Antecedents and Outcomes of Entrepreneurial Firms Marketing Capabilities: An Empirical investigation of Small Technology Based Firms

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Entrepreneurial firms carry out marketing in a innovative, opportunistic, proactive and risk assumptive way. Over a period of time the marketing practices i.e. combination of knowledge and skills develop in to capabilities. These marketing capabilities have been identified as one of the important ways firms can achieve a competitive advantage. These marketing capabilities are not built in a vacuum and are influenced by various antecedents i.e. Entrepreneurial orientation, market orientation and strategic orientation. The following research tests the various antecedents and outcomes of marketing capabilities of small technology based firms (TBFs). Based on a survey of German TBFs, a structural equation model was developed to test our hypotheses. The results show that entrepreneurial orientation, market orientation and strategic orientation of the firm are influenced by the external environment and significantly impact on the marketing capabilities. The development of marketing capabilities is also found to be significantly related to firm performance.

EXECUTIVE SUMMARY

In the contemporary business environment small technology-based firms (TBFs) are continuously facing numerous risks such as fluid firm and industry boundaries, a managerial mindset that must unlearn traditional management principles, and new structural forms that not only allow for change, but also help create it. It is a competitive landscape that is characterised by four overriding forces: change, complexity, chaos and contradiction (Hitt and Reed 2000). These forces are also having an impact on firm's marketing. Markets are shifting, overlapping and fragmenting; distribution channels are being reshaped, reconfigured and bypassed; firms interact as competitors, customers, and collaborators in a global, knowledge economy; and customers are becoming ever more demanding. (Day and Montgomery 1983, Morris et al., 2002).

Marketing is context dependent, but the context is continually changing. Time, location, market, or competition centric law like generalisations and rules of thumb do not apply (Sheth and Sisodia 1999). Some have argued that the fundamental precepts of marketing remain unchanged, but more attention must be given to specific areas, such as customisation and one to one approaches (Sheth and Sisodia and Sharma 2000), relationships (Gronroos 1999), networking (Piercy and Cravens 1995), strategic alliances, globalisation and technology (Day and Montgomery 1983). Morris et al (2002) have presented entrepreneurial marketing (EM) as an integrative construct for approaching marketing activities under certain conditions. EM synthesises critical aspects of marketing and entrepreneurship in to a construct where marketing becomes a process that firms can use to act entrepreneurially.

The marketing capabilities of small entrepreneurial TBFs are considered as an intangible resource in this study. With the proper development of marketing skills and capabilities these TBFs can achieve competitive advantage. This research proposes a frame work that builds on previous research and tests the various antecedents and outcomes of entrepreneurial marketing of TBFs.

A survey of TBFs from the Berlin Brandenburg area of Germany was conducted during the period of August 2008 to January 2009. A structural equation model was developed to test various relationships that impact these firms' marketing capabilities. Results show that entrepreneurial orientation, market orientation and strategic orientation had significant relationships with marketing capabilities of these small technology based firms. Moreover the marketing capability of the firm was also significantly related to firm performance.

THEORETICAL FOUNDATIONS

The development of core competences in order to enhance competitiveness and performance of firms (Wernerfelt 1984, Hamel and Prahalad 1989) has gained considerable interest in the management literature. The resource based view of the firm (Wernerfelt 1984 p.171, Barney 2001) places a great emphasis on competing on the basis of capabilities, both tangible and intangible (Hall 1993).

To achieve competitive advantage, businesses must develop capabilities in different functional areas (Prahalad and Hammel, 1990). Capabilities have been defined as complex bundles of skills and collective learning, exercised through organisational processes that ensure coordination of functional activities. (Day 1994, p.38). Therefore, a key task for the firm is to identify those capabilities that will provide a sustainable competitive advantage. To be sustainable, these capabilities must be difficult to imitate and should support the organisation's business strategy (Day and Wensley, 1988; Barney, 1991; Day, 1994). Moreover, these capabilities must be rare, complex and tacit (Johnson and Scholes 1999). Capabilities should be rare because competitors must find them difficult to emulate; they are complex because they are explained by a number of linked factors as in the creation of superior customer value, and they are tacit because they are inextricably embedded in organisational experience and practise. (Johnson & Scholes 1999)

Marketing Capabilities

The literature on capabilities has identified various capabilities which the firm can use to obtain a competitive advantage (Prahalad and Hamel, 1990; Barney, 1991; Day, 1994). According to Grant (1996) – capabilities can be thought of as integrative processes by which knowledge-based resources and tangible resources come together to create valuable outputs. These capabilities come about through integration of knowledge and skills of employees. (Grant, 1991, 1996). As the employees of the firm repeatedly undertake various tasks, complex patterns of coordination between people, and between people and other resources occur (Grant 1991;1996). These coordinated patterns of behaviour are often quite consistent, yet remain dynamic and can change as the firms needs change (Grant, 1991). One of the salient feature of capabilities development is learning through repetition (Prahahlad and Hamel 1990). By bringing people and resources together in repeated efforts, firms develop the processes upon which the capabilities are based. When value adding, functional level capabilities are integrated across functional lines and are deployed across multiple product-markets to deliver competitive advantage, then a core capability is developed (Grant 1996).

