

# **The Venture Creation Process, Entrepreneurial Self-Efficacy and Competitiveness: A Focus on Technology Enterprises**

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*Venture creation is typically conceptualized in terms of entrepreneurial tasks within a venture creation process, where the transition from one stage to another is often the result of a combination of various skill and belief components. This paper investigates the relationship between the venture creation phase, in terms of entrepreneurial self-efficacy and the competitiveness of small and medium technology enterprises. Correlational and regression analysis are performed where empirical evidence supports that the searching, planning, marshaling resources and implementing people phases of the venture process are significantly associated with the competitiveness of these enterprises.*

## **INTRODUCTION**

New venture creation is typically conceptualized in terms of broad stages or as entrepreneurial tasks within a venture creation process model (Clouse, 1991; McGee, Peterson, Mueller & Sequeira, 2009; Stevenson & Jarillo, 1990; Timmons, 2002; Vesper, 1996). Extant literature demonstrates that new firm formation is a specific, identifiable organizational process that has been subjected to previous empirical research (Newbert, 2005). Of particular research interest has been the identification of factors, characteristics, and conditions which foster entrepreneurial processes, new venture creation and contributing successes factors (Grimaldi & Grandi, 2005; McGee, et al., 2009; Urban, 2010a). By positioning the new firm formation process as a dynamic capability (Newbert, 2005), a common set of gestation activities emerge for successful entrepreneurship, where entrepreneurs typically emphasize different venture creation steps to outperform the competition (Goel, Gonzalez-Moreno & Saez-Martines, 2003). Such an approach can provide a novel paradigmatic way of appreciating an enterprise or industry (Holloway & Sebastiao, 2010; Jiang & Zhou, 2010), and its vicissitudes from the beginnings to ensuing developments.

The transition of individuals from one stage of an entrepreneurial process to another is often the result of a combination of various motivational and cognition components where environmental conditions and opportunities also play a role (Baum & Locke, 2004; Shane, Locke & Collins, 2003). However, environmental factors being held constant, Shane et al. (2003) argue that human motivation plays a critical role in the entrepreneurial process.

Recent research finds that although motivation is implied, or assumed, in papers on intentions, scripts, and cognitive maps to entrepreneurial behaviors, it remains largely under researched despite its critical importance to predicting and explaining entrepreneurial behaviors (Carsrud & Brannback, 2011). This paper responds to calls for research in this direction by investigating the venture creation process and possible links to the competitiveness of small and medium technology enterprises.

Evaluating regional transformation through technological entrepreneurship, Venkataraman (2003) analyses how in a modern economy universities and research and development laboratories are the incubators of novel technical ideas; it is not an accident that areas around Boston and Silicon Valley have produced a significant amount of wealth. Infusing an enterprising spirit into technical endeavors and the promotion of inventive skills has been implemented as an impetus to promote technopreneurship (Guan & Liu, 2007; Lee & Wong, 2004). Both entrepreneurs and technopreneurs have similar qualities, such as, determination, willingness to take risk, capacity to mobilize resources, and perseverance to overcome setbacks.

Although substantial research exists interrogating links between start-up motivations and entrepreneurial intentions (Edelman, Brush, Manolova & Greene, 2010); Hmieleski & Corbett, 2006) there is still limited understanding of entrepreneurial behavior, operationalized as self-efficacy in this paper, in the new venture's performance after start-up. Research finds those with higher entrepreneurial self-efficacy (ESE) as perceiving their environment as more opportunistic rather than fraught with risks, and they tend to believe in their ability to influence the achievement of goals (Chen, Greene & Crick, 1998; De Noble, Jung & Ehrlich, 1999). Since ESE refers to cognitive evaluations of personal capabilities with reference to specific tasks of entrepreneurship, it achieves the entrepreneurial distinctiveness that is both individual and contextual (Chen et al., 1998; De Noble et al., 1999); McGee et al., 2009). Examining ESE across venture creation phases is pertinent as research indicates that once small businesses begin to be sustainable their reported management challenges converge (Chan, Bhargava & Street, 2006). ESE can influence how well existing entrepreneurs discharge their responsibilities during each of the venture creation phases. The behaviors to which ESE corresponds are largely concerned with new-venture management and as such are required of entrepreneurs well beyond the point of founding (Forbes, 2005; Ulhøi, 2005). Competent functioning requires both skills and self-beliefs of efficacy, as both are required for continuously improving multiple sub-skills to manage ever-changing circumstances in entrepreneurial environments; most of which contain ambiguous, unpredictable and often stressful elements (Chandler & Jansen, 1992). Moreover ESE has been found to have relevance for technology applications (Lucas et al., 2009).

