

Determinants and Outcomes of Marketing Capabilities in New Technology Based Firms in Berlin, Germany: An Empirical Study

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DECLARATION

The research results presented in this dissertation are original and have not been submitted to any other University or Institution for the award of the degree.

Signature: Muhammad Shahid Qureshi

Date: 15 December 2009

DEDICATION

This work is dedicated to my father Prof Dr. Masood Quraishi and my mother Qudsia Masood Quraishi. Their lifelong input in terms of prayers and help enabled me to carry out this gigantic task. My father was always a source of inspiration and motivation and was always available for any help and guidance. My mother was always busy praying for me and kept me motivated throughout this journey.

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ABSTRACT

Companies today operate in an environment consisting of increased risk, uncertainty, decreased ability to forecast, fluid firm and industry boundaries. It is a competitive landscape characterised by the overriding forces of change, complexity, chaos and contradiction (Hitt and Reed 2000). The markets are shifting, overlapping and fragmenting and the firms interact as competitors, customers, and collaborators in global knowledge economy. The distribution channels are being reshaped, reconfigured and bypassed. The customers are more knowledgeable and demanding. This has forced the companies to seek and achieve sustainable competitive advantages. The resource based view of the firm (Wernerfelt 1984, 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).

The development of marketing capabilities has been identified as one of the important ways firms can achieve a competitive advantage (McKee et al., 1989; Day and Wensley, 1998; Day, 1994). To develop marketing capabilities, firms must develop processes that allow them to collect information about market opportunities, develop goods and services to meet the needs of targeted customers in selected markets, price these products according to market information, communicate product advantages to potential customers and distribute products to customers (Day, 1993, 1994). These decisions are not made in a vacuum and researchers have identified various factors influencing these product-market decisions.

To carry out the research, this study presents a conceptual model delineating the linkages between marketing capabilities and its drivers and outcomes. The model starts with the condition in the external environment. The environmental turbulence is represented by market turbulence and technological turbulence. The model posits that the levels of external environmental turbulence directly affect the various aspects of the internal environment of the firm (intangible resources and capabilities) i.e. entrepreneurial orientation (EO), market orientation (MO) and strategic orientation (SO) of the

firm. These internal variables impact each other in different ways and influence the marketing capabilities of the firm.

Where firms demonstrate stronger entrepreneurial, market and strategic orientation, they tend to approach the marketing function differently. As the environment becomes fairly turbulent, marketers must take responsibility for introducing entrepreneurship in all aspects of the firms marketing efforts. The marketers must focus more attention on anticipation and quickly responding to the moves of competitors. 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 paramount. In short the firms are incentivised to engage in marketing efforts that are more opportunistic, proactive, risk assumptive, innovative, customer centric and value creating. Higher levels of marketing capabilities are expected to affect both the financial and nonfinancial outcomes. (Narver and Slater 1990, Davis, Morris and Allen 1991; Miles and Arnold 1991; Jaworski and Kohli 1993).

A series of hypotheses are posited to explore the relationships discussed above. A field survey, administered to 800 new technology based firms (NTBFs) in the manufacturing and services sector is used to gather the data. Out of the 800 surveys sent, hypotheses are empirically tested using structural equation modelling software's (PLS and AMOS) and multiple regression analysis on a data set of 143 firms.

Based on the analysis, all hypotheses are supported. The environmental turbulence has a significant impact on the three orientations. These three orientations impact each other as stipulated and impact the marketing capability in a positive way. Lastly, marketing capability has a positive and significant impact on firm performance. This indicates the importance of developing marketing capabilities for higher performance.

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List of Abbreviations

AMOS	Analysis of Moment structures
CFA	Confirmatory Factor Analysis
EO	Entrepreneurial Orientation
MO	Market Orientation
MC	Marketing Capability
NTBFs	New Technology Based Firms
PLS	Partial Least Squares
RBV	Resource based view
SO	Strategic Orientation
SEM	Structural Equation Modelling
SMEs	Small and Medium Enterprises

1. Introduction

1.1. Theoretical Background and Introduction to the Research Problem

Companies today operate in an environment consisting of increased risk, uncertainty, decreased ability to forecast, fluid firm and industry boundaries. It is a competitive landscape characterised by the overriding forces of change, complexity, chaos and contradiction (Hitt and Reed 2000). The markets are shifting, overlapping and fragmenting and the firms interact as competitors, customers, and collaborators in global knowledge economy. The distribution channels are being reshaped, reconfigured and bypassed. The customers are more knowledgeable and demanding.

In this changing context, marketing has emerged to be of great importance to the success of most of the entrepreneurial ventures. Many research studies have reported the importance of marketing in the success of entrepreneurial firms (Lodish, 2001, Storey, 1998). In comparison to other functions, marketing is considered as a core function vital for the firm success. Firms seeking competitive advantage are often advised to develop capabilities. The resource based view of the firm (Wernerfelt, 1984; 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.

The RBV focuses attention on internal resources versus industry structure as the determinants of firm success. Firm resources can be tangible, such as physical or financial resources, or intangible, such as organizational culture, employee know-how, brand name reputation, entrepreneurial orientation, market orientation, strategic orientation and marketing capabilities etc. The literature argues that not all resources are of equal importance in explaining firm success. Resources can be important factors of a given firm's advantage only if they possess certain special characteristics (Barney, 1991).

Resources that exhibit value, rareness, inimitability, and nonsubstitutability are considered to be strategic assets (Amit and Schoemaker, 1993; Michalisin et al., 1997; Coff, 1999). Amit and Schoemaker (1993, p. 36) define strategic assets as "the set of difficult to trade and imitate, scarce, appropriable and specialized resources and capabilities that bestow the firm's competitive advantage." Such assets are largely viewed as *intangible*, rather than tangible, in nature (Itami and Roehl, 1987; Hall, 1992; Chakraborty, 1997; Michalisin et al., 1997; Srivastava et al., 1998; Teece, 1998a, Barney, 2001b; Conner, 2002; Ray et al., 2004).

Over the period of its development, the RBV has branched into many different directions including the core competency concept (Prahalad and Hamel, 1990), dynamic capabilities (Teece and Pisano, 1994), the competence-based strategic management theory (Sanchez 1998) and the knowledge-based theory of the firm (Grant, 1996a).

Therefore, the main reason firms grow and have success can be found inside of the firms, that is, firms with resources and superior capabilities will build up a basis for gaining and sustaining competitive advantage (Peteraf, 1993). Some authors (Day, 1994; Barney, 1991; Grant, 1991) further posit that resources are, by itself, insufficient for obtaining a sustained competitive advantage and a high performance. According to them, this is possible only if the firms are able to transform resources in to capabilities, and consequently in a positive performance (Mahoney and Pandian, 1992).

The concept of capabilities is frequently used to define a group of individual qualifications, assets and accumulated knowledge, exercised through organizational processes allowing reaching a better coordination of activities and a better use of resources (Amit and Schoemaker, 1993; Day, 1994, Schulze, 1994). There is a key distinction between resources and capabilities. Resources are inputs into the production process (Grant, 1991; Beard and Sumner, 2004). A capability is the capacity for a team of resources to perform some task or activity (Hitt et al., 2003). Capabilities have been defined as, complex bundles of skills and collective learning, exercised through organizational processes that ensure coordination of functional activities (Day 1994).

The capabilities are many times developed either in functional areas or in combination of physical, humans or technological resources, controlled by the firm (Amit and Schoemaker, 1993). Capabilities together with the resources are the core competences of the firm and therefore constitute the firm's identity (Grant, 1991). The capabilities can be further refined to make it harder to copy. This characteristic reflects the dynamic perspective associated to the capabilities (Nelson, 1991). These resources and capabilities are the key for the achievement of competitive advantage and should be protected. According to Chandler and Hanks (1994) resources and capabilities create a satisfactory base for formulating competitive strategies. Therefore to achieve competitive advantage, businesses must develop capabilities in functional areas (Prahalad and Hammel, 1990).

The development of marketing capabilities has been identified as one of the important ways firms can achieve a competitive advantage (Day and Wensley, 1998; McKee et al., 1989; Day, 1990, 1994). The firms must develop marketing capabilities that allow them to collect information about market opportunities, develop goods and services to meet the needs of targeted customers in selected markets, price these products according to market information, communicate product advantages to potential customers and distribute products to customers (Day, 1993, 1994) to develop and sustain a competitive advantage. These decisions are not made in a vacuum and researchers have identified various factors influencing these product-market decisions.

Research within the marketing domain, has predominantly focused on large, resource abundant corporate organizations and ignored small entrepreneurial organizations Hills et al., (2008). This myopic perspective has tended to overlook the resource constraints, capability limits, objectives and contexts of more entrepreneurial firms and the skills and resources employed by entrepreneurs in using marketing as a tool to gain competitive advantage (Miles and Darroch 2006). Entrepreneurial marketing is the interface of the two research fields, entrepreneurship and marketing. This scholarly concept continues to blossom in the extant literature. Until recently, the two fields had long been regarded as two entirely independent scholarly domains (Hills, Hultman and Miles, 2008). However, research at the interface of marketing and entrepreneurship

seeks to bring the two disciplines together, treating them as one (Carson et al., 1995), with some researchers speaking of the emergence of a new paradigm (Collinson, 2002).

There are several overlaps between these two disciplines. Successful entrepreneurs practice marketing, and the better marketers are entrepreneurial (Day et al., 1998). Several entrepreneurial activities, e.g. the identification of new opportunities, the application of innovative techniques, the commercialization of products, or the successful satisfaction of customer needs, are also fundamental aspects of marketing theory (Collinson & Shaw, 2001). A growing body of literature has focused on the role of marketing in small and medium enterprises, although some scholars have also addressed the application of entrepreneurial concepts to the marketing side of an enterprise – regardless of organization size or age. In these cases, attempts have been made to transfer entrepreneurial concepts to marketing concepts, such as marketing strategy, product development, sales, or buyer behavior. Many entrepreneurial activities, such as the identification of new opportunities, the application of innovative techniques, the commercialization of products, and the satisfaction of customer needs in the chosen target market are also elementary aspects of marketing theory. On the other hand, many researchers have tried to apply marketing ideas to new enterprises. Without doubt, marketing plays a crucial role not only in developing, producing, and selling products or services, but also in guiding recruiting efforts and raising capital.

Entrepreneurial firms in fact often exhibit marketing behavior which is very different to classic textbook approaches (Hills et al., 2009). Entrepreneurial marketing often relies on interactive marketing methods often communicated through word-of-mouth rather than a more traditional marketing mix; monitoring the marketplace through informal networks rather than formalized market research, and generally adopting more entrepreneurial approaches to marketing activities. Hills et al. (2008) posit that financially successful, entrepreneurial SMEs may use marketing as a path to create competitive advantage, based on differentiating their marketing program by leveraging their superior knowledge of customers, markets and technologies.

Entrepreneurial marketing is opportunity driven, as entrepreneurial marketers often create new product and market opportunities through the innovation of products, process, strategy (Hultman and Hills 2001, Covin and Miles 1999). In an entrepreneurial marketing organization, entrepreneurship and marketing permeates all areas and levels of the organization, with the organization being focused on recognizing and exploiting opportunities. Successful entrepreneurs tend to have a long term orientation to opportunity creation and exploitation that is focused on meeting all the customer's needs by employing creativity and innovation (Collingson and Shaw 2001).

The literature review highlights that research in the field of marketing capability is relatively new, narrow and extremely fragmented. This area of study has gained lot of importance both from the research and practitioners point of view. A detailed study and review of the literature reveals the following research gaps

1. Most of the work on marketing capabilities has been conducted in the context of large firms. Research findings on marketing capabilities in small technology based firms are relatively less and extremely fragmented. Moreover various studies describe the marketing capabilities construct in a general way and do not fully explain its various components and their relative importance.
2. There is no integrative analysis or comprehensive empirical study covering marketing capabilities in entrepreneurial firms (Kraus et al., 2009). Morris et al. (2002) posited a general framework for entrepreneurial marketing which can be used as a qualitative tool to understand the phenomena. There is also some empirical work that investigates the impact of entrepreneurial, market and strategic orientation of firms on company performance. However there is no frame work that explicitly incorporates various resources and investigates their impact on marketing capabilities and firm performance in the context of entrepreneurial firms.
3. The need of empirically testing of the framework to test the various theories i.e. resource based view and the competence based management theory in the context of new technology based firms (NTBFs). The competence theory for

strategy posits that achieving organizational competence requires effective integration of internal organizational and external competitive dynamics. By explicitly linking the internal organization processes and external strategic interactions, the competence theory also seeks a framework for integrating the many useful but conceptually unconnected insights developed in prior strategy theory.

4. Many studies within the RBV stream have used single industries in their samples. Studying resources within single industry contexts does allow for tighter control. However, single industry studies limit the generalisability of the results. This research aims to improve the generalisability of the results by examining the posited framework in the context of new technology based firms (NTBFs) in the manufacturing and services sector.
5. It is very important for the managers to better understand the role of marketing capabilities in achieving a sustainable competitive advantage and to know where investments may be most appropriately made to develop their resource and capability base.

