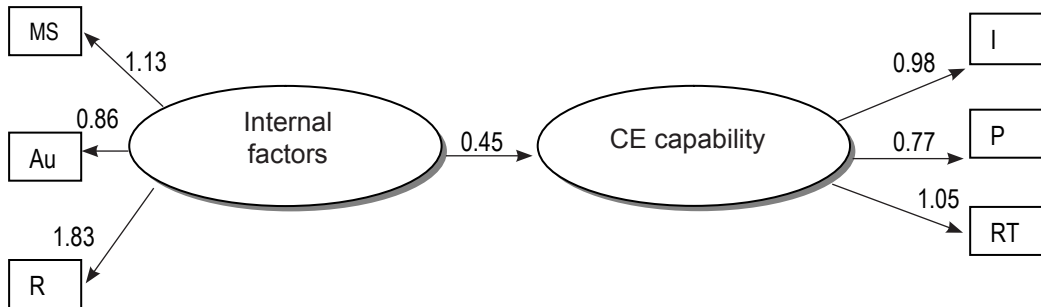


Figure 3: A representation of the modified SEM for the internal organisational climate factors and the CE capability

Figure 3 (constructed in LISREL with unstandardised values) shows that management support for CE (MS), autonomy (Au) and rewards for CE (R) contributes significantly to the measurement of internal factors, since the paths from these variables exceed the 0.70 threshold (Hair et al. 2006). CE capability is measured by innovativeness (I), proactiveness (P) and risk-taking (RT), which paths also exceed the 0.70 threshold recommended by Hair et al. (2006: 747). The internal factor construct has a significant influence (0.45) on the CE capability. This finding suggests that the CE capability is a construct that could be managed and improved by focusing on a configuration of internal factors such as management support for CE, rewards for CE and allowing employees to function autonomously.

Table 3 provides a summary of the unstandardised and standardised parameter estimates and *t*-values for the various paths in the SEM for the model shown in Figure 3. The measures for the CE capability (innovativeness, risk-taking and proactiveness) indicated significant parameter estimates, with *t*-statistics exceeding the critical value of 1.96 (Hatcher 1994: 323). Hair et al. (2006: 777) state that ideal parameter estimates should be 0.70 and above, but the measures related to CE capability standardised parameter estimates are below the 0.70 threshold level.

The measures reflecting the internal climate showed significant parameter estimates, with *t*-statistics exceeding the critical value of 1.96 (Hatcher 1994: 323), and standardised parameter estimate values for management support, autonomy and rewards for CE being 0.81, 0.66 and 0.75 respectively. The internal factor measures are close to the threshold of 0.70; even though autonomy is just below the threshold (0.66), it is still statistically significant, with a *t*-value of 8.02, exceeding the critical value of 1.96 (Hatcher 1994: 323). The results are thus indicative of an adequate measurement model, since they are close to the threshold criteria.

The path towards the CE capability confirms that internal climate factors (0.45) have a significant influence on the endogenous variable of CE capability.

Table 3: A summary of the dimensions and model estimates of the structural equation model for the influence of the internal factors on the CE capability

Dimensions	Model estimates			
	Unstandardised parameter estimates	Standardised parameter estimates	Std error	<i>t</i> -statistic
CE capability				
Innovativeness*	0.98	0.60		
Risk-taking	0.77	0.57	0.18	4.20
Proactiveness	1.05	0.59	0.25	4.25
Internal Factors				
Management Support	1.13	0.81	0.11	10.07
Autonomy	0.88	0.66	0.11	8.02
Rewards	1.18	0.75	0.13	9.29

Note:

* For technical reasons, neither LISREL nor STATISTICA 7.1 calculates the standard error or *t*-statistic for innovativeness.

The multiple fit indices of the SEM for CE capability influenced by the internal factors are compared in order to recommended guidelines, shown in Table 4. Several of the fit indices evaluate different aspects of fit, and it is therefore important to evaluate fit based on multiple fit statistics, so that judgments will not be an artefact of analytical choice (Grimm & Yarhold 2000).