Given the recognized need for data-based and integrative process studies of the venture creation phases, this paper makes a contribution to the field of innovation, technology and entrepreneurship by empirically investigating the different venture creation phases in terms of the competitiveness of small and medium technology enterprises. In line with existing research (Kuratko, Hornsby & Goldsby, 2004) this study hypothesizes that venture competitiveness is contingent upon individual members undertaking innovative activities, which corresponds to ESE across the venture phases. Specifically it is proposed that the competitiveness (outcome) of the venture is influenced by the ESE (antecedents) of individuals undertaking the venture creation process. The self-efficacy construct is invaluable to understanding entrepreneurship and plays an important role as an antecedent for promoting the perceived feasibility and competitiveness of ventures (Krueger, Reilly & Carsud, 2000). Covin and Slevin's (1991) conceptual model of entrepreneurship as firm behavior, indicates that entrepreneurial intensity has a direct and positive influence on venture performance. Consequently ESE, as an antecedent to venture competitiveness refers to an owner's self-perception of the firm, since their self-perception will be closely related to the behavior of the firm. This firm level approach is consistent with the classical economics perspective in which the individual entrepreneur is regarded as a firm (Filion, 1997).

The paper proceeds by first accessing a relevant theoretical base to support the hypotheses which are formulated on existing theory from a range of disciplines. Next the research approach and measurement issues related to the constructs are discussed. This is followed by specific analytic methods best suited to test the hypotheses. Results and implications follow, and the study's limitations are addressed and future research directions are suggested.

## LITERATURE REVIEW

### Competitiveness of Ventures

Competitiveness is a concept often related to long-term performance of firms and economies. Many governments believe that new ventures can contribute towards the promotion of more equitable development, as well as the enhancement of the competitiveness of local industries within a global economy (Bygrave & Minniti, 2000; Hipkin & Bennett, 2003; Preece et al., 1998; Wright et al., 2007).

At the firm level, existing studies suggest that a sustainable competitive advantage is derived from how a firm approaches strategy formulation (Dess, Lumpkin & McGee, 1999). Strategic management in entrepreneurial firms has gained prominence in recent years as organizations compete in volatile environments (Entrialgo, Fernandez & Vazquez, 2000). The venture creation environment is characterized by complexity and dynamism, with ventures having to anticipate future scenarios and develop proactive strategies in an ambiguous and unstructured surrounding (Allen & Stearns, 2004).

Competitiveness, with a focus on small and medium enterprises (SMEs), have shown how the interaction of the scope for action or growth in the business environment, together with the degree of access to capital resources and the intrinsic ability of the firm, are all necessary factors required to improve the performance of the firm (Chan, Bhargava & Street, 2006; Ireland, Covin & Kuratko, 2009; Qureshi & Mian, 2010). For any venture, consequences primarily concern the degree to which results lead to acceptable (or better) current performance and to the possibility of acceptable (or better) future performance. Literature has emphasized several organizational-level outcomes of entrepreneurship, where two principal types of such outcomes are: (1) capability development, and (2) strategic repositioning (Ireland, Covin & Kuratko, 2009).

Competitiveness is the capacity of ventures to create and sustain economically viable industry positions (Nelson, 1991; Teece, Pisano & Shuen, 1997). Competitive development is created as ventures use entrepreneurial initiatives to explore new technologies or product-market domains or exploit existing technologies or product-market domains. Enhanced competitiveness, in particular, is often the result of exploitation of entrepreneurial opportunities. In terms of strategic repositioning, entrepreneurial behaviors can (1) place the venture, or portions thereof, in a new position within its pre-existing product-market domain(s), (2) alter the attributes of that domain(s), and/or (3) position the venture within a new product-market domain(s) (Ireland et al., 2009).

Rather than rely on typical performance measures such as sales and profit growth, assessing the competitiveness of SMEs is important, particularly as differences in growth measures have led to different relationships among constructs, with a reduction in the appropriateness of accumulating knowledge across studies (Shepherd & Wiklund, 2009). Building in this direction of SME competitiveness the focus of this study is on outcomes resulting from entrepreneurial action during the venture creation process.

### Venture Creation Process

In a recent study McGee et al. (2009) demonstrate the multi-dimensional nature of entrepreneurial self-efficacy by testing it within a four-phase venture creation process framework. This framework builds in the direction of new venture creation being conceptualized in terms of broad stages or as entrepreneurial tasks within a process model (Stevenson & Jarillo, 1990; Timmons, 2002). These stages are labeled (1) searching, (2) planning, (3) marshaling, and (4) implementing (Kickul, Gundry, Barbosa & Whitcanack, 2009; McGee et al., 2009; Mueller & Goic, 2003).

- (1) The searching phase involves opportunity identification and development. Lumpkin, Hills and Shrader (2004) argue that the creation of successful businesses follows successful opportunity development and also involves entrepreneur's creative work.
- (2) The planning phase consists of activities by which the entrepreneur converts the idea into a feasible business plan. Here the idea or business concept is evaluated in terms of various market and profitability criteria.

- (3) The marshaling phase involves assembling resources to bring the venture into existence. To bring the business into existence, the entrepreneur gathers (marshals) necessary resources such as capital, labor, customers, and suppliers without which the venture cannot exist or sustain itself.
- (4) The implementing phase requires that the entrepreneur grow the business and ensure the sustainability of the venture. To this end, the successful entrepreneur applies management skills and principles, particularly in implementing people management and financial management.