1.2. Research Objectives

The objectives of this study are to model the various resource based factors and capabilities mentioned in the literature and to assess their impact on the development of marketing capabilities in the context of small technology based firms. The factors considered for this research are entrepreneurial orientation, market orientation and strategic orientation. In addition to the internal organisational factors, the firm's environment (Kohli and Jaworski, 1990; Achrol, 1991) is believed to influence the marketing organisation. Environmental turbulence is therefore also considered as influencing factor in this study.

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,

1993, 1994; Hunt and Morgan, 1995), the marketing capabilities of the firm have been predicted to positively influence firm performance.

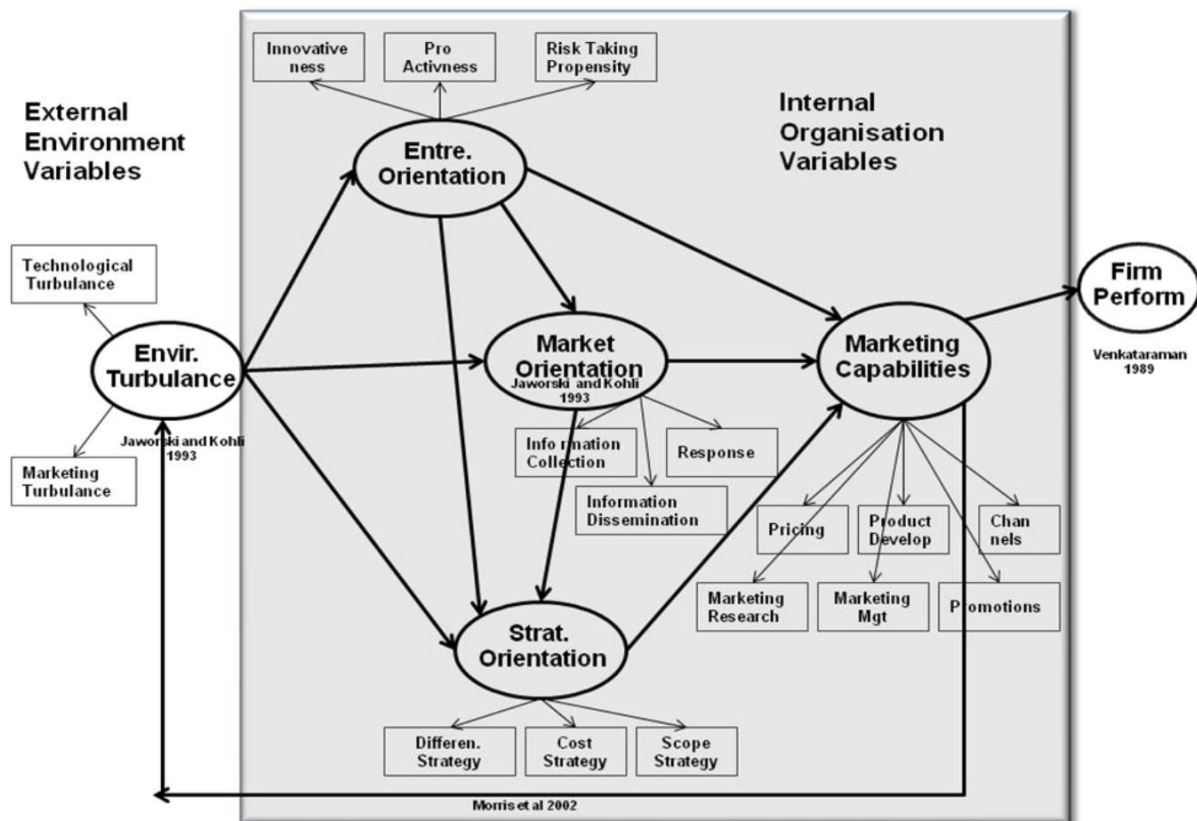
Recognizing the narrow and extremely fragmented research on the interrelation between marketing and entrepreneurship and the following research looks in to the following to fill some of the research gaps

1. A detailed understanding of the marketing capability construct and to investigate which marketing capabilities are more important in the context of the new technology based firms (NTBFs).
2. The development of an integrative framework consisting of external environment variables and internal organization variables consisting of (entrepreneurial orientation, market orientation and strategic orientation and marketing capabilities) and firm performance.
3. Empirically testing the model with data from the small technology based firms in Berlin. Investigating the impact of external variables on the internal organization variables. Further, testing the impact of the various internal organization variables on each other and their impact on marketing capability. And finally testing the impact of marketing capability on firm performance and environmental turbulence.
4. From the practitioner's point of view, the objective of this research is to recommend the entrepreneurial managers regarding marketing capabilities development. With respect to the managerial implication, an important research question is the answer for the area of resource investment. Managers interested in sustained competitive advantage need to know to invest in those resources and capabilities that develop and enhance marketing capabilities and firm performance.

1.3. Conceptual Framework

Drawing upon the RBV, and the various resource-based sub-streams and prior research, this study posits an integrative conceptual framework that explores the relationship between various factors and firm success. A conceptual model delineating the linkages between marketing capabilities and its drivers and outcomes is presented in Figure 1.1. The model starts with the condition in the external environment i.e. the environmental turbulence. For simplicity, environmental turbulence is captured by two factors i.e. market turbulence and technological turbulence. Market turbulence refers to the extent to which composition and preferences of the organisations customers change over time (Jaworski and Kohli, 1993) and technological turbulence refers to the extent to which technology in an industry is subject to rapid changes (Jaworski and Kohli, 1993). The levels of environmental turbulence directly affect the various aspects of the internal environment of the firm: entrepreneurial orientation (EO), market orientation (MO) and strategic Orientation (SO) of the firm.

Fig 1.1 The Integrative Model



Entrepreneurial orientation includes overall levels of innovativeness, risk taking and proactiveness within the firm (Miller and Freisen 1983; Zahra 1986, Davis, Morris and Allen 1991, Covin and Slevin 1994, Zahra and Garvis 2000). Entrepreneurial orientation is posited to have a positive impact on market orientation, strategic orientation, and marketing capability. Market orientation is characterised in terms of three components: intelligence generation, intelligence dissemination and the ability to respond (Jaworski and Kohli, 1993). Market orientation is posited to have a positive impact on strategic orientation and marketing capability. Strategic orientation of the firm (Dess and Davis, 1984) means that the firm is coherent in its business strategy and is adopting a clear cut strategy i.e. either a cost strategy, differentiation strategy or a mix of both of these strategies. The strategic orientation is also posited to have a positive impact on marketing capabilities.

Higher levels of environmental turbulence require firms to demonstrate more adaptability and flexibility in approaching competitors and customers as well as higher levels of innovation and entrepreneurship (Morris 2002). Moreover it requires having a strong strategic orientation to cope the turbulent environment. Under such conditions, conservative, reactive and risk averse management proves to be a liability (Achrol 1991; Webster 1997).

When firms demonstrate stronger entrepreneurial, market and strategic orientation, they tend to approach the marketing function differently. Marketing activities become especially critical under turbulent environmental circumstances. Under normal conditions the firms can concentrate on incremental improvements to their methods of satisfying customer needs. However as the environment becomes fairly turbulent, marketers must introduce entrepreneurship in all aspects of the firms marketing efforts. The marketers must focus more attention on anticipation and a quick response to the moves of competitors.

Turbulence introduces fear, uncertainty and doubt among sellers and buyers and forces firms to make quicker decisions and opens up a new 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 paramount. In short the firms are incentivised to engage in marketing efforts that are more opportunistic, proactive, risk assumptive, innovative, customer centric and value creating.

New technology firms that display high levels of entrepreneurial orientation tend to constantly scan and monitor their operating environment in order to find new opportunities and strengthen their competitive positions. The entrepreneurial orientation will increase a firms information acquisition and utilisation activities in creative, proactive and risk taking ways. The small firms with high levels of entrepreneurial orientation are likely to be active in information acquisition and utilisation. Information on customers and competitors is crucial for the development of competitive strategy, thus a high level of marketing capability leads to higher level of strategic orientation.

The firms marketing capabilities are also influenced by a variety of other organisational climate variables i.e. the organisational structure, culture etc. There is also likely to be a bi directional relationship, with marketing capability being affected by and affecting these organisation variables.

Higher levels of marketing capabilities are expected to affect both the financial and nonfinancial outcomes. Financial outcomes include realisation of higher proportion of the lifetime value of customers, higher rates of revenue and enhanced profitability (Narver and Slater 1990; Deshpande, Farley and Webster 1993; Moorman and Rust 1999).

A feedback loop from marketing capabilities to the external environment reflects the fact that marketing capability is not simply a response to the external environment, but can rather serve to redefine the environmental conditions (Morris 2002). The entrepreneurial marketer serves as a pioneering role. The creation of new markets,

products, distribution channels and communication approaches can represent minor to major disruptions in the external environment. .

1.4. Potential Contributions to Knowledge

The RBV, introduced in the literature by Wernerfelt in 1984, emerged in the 1990s as one of the most important areas for strategic management research (Zajac, 1995; Hoopes et al., 2003). Hoskisson et al. (1999) eloquently describes that although the central question of strategic management research—why some firms are more successful than others?—began with its origins in firm-level factors but over the years has swung like a pendulum to external factors (industry structure) based on the principles of IO economics, the RBV has brought the focus back to the internal factors of the firm. However, despite significant attention given in RBV, there has been relatively less research done in the area of marketing capabilities.

To address some of these unanswered theoretical, empirical, and practical questions, this dissertation aims to make potential contributions to the field of strategic management, and specifically resource-based theory, in the following areas

- Solidifying a framework regarding marketing capabilities within which resources and capabilities may be more adequately conceptualized and measured for this study. An integrative framework of the determinants and outcomes of marketing capabilities in the context of small technology firms will enhance and contribute to the capability and competence-based strategic management theory and moreover add on to the relatively new research area of the entrepreneurship and marketing interface.
- Empirical testing of the framework to test the various theories i.e. resource based view and the competence based management theory. The competence theory takes as its point of departure, the premise that achieving organizational competence requires effective integration of internal organizational and external competitive dynamics. The objective to build a theoretical foundation for competence based strategic management is that the development of new insights into organizational

and competitive dynamics requires an integrative concept of organizational competence that is explicitly dynamic, systemic, and holistic (Sanchez and Heene 1996 a). By explicitly linking the internal organization processes and external strategic interactions, the competence theory seeks a framework for integrating the many useful but conceptually unconnected insights developed in prior strategy theory.

- This research aims to improve the generalisability of the results by examining the various capabilities in new technology based firms (NTBFs) in the manufacturing and services sector.
- Helping managers better understand the role of marketing capabilities in achieving a sustainable competitive advantage and to know where investments may be most appropriately made with respect to their resource and capability base. The resource based view, capability theory and the competence-based strategic management theory has gained a lot of popularity among strategic management researchers. However the above mentioned resource based theories has also gained interest among managers and executives who aim to achieve a sustainable competitive advantage. Managers interested in sustained competitive advantage should invest in developing and enhancing those resources and capabilities that impact marketing capabilities. Moreover the managers shall focus and develop those marketing capabilities which enhance firm performance. As with any investment decision, the opportunity costs must be weighed.

1.5. Research Strategy and Methodological Framework

A quantitative, positivistic approach has been selected as the methodological choice for this study. The positivistic approach is concerned with positive facts and not based on speculation on ultimate causes or origins (Astley, 1985; Bettis, 1990; Deetz, 1996). Positivistic research is based on three principles: 1) finding facts; 2) documenting facts; and 3) the use of scientific methods (Wicks and Freeman, 1998). The key advantage of the scientific method is that it "allows researchers to test their hypotheses and rely on objective measures (data) to support their findings" (Wicks and Freeman). Such an

approach avoids speculation and bias (Wicks and Freeman, 1998). Furthermore, through the use of quantitative, scientific methods, data are generated that can then be replicated for verification purposes in future studies. Replication of results is critical for theory testing (Rudner, 1966). Thus, the positivistic approach offers opportunity for testing the hypotheses posited using RBV. The research design 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 would be able to represent accurately his 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) firms selected from the list of new technology based firms (NTBFs) in Berlin.

Only those NTBFs with about two years of operation and two 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. The response to the survey was adequate with usable responses received from 143 companies. This yielded an overall response rate of about 18 %, which is considered respectable in this type of surveys. It may be noted here that due to the focus on NTBFs 90% of the respondents were CEOs themselves.

1.6. Dissertation Structure

After an introduction of the research background, research problem, objectives, and contributions to the scientific body of knowledge, the remaining sections of the dissertation are as follows. The theoretical underpinnings supporting the conceptual model are discussed in Chapter 2. Particular emphasis is given to the RBV literature, the new economy literature, and the capability and competency theories. The work in Chapter 2 supports the development of the framework. The related sets of hypotheses are presented in Chapter 3. The research design and methodological approach used to empirically test the framework is presented in Chapter 4. Chapter 5 presents the results of the statistical analysis of the data. Finally, Chapter 6 elucidates findings, discusses implications, describes study limitations, and offers suggestions for future research.

2. Review of the Literature

This chapter explores the theoretical underpinnings and empirical research that seeks to explain the question that, why some firms are more successful than others. The economic tradition will be discussed first and then the resource-based view of the firm and its extensions will be discussed from which the conceptual model is developed.