Marketing capabilities can therefore be defined as integrative processes designed to apply the collective knowledge, skills, and resources of the firm to the market related needs of the business, enabling the business to add value to its goods and services and meet competitive demands (Day 1994). Marketing capability is thus developed when the firm´s marketing employees repeatedly apply their knowledge and skills to fulfil the market related needs of the business.

This study investigates the following six marketing areas (Vorhies, 2000) for evidence of capabilities.

1. Marketing research is defined as the set of processes needed to discover broad based market information and to develop information about specific customer needs, and to design marketing programs to meet these needs and market conditions.
2. Pricing is another area and is defined as the processes needed to competitively price the firms products and services and monitor prices in the market.
3. The third area is product development. If a firm is to have a capability in product development it is important to design products that can meet customer needs, can meet internal company goals and hurdles, and which are able to outperform competitors.
4. The fourth capability is the management of the firm's channels of distribution. To have a capability in channel management, relationships with distributors must be formed and effectively managed.
5. Promotion is another important capability for many firms. Promotion for this study was defined as advertising, sales promotions, and personal selling activities the firm uses to communicate with the market and sell the product.
6. The last area in which firms are expected to have marketing capabilities is in the marketing management area. Marketing management capabilities are focused on customer acquisition management, the management of marketing programs, and the ability to coordinate action among the diverse elements in the firm needed to implement a marketing program.

This conceptualisation of the six marketing capabilities taps both an importance dimension and an effectiveness dimension, since a capability that is not important cannot serve as a basis for competitive advantage and a capability (by definition) must be performed effectively (Day 1994). It is also important to note that each marketing capability area is conceptualised as existing relative to competitors (Grant 1991).

Various researchers look at marketing from a contingency point of view (Davis, Morris and Allen1991). According to this view point marketing in entrepreneurial companies becomes more appropriate under certain circumstances i.e. the firms marketing efforts can demonstrate more opportunism and be more leveraged or less. Hence, a continuum is involved, where marketing efforts will be less entrepreneurial or more depending on the conditions both external and internal to the firm (Morris et al 2002).

External Environment

The external environment of a firm impacts on many different facets of the organization. Environmental variation has been reported to impact on the strategy of the organization (e.g. Duncan, 1972; Hrebiniak and Joyce, 1985). Environmental volatility (or stability) has also been found to affect the organization's structure (e.g. Miles and Snow, 1978) and the degree of perceived uncertainty of managerial tasks (Duncan, 1972). Due to the significant influence environment has on the organization in general, it is logical to believe that environmental variation will impact on the various functions of the firm, such as marketing (Ruekert et al., 1985) and the strategy of the firm (Miller 1988).

The effect the environment has on the development of marketing capabilities has been studied by researchers in strategic management, as well as marketing researchers. In the strategic management area, Miller (1988) investigated how various dimensions of the firm's environment affected manager's perceptions of the environment and their strategic decisions. In this and related research, more turbulent environments were shown to be related to the development of a strategic orientation that relied on well-developed marketing skills. The development of differentiated products, product innovation and new product development skills enabled firms to outperform other less marketing-oriented firms (Miller, 1988). When an environment is turbulent, managers need more information to be able to make decisions (Daft et al., 1987). An environment is considered turbulent when it produces many rapid changes. Common sub dimensions of environmental turbulence include market turbulence – the rate of change in customer composition and their preferences – and the rate of technological change – the degree of technological turbulence (Kohli and Jaworksi, 1990). When environments are turbulent, managers have a greater need for market information (Menon and Varadarajan, 1992). In most firms, market intelligence gathering is a key source of the environmental information that managers need (Kohli and Jaworksi, 1990; Menon and Varadarajan, 1992). However, for the information to be useful in the decision-making process, it must be disseminated to the right individuals and groups within the organization and these individuals and groups must act on the information (Kohli and Jaworksi, 1990; Jaworski and Kohli, 1993; Slater and Narver, 1995). Over time, the organization's employees will routinize these processes by creatively applying their knowledge and skills to the problems and opportunities the environment presents. Over time, these repeated applications of knowledge and skills to the problems and opportunities presented by the environment will evolve into capabilities (Grant, 1991, 1996). Thus, it appears that the development of marketing capabilities will take place to deal with the problems and opportunities created by a turbulent environment.

Levels of Environmental Turbulence directly affect the internal organisation variables i.e. market orientation (MO), entrepreneurial orientation (EO) and strategic orientation (SO), organisational structure and other organisational factors of the firm.

The following three internal organisation variables have been selected as antecedents to marketing capabilities for the subject study.

Entrepreneurial Orientation

This construct consists of overall level of innovativeness, risk taking and proactiveness within the firm (Miller and Freisen 1983, Davis, Morris and Allen 1991, Covin and Slavin 1994; Zahra and Gravis 2000). The literature suggests a positive association between 'entrepreneurship' and growth-oriented efforts of the firm (Khandwalla, 1977). The entrepreneurial firm is generally distinguished in its ability to innovate, initiate change and rapidly react to change flexibly and adroitly (Namen and Slevin, 1993). Based on the firm-behaviour model of entrepreneurship (Covin and Slevin, 1986; Namen and Slevin, 1993) that has gained popularity among strategy researchers over recent years, entrepreneurship is conceptualized as a firm behaviour in which the firm displays innovativeness, proactiveness and risk-taking propensity in their strategic decisions.