Although venture performance is influenced by a host of factors including the sector in which the firm operates, firm age and size, as well as cultural and environmental contexts, it is specifically argued for purposes of this paper that the competitiveness of the firm is influenced by the ESE of individuals undertaking the venture creation process. The self-efficacy perspective is highly appropriate for the study of the entrepreneur, since as a task specific construct rather than a global disposition, it helps address problem of lack of specificity in previous entrepreneurial personality research, and as a belief of one's venture capabilities, ESE is relatively more general than task self- efficacy (Chen et al., 1998).

Previous studies on entrepreneurial motivation have focused on basic concepts such as achievement need, risk taking, tolerance of ambiguity, and locus of control, all of which have yielded mixed results. However, findings have been more consistent for the self-efficacy construct when applied to entrepreneurial behavior (Bradley & Roberts, 2004; Forbes, 2005; Lucas et al., 2009). Previous research on ESE has been related to the pursuit of entrepreneurial activity in various ways, for instance, where general self-efficacy (GSE) is related to perseverance in difficult fields and greater personal effectiveness (Chen, Gully & Eden, 2001); Markman, Balkin & Baron, 2002), and where ESE is influenced by the way in which entrepreneurs make strategic decisions (Forbes, 2005). Since self-efficacy beliefs are domain specific, it is important to consider what is being measured and how. Some measures of ESE, while multi-dimensional, are based on general management tasks such as marketing, strategic planning, and business decision-making. These more generalized measures of ESE however do not assess confidence in performing specific tasks associated with planning, launching, and growing a new venture. While the ESE construct is quite promising it remains empirically underdeveloped and many scholars have called for further refinement of the construct (for example, Forbes, 2005; Lee & Bobko, 1994; Kolvereid & Isaksen, 2006; Urban, 2006). Another way of measuring self-efficacy of a broader domain, such as entrepreneurship (Chen et al., 1998) is to develop a conceptual framework of task requirements on the basis of which self-efficacy of a domain is aggregated from self-efficacy of various constituent sub-domains. Many studies have conceptualized self-efficacy as a task specific or state like construct, while others (De Noble et al., 1999) use a measure of ESE consisting of various sub-scales tailored specifically to the venture creation process.

Following McGee et al (2009) the hypotheses take into account the multidimensional and sequential nature of entrepreneurial tasks. The theoretically grounded four-dimensional structure of ESE, include the modification that the dimension of 'implementing' has two sub dimensions (one representing the 'people aspects of implementation' and the other representing the 'financial aspects of implementing'). Attitude toward venturing is included in the set of hypotheses, as the theory of planned behavior (TPB) (Ajzen, 1991) identifies attitudinal antecedents of intentions, which reflect the perceived desirability and the perceived feasibility of intentions and is thus related to perceptions of self-efficacy. Furthermore path analysis confirms that the correlation between attitudes and behavior is explained by attitude – intentions behavior links (Kim & Hunter, 1993). Intentional behavior helps explain why many entrepreneurs decide to start a business long before they scan for opportunities (Krueger, Reilly & Carsud, 2000). Recognizing the importance of ESE within the four-phase venture creation process framework and given the lack of empirical evidence of how technology SMEs navigate through this process, it is hypothesized that a positive relationship exists between each of the venture creation phases and competitiveness. The expected relationships are:

*H1: There will be a strong positive relationship between the searching phase of the new venture process and competitiveness.*

*H2: There will be a strong positive relationship between the planning phase of the new venture process and competitiveness.*

*H3: There will be a strong positive relationship between the marshaling phase of the new venture process and competitiveness.*

*H4: There will be a strong positive relationship between the implementing people phase of the new venture process and competitiveness.*

*H5: There will be a strong positive relationship between the financial management phase of the new venture process and competitiveness.*

*H6: There will be a strong positive relationship between attitude toward venturing and competitiveness.*

## **METHODOLOGY**

### **Sampling and Data Collection**

The population of this study was based on several membership lists representative of businesses operating in the greater Johannesburg area. Johannesburg is situated in the Gauteng province, the economic hub of South Africa, which has the highest number of businesses (South African Business Guidebook, 2005/6). This is indicative of the relative wealth of the Gauteng Province, and the extent to which the future economic growth of the province will determine growth for the entire South African economy (Gauteng Provincial Government, 2008).

The sampling frame was identified from the Small Enterprise Development Agency (SEDA) and Johannesburg Chamber of Commerce affiliates such as the Progressive Business Alliance, and Business Unit South Africa database of businesses operating in the greater Johannesburg area, which collectively represent a population of approximately 4600 businesses.