The chapter starts by examining the economic tradition of performance heterogeneity, with a specific focus on traditional industrial organization (IO) economics and Michael Porter's five forces framework and then discussing the major criticisms leveled at the economic tradition. Following this an overview of the new economy is presented in order to extrapolate recent views and claimed determinants of firm success in the current economic era and its importance to resource-based theory. The firm factor explanation of the determinants of firm success is discussed next. The resource based view and its extensions are also discussed. Finally, the last section explores marketing capabilities and the entrepreneurial marketing construct.

2.1. Industry Structure As a Determinant of Firm Success

According to Levinthal (1995), the primary mission of strategic management is the analysis of performance diversity among firms. Two main theoretical explanations have heavily influenced the answer to the question of performance differences among firms. One tradition theorizes that differences in the performance of industries and by extension, firms are attributable to the economic attractiveness of the structural factors of the industries within which they are a member. This stream belongs to the school of economic explanations of performance heterogeneity, particularly with respect to performance differences between industries.

Based on the economic roots but shifting the locus of attention away from industry structure, another stream has theorized that differences in firm success are attributable to internal or firm-level factors. This stream concentrates on resources as the unit of analysis in determining performance heterogeneity among firms. Thus, two dominant explanations of the sources of competitive advantage have emerged in the literature,

particularly in the last 25 years.

The first major category follows the structure-conduct-performance (SCP) paradigm of traditional industrial organization (IO). The second is known as the resource-based view of the firm (RBV), based on a firm factor tradition. The primary focus of this dissertation is with respect to the RBV and its extensions, however the economic tradition will be discussed briefly by focusing the Bain-type industrial organization (IO) and Porter's five forces framework.

2.1.1. Traditional Industrial Organization Economic Theory

The economic theory has a long and rich tradition and includes a variety of schools to which individual theorists have contributed over the last 70-80 years (Figure 2.1). Although some schools seek to understand the persistence of performance variance among firms with a degree of focus on firm-level factors, strategic management has been particularly influenced and grounded by industrial organization economics (Porter, 1981). Industrial organization economics focuses on industry structure as the main determinant of performance across industries, while ignoring the importance of intra-industry heterogeneity. The external environment is argued to be a central theme within traditional IO (Mauri and Michaels, 1998).

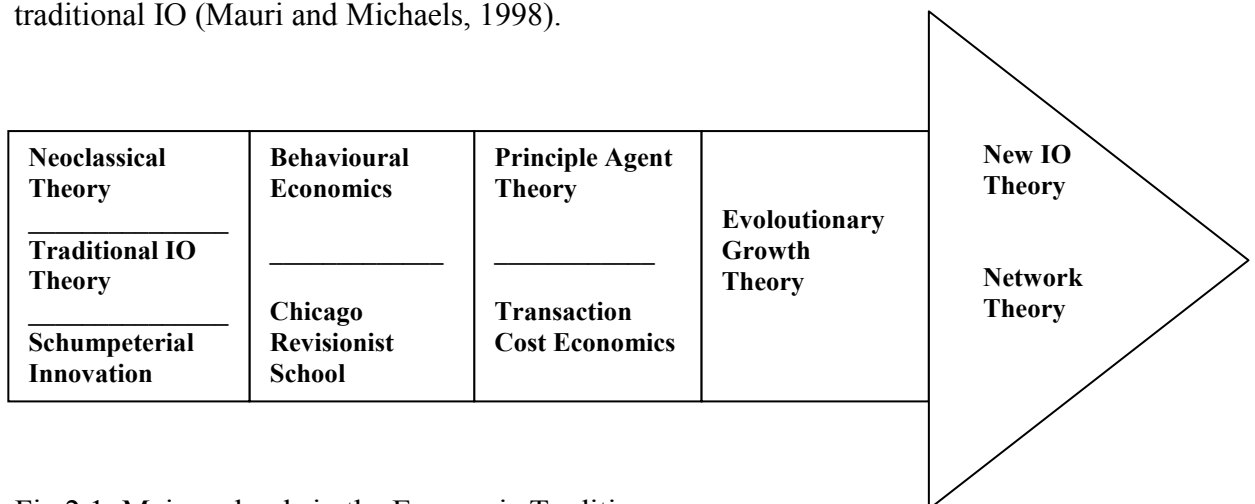


Fig 2.1: Major schools in the Economic Tradition

Mason (1939) was one of the first to posit that there is a deterministic association between industry structure and firm performance. Bain (1959), (one of Mason's doctoral students at Harvard University), produced his seminal work emphasizing the structure-

conduct-performance (SCP) paradigm. The SCP paradigm reinforces the importance of industry structure as the key determinant of the performance variance among firms competing in different industries.

In the Bain-type industrial organization (IO), because industry structure determines firm conduct, conduct can largely be ignored as performance is determined solely by structure (Porter, 1981). Indeed, most of the scholarly work has examined the *structure-performance* association, effectively ignoring conduct (Scherer, 1980). Phillips (1974) suggests that firm performance depends on industry structure alone, therefore, conduct is deterministic. Summarizing the SCP, Porter (1981) states that the essence of the Bain paradigm is that a firm's performance in the marketplace depends critically on the characteristics of the industry environment in which it competes and industry structure determines the behavior or conduct of firms, whose joint conduct then determines the collective performance of the firms in the marketplace. (p. 610, 611)

The roles of firm size and industry concentration are particularly emphasized within the structure-performance paradigm. Bain (1954, 1956), for example, emphasizes that industry concentration and barriers to entry interact to increase the performance of large firms. Martin (1993) claims that economies of scale, product differentiation, and absolute capital requirements act as barriers to entry. Therefore, larger firms tend to be the benefactors of such structural phenomenon.

High levels of industry concentration encourage collusive and even monopolistic behavior, which allows firms to exercise market power by restricting competition (Conner, 1991; Jacobson, 1992; Martin, 1993; Grant, 2002). High levels of industry concentration and difficult barriers to entry leading to collusive agreements and monopoly power increase the performance of large firms. Embedded in the Bain-type IO view is the fact, that firms exist to restrain productive output through collusive agreements that ultimately lead to larger firms and monopoly power (Conner, 1991). Firms who restrain output can then charge higher prices, thus gaining a profit through an artificially high market price. Moreover, the restriction of competition, forces customers to accept poorer quality products at high prices because the benefits of innovation are

constrained in the market (Jacobson, 1992).

In this scenario, the motivation for firm expansion is to increase monopolization, either through vertical integration of downstream industries (Vernon and Graham, 1971), acquiring the source of the firm's raw materials (Comanor, 1967), or through building other barriers to entry such as the use of advertising and product differentiation (Comanor and Wilson, 1974, Sutton, 1991). The ability to build strong barriers to entry and the pursuit of monopoly control tends to favor larger firms, given the assumption of relatively stable, static market environments within the Bain-type IO theory (Porter, 1981; Sampler, 1998; Jacobson, 1992; Makadok, 1999). The key to the application of the development of IO logic for the development of a competitive strategy is to select a domain whose structure is conducive to imperfect competitive dynamics from where monopoly rents can be extracted.

The neoclassical perfect competition theory suggests that firm resources are essentially homogeneous and thus perfectly mobile and transferable between firms. However, Bain-type IO theory relaxes this assumption in that degrees of firm resource heterogeneity may exist; for example, in the form of legally protected assets such as patents, which are unique to individual firms (Bain, 1959). Although degrees of firm resource heterogeneity may be recognized in Bain-type IO theory, these differences do not matter as the economic strength or weakness of industry structure ultimately determines the profit potential of firms within a given industry (Phillips, 1974; Porter, 1981).

The above mentioned conditions and assumptions form the basic foundations of the Bain-type IO model and constitute the theory of the determinants of performance variability in industrial organization economics. Traditional IO economic theory and particularly Bain's SCP paradigm suggest that firm conduct can essentially be ignored as industry structure dominantly influences the strategic behavior of the firms, which in turn determines their performance. Consequently, traditional IO theory concentrates on examining the effects of concentration, firm size, and entry barriers as the determinants of firm success (Hill and Deeds, 1996. Fig 2.2 represents the traditional IO view in that the industry structure (outer ring), influences and determines firm conduct, the inner

ring. It is the structure of the industry, including barriers to entry that determines the advantage of industry over another and thus profit potential of firms in that industry.

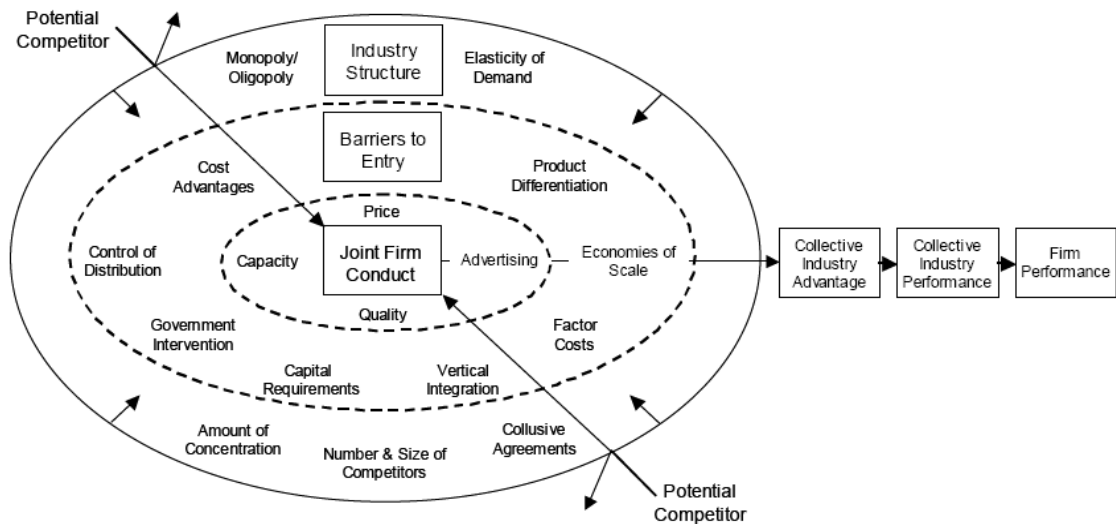


Fig 2.2 The outside in traditional industrial organization (IO) Model

Most of the theoretical underpinning of the traditional IO model was developed in the 1930s through the 1950s. However, Michael Porter's work in the 1980s signaled a major 'revival' of the Bain-type IO model as he applied IO principles to the field of strategic management, particularly in the areas of corporate strategy and competitive advantage (Porter, 1980, 1985). Porter's early research, referred to as the 5 forces framework has dominated the teaching and practice of strategy for more than 30 years and is deeply rooted in the traditions of Bain-type IO economics.

2.1.2. Porter's Five Forces Framework

Similar to IO economics, Porter focuses much of his attention on industry structure. Viewing the degree of competition within an industry as being based on five forces, he suggests it is the combined strength of the five forces that determine the profit potential of any industry and thus firms' relative opportunity for superior performance (Porter, 1980).

Threat of new entrants is the first structural force, which focuses on the strength of an industry's barriers to entry. That is, the first force focuses on the favorability of industry barriers that may restrict the influx of new entrants, thus protecting the industry's profit potential. Barriers to entry can include economies of scale, product differentiation, and customer loyalty to established brands (Hill and Deeds, 1996; Mintzberg et al., 1998). The higher the barriers to entry, the more likely firms within the industry will seek to tacitly collude to maintain those barriers, thus making it difficult for outsiders to gain entry, which preserves industry performance (Hill and Deeds, 1996; Grant, 2002). Conversely, the lower the barriers of entry, the higher the influx of new entrants bringing new capacity and the wherewithal to gain market share, which erodes margins, which in turn negatively impacts industry performance and ultimately firm performance.

Threat of substitute products or services is the second structural force, which focuses on the amount and level of competition within and between industries. In industries where few product or service substitutes are available, industry profitability is protected. In industries where many product or service substitutes are readily available, industry profitability can suffer. Competition then, depends on the extent to which products or services in one industry can be replaced by products or services from another (Mintzberg et al., 1998; Digman, 1999). The third structural force is the bargaining power of suppliers, and it focuses on the relative power and control that suppliers can or cannot impose within an industry. Assuming that suppliers wish to maximize their own profits, achieving the highest price for their products or services is desired. If suppliers are few and strategic, the bargaining power of firms in the industry is muted, therefore pricing advantage can be achieved by suppliers which in turn negatively impacts overall industry performance (Bennett, 1996). If suppliers are plentiful and commoditized, choice and bargaining power over price favors firms in the industry, which in turn positively impacts overall industry performance.

The fourth structural force is the bargaining power of buyers and focuses on the firm's customers and their relative purchasing power. Buyers endeavor to bargain for lower prices while demanding higher quality from the producers of goods and services. Firms making concessions to buyers with bargaining power necessarily increases industry

rivalry, which ultimately erodes industry profit margins (Brandenburger and Nalebuff, 1995; Digman, 1999). This can be a particular problem in industries where the threat of substitute products or services is high, thus placing higher bargaining power in the hands of buyers at the expense of producers, as alternative choice drives competitive price wars resulting in lower overall profit potential.