Innovativeness refers to a corporate environment that promotes and supports novel ideas, experimentation and creative processes that may lead to new products, techniques or technologies. Risk-taking reflects the propensity to devote resources to projects that pose a substantial possibility of failure, along with chances of high returns. Proactiveness implies taking initiative, aggressively pursuing ventures and being at the forefront of efforts to shape the environment in ways that benefit the firm (Covin and Slevin, 1989). Entrepreneurship is conceptualized as a continuum using these three attributes that reflects the degree of 'Entrepreneurial Intensity' of the firm.

Market Orientation

This construct represents an additional strategic dimension (Slater & Narver 1998) and is a fundamental approach to understanding markets. It represents the implementation of the marketing concept (Kohli & Jaworski 1990), and is a cultural orientation (Slater & Narver 1994; Deshpande & Webster 1993) that focuses the firm's efforts on the needs of the market. A market-oriented organisation possesses the ability to generate, disseminate, and respond to information about market forces and market conditions better than less market-oriented rivals (Kohli & Jaworski 1990; Jaworski & Kohli 1993). The market-oriented firm thus has a better possibility for building a sustainable competitive advantage. The firm does this by learning what buyers want, building and leveraging the resources and processes necessary to deliver the value they desire (Narver & Slater 1990; Slater & Narver 1994), and adapting those value-generating processes as market conditions change (Slater & Narver 1995). Furthermore, the market-oriented organisation looks beyond current customer needs to develop future products that will tap latent needs, thus serving to strengthen the firm's market position over time (Slater & Narver 1998). To use these processes as the basis for competitive advantage, an organisation needs to develop the capabilities to generate, disseminate, and respond to market intelligence (Day 1994) and the processes to act on this information (Hunt & Morgan 1995).

Being one of the major functions in the organisation, marketing has a major impact on how these strategies are formulated and how resources are allocated to implement these strategies (Hunt & Morgan 1995; Varadarajan & Clark 1994).

Strategic Orientation

Different researchers have identified many different aspects of the Strategy construct (Kerin et al., 1990). In this research, Strategy refers to the determination of the basic goals of the firm and identification of the long-term courses of action necessary to reach these goals (Hofer and Schendel, 1978). In this usage, strategy focuses on the allocation of resources and the development of organizational processes necessary to achieve the long-term goals of the organization. Therefore, strategy is viewed as a direct result of managerial choice (Child, 1972). As a result, strategy is viewed as the process by which management analyses the environment, including competitive and customer-related factors and designs a strategy to achieve the firm's long- term goals (Day, 1990). Firms that achieve this strategic ability are said to have established a coherent strategy (Day, 1990).

Model of Antecedents and Outcomes of Marketing Capabilities

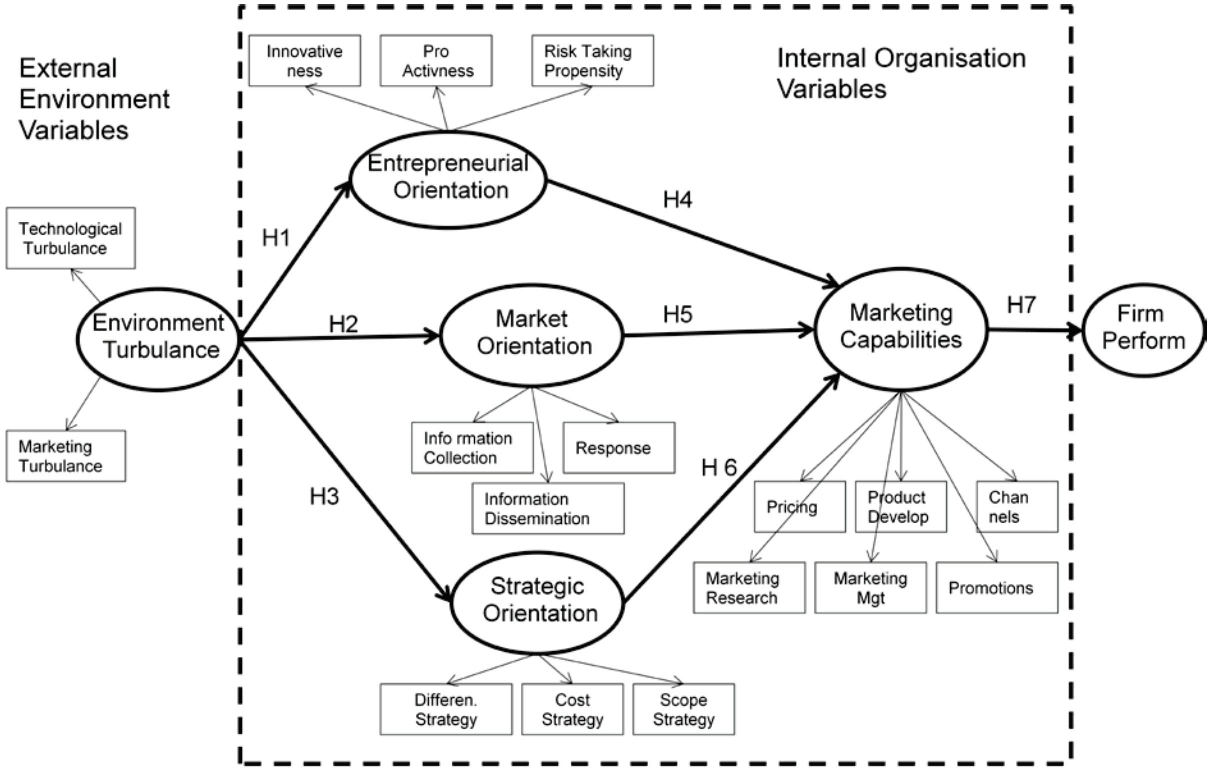
Higher levels of environmental turbulence require firms to demonstrate more adaptability and flexibility in approaching competitors and customers, to have high levels of innovation and entrepreneurship as well as demonstrate a high level of strategic orientation. Under such conditions, conservative, reactive, risk averse management proves to be a competitive liability (Achrol 1991; Webster 1997). Where firms demonstrate stronger Entrepreneurial, Market and Strategic Orientations, they will tend to approach the Marketing function differently.