As emphasized earlier the focus of this study is on small to medium-sized enterprises in technology industries. More specifically the sample for this study was based on a previous conceptualization of 'early stage technology-based firms' (ESTBFs), which have been described as being technology-based, and are in early-stage of their business development, and have potential to compete internationally (Preece, Miles & Baetz, 1998). Based on sampling frames 377 potential respondents were surveyed. The qualifying criteria for being considered a technology venture were based on the firm's level of technology orientation (TO) (Allen & Stearns, 2004; Urban & Barreria, 2010). These selection variables included the following questions: (1) will all, some, or none of your potential customers consider this product or service new and unfamiliar; (2) are there many, few, or no other businesses offering the same products or services to your potential customers; (3) were the technologies or procedures required for this product or service generally available more than a year ago; (4) will spending on research and development be a major priority for this new business; (5) would you consider this new business to be hi-tech. Respondents who answered yes on three or more questions were included in the final sample. Based on these eligibility criteria and in line with the global entrepreneurship monitor (GEM) studies' operational definitions (Bosma & Levie, 2007)<sup>1</sup> for small and medium firms, a non-probability judgmental sampling technique was used. Sample parameters, which served as control variables, included: (a) sex, (b) age, (c) education level, (d) ethnic group, (e) work experience, (f) technology business sector; (g) employment size class, divided into four groups; (h) firm age, divided into five categories (less than three months, 3-42 months, 5-10 years, 11-20 years, more than 20 years). The target respondent was the ESTBFs owner-manager or chief executive officer (CEO). Owner-managers and CEO's are typically well positioned in respect of overarching operational and strategic endeavors of the entire firm (Zahra & Covin, 1995). Top-level managers are responsible for putting into place pro-entrepreneurship organizational architectures, i.e., where the workplace exhibits structural, cultural, resource, and system attributes that encourage entrepreneurial behavior, both individually and collectively (Schindehutte, Morris & Kuratko, 2000). Addressing ESE within the four-phase venture creation process at the firm level corresponds to similar studies sample characteristics (Kreiser et al., 2002). As ESE refers to an owner's self-perception of a firm's strategic orientation, their self-perception will be closely related to the behavior of the firm.

Consequently ESE measures the owners' self-perception and accordingly serves as a relevant proxy for measuring the entrepreneurial tasks within a venture creation process.

The survey was solicited physically with periodic reminder telephone calls. Based on this research procedure, 199 usable responses (an effective 52 percent response rate) was generated as the final sample.

### **Independent Variables**

Venture phases: Instruments utilized in previous studies were scrutinized for construct validity and reliability. In a previous study the items for the venture creation factors and for the attitude toward venturing construct produced values for Cronbach's alphas all above 0.8 (McGee et al., 2009). Following a confirmatory factor analysis approach and using covariance analysis to rigorously evaluate the factor structure of the venture phases items, the factor analysis model provided evidence of convergent validity in the original study (the items included in the model share a relatively high degree of the variance of their respective underlying constructs, as indicated by the factor loadings being statistically significant at  $p = 0.05$ ). Moreover the internal consistency of each construct was also evidenced by the face validity or conceptual relatedness of the items. This relatedness may be attributed to the theoretical grounding of the scales that were developed for the original study. Evidence for discriminant validity for the constructs in the final model has been previously established by the items for each construct having factor loadings which are not statistically significant at  $p = 0.05$ , with conceptually similar, but distinct constructs. Given the evidence supporting the application of these scales confirms that their further use is justified. Based on the a priori inclusion of compelling theory, as well as evidence for discriminant and convergent validity of the proposed measures, the present study only tested the internal consistency of items measuring the four-phase new venture creation process, as well as attitudes towards venturing.

Five dimensions are used which were previously conceptualized in the hypotheses section, and are labeled as: (1) searching, (2) planning, (3) marshaling, (4) implementing-people, and (5) implementing-financial (McGee et al., 2009). Three items were used to measure the search dimension, four for planning, three for marshaling, six for people, and three for financial, and three items for attitude toward venturing. All items were measured on a 5-point Likert scale where respondents were asked to indicate their confidence on their ability to perform ESE dimensions (1 = very little to 5 = very much).

Cronbach's Alphas were calculated indicating relatively high reliability (Nunnally, 1978) across dimensions: (1) searching  $\alpha = 0.77$ , (2) planning  $\alpha = 0.71$ , (3) marshaling  $\alpha = 0.65$ , (4) implementing-people  $\alpha = 0.81$ , (5) implementing-financial  $\alpha = 0.88$  and (6) attitude toward venturing  $\alpha = 0.85$ .

### **Dependent Variables**

Competitiveness was measured in terms of two venture outcomes: (1) capability development, and (2) strategic repositioning. Seven items in total were used to measure these two indicators of competitiveness, where respondents were asked to what extent they agree or disagree (1 = strongly disagree to 5 = strongly agree), with statements indicating levels of attaining capability and positioning. The following items measured competitiveness: ability of venture to develop capabilities in order to exploit entrepreneurial opportunities; venture capacity to create and sustain an economically viable industry position; venture use of entrepreneurial initiatives to explore new technologies or product-market domains; venture use of entrepreneurial initiatives to exploit existing technologies or product-market domains; strategic positioning of the venture to be in a new position within its pre-existing product-market domains; strategic positioning of the venture to alter the attributes of their product-market domains; and the ability of venture to assume a new strategic position in relation to its competitors (Ireland et al., 2009). An overall Cronbach's Alpha of 0.83 was obtained for these two combined sets of measures representing competitiveness. 4.4