Examining the multiple fit indices in Table 4, the modified SEM model indicates a good fit. The overall model achieved a value of 0.96 for the Joreskog GFI, which meets the threshold of 0.90. The values for NFI, NNFI and CFI were 0.94, 0.99 and 0.99 respectively. These values exceed the recommended threshold of 0.90.

Table 4: A summary of multiple fit indices for the SEM model and recommended guidelines for the fit indices

Single Fit Indices	Overall Model	Recommended Guideline Hair et al. (2006: 747)
Joreskog GFI	0.96	0.95
Normed Fit Index (NFI)	0.94	0.90
Non-normed Fit Index (NNFI)	0.99	0.90
Comparative Fit Index (CFI)	0.99	0.90
Adjusted Population Gamma Index	0.99	0.95
RMSEA	0.03	Below 0.05–0.10

The Adjusted Population Gamma Index was 0.99, which exceeds the recommended threshold for this fit index of 0.95. Finally, the RMSEA value of the overall model was 0.03, which is below the recommended threshold value of 0.05–0.10 (Hair et al. 2006: 747). To summarise, all the fit indices reviewed exceed the recommended guidelines for good fit; it could therefore be concluded that the model reflects adequate measurement characteristics and statistical fit.

The previous statistical analyses aid in assessing the hypotheses. The correlation analysis and structural equation modelling support the first hypothesis. For the firms in the sample, there is a positive relationship between strategic leadership and support for CE and the three dimensions of CE capability: innovativeness, risk-taking and proactiveness. This finding is supportive of the international CE literature, which emphasises that strategic leadership and management support for CE nurture the CE capability (Antoncic & Hisrich 2001; Hornsby et al. 2002; Morris & Kuratko 2002).

The second hypothesis was supported. A positive relationship exists between the autonomy of employees and the CE capability, assessed by innovativeness, risk-taking and proactiveness, on the basis of the structural equation model. The international CE and innovation literature emphasises that autonomous employees are empowered to formulate entrepreneurial solutions to problems (Pinchot 1985; Morris et al. 2008); these findings therefore confirm that in companies operating in South Africa, autonomous employees are crucial in nurturing entrepreneurial behaviour.

The third hypothesis was supported in the SEM-model. A positive relationship exists between rewards for CE and the CE capability, assessed by innovativeness, risk-taking and proactiveness. Strong theoretical support is also provided for this finding (Zahra 1991; Antoncic & Hisrich 2001; Hornsby et al. 2002), and no

differences exist with regard to rewards for CE between the international literature and the South African situation.

The fourth hypothesis, which postulated a positive relationship between time availability and innovativeness and proactiveness, could not be assessed, due to the poor internal consistency shown by the time availability measure.

The fifth hypothesis, which postulated a positive relationship between loose organisational boundaries and innovativeness and proactiveness, was not supported. Loose organisational boundaries show a positive relationship only with proactiveness, based on the correlation analysis. No relationship was found between loose organisational boundaries and innovativeness. As mentioned in the section on measures, the items in this factor pertain more specifically to job descriptions and clearly formulated job outcomes. Taking this into account, it can be expected that while some employees may show initiative and an action-orientation towards accomplishing specified job-related outcomes, their innovativeness might be inhibited, since the outcome of the activity is pre-specified.

DISCUSSION OF RESULTS

The purpose of this paper was to determine whether the salient organisational factors that aid the development of the CE capability, and are identified in the international CE literature, are applicable in the South African context. The results of this study suggest that the dimensions of CE capability are most strongly influenced by strategic leadership and support for CE, autonomy of employees, and rewards for CE. In contrast to the international CE studies, the organisational boundaries measure was not identified as a key internal factor that nurtures the CE capability.