The fifth structural force is the rivalry among existing competitors and focuses on the competition of firms within an industry. The four other forces converge on rivalry, which has been likened to competition as 'war' (Mintzberg et al., 1998; Hax and Wilde, 2001). The fifth force explains the conduct of firms engaged in the battle for market share and performance.

In industries where market share is similar or where products are homogenous, pricing battles may be engaged in to acquire an improved share position. Such actions may include higher advertising or marketing expenses and higher sales costs, thus eroding profits (see the fourth force). In industries where a few leaders dominate the market while others follow at a relatively far distance, higher prices may be obtained by the market leaders without the likelihood of the threat of customer defection, thus improving performance. Depending on industry structure, firms may go for an attacking posture or may agree to form alliances. If the threat of substitutes is high, coalitions or partnerships may be formed to protect profits while deterring would-be competitors from market entry. Where suppliers and buyers have strong bargaining power, severe competition may arise among rivals, thus penalizing industry performance.

The abovementioned five structural forces are the key determinants of long-term industry advantage and profitability. Porter (1990, p. 35) states, "the strength of each of the five competitive forces is a function of *industry structure*, or the underlying economic and technical characteristics of an industry...the strength of the five forces varies from industry to industry and determines long-term industry profitability." The five forces are a function of industry. It is the industry structure (the five forces) that determines industry profitability (Digman, 1999). Furthermore, because firm conduct is constrained by *external structural forces*, the favorability or unfavorability of the profit

potential of the firm is influenced by the attractiveness of the industry structure within which it competes (Porter, 1985; Spanos and Lioukas, 2001). Similar to Bain's structure-conduct-performance (SCP) paradigm, the five forces of industry structure affects overall industry performance, and thus the performance of firms within the industry.

Porter's (1980; 1985) work places special emphasis on firm conduct, particularly with respect to strategy development and strategic choice within the framework of industry structure. Porter (1980) argues that firms must choose among three generic strategies: 1) cost leadership; 2) differentiation; and 3) cost or differentiation *focus*. Lastly, in order to achieve sustainable competitive advantage and thus the accrual of long-term, above-average profitability, Porter (1985) argues that firms must perform various discrete activities (e.g., marketing and sales, logistics, human resource management, after-sale service), known as the value chain, more efficiently or more uniquely than rivals (Figure 2.3). Thus, Porter (1980, 1985) does focus attention on intra-industry heterogeneity, unlike the IO economic model from which his work is based.

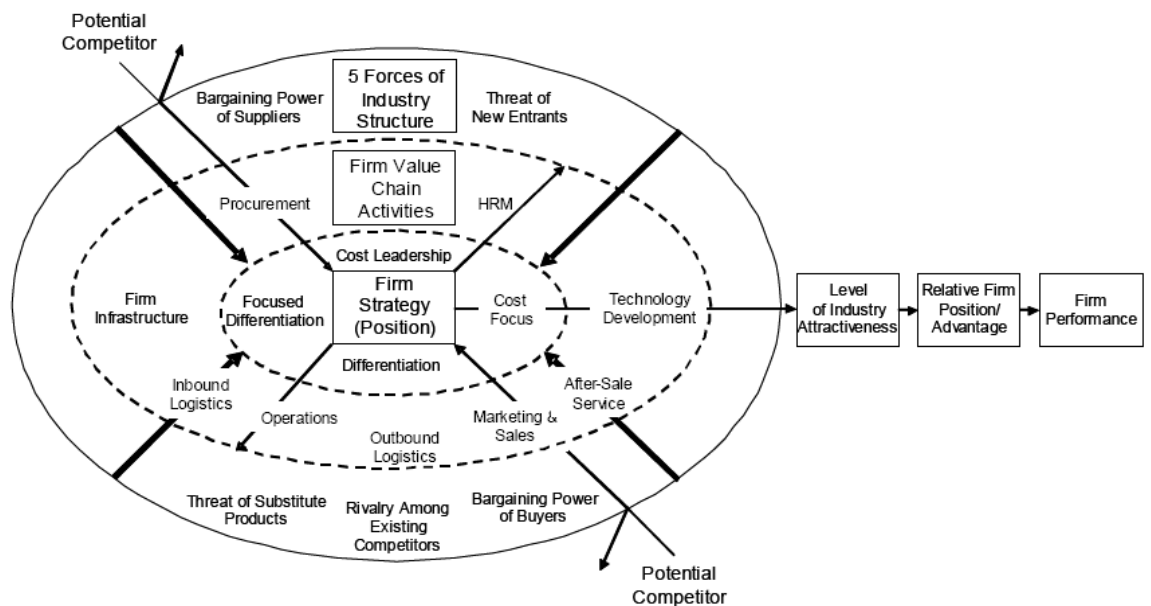


Fig 2.3 Conceptual representation of Porter's work

The above figure depicts that although the external industry structure (outer ring) or five forces, heavily influences firm strategy, firms must nonetheless choose defensible

positions and execute value chain activities (inner rings) within the confines of the five forces of industry structure to achieve high levels of success. In this sense, Porter's (1980, 1985) theory is not entirely exogenously focused, as is the case with traditional IO economics.

Porter's work represents one of the most widely discussed theoretical foundations for explaining the performance variance among firms in the strategic management literature. Most of his techniques and frameworks have also been used extensively in practical business settings. Although influenced by Bain-type IO economics, Porter does depart from the central tenets of the IO model as highlighted in Table 2.1.

According to Porter, industry structure is neither viewed as entirely exogenous nor stable, in contrast to the view held by IO theorists (Bain, 1959; Caves, 1972). Porter (1985) views the external environment as partly exogenous and partly subject to the influences of firm actions. Porter (1985) posits that, "a firm is usually not a prisoner of its industry structure. Firms, through their strategies, can influence the five forces. If a firm can shape structure, it can fundamentally change an industry's attractiveness for better or for worse."

Therefore the external industry structure can be influenced and changed based on firm actions, or by strategic choice as advanced by Child (1972). Porter's view also suggests a degree of agreement with Chicago School theory in that industry structure is or can be the result of efficiency seeking (i.e., firm conduct) and stochastic events (Stigler, 1968; Demsetz, 1973; 1975). Moreover, Porter (1980, 1985) does not treat the firm as a black box or as a 'representative' firm as in neoclassical economics. Porter's framework clearly recognizes the role of firm conduct in influencing its own destiny. Porter (1980), for example, argues that firms must choose a strategy with which they can create a unique, defensible position against industry rivals. Porter (1985) also suggests that the ability to achieve and sustain a competitive advantage over rivals largely rests in the firm's ability to either more cost effectively, or more uniquely, execute a series of interrelated value chain activities. Lastly, Porter (1985; 1996) recognizes the importance of internal activities, as represented in his discussions on the value chain, but this recognition does

not place the same importance on resources as does the resource-based view of the firm (Wernerfelt, 1984; Barney, 1991).

Dimensions	Traditional Industrial Organization (IO)	Porter's Work on Competitive Advantage
Unit of analysis	Firms	Firms
Level of analysis	Industries	<ul style="list-style-type: none"> • Industries - Primary • Strategic groups - Secondary
Primary sources of competitive advantage	<ul style="list-style-type: none"> • Collusion • Bargaining/market power • Concentration 	Market power via membership in an attractive (i.e., favorable five forces) industry
Type of rents	Monopoly	Implied Monopoly
Mechanisms that preserve advantages	Entry barriers: <ul style="list-style-type: none"> • Economies of scale • Product differentiation • Vertical integration • Control of distribution • Government intervention 	Entry/mobility barriers: <ul style="list-style-type: none"> • Economies of scale • Product differentiation • Brand identify • Switching costs • Capital requirements • Access to distribution • Absolute cost advantages • Government policy
Firm conduct	Ignored (firm behavior determined by industry structure)	Necessary (e.g., to choose and execute a defensible position and to alter industry/group structure in the firm's favor, when appropriate)
Resource heterogeneity	Degrees of heterogeneity recognized but irrelevant to advantage (industry structure solely determines advantage)	Heterogeneity may exist but equated to the execution of value chain activities (i.e., strength of the value chain determines advantage)
Implication for strategy making	Erect entry barriers to restrict competition in order to protect industry profits	Erect entry/mobility barriers to restrict threats from the five forces in order to protect industry/group profits and overall firm position

Table 2.1 Comparison between Traditional IO and Porter's theory

Porter's views on the firm are a major departure from Bain's (1959) structure-conduct-performance (SCP) paradigm. Porter's focus on managerial choice in an explicitly environmental context turned the original positions of IO economics upside-down (Schendel (1992) and Thomas and Pollock (1999)). In Porter's view, managerial choice

(conduct) can affect structure, thereby making the structure-conduct relationship bi-directional.

To summarize, Porter's five forces framework emphasizes the attractiveness of industry structure as the main determinate of the profit potential of firms. Porter's work implies that a market entry strategy begins with carefully analyzing an industry in terms of its structural attractiveness (i.e., the five forces) in order to assess its profitability potential. Once this is achieved, a competitive position that can effectively align the firm to the industry and generate superior performance should be selected. If not already possessed, the firm should acquire or otherwise obtain the necessary resources to implement its strategy. Teece et al. (1997, p. 514) state that Porter's approach to strategy is "nothing more than choosing rationally among a well-defined set of investment alternatives. If assets are not already owned, they can be bought."

Primarily, Porter's position is focused on the quest for monopoly rents through industry and segment selection and the manipulation of market structure to create market power. Porter's work and the IO economic work of Bain in general, have had considerable influence on the field of strategic management and in particular have made a significant contribution to the theoretical basis for explaining why some firms (industries) are more successful than others. However, a lot of criticism has been done on the economic tradition.

2.1.3. Criticisms of the Industry Structure Approach

First introduced by Mason and Bain in the 1930s and 1950s and adopted and applied to the field of strategic management by Porter in the 1980s, the focal emphasis of the tradition is the external environment, or industry structure. Industry structure is seen to determine an industry's performance potential, which ultimately impacts on firm profits. Much of the economic tradition has not only influenced generations of students and scholars, but has formed a basis of understanding in which businesses formulate strategy and compete in given markets. However, traditional IO economics is not without criticism.

A review of the literature reveals that two broad criticisms of IO economics and the five forces framework have emerged: 1) weak/inconclusive empirical evidence for industry structure as the key determinant of firm success; and 2) relevance of the industry structure position given changed and changing economic and competitive conditions.

In spite of the fact that IO theory is in existence since long, a thorough examination of industry structure as the main determinant of firm performance variability did not occur in thoroughly until the 1980s (Foss, 1996a; Hill and Deeds, 1996). It was at this time that IO theory began to influence the research agenda within the field of strategic management (Hoskisson et al., 1999). A number of the major empirical studies from the 1980s to the present are briefly presented in the following paragraphs. As noted, the findings are inconclusive with respect to verifying that industry structure factors are the *main* determinants of performance variability.

Schmalensee (1985) examined the accounting profits of American manufacturing firms that are covered in the Federal Trade Commission's Line of Business Report (FTC LB) for the year 1975. He reports that industry effects explain 19.46 percent of the variance in firm profitability of firms whereas firm effects account for only 0.62 percent of the variance. Wernerfelt and Montgomery (1988) confirmed Schmalensee's (1985) findings, using data from the 1976 FTC LB and other sources but use Tobin's q as a measure of profitability. They find that industry effects, from a sample of 2-digit industries to capture focus effects of firm diversification, account for between 12.3 percent and 19.5 percent of the variance of firm profitability, depending on the measure of Tobin's q , while firm-level effects account for only 2.4 percent to 3.6 percent of the variance. In a study of 600 Fortune 1000 firms, Hansen and Wernerfelt (1989), report that firm-level effects account for approximately twice as much of the profitability variance as industry effects, 38 percent to 18.5 percent, respectively.

Rumelt (1991), challenged Schmalensee's (1985) findings and using FTC LB data for the years 1974-1977, argues that differences in firm profitability are not based on the structural characteristics of an industry but rather on the unique endowments of resources found in independent firms or single business units. Rumelt reports that

industry effects account for only 4 percent of the variance of profitability while firm-level effects account for 46 percent of the variance.

Roquebert et al. (1996) compared the work of Schmalensee (1985) and Rumelt (1991) and report that firm factors account for 55 percent of the variance in profitability while industry structure factors account for 10 percent of the variance. McGahan and Porter (1997) also analyzed the earlier work of Schmalensee (1985) and Rumelt (1991), using Compustat data but with a larger sample including manufacturing and services industries in America and a longer time period, including the years 1981-1994. The results show that industry effects account for 19 percent of business segment profitability variance while firm-level effects account for 36 percent of the variance in profitability across all industries.

In other studies, Mauri and Michaels (1998) studied 264 nondiversified companies using data from Compustat. They report that firm effects account for 36 percent in the explained variance in return on assets (accounting profits) while industry effects account for just over 8 percent of the variation in accounting profits. Industry effects explain 6 percent of the profitability variation while firm-level effects explain 25 percent of the variation.