### **Control Variables**

Consistent with previous studies demographic information was collected in the questionnaire. Variables measuring gender, education, ethnic group affiliation, work experience, and a question pertaining to relatives or friends who either are or have been entrepreneurs were included. Secondly firm

control variables were included and data sought on business size and age as previously mentioned in terms of sampling parameters (all measured as interval variables). Although all control variables have a prior theoretical basis for expecting the variable to have a systematic relationship with either the dependent or independent variable, or both (Minniti & Bygrave, 2003), for instance Chen et al. (1998) showed that prior education and gender were related to ESE, and Drnovsek and Glas (2002) showed that prior entrepreneurial experience was related to ESE, only firm age and size were included, to ensure a manageable number of variables are used in the correlation and regression analysis. Due to unbalanced categories, the range of employee numbers and firm age were collapsed to represent two categories for further analysis, that is firm size (less than 10 and 10-50 as 'small', and 51-200 and more than 200 as 'medium'). The categories for firm age were, (3-42 months, 5-10 years, and 11-20 years).

Common method response bias was controlled for by safeguarding respondent anonymity, as well as ensuring that the questions relating to the dependent variables were located away from the independent and control variables in the instrument. Furthermore, all items relating to independent, dependent and control variables were explored in a single principal component analysis (PCA), using Harman's one-factor test (Podsakoff et al., 2003) to check if one component accounted for most of the variance. Six components with eigenvalues greater than 1.0 were detected, which accounted for 63% of the variance. The largest component accounted for only 15%. Consequently no evidence of common method bias was identified.

Moreover archival sources were used where firm size and age were compared with non-responding firms by using secondary data obtained from the "Technology Top 100" survey (Financial Mail, 2006). Results of t-tests comparing these firms with the current study sample's mean scores on select ESE variables revealed no differences ( $p > .10$ ), suggesting that the sample appears to be representative of the population from which it is based (Cooper & Emory, 1995).

## RESULTS

### Sample Characteristics

The profile which emerges from the sampling procedure is that the typical respondent is male, 41 years old, college graduate, with more than six years work experience (refer to Table 1). Additionally several respondents indicated they had parents (51.3 percent), friends (85.4 percent) or relatives (75.6 percent) who are or had been entrepreneurs.

**TABLE 1  
SAMPLE CHARACTERISTICS**

VARIABLES	FREQUENCIES	PERCENT
<b>Gender</b>		
Male	137	68.8
Female	62	31.2
<b>Age (Mean years)</b>	199	42
<b>Education level</b>		
Less than high school	11	5.5
High school completed	50	25.1
Short course certificate	24	12.1
Degree completed	74	37.2
Postgraduate completed	40	20.1
<b>Ethnic group</b>		
Indian	14	7.0
Colored	7	3.5
Black	128	14.1

White	45	72.9
Chinese	3	1.5
Other	2	1.0
<b>Work experience</b>		
0 – 2 years	41	20.6
2 – 4 years	28	14.1
4 – 6 years	35	17.6
6 + years	95	47.7
<b>Work experience in similar area</b>		
Yes	114	57.3
No	85	42.7
<b>Business sector operating in</b>		
Manufacturing	33	16.6
Finance and business services	26	13.1
Retail and repair services	24	12.1
Catering, accommodation and trade	21	10.6
Other	95	47.5
<b>Number of employees</b>		
Less than 10	105	52.8
10-50	66	33.2
51-200	18	9.0
More than 200	10	5.0
<b>Age of business</b>		
3-42 months	74	37.2
5-10 years	56	28.1
11-20 years	37	18.6
More than 20 years	32	16.1

### Descriptive Statistics and Correlations

Mean scores, standard deviations and correlation coefficients are displayed in Table 2. Descriptive statistics indicate that mean scores are leaning towards the mostly agree end of the scale. These high average scores across all the dimensions, suggests that individuals have high levels of confidence in performing tasks through the different venture stages. On competitiveness the mean score is 3.78 suggesting a well-positioned and capable technology SME.

To evaluate the hypothesized relationships between the variables, correlation and regression analyses were performed. For the correlation matrix, refer to Table 2, the Pearson Correlation Coefficients are reported with levels of significance denoted. According to Cohen and Holliday (1998), a multiple correlation coefficient of 0.7 or above is considered a high enough to be statistically significant at the 0.05 and 0.01 levels. The interpretation of these correlations and the corresponding levels of significance allowed for acceptance or rejection of the hypotheses, as follows:

- (1) The searching phase was positively and significantly correlated with competitiveness ( $r = 0.45$ ,  $p < .01$ ), providing support for hypothesis 1.
- (2) The planning was positively and significantly correlated with competitiveness ( $r = 0.37$ ,  $p < .01$ ), providing support for hypothesis 2.
- (3) The marshaling phase was positively and significantly correlated with competitiveness ( $r = 0.35$ ,  $p < .01$ ), providing support for hypothesis 3.
- (4) The implementing people phase was positively and significantly correlated with competitiveness ( $r = 0.20$ ,  $p < .05$ ), providing support for hypothesis 4.
- (5) The implementing finance phase was not significantly correlated with competitiveness ( $r = 0.28$ ),



not providing support for hypothesis 5.