Marketing activities become especially critical under Turbulent Environmental circumstances. Under normal conditions, firms can concentrate on incremental improvements to their methods of satisfying customer needs. Alternatively, marketers must focus more attention on anticipating and quickly responding to the moves of the competitors. As the environments become fairly turbulent, marketers must take responsibility for introducing greater levels of entrepreneurship into all aspects of the firms marketing efforts. Turbulence evokes fear, uncertainty and doubt among sellers and buyers alike, but also forces firms to make quicker decisions and opens a whole range of new products and market opportunities. Marketing efforts have to become more customised and unique, with more customer choice in the form of a variety of value packages for different market segments (Deshpande 1999; Sanchez 1999). Finding creative ways to develop customer relationships while discovering new market segments becomes important. In short, firms are incentivized to engage in marketing efforts that are more opportunistic, proactive, risk assumptive, innovative, customer-centric, leveraged, and value creating (Morris et.al., 2002).

The firms approach to Marketing is also influenced by internal organisational factors i.e. Entrepreneurial Orientation, Market Orientation and Strategic Orientation and other organisational factors. Entrepreneurial orientation is reported to influence marketing capabilities of innovative firms in a positive way (Weerawardena, 2003). The market information processing capabilities (Menon and Varadarajan, 1992, Keller, 1994) influence and often constrain decisions that impact on marketing capability. Business unit strategy guides product market selection (Day, 1994). In addition, various other firm characteristics such as its structure and task routinisation are also reported to have an impact on the marketing decisions. Vorhies (2000 and 2005), conducted a study on fortune 500 firms and found that a firm's business strategy, organisational structure and information processing capabilities impact on its Marketing capabilities.

Entrepreneurial Marketing efforts are expected to affect both financial and non financial outcomes. Financial outcomes include enhanced profitability, higher rates of revenue and growth. Due to the important role of marketing capabilities in the selection of product markets and because of their ability to impact on the implementation of market strategies (Day, 1994; Hunt and Morgan, 1995), the marketing capabilities of the firm have been predicted to positively influence firm performance.

FIGURE 1
AN INTEGRATIVE MODEL OF ANTECEDENTS AND OUTCOMES OF MARKETING CAPABILITIES



Based on the above discussion the following hypotheses are posited.

H1: The higher the level of Environmental Turbulence, the higher is the Entrepreneurial Orientation of the firm.

H2: The higher the level of Environmental Turbulence, the higher is the Market Orientation of the firm.

H3: The higher the level of Environmental Turbulence, the higher is the Strategic Orientation of the firm.

H4: The higher the level of Entrepreneurial Orientation of the firm, the higher is the Marketing Capabilities of the firm.

H5: The higher the level of Market Orientation of the firm, the higher is the Marketing Capabilities of the firm.

H6: The higher the level of Strategic Orientation of the firm, the higher is the Marketing Capabilities of the firm.

H7: The higher the level of Marketing Capability, the higher is the Firm Performance.

METHODOLOGY

The research method for this study is a key informant survey designed to collect data from the top marketing decision maker (Campbell, 1955; John and Reve, 1982). The top decision maker is selected because he/she would be able to represent accurately his/her organisation's views on the issues covered in this study (John and Reve, 1982).

The survey was initiated by mailing a questionnaire to the CEOs of n = 800 small technology firms selected from the list of small technology firms obtained from the Adlershof Technology Berlin. Only those small firms with at least 2 years of operation and 5 or more employees were included in the survey. Data collection activities continued during the period of August 2008 to January 2009 in which follow up telephone calls and email messages served as reminders. Most small technology firms in developed regions complain about survey fatigues as experienced by various researchers, See Corona, Doutriaux, Mian (2006). The response to the survey was adequate with usable responses received from 143 companies. This yielded an overall response rate of 20 %, which is considered respectable in this type of surveys. It may be noted here that due to the focus on small technology firms, 90% of the respondents were CEOs themselves (who were directly in charge of their company's marketing function), while the remaining were COOs or marketing managers.

A structural equation model was developed to test these relationships. Structural equation modeling (SEM) with latent variables has changed the nature of research in international marketing and management. SEM offers the possibilities of distinguishing between measurement and structural models and explicitly taking measurement error into account. SEM can be further distinguished between two families of SEM techniques: covariance-based techniques, as represented by LISREL and AMOS, and variance-based techniques, of which partial least squares (PLS) path modeling is the most prominent representative. PLS has been used by a growing number of researchers from various disciplines such as strategic management (e.g., Hulland, 1999), organizational behavior (e.g., Higgins, Duxbury & Irving, 1992) and marketing (e.g., Reinartz, Krafft, & Hoyer, 2004). The PLS methodology has also achieved an increasingly popular role in empirical research in international marketing, which may represent an appreciation of distinctive methodological features of PLS.