Much research has been conducted outside US as well. Gonzalez-Fidalgo and Ventura-Victoria (2002), studied industry, strategic group, and firm-level effects on firm performance in Spanish firms, and found industry and strategic group effects explain 13 percent and 15 percent in the variance in firm profitability, while firm-level effects explain 31 percent of the profitability variance. In another study of Spanish firms, Claver et al. (2002) finds that firm-specific resources explain more than 40 percent of profitability variance while industry effects explain about 5 percent of profitability variance. Lastly, in an examination of SMEs and large firms in Greece, Caloghirou et al. (2004) find that firm-specific factors have around 2.5-3 times the influence on firm performance than industry structure factors.

A review of these major research studies suggests that the industry structure explanation

of performance variability is somewhat inconclusive. Some studies find that industry effects leave a significant portion of variance in performance unexplained, while other studies find that firm factors explain a more significant portion of performance variation than industry structure. Conner (1991), states that, "the empirical results have been less conclusive, revealing at best a weakly positive association." Lastly, strategic management researchers clearly acknowledge that both firm-level and industry structure factors affect performance (Hansen and Wernerfelt; 1989; Barney and Griffin, 1992; Barney, 1992).

Both the firm factor and industry structure are the two sides of the coin. Hansen and Wernerfelt (1989) argue that firms that can demonstrate excellence in both firm resources and their competitive position in the external environment will do significantly better than those that strive for more unidimensional concepts of excellence. The firm success is achieved from an appropriate fit of internal resources to the external competitive environment. Therefore, research that compares firm factor and industry structure will likely continue to be a fruitless effort because both resources and industry structure are important to shaping strategy and performance (Henderson and Mitchell, 1997). Finally, although studies that compare industry factors with firm-level factors may provide empirical value, such studies do not effectively isolate *which* resources contribute most to firm success.

Another criticism made on IO economics and Porter's five forces framework is the very essence of the dynamics of competition itself. The theoretical development of the IO position occurred in the 1930s through to the 1950s during a time of the large reach of communism, government-imposed trade restrictions, national protectionism, growing industry concentration, manufacturing as the dominant industry in most developed nations and relatively stable competitive environments. Certainly one must examine the tenets of IO economics within the context of the age and circumstances of the era in which they were first theorized. Historically the traditional IO was developed during a period where the United States had shifted from a rural, agrarian economy based on small, family enterprises to an urban economy dominated by large, industrial business enterprises (Chandler, 1962, 1990). Indeed, many economists during the period

reflected on the collusive/monopolistic practices in a diverse group of industries including meatpacking, tobacco, sugar, aluminum and oil (Ripley, 1905; Jones, 1922; Wallace, 1937).

The structure-conduct-performance (SCP) hypothesis, posited by Bain, was rooted in the belief that the central economic forces in the U.S. economy were based on monopolistic power and control, which deterred competition and thus artificially inflated prices, rather than encouraging competition that would seek to produce a lower cost product that consumers preferred. Most of the U.S. public policy embraced Bain's IO view through the 1970s by seeking to discourage monopoly and oligopoly industries (Conner, 1991). Today, the fundamental beliefs about industry structure, competition, and firm success have changed and are continuously changing (Sampler, 1998). Sampler (1998) argues that the rate of change has increased dramatically in product markets in recent years. This pace of change tends to create a higher propensity for competitive instability and less of an opportunity to create monopolistically or oligopolistically controlled industries. A major empirical study undertaken by McGahan (1999b) revealed that competitive business conditions changed in many industries during the 1980s and early 1990s, leading to increased competition, fragile markets, and an increased struggle for firm success.

The services industries have surpassed manufacturing as the largest percentage of GDP growth and employment within the industrialized nations of the world (Hufbauer and Warrant, 1999). The fundamental resources or factors of production and sources of competitive advantage in many services industries are argued to be intangible resources, rather than the more traditional financial and physical resources of manufacturing industries (APEC, 2001; OECD, 2001). As Canals (2000, p. 118) notes, "as the industrial society becomes a services society, where knowledge and information are the mainstays of business growth, the importance of intangible resources will come increasingly to the forefront."

Intangible resources such as employee know-how, intellectual property and organizational culture etc are considered difficult to replicate between firms and are thus

major sources of competitive advantage (Barney, 1991). Today, intangible resources, rather than tangible resources, are adamantly argued to be the reason firm performance differentials exist (Teece, 1998a).

Further criticism of IO economics, instead of the dynamics of competition argument, include the collapse of communism in Eastern Europe, the increased privatization of many state-owned industries, deregulation in many economic sectors, and the emergence of East Asia as the most dynamic trading bloc in the world. Researchers suggest that the resulting globalization of trade and the liberalization of developing economies has radically increased competition on a level previously unseen or unanticipated (Hope and Hope, 1997; Sanchez and Heene, 1997; Hitt et al., 1998; Grant, 2002). D'Aveni (1994, 1995a, b, 1997) argues that 'hypercompetition' had drastically changed the stability of industry structure, thereby significantly decreasing competitive advantage based on traditional barriers to entry.

Other researchers (Bourgeois, 1984; Chia, 1995; Thietart and Forgues, 1995) argue that shifts in management paradigms have occurred from linear, certain environments to nonlinear, uncertain environments. Nonlinear environments shift the source of sustainable competitive advantage from the deterministic influence of industry structure to the dynamic, voluntaristic strategic choices of managers. Daley (2001) argues that the free flow of financial capital to small and medium-sized businesses has dramatically increased thus eliminating difficult barriers to entry held by only the largest firms in many industries. Finally, Sawhney and Zabin (2001) suggest that the decrease of transaction costs in the economy has led to the significant rise of outsourcing, thus reversing the common and advantageous practice of creating barriers to entry via vertical integration.

Many changing conditions in competitive, technological, and organizational landscapes of business pose a significant challenge to traditional economic theory Piore (1986). The assertion that an increasing emphasis being placed on shifting and changing competitive environments casts doubt on traditional IO economics, requires deeper examination to bring to light the definite shift towards the resource-based view of the firm in the

strategic management literature over the last several years (Srivastava et al, 2001)

2.2. Competitive Dynamics in a New Economy: Economic Transition

The neoclassical economic theory places emphasis on production optimization—the optimization of tangible, physical resources including land, equipment, buildings, machinery, and raw materials. In neoclassical economic theory little attention is paid to intangible resources. Furthermore, IO theory argues that competitive advantage is created by external structural factors rather than internal resources. To further draw attention to a major shift in thinking about competition in the new economic environment and to develop argument for this research, the following section highlights previous work about the new economy and its implication for the firm.

The first industrial revolution, largely launched in Britain and extending from about 1760 to 1830, led to the development of great inventions such as the steam engine and the power loom. The second industrial revolution, dated roughly from 1860 to 1900 and occurring simultaneously in both Europe and the United States, launched many more great inventions, such as electricity, the internal combustion engine, chemicals, movies, and radio. Gordon (2000) and Grant (2002) suggest that the world may now be in the middle of a third industrial revolution, or a so-called *new* economy.

Although never considered as a theory, emphasis on a new economy reached unparalleled heights in many industrialized economies of the world in the second half of the 1990s. However, no formal date for such an economic transition has been established. Some pundits describe the arrival of a new economy having occurred as far back as the 1970s and 1980s (Toffler, 1971 and 1981; Handy, 1989), while others say that year 1995 is the year of the birth of a new economy, a point in time in which the Internet was commercialized and legitimized (Sveiby, 1997; Mandel, 2000).

During the second half of the 1990s, a business, economic, and technological phenomenon occurred largely in the United States and Europe. The phenomenon was largely based on the development of the Internet for commercial and business use and

the rapid growth of stock market indices, particularly in the United States. Various terms such as digital age, wired economy, knowledge age, Internet economy, and intangible economy were coined to describe the beginning of a new economic era. Major emphasis of the new economy was the rapid rise of technology— particularly Internet technology—and the influence of intangible resources on value creation. For example, in the U.S., a *Wall Street Journal* article claimed, "when it comes to technology, even the most bearish analysts agree the microchip and Internet are changing almost everything in the economy" (Ip, 2000, p. C1). Wadia (in Sullivan, 2000, p. ix) states, "we are living in New Economy an economy characterized by new technologies, globalization, and an ever increasing emphasis on intangibles."

Blair and Wallman (2001, p. 1), state that "as the United States and other developed economies move into the twenty-first century, the factors that have become most important to economic growth and societal wealth are intangible, or nonphysical: intellectual capital, research and development (R&D), brand names, human capital are examples." The Asia-Pacific Economic Cooperation (APEC Secretariat, 2001) state that the revolution in information and communication technology is dramatically boosting the development of the global economy. It carries with it unprecedented opportunities in a *new style of economy with new forms of markets, higher levels of productivity and new demands for knowledge, entrepreneurship and innovation.* (p. 1) [emphasis in original]

The above mentioned observations reflect the general tone on the part of practitioners, academics, policy-makers, and professional and government bodies as to the influence of a new economy on the global business environment. While history will undoubtedly observe that something unusual did occur in the latter half of the 1990s (particularly in the United States), by the second half of 2000 and into the year 2001 the economic climate around the world, and much of the Internet hype, had significantly changed. By 2001 the Internet bubble had burst. The stock market index fell some 70 percent from its highs, an all-time record drop which erased trillions of dollars of wealth causing both personal and business bankruptcies on a wide scale. The euphoria of the claimed dramatic economic change waned considerably, causing some to question, "What

happened to the new economy?" (Meyer, 2001; Farrell, 2002). Porter (2001) argues that the new economy appeared less like a new economy than like an old economy that had access to new technology, and that phrases like new economy and old economy had all but lost their relevance, if they ever had any.

Even with the bursting of the Internet bubble and the extreme downturn of the new economy, a few key areas can be examined that are argued to be creating revolutionary change in the foundations of modern business; areas that might point to 'new' sources of competitive advantage and firm performance which may be relevant to this study. The two areas are the impact of new technologies and the spread of economic globalization.

2.2.1. The Impact of New Technologies

Although technology has long been an important source of innovation, economic growth, and competitive differentiation (Gordon, 2000), the late twentieth century saw technology serve as a mechanism to create strategic discontinuities that changed the nature of competition on an unprecedented scale (Hitt et al., 1998). Such technologies are not only changing the nature of production, but the nature of work itself.

Computer, telecommunications, and data networking technologies (effectively known as information and communication technologies, or ICT), on the other hand, are altering how firms, employees, and managers interact and work, both within the boundaries of the firm and with constituents in the external environment, such as alliances, distributors, and suppliers (Galbreath, 2002). New manufacturing technologies have changed the nature of the economics of product variety, thus enabling the mass customization (Pine, 1993). In short, scholars argue that new technologies are altering the competitive landscape and the factors that are required for competitive success (Hitt et al., 1998; Zahra, 1999).

Prastacos et al (2002) posits that changes in technology have occurred at an increasing rate. Similarly, the speed of technological diffusion has also increased in recent years (Carlsson, 2002). These two self-reinforcing phenomena create particular patterns of change within firms: as the speed of technological innovation increases, so does the

speed of technological diffusion. Bettis and Hitt (1995, p. 8) state that the "increased speed of change necessitates more rapid acquisition of relevant technologies by firms, and hence motivates diffusion-increasing behavior." Such behavior by firms can lead to the never ending pursuit of shortened product life cycles through faster innovation (Slater, 1996).

Rapid technological change and the rise in the speed of technological diffusion in the late twentieth century essentially point to greater knowledge intensity for most firms. Thus, the growing technological orientation in most industries and the rapid increase in the use of information and communications technology in most firms have created greater knowledge intensity (APEC, 2001). Some scholars suggest that the current economic landscape is indeed best defined as a 'knowledge economy' (Houghton and Sheehan, 2000). Kelly and Leyden (2001, p. 1) state, "in the last couple of decades we have witnessed an extraordinary transition from an industrial, nation- based, resource-orientated economy to a global, networked, knowledge-intensive economy."

As the speed and scale of technological change and diffusion creates significant upheavals in industries and firms, as occurred in the late twentieth century, Lei et al. (1995) argue that knowledge, or know-how, becomes the basis of gaining and maintaining a competitive advantage. Especially, when product quality, price, and even specialization can be quickly and easily matched by competitors (Ghemawat, 1986; Slater, 1996) (largely through the application of technology) other means of competitive advantage must be found. Scholars have suggested that the ability to continually build, destroy, and rebuild new resource combinations that are valuable to customers and defensible against would-be rivals is critical. This ability is defined as a *dynamic* capability (Teece and Pisano, 1994; Teece et al., 1997; Eisenhardt and Martin, 2000).

2.2.2. Globalization

In 1900 the world was full of colonial empires. Britain was directly or indirectly running half the world—India, Nigeria, South Africa, Egypt, Australia, Canada, and Burma. The French, Germans, and Japanese each had their empires. America was running Cuba and the Philippines. Governments led the march to globalization and companies followed.

These political empires were dismantled in the aftermath of WWII. Indeed, after WWII, globalization of the modern era has taken a different course altogether.

Business firms and economic reform rather than government control and power is leading globalization. Recent globalization has largely been bolstered by economic developments around the world and the relaxing of restrictive trade barriers between nations and foreign firms (Hitt et al., 1998). Free-trade agreements such as GATT and NAFTA and the toppling of communism in Eastern Europe and the growing market liberalization in China are creating unprecedented opportunities for the flow of goods and services around the world.