Strategic leadership and top management support for CE show a strong and significant relationship with CE capability, assessed by innovativeness, risk-taking and proactiveness. These findings are consistent with the results reported by Goosen (2002) and Antoncic and Hisrich (2001). Thus, the strategic leadership of an enterprise should not only provide support for developing CE capabilities, but also inculcate a CE mindset in the culture of the enterprise. Rewards for CE also show a strong, statistically significant relationship with CE capability. Therefore, a firm should reinforce behaviours it would like to see repeated, such as rewards for entrepreneurial behaviour. The CE capability also showed a significant relationship with autonomy. Autonomy entails providing employees with the freedom to make decisions about their own job responsibilities. This type of freedom helps employees to function autonomously and solve work-related problems in unconventional ways.

From the SEM, it would appear as if all three of these internal factors form a configuration of internal factors, which creates a supportive internal climate for entrepreneurial activities. This internal climate influences the perceptions of individuals within the organisation as to the desirability and value of entrepreneurial actions. The need for a supportive internal climate to nurture CE has been discussed and empirically verified in the international CE literature and is also applicable to companies operating in South Africa.

However, the organisational boundaries measure, as captured by the CEAI instrument, tends to focus on the individual's perceptions of job descriptions and task outcomes rather than on the cooperation between different departments within an organisation. Although this measure was related to proactiveness, it was not found to significantly influence innovativeness and risk-taking, which are also essential components of the CE capability. The influence of job descriptions and task outcomes would therefore tend to be considered as of secondary importance when nurturing the CE capability. Furthermore, Adonisi (2003) also pointed out that this measure of the CEAI instrument needs to be revised. Another explanation for the difference between the international and South African findings could be attributed to the value of individualism versus collectivism between Western and African cultures. Since this research did not focus on cultural values, more research would be needed before such explanations could be offered. Nevertheless, the relevance of cultural values will become increasingly relevant, especially as South African companies are transformed to more accurately reflect the demographics of the region.

RECOMMENDATIONS AND CONCLUSION

The managerial implications for enterprises that endeavour to become more entrepreneurial are firstly to start at the top. Strategic leadership and top management support for CE are crucial to cultivating CE capability and play an instrumental role in developing a climate that is supportive of entrepreneurial projects. Without strategic commitment and support from top management, there is little incentive for the traditional organisational system to change and support existing and future CE initiatives. Secondly, rewards for CE encourage entrepreneurial behaviour. Rewards communicate to employees the values of CE by specifying the contributions expected from employees and what they can expect to receive as a result of their performance. Rewards need not just be monetary; non-monetary rewards, such as recognition and added job responsibilities, also serve as signals to reinforce entrepreneurial behaviour. Thirdly, an organisational climate that supports autonomous behaviour

of employees will also facilitate entrepreneurial problem-solving and provide employees with the freedom to determine which methods they would like to follow to achieve organisational goals.

It is recommended that future researchers that use the CEAI instrument should add items that focus on determining the interactions between different individuals and departments in order to ensure that the items in the instrument reflect the theoretical construct of organisational boundaries.

Although this study had certain limitations (including a single respondent per company and a singular focus on e-business), several avenues for further research exist. Avenues that have both practical and academic relevance are subsequently identified. A large sample was empirically surveyed in this cross-sectional study. It appears that few surveys have focused on the CE capability of a large number of companies in South Africa. Resource limitations allowed for data collection from only one respondent per company. It is suggested that further research triangulate the views of one respondent with secondary sources or use multiple respondents per company. Furthermore, since CE is such a comprehensive topic, the focus of the broader study was on e-business. Caution should therefore be exercised in generalising the findings.

Future research should test these findings across sectors, company size and age, as well as organisations that reflect the cultural diversity of the South African region. It is also suggested that future research should focus on identifying and measuring other organisational factors that may inhibit the CE capability, such as barriers to CE, physical resource availability, priorities in organisations and so forth. In this way, a more accurate predictive model could be constructed to manage the CE capability.

In conclusion, the compelling theme that emerges from this study is that the CE capability can be nurtured if employees perceive that top management is leading and supporting the process. This study enriches the literature by showing which internal factors influence the dimensions of the CE capability and by assessing CE theory in a new context, the South African environment.

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