Joreskog and Wold (1982, p. 270) suggest that ''PLS is primarily intended for causal-predictive analysis in situations of high complexity but low theoretical information''. The prediction-oriented PLS method, on the contrary, does not require strong theory and can be used as a theory-building method (Gefen et al., 2000). Due to the issues of model identification, covariance based structure equation modeling was not used and in this situation PLS based structural equation provides a realistic alternative to covariance based structure equation modeling CBSEM.

OPERATIONALISATION AND MEASUREMENT OF VARIABLES

The measurements of the constructs used in this research are based primarily on previously developed scales. Some amendments were made to the constructs as they were originally designed for large firms. The respondents were asked to assess their firm. Each of the measures used in the study is discussed briefly.

Environment Turbulence

Two aspects of environmental turbulence were used in this study. Market turbulence refers to the extent to which composition and preferences of the organisations customers change over time (Jaworski and Kohli, 1993). Technological turbulence refers to the extent to which technology in an industry is subject to rapid changes (Jaworski and Kohli, 1993). The respondents rated both of these sub constructs on seven point Likert scale (1 = not at all; 7 = to a great extent).

Entrepreneurial Orientation

The entrepreneurial orientation construct measures the extent to which the firm's leaders are innovative, proactive and risk seeking. High scores on this scale indicate that the firm's key decision makers value innovation and proactiveness and have a high tolerance for risk. The items for the scale are derived from Namen and Slevin (1993), which was based on the measure developed by Covin and Slevin (1986). The Namen and Slevin measure reported a chronbach alpha of 0.80. The scale consists of 10 items. A 7 point semantic differential scale was used to measure the construct.

Market Orientation

Market Orientation was measured using the scale developed by Jaworski and Kohli (1993). The scale is designed to measure three sub dimensions of the market orientation construct: generation of market intelligence, dissemination of market intelligence across departments and within the company, and responsiveness to market intelligence. For this research the original 23 item scale was modified to accommodate the small firms. The new scale consisted of 16 items. Seven point Likert scale was used (1 = not at all; 7 = to a great extent).

Strategic Orientation

Business strategy was measured using a modified 12 item scale developed by Vorhies and Harker (2000). This was originally a 22 item scale developed by Dess and Davis (1984) and modified by Doty, Glick, and Huber (1993). Respondents rated their major business units on items designed to measure the extent to which they were developing cost based and differentiation based strategies (Porter 1980). Product market scope (Day 1990) was also assessed to insure that the breadth of the firms market development approach was measured (Doty, Glick, and Huber 1993). Seven point Likert scale was used (1 = not at all; 7 = to a great extent).

Marketing Capability

Marketing capability was measured using a scale developed by Vorhies and Harker (2000) based on the recommendations of Churchill (1979). Since the marketing capabilities are the outcome of marketing processes, respondents were asked to express their beliefs regarding their business unit's marketing processes in six distinct areas: pricing, promotions, product development, distribution channels, marketing management and planning and marketing research development. Each of these sub constructs were measured with multiple items. To assess the company's marketing capabilities, a seven point Likert scale was used (1 = not at all; 7 = to a great extent).

Firm Performance

Various conceptualisations of organisational performance have been presented in the past research as discused earlier. Two performance dimensions, profitability and growth were operationalised for multiple items (Venkatraman 1989). Relative performance on each dimension was measured by asking respondents to assess their business unit's performance relative to that of major competitors. Seven point Likert scale was used (1 = not at all; 7 = to a great extent).

RESULTS

Information was also collected about the respondents themselves. The respondents were asked to provide their position in the company. This was done to confirm that the individual responding to the survey had the knowledge necessary to answer the questions. In our case more than 90% of the respondents were the CEOs themselves, while the remaining were COO or the marketing manager. Due to the small size of the companies, in most cases the CEO himself was directly in charge of the marketing function.

The higher position of the respondent and his direct involvement in the marketing activities indicates that these individuals had the necessary understanding of the issues they were asked to respond to. The measurement properties of the scales were tested using a series of confirmatory factor analysis (CFAs) on the data using SPSS software. All the constructs were tested to confirm the priori loadings of the items on the constructs and to ensure adequate unidimensionality, discriminant validity and convergent validity.

Convergent Validity

Carmines and Zeller (1979) suggest that factor analysis provides a suitable means to examine convergent validity. In factor analysis, loadings are used to detect whether or not an item appropriately loads on its predicted construct. Typically loadings of 0.50 or greater are considered to be very significant (Hair et al., 1987). All the questionnaire items were forced in to factors using VARIMAX rotation method to assess their loadings. For all the constructs, items meet or exceed the 0.50 significance-loading threshold. When items constructed to load on the same construct do, in fact, load on that construct, convergent validity exists. For this data set, the evidence suggests support for convergent validity.

Discriminant Validity

The method to test is to assess whether the items that measure a construct do not correlate too highly with measures from other constructs from which they are supposed to differ (Churchill, 1979). To assess discriminant validity, factor analysis is used. A comparison was made between the loading of an item with its associated factor (construct) to its cross loading. All items are found to have higher loadings with their corresponding factors in comparison to their cross loadings. Thus the evidence suggests the existence of discriminant validity.