- (6) Attitude toward venturing was positively and significantly correlated with competitiveness ( $r = 0.19, p < .05$ ), providing support for hypothesis 6.
- (7) The control variables of firm age and size were not significantly correlated with competitiveness or any of the venture phase dimensions.

To further evaluate the relationship between the venture creation dimensions and competitiveness, multiple regression analysis was conducted. Refer to Box 1 for the full results. Multiple regression analyses using ordinary least squares regression were performed to determine the predicted relationship between the specified variables. The use of multiple regressions allows for the partitioning of variance with correlated predictors, thereby reducing the likelihood of making a Type 1 error (Cohen & Holliday, 1998). Although no rule exists regarding what fraction of variance needs to be explained to make relationships strong many researchers consider a squared multiple correlation of 0.3 or greater to be at least moderately strong (Sudman & Blair, 1998). It is worth noting that although the coefficient of determination (R-squared) does not exceed 30 percent, the relationships determined through the regression analysis, while they may be weak, are nevertheless statistically significant, the R-square and adjusted R-square is given in Box 1. Model 1 has an R- square of 0.221, which is interpreted as the predictors (dimensions in the venture phases) explaining 22, one percent of variance in the dependent variable (competitiveness). This means that there may be other variables that influence this relationship. In the ANOVA section an F-value of 5.991 is highly statistically significant (0.000). The constant coefficient provides a t-value of 3.908, significant at the 0.001 level ( $p < 0.001$ ). The highest beta weight (0.305) and only significant t-value (4.320,  $p < 0.001$ ) is for the search dimension. The second highest beta was for the plan dimension, with a borderline level of significance at  $p = 0.012$ . Since other coefficients are not significant, the predictive and explanatory power of this model is reduced. To try and determine if the predictive power of the regression could be improved by only entering the significant coefficients another model was tested where the dimensions of searching and planning were entered together with the dependent variable. The adjusted R-square was 0.228 in this instance suggesting a very small improvement and that these two dimensions could explain greater variance in competitiveness.

An examination of the collinearity diagnostics reveal relatively low variance proportions for the various dimensions and control variables. These diagnostics when read in conjunction with collinearity statistics, not shown due to space limitations, indicate variable inflation factor (VIF) values between 0.274 and -0.022. These figures are well below critical values and deemed as acceptable, indicating no incidence of multicollinearity. When the values are 10.0 or more the regression coefficients can fluctuate widely from sample to sample, making it risky to interpret the coefficients as indicators of the predictors (Cooper & Emory, 1995).

### **Comparisons by Firm Age and Size**

To test for differences between groupings of firm age and firm size, initially the descriptives were interrogated in terms of lower bound and upper bound values, followed by test for homogeneity of variances. The Levene statistic was significant and greater than 0.05 across all venture creation dimensions for both firm age and size. A one-way analysis of variance (ANOVA) was used to compare ESE means scores on first firm size and then firm age. ANOVA results are displayed in Table 3 indicating the sum of squares, mean square and F-statistic for each dimension. These statistics were interpreted as follows: for the search dimension there is a 0.288 probability of obtaining an F-value of 1.488 or higher if there are no differences among group means in the population. Since this probability exceeds 0.05 one can conclude that for this dimension as well as for all the other dimensions there are no significant differences among the mean scores across firm sizes. Further post-hoc robust tests of equality of means were calculated and the Brown-Forsythe statistic indicates that there were no significant differences on mean scores across firm size (not shown). The same procedure in terms of ANOVA and post-hoc comparisons were conducted for firm age, with no significant results detected (not shown).

**TABLE 2**  
**DESCRIPTIVES AND CORRELATIONS FOR VENTURE CREATION PHASES,**  
**COMPETITIVENESS AND FIRM AGE AND SIZE**

		MEAN	SD	1	2	3	4	5	6	7
1.	Searching	4.18	.65	1	.48**	.50**	.40**	.14*	.27**	.45**
2.	Planning	3.98	.60	.48**	1	.52**	.48**	.33**	.27**	.37**
3.	Marshaling	4.08	.59	.50**	.52**	1	.52**	.16*	.36**	.35**
4.	People	4.33	.50	.40**	.48**	.52**	1	.31**	.40**	.20*
5.	Financial	3.99	.84	.14*	.33**	.16*	.31**	1	.19*	.02
6.	Attitude to venturing	4.53	.54	.27**	.27**	.36**	.40**	.19*	1	.19*
7.	Competitiveness	3.78	.65	.45**	.37**	.35**	.20*	.28	.19*	1
8.	Firm size (small)	.52	.50	-.13	-.08	-.04	-.07	-.10	.01	-.00
9.	Firm size (medium)	.34	.47	.09	.06	-.01	-.01	.02	.00	.02
10.	Firm age (3-4 months)	.37	.48	.05	.10	.08	-.00	-.02	.07	.02
11.	Firm age (5-10 years)	.28	.45	-.00	-.01	-.09	.01	-.07	.01	-.01
12.	Firm age (11-20 years)	.18	.38	.06	-.05	.03	.06	.06	-.06	.01