Economic developments enable firm's easier opportunities to enter international markets, often through alliances or partnerships or acquisition of firms operating in foreign markets. With the increase in the number of connected economies, financial capital is more easily and readily available for those who would choose to compete in markets anywhere in the world (Fraser and Oppenheim, 1997). Furthermore, the explosive growth of information and communications technology in the last 20 years has reduced transactions costs and geographic barriers, thus enabling improved cross-border productivity while decreasing the costs of competing in international markets (Daley, 2001). The ever-increasing globalization of economic markets suggests that new means of competitive advantage may be necessary (Hitt et al., 2001).

2.2.3. The Importance of Intangible Resources

The current competitive environment which is driven by technology and increasingly integrated global economic transactions, appear to be creating a landscape where the predictability and stability of markets, and the identification and assessment of competitors, is increasingly difficult (Hitt et al., 1998). It is further suggested that the increased flow of financial capital around the world, the lowering of transactions costs, and rapid technological change and diffusion are crumbling barriers to entry in many industries while blurring many traditional industry boundaries (Bettis and Hitt, 1995; Daley, 2001).

The effects of technological change, comparable factor endowments (i.e., a majority of global trade taking place among advanced nations with similar factor endowments), and the richness and availability of capital, transportation, raw materials, machinery, and services have created an environment where rather than competing on the similar factor endowments of financial and physical resources, firms must find new sources of competitive advantage (D. Aveni 1995b, 1997).

Hitt et al. (1998) and Prastacos et al. (2002) posit that new technology and increased globalization have created a competitive environment with many challenges to succeed in the twenty-first century. First, in an era of discontinuous change, firms must be able to continuously adapt to ever-shifting environments, be they internal or external. Brown and Eisenhardt (1998) suggest that firms need to strike a balance between reacting, anticipating, and leading change. The ability to adapt to such discontinuous change requires organizational *flexibility* (De Meyer et al., 1989; Hitt et al., 1991; Sanchez, 1995; Volberda, 1997), for business success in the new economy. Flexibility is the ability of a firm to respond quickly to substantial, uncertain, and fast-occurring changes in the environment, which may impact their performance (Aaker and Mascarenhas, 1984; Hitt et al., 1991; Sanchez, 1995). Hitt et al. (1998) argue that the current competitive landscape is such that firms must rely on flexibility to continuously adapt to discontinuous change more than in any previous competitive era. In order to create an environment of organizational flexibility, the second challenge is innovation.

Like flexibility, innovation is not a new concept or corporate imperative. However, the *rate* at which innovation must occur is argued to be different than in previous economic periods (Ghemawat, 1986). For example, research suggests that firms that are able to introduce innovative products faster than their competitors earn greater returns (Franko, 1989). Mansfield (1985) claims that today, competitors usually obtain 70 percent of the information required to develop a new product within one year, if not sooner. Slater (1996) suggests that most product innovations are copied in less than one year. Therefore, if firms want to be ahead of competitors and earn superior returns, it appears that they must introduce new product innovations at an increasingly quicker rate (Slater, 1996, 1997).

Scholars posit that innovation is required not only in the form of product innovation but also in other areas of the firm as diverse as culture (Fiol, 1991), human resource management practices (Huselid, 1995), leadership (Petrick et al., 1999), business processes (Hammer, 1996), and information technology systems (Prastacos et al., 2002). Hitt et al. (1998, p. 36) state that "when markets shift, new technologies are introduced, the number of competitors continues to increase, and new products become rapidly obsolete, firms must consistently create new knowledge (innovate), diffuse it throughout the organization and find ways to capitalize on it." Hitt et al. (1998) implies that firms must turn attention to the effective use of intangible resources in today's competitive environment.

Due to the ready availability of financial capital and the rather equal factor endowments of the industrialized nations of the world today, the ease with which they are made or bought makes physical assets relatively more prevalent and less valuable than in competitive eras of the past (Harvey et al. 2001). On the other hand, Daley (2001) posits that intangible resources (e.g., human know-how, brand names, and reputation) become more valuable as interaction (or transaction) costs and global boundaries fall, which appears to be the case in the current competitive climate (Hitt et al., 1998).

Moreover, Daley (2001) states, that "the same intangible asset can be used productively over a wider scope, without reducing its value. Consequently, the economic value that can be added by a particular intangible asset has increased." As an example, the development of a major software program (considered an intangible asset) may require a large capital investment and considerable human know-how to create, the program itself can be replicated at extremely low incremental cost. Furthermore, the software code itself may be used in the development of additional software programs, thus reflecting the exponential use of such an intangible resource. As another example, the British-based company Virgin has leveraged its brand beyond air travel to such diverse operations as music superstores, cola drinks, and mobile telephone services, thus giving the firm immediate access to new and widely diverse markets. Itami and Roehl (1987) and Wernerfelt (1989) argue that financial and physical assets have a relatively fixed

long-run capacity whereas intangible resources have relatively unlimited capacity. Therefore, intangible resources have the potential to be used simultaneously in more than one area without reducing value in other areas. Thus, the first advantage of intangible resources appears to be their economy of scale *and* scope (Grant, 1996a).

The second advantage of intangible assets is that unlike physical assets, they are more difficult to build and very difficult to duplicate by competitors (Reed and DeFillippi, 1990; Barney, 1991; Amit and Schoemaker, 1993; Michalisin et al., 1997). In an era where scholars (see, for example, D'Aveni, 1997; Teece, 1998a) argue that access to financial capital is not reserved for only large companies and the ability to buy or build physical assets is a relatively easy proposition, the debate in the following section suggest that intangible resources are more valuable, and contribute more significantly to firm success, than either financial or physical—tangible—assets.

The first evidence suggests that the value of intangible resources is found by examining a firm's market capitalization. By comparing public firms' market value (total number of common shares outstanding times current stock price) to their book value (accounting value of financial and physical assets minus liabilities), Daley (2001) found that the average market-to-book ratios for public firms in the United States, for example, had steadily risen since the 1950s. While the historical average is about 1.6, many firms had achieved market-to-book ratios well above five in the 1990s (Lev, 2001). High market-to-book ratios, according to some scholars (see, for example, Blair and Wallman, 2001; Lev, 2001), suggest that intangible resources are far more valuable than financial or physical assets and thus constitute the most valuable store of capital in many firms.

The second evidence comes from the investment activities of member OECD countries. Croes (1999, 2000) found that generally, investments in intangibles such as research and development, software, education and training, advertising, and marketing have increased while investments in gross fixed tangible resources have decreased over the period 1985 to 1997. Croes (1999, 2000) concluded that a noticeable rise in intangible investments points towards the presence of an evolving 'knowledge-based' economy, in which intangible resources need to be leveraged to gain a competitive advantage and to

sustain growth. Therefore a primary concern of firms is in the understanding, development, and exploitation of the *sources* of economic growth as the world moves in to the twenty century as described in fig 2.4.

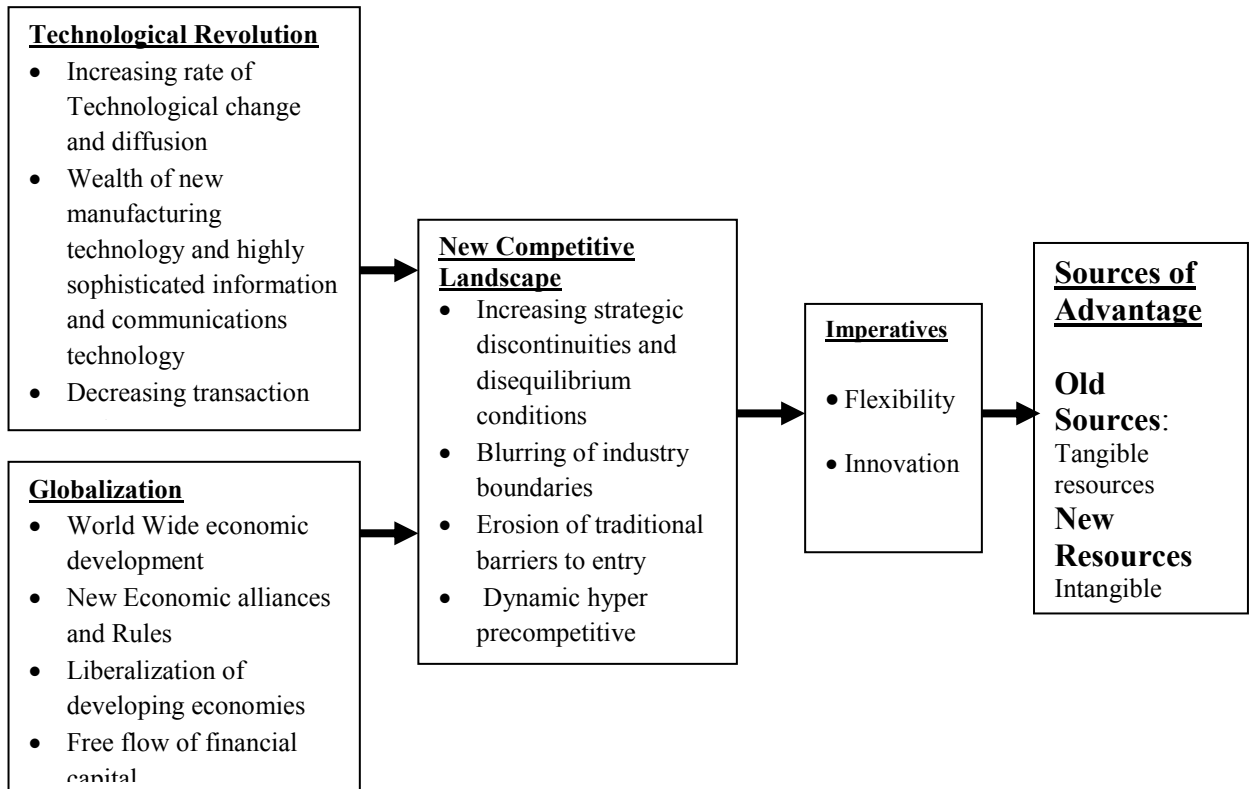


Fig 2.4 The new competitive Dynamics

Teece (1997) has summed up the views of many scholars regarding the new economy by stating:

The decreased cost of information, the increase and spread in the number and range of markets in which companies can buy production inputs, the liberalization of product and labor markets and the deregulation of financial flows, is stripping away traditional sources of competitive differentiation and exposing a new fundamental core to wealth creation. That fundamental core is the development and astute deployment of intangible assets, of which knowledge, competence and intellectual property are the most significant. Other intangibles such as brands, reputation and customer relationships are also vital. Special access to natural resources and skilled labor, economies of

scale and scope, are fading as sustainable bases for competitive advantage. In the end, wealth creation in a world of heightened competition comes down to developing, orchestrating and owning intangible assets which your competitors will find it hard to imitate but which your customers value. (p. 9)

In light of the changing business conditions described above, many scholars have argued that firms would be prudent to focus attention on the strategic resources that they might acquire, develop, and deploy as part of a market strategy, rather than focusing too much attention on the structural characteristics of industries that might restrict or prohibit their ability to compete in a given market. The main focus of this dissertation is the resource-based view and the strategic resources of the firm. (Wernerfelt, 1984; Barney, 1991).

2.3. Resource-Based Factors As Determinants of Firm Success

2.3.1. Background and History

The RBV is not new (Hoskisson et al.(1999). Although first posited in the strategic management literature by Wernerfelt (1984), it inherits its theoretical roots from work dating as far back as Ricardo (1817) (Figure 2.5). Selznick's (1957) early work on management theory highlights the idea of distinctive competencies, which is directly related to the RBV. Economists such as Chamberlin (1933) and Robinson (1933) discuss some of the key resources of the firm (e.g., know-how, reputation, brand image, intellectual property) in their works, which have been clearly revisited by RBV theorists.

In order to explain the historical roots of the RBV, a literature review of the extant literature is presented below. First, the work of Edith Penrose is highlighted. Penrose (1959) is identified as one of the earliest major contributors to the theoretical underpinnings of the RBV (Kor and Mahoney, 2000; Rugman and Verbeke, 2002). Next, seminal works from business policy researchers are highlighted. Finally, select researchers within the field of economics are explored.

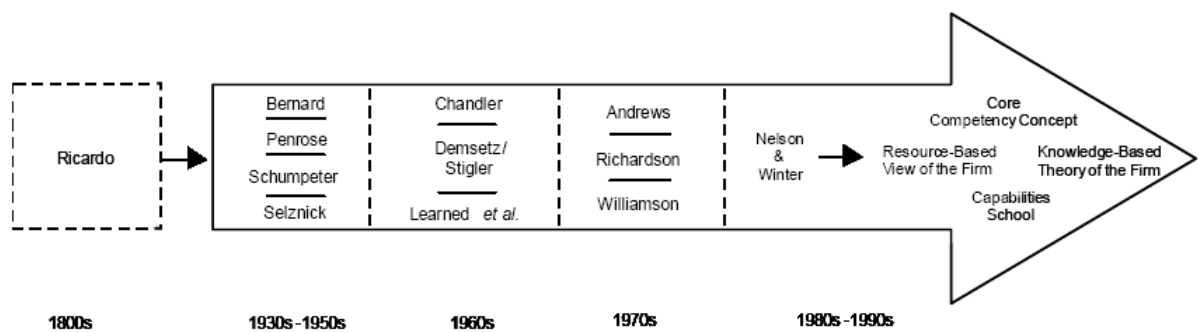


Fig 2.5: Early contribution to the RBV and other resource based streams

It is of particular interest that all of the contributions below focus on resources, though perhaps from different perspectives and in varying degrees, which lead to firm heterogeneity (Conner, 1991; Hoskisson et al., 1999). Thus, each stream discussed below is similar in that resources constitute a dimension of the firm's ability to gain a competitive advantage, which is a critical implication for the theoretical underpinnings of the RBV.