The internal consistency for each measure used in the research was confirmed using Chronbachs alpha. These reliabilities are shown in Table 1. As can be seen all of the reliabilities are within generally acceptable limits (Nunnally, 1978).

Following this analysis, the proposed model was tested using structural equation modelling software (PLS Smart). Since PLS Smart does not support second order constructs, summated scales of the various constructs listed in Table 1 were used in the model. The structural equation model was run using PLS smart and the hypotheses tested are supported at significance level of p value less than 0.05.

TABLE 1
RELIABILITY ESTIMATES FOR THE MEASURES

Marketing Capability	**Chronbach Alpha (Reliability)**
Market Research	0.894
Pricing	0.732
Product Development	0.787
Channels	0.908
Promotion	0.885
Market Management	0.813
Environmental Turbulance	
Market Turbulence	0.696
Technological Turbulence	0.616
Market Orientation Scale	
Intelligence Generation	0.815
Intelligence Dissemination	0.892
Responsiveness	0.734
Strategic Orientation Scale	
Differentiation	0.853
Cost Leadership	0.682
Product Market Scope	0.823
Entrepreneurial Orientation Scale	0.818
Company Performance	0.928

Evaluation of the Reflective Measurement Model

All of the constructs except the firm performance construct are second order constructs. The marketing capability latent variable is being measured by the following indicators i.e. product development, market research, promotions, pricing, channels and market management. The factor-loadings determine the power of the interrelations between marketing capability and its indicators. Assessing the empirical results in fig 2, factor loadings in the reflective measurement model has a very high value of 0,860for the market management indicator followed by promotions (factor loading 0,748) and market research (factor loading 0,742). Besides, the factor loadings of product development (0,686) and channels (0,664) are close to the minimum value demanded in literature. The factor loading for pricing is (0,535) somewhat lower.

Entrepreneurial orientation is measured by the following indicators i.e. innovation, pro activeness and risk taking. Assessing the empirical results, all factor loadings in the reflective measurement model have a value higher than 0,794. Therefore the variable explains the variance of each indicator to a great extent. Market orientation is measured by the indicators such as intelligence generation, dissemination and response. All the indicators have a loading higher than 0,84. Therefore the variable explains the variance of each indicator to a great extent.Strategic orientation is measured by the indicators such as cost, differentiation and scope. All the indicators have a loading ranging from 0,495 to 0.710. The indicators cost and scope have a lower loading. Therefore the variable explains the variance of each indicator to a relatively lower extent. The two indicators cost and scope were retained to keep maximum information in the model.Environmental turbulence is measured by the indicators such as market turbulence and technological turbulence. All the indicators have a loading higher than 0,766. Therefore the variable explains the variance of each indicator to a great extent.

When applying PLS, two additional measures for the assessment of reflective measurement-models are the coefficient of reliability ρC and the average variance extracted. The coefficient of reliability ρC – that indicates the internal consistency of the latent construct bundled indicator-variables – has an empirical value of 0,8 for all of the constructs. The same findings hold for the average variance extracted from the manifest indicators which has a value of 0,5 to 0,72 for all constructs.

Evaluation of the Overall Model

In the SEM model (structural equation model) higher environmental turbulence (latent exogenous variable) results in to the highest impact (weight of 0,359) on the latent endogenous variable strategic orientation followed by a weight of 0,337 on the latent endogenous variable market orientation and by a somewhat lower impact (0,334) on entrepreneurial orientation.