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Box 1. Regression analysis results for venture creation dimensions**

**Model summary**

MODEL	R	R-SQUARE	ADJUSTED R-SQUARE	STD. ERROR OF ESTIMATE
1	.515(a)	.265	.221	.51517

(a) Predictors: (Constant), search, plan, marshal, implement people, finance, attitude, firm age and size

(b) Dependent Variable: Competitiveness

**ANOVA (b)**

MODEL	SUM OF SQUARES	df	MEAN SQUARE	F	Sig.
Regression	17.490	11	1.590	5.991	.000(a)
Residual	48.569	183	.265		
Total	66.059	194			

(a) Predictors: (Constant), search, plan, marshal, implement people, finance, attitude, firm age and size

(b) Dependent Variable: Competitiveness

**Coefficients**

MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	1.623	.415		3.908	.000
	Search	.305	.071	.341	4.320	.000
	Plan	.208	.082	.214	2.538	.012
	Marshaling	.112	.084	.113	1.323	.187
	Implement people	-.091	.095	-.080	-.960	.338
	Implement finance	-.064	.048	-.094	-1.334	.184
	Attitude	.061	.077	.057	.789	.431

Firm size (small)	.146	.130	.126	1.128	.261
Firm size (medium)	.096	.131	.078	.738	.461
Firm age (3-42 month)	-.134	.129	-.112	-1.045	.297
Firm age (5-10 years)	-.102	.129	-.079	-.792	.429
Firm age (11-20 years)	-.047	.133	-.031	-.354	.724

(a) Dependent Variable: Competitiveness

## DISCUSSION AND CONCLUSION

The purpose of this study was to build on research in terms of the venture creation process as conceptualized through the four phases of the venture creation. In this regard the present study adds to the growing knowledge base on the venture creation process and competitiveness of small and medium technology firms. Specifically it was hypothesized that each of the phases will be significantly associated with the competitiveness of these technology enterprises. The empirical evidence ensuing from this study supports these propositions, where the dimensions of searching, planning, marshaling resources, and implementing people, as well as attitudes toward venturing were significantly associated with competitiveness of the firm.

These findings translate into the following entrepreneurial actions that are desirable during the venture creation phases: planning in terms of opportunity identification and development, evaluating the business concept in terms of various market and profitability criteria, gathering (marshaling) necessary resources such as capital, labor, customers, and suppliers without which the venture cannot exist or sustain itself, growing the business and ensuring the sustainability of the venture through implementing people management practices. The study further demonstrates that entrepreneurs discharge their responsibilities during the venture creation phases and that these behaviors to which ESE corresponds are largely concerned with new-venture management and as such is required of entrepreneurs well beyond the point of founding. The results also resonate with the suggestion that how entrepreneurs think in the course of managing their ventures can have important implications for firm success long after the founding event (Forbes, 2005).

Based on the regression results the different dimensions in the venture creation phases explain a modest, albeit significant amount of variance in the competitiveness of the technology venture. Competitive development has been recognized as important as ventures use entrepreneurial initiatives to explore or exploit new technologies or product-market domains, particularly by exploiting entrepreneurial opportunities. The same importance is often attached to strategic repositioning, where entrepreneurial behaviors during the venture creation phases can place the venture in a new position within its pre-existing product-market domain(s) (Urban & Barreria, 2010).

Interlinking the empirical results of this paper with established literature allows for additional insights to emerge. For instance where individuals are thought to identify opportunities (the searching phase) because they possess uniquely different forms of knowledge or human capital (Venkataraman, 1997), ties in with higher levels of ESE typically required during the planning phase of the venture process. Moreover entrepreneurial opportunities encompass a social learning process whereby new knowledge continuously emerges to resolve uncertainty inherent to each stage of the venture creation process. In general, people discover opportunities that others do not identify since they are better able than others to recognize opportunities, given the same amount of information about it, because they have superior cognitive capabilities and self-efficacy beliefs (Krueger, 2000). This would suggest that a major factor influencing the process of opportunity recognition and development which leads to venture sustainability includes maintaining high levels of ESE. The success of any venture in terms of strategy is more probable when an individual has the ESE required to structure (accumulate and strategically divest), bundle (successfully combine), and leverage (mobilize and deploy) its resources (Sirmon, Hitt & Ireland, 2007).

In terms of each of the venture process phases, competent functioning requires both skills and self-beliefs of efficacy. Operative efficacy calls for continuously improving multiple sub-skills to manage ever-changing circumstances, as typified in entrepreneurial environments, most of which contain ambiguous, unpredictable and often stressful elements (Capelleras, Greene, Kantis & Rabetino, 2010; Chandler & Jansen, 1992). Not surprisingly the relationship between self-efficacy and performance has been found to be mediated by strategy use and vice versa (Forbes, 2005), which reflects the generative capability of self-efficacy where cognitive, social, and behavior sub skills are organized into integrated courses of action. Such effort requires perseverant effort and self-doubters are quick to abort this generative process if initial efforts are deficient (Bandura, 1997).