Edith Penrose

Although the contemporary roots of the RBV can be traced as far back as Selznick's (1957) *Leadership in Administration*, Penrose's (1959) seminal work, *The Theory of the Growth of the Firm*, introduced many of the concepts applied to resource-based thinking in later years. Penrose (1959) was perhaps one of the first to provide a rich theory of firm growth tied to the efficient management of resources. Penrose (1959) emphasized that firms are institutions created by people to serve the purposes of people. Human decisions and motives are stressed, particularly management motives, by the struggle for survival and by the need for achievement and recognition to generate both creative innovations and adaptive responses to competition or environmental factors via new resource combinations (Kor and Mahoney, 2000). Penrose (1959) notes that:

A firm is more than an administrative unit; it is also a collection of productive resources the disposal of which between different uses and over time is determined by administrative decision. When we regard the function of the private business firm from this point of view, the size of the

firm is best gauged by some measure of the productive resources it employs. (p. 24)

Such dynamic interactions between resources and the administrative, or managerial, decisions in the coordination of resource use offer an explanation of heterogeneity between firms. The coordination effort and the growth of the firm is largely dependent on human resources, other resources such as land, labor and capital, and the knowledge capacity of managers, individuals, and work groups. According to Penrose (1959), the growth of the firm is directly related to the resources under control and the administrative framework used to coordinate resource use. The interaction of resources provides firms with unique advantages relative to competitors. Transferring and monitoring resources between firms is thus made difficult, denying rivals the chance of replication, and resource inimitability secures and protects superior returns, which is a theme of the modern RBV.

Business Policy Researchers

The work of Smith and Christensen (1951) at Harvard University in the area of business policy emphasizes the match between a firm's strategy and its external environment and created a foundation upon which other important contributions to the field of strategic management and the RBV were developed in the 1960s.

One of the most influential work in the field of strategy in the 1960s was the development of the 'design school' (Mintzberg, 1990). At the most basic level, the design school suggests that firm 'fit'—fit between internal capabilities and external opportunities—determines competitive advantage. The origins of the design school can be traced to Selznick (1957) and Chandler (1962). Selznick (1957), for example, introduced the notion of distinct firm-level competencies and the need for fit between these competencies and external expectations. Chandler (1962) discussed a contingency perspective focused on strategy (long-term goals and objectives of a firm) and structure (the design of the organization through which the firm is administered). Changes in strategy are responses to changes in the external environment. Thus, fit between the strategy and structure of the firm and its external environment is necessary to attain competitive advantage. However, the work of Kenneth Andrews and his colleagues in

the General Management group at the Harvard Business School, in the 1960s, formed the real impetus of the design school.

The concept of strategy as formulation and implementation was introduced by Andrews and his colleagues, where a focus on the internal resources of the firm and the external environment are interrelated (Learned et al., 1965, 1969). Their work in the 1960s not only provided the foundation for what is known today as the field of strategic management, but also led to the development of one of the most widely used strategic tools to this day: the SWOT analysis (Ghemawat, 1999). The SWOT analysis focuses the exercise of strategy formulation by examining and ultimately matching a firm's strengths and weaknesses with its opportunities and threats in the marketplace. Andrews (1971) combined these internal and external elements in a way that emphasizes the match between competencies, or resources, to the external environment in order to generate value. Thus, a focus on the firm's unique, internal resources and their fit with the environment serves as a foundation for developing competitive strategies. This perspective has certainly contributed to the underpinnings of the RBV (Hoskisson et al., 1999).

Economics Researchers

Although the influence of Edith Penrose and the work of various business policy researchers on the RBV is particularly well documented, others researchers, namely in the fields of neoclassical, industrial organization (IO), and evolutionary economics, have also influenced the formulation of the theory (Conner, 1991; Rumelt et al., 1991; Mahoney and Pandian, 1992; Rumelt et al., 1994). Of particular interest are the neoclassical economists Chamberlin and Robinson, Chicago School economists, evolutionary/neo-Austrian economists, and Oliver Williamson of the transaction cost economics (TCE) school of thought.

The economists Chamberlin (1933) and Robinson (1933) acknowledged the importance of firm-specific resources in explaining performance. Unlike their contemporaries, Chamberlin and Robinson do not emphasize market structures, but rather highlight firm heterogeneity and propose that unique firm resources are important factors which give

rise to imperfect competition and the attainment of abnormal profits. Chamberlin (1933) particularly emphasizes firm-specific resources such as technical know-how, reputation, brand awareness, and patents and trademarks as sources of superior performance. All of these resources have been incorporated in the recent strategy literature (e.g., Hall, 1992, Hall, 1993; Roberts and Dowling, 2002; Galbreath, 2004a; Galbreath and Galvin, 2004).

Evolutionary economics rejects neoclassical perfect competition theory and instead posits a theoretical viewpoint based on a dynamic view of competition (Nelson and Winter, 1982). Although this school of thought continues to expand, evolutionary or neo-Austrian economists largely share many of Schumpeter's (1934, 1942) original theories and postulates (Dosi and Nelson, 1994). The essence of the Schumpeterian view is that the purpose of firms is to take control of competitive opportunities by creating or adopting innovations (or technological change) that obsolete rivals' positions. This adaptive approach to innovation and technological change emphasizes the evolutionary concept of creative destruction (Bloch, 2000). As agent to such evolutionary processes, the firm relies on the strength of the entrepreneur as a manager of change. To initiate change, entrepreneurs are only limited by access to financial capital and their ability to leverage resources to produce new products, processes, or forms of organization (Waters, 1994).

Schumpeter's (1934) definition of innovation, technological change, and entrepreneurialism implies that the role of management is particularly important in influencing strategy and firm conduct. For Schumpeter (1934), factors such as entrepreneurialism and the use and control of resources in introducing innovation are critical in influencing change in the external environment and thus, the dynamics of competition and economic growth. Firm success then, is not necessarily associated with market power or the attractiveness of industry structure, but rather is the result of innovation and the discovery of new technologies, products, or uses for resources (Tushman and Anderson, 1986).

Moreover, evolutionary economists highlight the role of knowledge, and organizational routines and capabilities, as firm-based resources that may enhance the survival of

firms, as well as their superior performance (Nelson and Winter, 1982; Winter, 1987). The evolutionary growth theory's focus on firm knowledge and capabilities that are exercised through routines has importance for resource-based theory, particularly with respect to dynamic capabilities (Teece and Pisano, 1994; Teece et al., 1997; Eisenhardt and Martin, 2000) and the knowledge-based theory of the firm (Grant, 1996a; Spender, 1996a).

The Economists in the Chicago School of industrial organization (Stigler, 1961, 1968; Demsetz, 1973), were not satisfied with the SCP paradigm introduced by Bain (1959), and its related strict anti-trust legislation and therefore introduced a different theory of explaining the existence of superior performance. Stigler (1961), for example, introduced the theory that information is costly and that perfect information does not exist in the market—contrary to the assumptions of neoclassical economic theory. Stigler (1961) suggested that effective collusion cannot persist over time because of the existence of monitoring costs and incentives to cheat. Thus, superior performance cannot be explained by effective collusion, but rather by the firm's efficiency differentials in production or distribution. That is, superior performance can ultimately be explained by the accrual of rents to specialized, high quality resources (Peteraf, 1993; Rumelt et al., 20 1991). Chicago School highlighted the existence of non-homogeneous inputs or factors, and the existence of forces (costly or imperfect information) that impede the mobility of resources. These concepts give justification for the observation of firm heterogeneity, which is vital to the RBV.

On the basis of Coase's (1937) seminal argument that firms and market exchange are alternative methods for coordinating production, Williamson (1975, 1979, 1985) offered transaction cost economics (TCE) as a means to explain why firms exist. The fundamental premise of TCE is that opportunism in the market is defined by the efficiency of institutional arrangements that minimizes the sum of organizational and production costs (Coase, 1937; Williamson, 1975). Such organizational and production costs stem from the firm-level dyadic transaction, wherein minimization of transaction costs is the efficient outcome (Hoskisson et al., 1999; Lockett and Thompson, 2001).

Author	Contribution to the RBV
Penrose (1959)	<ul style="list-style-type: none"> • Firms as bundles of resources • Firm growth is based on the effective use of resources and limited by managerial resources
Andrews (Learned et al., 1965, 1969; Andrews, 1971)	<ul style="list-style-type: none"> • Strategy as a process of formulation and administrative implementation (emphasizing internal strengths and weaknesses and external opportunities and threats) • 'Fit' between the firm's unique, internal resources and the external environment serves as the basis of competitive advantage
Chamberlin (1933); Robinson (1933)	<ul style="list-style-type: none"> • Imperfect competition due to firm-specific resources, not market structure • Superior firm performance attained via unique resources
Schumpeter (1934, 1942); Nelson and Winter (1982)	<ul style="list-style-type: none"> • Technological innovation and 'creative destruction' basis of competitive advantage • Managerial actions and entrepreneurialism influence firm success rather than market power or industry structure • Firms viewed as bundles of resources and hierarchies of activities governed by routines and rules (repositories of systematic knowledge); performance is determined by firm-specific, idiosyncratic routines and rules (capabilities and embedded knowledge)
Stigler (1961, 1968); Demsetz (1973)	<ul style="list-style-type: none"> • Firms as a combination of heterogeneous resources • Superior performance attained via efficiency gains (e.g., via ownership of superior and efficient resources)
Williamson (1975, 1985)	<ul style="list-style-type: none"> • Firms seek to minimize transaction and production costs while avoiding opportunism in economic exchanges • Hierarchical governance of economic exchanges can mitigate the threat of opportunism while creating high levels of asset specificity • Asset specificity can lead to idiosyncratic, inimitable resources

Table 2.2 Summary of early contributors to the RBV

Given that firms (hierarchies) and markets are considered alternative means of the organization and facilitation of production, TCE's notion of hierarchical governance suggests that firms have the occasion to develop assets that are idiosyncratic, which in turn can capture economic rents. Indeed, TCE assumes that independent managerial behaviors affect transaction modes—market versus hierarchy—and thus outcomes (Hoskisson et al., 1999). Such a view departs from traditional IO economics where the conduct and behaviors of managers are determined by industry structure. Combs and Ketchen (1999) point out that TCE is relevant to the RBV in that it focuses attention on asset specificity, which can lead to the development of difficult to trade or imitate resources. Resource inimitability is a vital theme within RBV theory (Barney, 1991; Peteraf, 1993).

The following part will explain the main theoretical tenets of the RBV, concluding with a discussion of recent, resource-centric streams that constitute the broader resource-based family.

2.3.2. The Resource-Based View of the Firm

During the 1970s and 1980s, traditional IO economics heavily influenced strategic management thinking and research (Hoskisson et al., 1999). Borrowing from IO economics but creating his own distinct view, Porter (1980, 1985) emphasized strategic choices that are predicated on industry analysis as the starting point. Strategy is thus based upon identifying whether an industry is attractive or not, and then determining the viability of a potential competitive position within the external constraints imposed by industry structure. However, Chakaborty (1997) suggests that industry structure paradigms cannot be expected to provide all the answers as to why some firms are more successful than others.

The lack of definitive empirical evidence to support IO economic theory frustrated strategic management scholars and they began to look at factors inside the firm, although not to the exclusion of external factors, to better understand the performance variability among firms. One theoretical development is the resource-based view of the firm (RBV).

The RBV was formally introduced in the strategic management literature by Wernerfelt (1984), in an effort to position a different view of firm success, one that provided an alternative explanation *vis-à-vis* IO economics. However, the role of industry structure was not entirely dismissed as an important consideration in determining differences in firm performance. Wernerfelt's (1984) main emphasis, however, is to move beyond the treatment of the firm as largely a 'black box' (as in the Bain-type IO model) to one that explained performance and growth on the basis of the idiosyncratic resources of the firm. Wernerfelt's (1984) contribution to the development of the RBV is widely acknowledged. However, Mintzberg et al. (1998) suggest that the RBV became a full-fledged theory in 1991. In that year, Barney (1991) posited a general theoretical view of resources and sustained competitive advantage in a special issue of the *Journal of*

Management, which focused on the emerging resource-based view of firm.

Barney (1991) argues that from a resource perspective, neoclassical economics, and even Porter's work on strategy, essentially treats the resources that firms control as identical. Moreover, neoclassical economics suggests that if resource heterogeneity develops within an industry, differences will be short-lived as resources are highly mobile. In other words, firms can easily acquire the resources needed to implement their chosen strategies. Firms are assumed to have the same resources or access to the same resources needed to compete. RBV theorists reject this proposition. The fundamental tenets of the RBV suggest that resource heterogeneity between firms does exist and that the rents attained from such heterogeneity can be sustained (Peteraf, 1993).