FIGURE 2
THE INTEGRATIVE MODEL WITH PATH COEFFICIENTS USING PLS

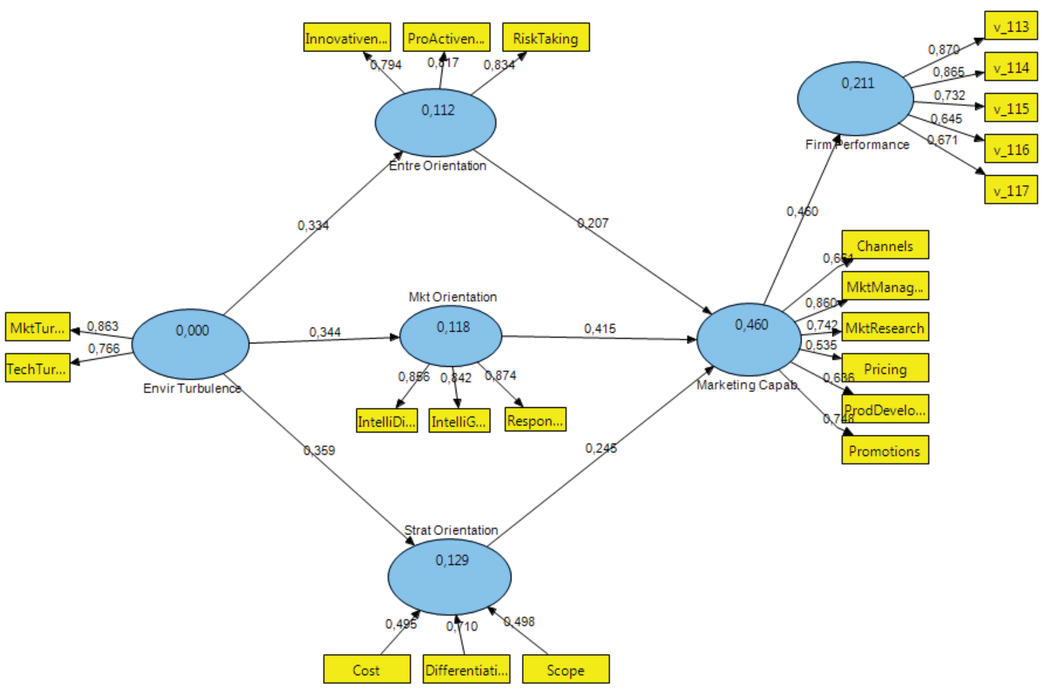
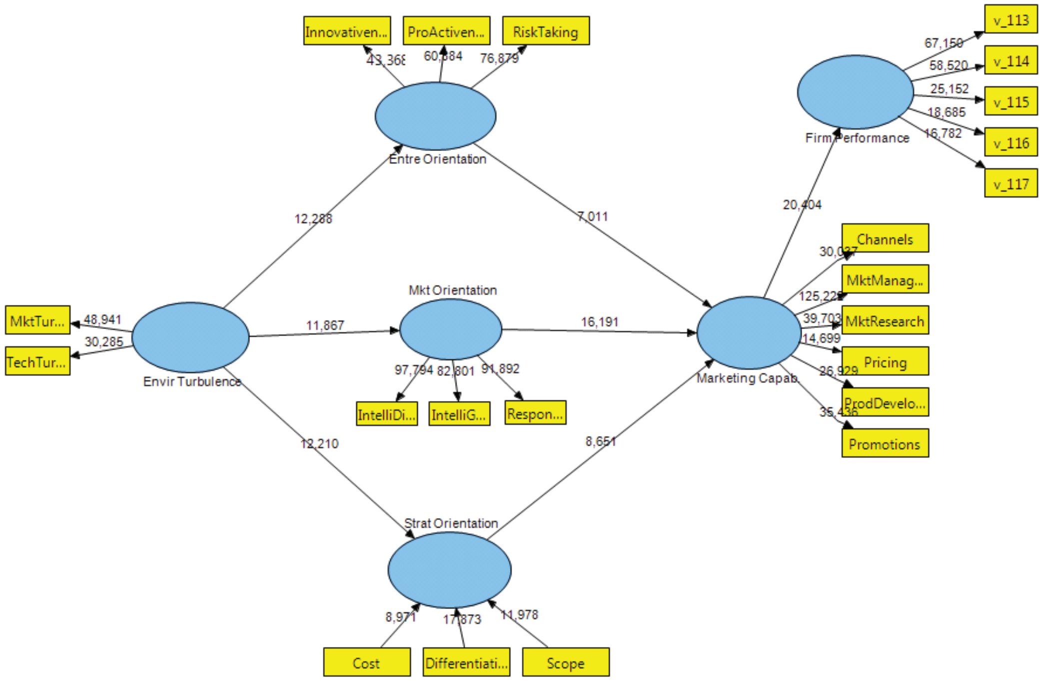


FIGURE 3
THE INTEGRATIVE MODEL WITH T VALUES USING PLS SMART



In the next stage of the structural equation model, the marketing capability construct is tested. Market orientation results in to the highest impact with a weight of 0,415 followed by strategic orientation with a weight of 0,245 and entrepreneurial orientation with a weight of 0,207, having a large explanatory share for the latent endogenous variable marketing capabilities with an R^2 of 0,460.

In the final stage of the structural equation model, the impact of marketing capability on firm performance is tested. Marketing capability results in to a impact with a weight of 0,460. Marketing capability has a reasonable exploratory share for the latent endogenous variable firm performance with an R^2 of 0,211. These findings thus suggest that the development of marketing capabilities is an important instrument for the new technology based firms to achieve a high level of firm performance.

Thus marketing capability has the highest explanatory share for the latent endogenous variable firm performance with an R^2 of 0,211. Therefore a strong focus and development of marketing capabilities and entrepreneurial, market and strategic orientation is a very important instrument for the new technology based firms to achieve high levels of firm performance. The path coefficients and the t values for the various paths are reported in Fig 2 and Fig 3.

DISCUSSION AND STUDY IMPLICATIONS

The hypotheses posited in the integrated model are statistically significant and thus support the model suggested in the study.

Higher levels of environmental turbulence have significant impact on the various capabilities of the firm i.e. entrepreneurial, market and strategic orientations and require firms to demonstrate more adaptability and flexibility in approaching competitors and customers, to have high levels of innovation and entrepreneurship as well as demonstrate a high level of Strategic Orientation.

Where firms demonstrate stronger entrepreneurial, market and strategic orientations, they will tend to approach the marketing function differently. Therefore marketing activities become especially critical under turbulent environmental circumstances.

As the environments become fairly turbulent, marketers must take responsibility for introducing greater levels of entrepreneurship into all aspects of the firms marketing efforts. Turbulence evokes fear, uncertainty and doubt among sellers and buyers alike, but also forces firms to make quicker decisions and opens a whole range of new products and market opportunities. Marketing efforts have to become more customised and unique, with more customer choice in the form of a variety of value packages for different market segments (Deshpande 1999; Sanchez 1999). Finding creative ways to develop customer relationships while discovering new market segments becomes important. In short, firms are incentivized to engage in marketing efforts that are more opportunistic, proactive, risk assumptive, innovative, customer-centric, leveraged, and value creating. (Morris et al., 2002).