The introduction of innovative products, services, processes, or business models tailored to attractive niches is an additional opportunity for small and medium technology enterprises to stand out from competition (Porter, 1985; Preece, et al., 1998). In so doing, these technology enterprises can benefit from high brand loyalty of buyers and a reduced price sensitivity of demand as a consequence of customers valuing the uniqueness of the innovation. Serving attractive niches with innovative products is particularly advantageous for small and medium firms compared to large firms due to their limited size and greater nimbleness. By offering highly innovative products, small firms can avoid price competition. In addition, innovative products may create new demand and, thus, facilitate firm growth (Katila & Shane, 2005). If the innovating small enterprise manages to set high barriers preventing competitors from market entry, the company's position in the industry is strengthened and the innovation can lead to persistent above-average returns.

By understanding the venture creation process, technology enterprises embarking on a product development process are encouraged to acknowledge that this process can lead to competitive advantage via enhancement, recombination or creation of resources and their deployment in value-creating strategies. The ability to reconfigure their resource base due to greater nimbleness and agility is a considerable advantage of small and medium enterprises compared to large corporations. As such, from a dynamic capabilities perspective, these enterprises can benefit greatly from innovation (Kickul, Belgio & Hanna, 2003). Additionally, navigating the venture creation process can not only lead to the direct effects on competitiveness, as indicated in the results, but learning during the innovation process generates absorptive capacity defined as the capability to identify, assimilate, and apply knowledge. The absorptive capacity developed by the technology enterprise, in consequence, implies competitive advantages. Further benefits of innovation include learning economies, economies of scale and scope, pre-emption of limited resources, advantages in further innovation, and the ability to set standards (Lee, Lee & Penning, 2001).

In a broader framework, research on entrepreneurship, in the African context as a whole, may be considered valuable as very few empirical studies have previously been conducted which focus on the venture creation process and competitiveness. Moreover, examining ESE in an emerging market context is pivotal to understanding entrepreneurship, since little evidence exists that self-efficacy is salient to entrepreneurs from non-Western cultures (Vecchio, 2003; Urban, 2010b). By contextualizing this study in the current South African socio-economic milieu, it becomes clear that in order to successfully navigate the venture creation process entrepreneurs need high ESE. Unless entrepreneurs perceive themselves as capable and willing to be entrepreneurial, their venture will remain uncompetitive and underperforming. Being motivated is not only considered an integral aspect of entrepreneurship but must be supplemented with education and training, since start-ups without possessing the requisite skills, knowledge and attitudes nullifies the formula for more entrepreneurship. Reflecting on the results of the present study the only non-significant result was for ESE implementing financial management phase of the new venture process. Consequently it is important to build capacity in this area as financial illiteracy has been ranked as the most important factor inhibiting entrepreneurial activity in South Africa (Orford, et al., 2003), and other emerging economies (Mueller & Goic, 2003).

The practical implications of this study are that entrepreneurs need to develop ESE throughout the venture creation process that begins with the recognition of an entrepreneurial opportunity and is followed by the development of an idea for how to pursue that opportunity, which leads to the evaluation of the feasibility of the opportunity, then to the development of the product or service that will be provided to

customers, and requires an assembly of human and financial resources (Reynolds, 2011; Shane et al., 2003). This means that ESE is integral during each of the venture creation phases, and may be linked from one stage of the entrepreneurial process to another in terms of overall competitiveness. In fact, it is quite plausible that ESE influences one part of the process which has effects at that stage in the process and possibly affects the later stages of the venture creation process, meaning that an ESE is required continuously to ensure the venture is competitively capable.

Further implications of this study can be advanced to the policy domain where it needs to be stressed that government initiatives will affect venture creation only if these policies are perceived in a way that influences self-efficacy (Krueger, et al., 2000). It has been suggested that the emergence of entrepreneurs in transitional economies depends on the entrepreneurial potential of the society which is, in turn, largely a function of systematic efforts of developing entrepreneurs with a high ESE. Instead of hoping for a massive capital infusion to improve business prospects, transitional economies may well be advised to implement formal self-efficacy programs to foster individual initiative for entrepreneurial development (Luthans, Stajkovic & Ibrayeva, 2000).

### **Limitations and Future Research**

This study has typical survey design limitations in that data was obtained from a self-administered questionnaire, where self-serving bias may have influenced the responses. Secondly, since study was cross-sectional in design, results should be interpreted with caution and links between venture creation phases and competitiveness cannot be confirmed unambiguously. Future research could identify additional variables that influence and moderate this relationship. Moreover structural equation modeling, using path analysis to describe an entire set of linkages explaining the causal links between the variables is recommended. Longitudinal studies are required to explore the causal links between selected variables, specifically as the venture process is investigated.

### **ENDNOTE**

1. Businesses in South Africa can be classified as micro, very small, small, or medium (SMME) according to a pre-determined set of thresholds. These thresholds are low by development-country norms. Many businesses regarded as SMME's in Europe and the United States (those with fewer than 500 employees) would be defined as large enterprises in South Africa. SMME's in South Africa can only employ up to 200 people (South Africa Survey, 2006/2007).

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