The internal organisational factors i.e. entrepreneurial orientation, market orientation and strategic orientation significantly impact marketing capabilities. Entrepreneurial orientation is reported to influence marketing capabilities of innovative firms in a positive way (Weerawardena, 2003). The market information processing capabilities (Menon and Varadarajan, 1992, Keller, 1994) influence and often constrain decisions that impact on marketing capability. Business unit strategy guides product market selection (Day, 1994).

Marketing capability also has a significant impact on the performance of the firm. The direct paths from entrepreneurial, market and strategic orientations to firm performance were also tested. However the path strengths were low, confirming the proposed model.

MANAGERIAL IMPLICATIONS

This study has important implications for the managers. It highlights the necessity of firms to develop superior entrepreneurial orientation, market orientation and strategic orientation of all their members and also to invest on better resources and consequently superior capabilities as a way of achieving high levels of firm performance. Entrepreneurial orientation based on innovativeness, proactiveness and risk taking has positive impact on other capabilities and the firm performance. Entrepreneurs compete not only to identify promising opportunities, but also for the resources necessary to exploit these opportunities. Entrepreneurs should actively engage in information acquisition as an aid to effective marketing strategy formulation. More importantly, proactive use of such information allows entrepreneurs to predict oncoming trends and enact strategies, supporting the view that the competitive advantage associated with information depends increasingly on whether a firm is able to make the best use of acquired information. (Moorman, 1995). The mere fact of information availability does not necessarily lead to better performance. Information utilization enables small firms to gain competitive advantage and maintain a stronger position relative to the competition. The information may unveil latent needs, which exist and are unmet but are not apparent to competitors (Jaworski et al., 1993). Being the first to uncover such latent needs provides impetus to adjust the marketing mix elements accordingly.

Another implication from the study is that the firms should develop their marketing programs by focusing on developing marketing capabilities. Firms with advanced marketing capabilities should be better able to outperform firm's lower degree of marketing capability. To enhance marketing capabilities, continued investment in market research, pricing, product development, promotions, channels and market planning and market management capabilities is important. The findings further suggest that market management (ability to segment and target market, to manage the marketing programs, the ability to coordinate various departments and groups to respond to market conditions) , promotion (sales promotions and free samples and trial runs) market research are the most important marketing capabilities for the small technology firms.

STUDY LIMITATIONS

This study has provided an insight into the marketing capability construct and the various influencing factors in the context of small technology-based firms. It is important to understand the limitations inherent in this study.

One limiting issue is the use of the key informant approach (Campbell, 1955; John and Reve, 1982). Although key informants are frequently used in marketing research, their use presents potential validity problems (Phillips, 1981). Although some researchers advocate multiple informants (Hogarth and Makridakis, 1981), others have found that CEOs provide data as reliable and valid as multiple informants (Zahra and Covin, 1993). One potential problem is that the informant may not be knowledgeable on all of the issues being asked about (Slater & Narver, 1995) and this may bias the results.

Alternatives to key informant approaches were discussed by Slater & Narver (1995) and include the use of multiple informants. However care must be taken when using data collected in multiple informant studies, as organisational variability may be lost if several respondents answers are summed to represent the organisation score (Rousseau, 1985). John and Reeve (1982) suggested that if care is taken to find the right respondent, key informant methods can yield valid and reliable results.

These finding are significant for the research presented here as a lot of care was taken to find the top marketing decision maker for the firm. As the respondents demographics demonstrated, care in respondent selection yielded responses from knowledgeable top marketing decision makers in most of the cases. However still, due to the importance of this issue caution must be taken in interpreting the study's results.

Another limiting issue is the geographical limits of the study. The companies selected for this research are from the Berlin Brandenburg area. Therefore small technology firms in other parts of the country and elsewhere shall also be studied to verify the results of this study.

FUTURE RESEARCH

It is recommended to conduct further empirical research in other geographical areas to generalise the findings. Moreover the posited frame work shall be enhanced to test the complex interaction of the internal organisation variables. For example the entrepreneurial orientation does not only impact directly on marketing capabilities but also has an indirect impact through market orientation and strategic orientation, which in turn impacts marketing capability and firm performance.

Moreover, it is also recommended to explore and test other resource based factors that may influence marketing capabilities. The potential factors to be studied are organisational culture and the degree to which learning is emphasised in the organisation.

CONCLUSION

This study has provided interesting and useful insights into the marketing capability construct and the various factors influencing the marketing activities in the small technology-based firm sector as depicted in the proposed framework. Entrepreneurial orientation, Market orientation and Strategic orientation have a positive impact on the development of marketing capabilities. Furthermore, those firms with highly developed marketing capabilities demonstrated high level of firm performance. As a result, the findings in this research provide important support for many of the recent theories regarding the development of marketing capabilities and the role they play in achieving competitive advantage. (Day and Wensley, 1988; Day, 1990, 1994). Moreover it explains more about the marketing and entrepreneurship interface and it confirms the theoretical framework of Morris et.al (2002) that a high level of entrepreneurial, market and strategic orientation impacts entrepreneurial marketing capabilities.

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