The resources are generally classified as tangible or intangible (Itami and Roehl, 1987). Tangible resources include financial assets such as cash and physical assets such as buildings and land. Intangible resources include intellectual property assets such as patents and trademarks; organizational assets such as culture and organizational structure; reputational assets such as brand name reputation and company reputation; and capabilities and competencies which consist of know-how and routines.

RBV theorists argue that although each firm leverages a broad spectrum of resources in executing a given market strategy, not all resources can be sources of competitive advantage (Reed and Defillippi, 1990; Barney, 1991; Amit and Schoemaker, 1993; Peteraf, 1993; Black and Boal, 1994). For example, a consultant may need a laptop computer—a tangible, physical asset—to effectively complete client engagements, it is unlikely that a laptop computer is a significant contributor to a firm's competitive advantage. To understand *which* resources might be sources of competitive advantage, RBV logic must be applied. Barney (1991) suggests that to be sources of competitive advantage, resources must be: 1) valuable; 2) rare; 3) inimitable; and 4) nonsubstitutable. The so-called 'VRIN' thesis is the RBV's main prescription.

The resources that are *valuable* allow a firm to create or implement strategies that improve its efficiency and effectiveness (Barney, 1991); enable customer needs to be better satisfied (Bogner and Thomas, 1994; Verdin and Williamson, 1994); satisfy

customer needs at a lower cost than competitors (Barney, 1986a; Peteraf, 1993); or "exploit opportunities or neutralize threats" in the firm's environment (Barney, 1991). The bundle of resources that a firm accumulates or acquires to execute a given market strategy must be more valuable, relative to the rest of the competitors in the market, in order for the firm to enjoy a competitive advantage and superior performance.

The resources are rare if they are possessed by a small number of current or potential competitors or, ideally, by only one firm. Rareness then, is a matter of degree. It is a function of the number of other firms in the competitive arena holding the same resource. If a large number of firms in the competitive arena have the same particular resource (even if it is valuable), then the resource's ability to generate a competitive advantage for any one firm is diminished. Generally, if the number of firms possessing a particularly valuable resource is small, that resource is considered rare and has the potential of generating a competitive advantage.

As resources that are valuable and rare provide opportunities to gain a competitive advantage, for a firm to be in a position to exploit valuable and rare resources, there must be a resource position barrier to prevent other competitors from imitating those resources. Therefore, the *sustainability* of a resource-based advantage is based on the condition of inimitability (Lippman and Rumelt, 1982; Barney, 1986b). Resource *inimitability* refers to the degree to which a resource can be imitated by competitors. However, if a focal firm's strategy is based upon resources that competitors can readily and easily buy, that firm's ability to sustain a competitive advantage will be less and short-lived. Resources such as buildings, equipment, and even standardized skills such as a data entry clerks or word processing temps are generally readily available and can be bought and even transferred from one firm to another (Grant, 2002). However, other resources are not so mobile. Some resources are highly context specific (and therefore not mobile), depreciate on transfer and do not offer the same benefits to the acquiring firm as were achieved in the firm from which they were acquired. Although Barney (1991) describes three sources of resource inimitability—causal ambiguity, history, and social complexity—five widely discussed mechanisms are:

1. Causal ambiguity - Causal ambiguity exists when the link between the resources controlled by a firm and a firm's competitive advantage is not understood or understood only very imperfectly. For firms trying to imitate successful firms' resources, causal ambiguity may limit their understanding of exactly what it is that makes successful firms successful (Dierickx and Cool, 1989; Reed and Defillippi, 1990).
2. History - Resource inimitability results from path dependencies, such as historical events or unique historical circumstances (David, 1985; Arthur et al., 1987). As an example, some firms may gain inimitable advantages through the historical acquisition of a physical location.
3. Legal property rights – Although a resource is clearly identified and understood by competitors, imitation of the resource may be prevented through the legal system of property rights. Intangible legal assets, such as patents, trademarks, and copyrights, are all protected by intellectual property laws.
4. Social complexity – is developed where resources are based on very complex social phenomena (Klein and Lefler, 1981; Nelson and Winter, 1982; Barney, 1986b; Hambrick, 1987). Although it may be possible to specify how a socially complex resource, such as culture, adds value to a firm, it does not mean that other firms can replicate a similar culture to attain similar valuable benefits. Competitors may commit significant amounts of time and money to replicate a competitor's resource(s) without ever achieving similar benefits.
5. Time compression diseconomies - It refers to the time needed to develop resources through learning, experience, firm-specific knowledge, or trained proficiency in a skill (Dierickx and Cool, 1989). Resources based on time compression diseconomies may be inimitable sources of competitive advantage—at least for some period of time—due to the necessary time, effort, and investment competitors must make in the attempt to duplicate such resources (Dierickx and Cool, 1989).

The last test of a resource's ability to sustain a competitive advantage is its degree of nonsubstitutability. In other words, for a resource to be a source of sustained competitive advantage, it must have no equivalents. However, similar to the rare condition, nonsubstitutability is a matter of degree. Perfect substitutes would undermine the rent-generating capacity of another resource. But perfect substitutes *rarely* exist. The rent generating capacity of resource A is only lessened to the extent that resource B can provide strategically equivalent benefits to those of resource A. Moreover if two resources are equivalent substitutes and provide the same strategic benefits but are also *rare*, they can still afford both firms rent-generating capacity. For example, resource A may be an equivalent substitute for resource B; however, both resource A and resource B are rare. Thus, although both resources are equivalent substitutes, because they are also both rare, it is still possible that they can be sources of sustainable competitive advantage.

As an example one firm has developed a highly complex decision-making support system, encompassing information technology that is deeply embedded in the firm's formal and informal decision-making processes. This socially complex technology allows the firm to consistently perform at the highest levels among its peers. The other firm, on the other hand, relies solely on a tightly knit, highly experienced management team to make concomitant adjustments to the firm's strategies. The second firm is also one of the highest performing firms in the market. In this case, the sophisticated decision support system and the highly experienced management team may be considered substitutes, but if both of these are rare, they may still provide the two firms a sustainable competitive advantage.

The key theoretical contribution made by Barney constitutes the RBV's main prescription (Michalisin et al., 1997). However, Peteraf (1993) subsequently added two additional conditions to understand the rent-generating capacity of resources: 1) *ex ante* limits to competition; and 2) *ex post* limits to competition. Peteraf (1993) argues that in order for a firm to *attain* a competitive advantage, *ex ante* limits to competition must exist. Peteraf (1993, p. 185) defines *ex ante* limits to competition as "prior to any firm's establishing a superior resource position, there must be limited competition." As an

example, if two or more competing firms in an industry know prior to the acquisition of a given resource that the resource will endow them with an inimitable resource position over current and future rivals, the firms will compete for those resources in such a way that any anticipated returns will be bargained away.

Rumelt (1987) suggests that if there are no differences between the value (*ex post* value) of a venture and its costs (*ex ante* costs), the rents will be zero. Therefore "resources have to be acquired below their discounted net present value in order to yield rents. Otherwise, future rents will be fully absorbed in the price paid for the resource" (Foss, 1997, p. 10).

To *sustain* economic rents, *ex post* limits to competition must exist. *Ex post* limits to competition are the forces that limit competition and rent generating potential *after* a firm gains a competitive advantage and accrues above-normal profits (Peteraf, 1993). Peteraf (1993) suggests that the ability to sustain rents may be restricted if competition increases the supply of scarce resources. Peteraf (1993) also suggests that from a resource-based perspective, there are two essential factors that limit *ex post* competition: 1) imperfect imitability; and 2) nonsubstitutability. The abovementioned conditions and assumptions form the core premises of the resource-based view of the firm (Figure 2.6).

The RBV suggests that:

- The primary objective of the firm is to attain a sustainable competitive advantage to achieve above normal performance (Conner, 1991; Mahoney and Pandian, 1992);
- Resource heterogeneity among firms exists. There are systemic differences across firms in the extent to which they control resources that are necessary to implement strategies (Barney, 1991);
- These differences can be sustained over time (Barney, 1991; Peteraf, 1993);
- These differences across firms create environments where resources cannot be transferred from firm to firm without cost (Peteraf, 1993);

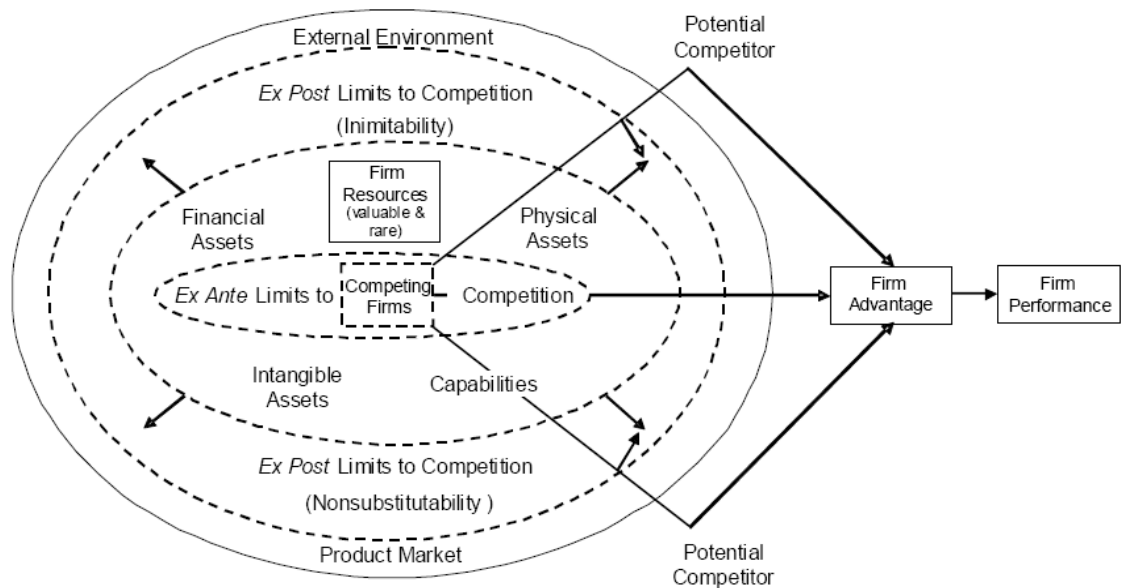


Fig 2.6: The inside out RBV model

- Differences in firms' resource endowments explain performance variation (Barney, 1991); and
- Intangible rather than tangible resources are the sources of performance variation (Ray et al., 2004).

The RBV, concentrates on firm- level factors in order to explain why differences in firm success exist. Although the theoretical underpinnings of the RBV can be traced back several decades, the RBV was largely developed in the 1990s. As such, the RBV is a relatively new development among the theoretical explanations of why some firms are more successful than others.

After the seminal works of Wernerfelt (1984), Barney (1991) and Peteraf (1993), the RBV continues to progress on many fronts. Lot of literature has been published which further explore the theoretical and conceptual dynamics of resource-based thinking (Hamel and Heene, 1994; Montgomery, 1995; Foss, 1997; Heene and Sanchez, 1997). Attempts to more fully integrate economics and the RBV have also been examined (Lewin and Phelan, 1999; Lockett and Thompson, 2001; Mathews, 2002). Various streams of discussion have emerged in the last decade that share a common viewpoint of

resources as sources of competitive advantage and firm differentiation. In the next section other streams and extensions to RBV such as the capabilities school, the core competency concept, and the knowledge-based theory of the firm, are explored. These streams are discussed to further theoretically ground the hypotheses for this study.

2.3.3. Additional Streams within Resource-Based Theory

2.3.4. The Capabilities School

In the 1980s, many economists and non-economists became dissatisfied with the treatment of innovation and technological change in mainstream economics (Dosi et al. 1988). Although Schumpeter (1934, 1942) had posited the ideas of endogenous technological innovation and creative destruction as central to capitalism, neoclassical economic theory largely ignored the phenomenon of technical change, merely treating it as "part of the rag-bag of 'residual' or exogenous factors" (Freeman, 1988). Similarly, Nelson and Winter (1982) argue that neoclassical economic theory had largely been unsuccessful in explaining the phenomenon of technological change.

In order to explore technical change more adequately, a growing number of researchers focused attention on the issue of technological change and innovation as an endogenous phenomenon of the firm (see, for example, Teece, 1980; Sahal, 1981; Dosi, 1982; Scherer, 1982; Elster, 1983; Saviotti and Metcalfe, 1984; Teece, 1986). They primarily addressed the issue of change and innovation derived from the individual and collective efforts of firm, university, government, and private laboratory research and development (R&D) activities.

The early researchers in the capabilities field conducted research to investigate if technology, or research and development, capabilities could provide growth in size, markets, and industries. Teece (1988) explored the implications of in-house versus contract R&D. Teece (1988, p. 277), following the logic of Williamson's (1975) transaction cost economics, argue that R&D naturally belongs inside the corporation, thus avoiding the costs and "difficulties associated with writing, executing and enforcing R&D contracts." Moreover, he argues that the expansion and growth of the

firm, through diversification is driven by the research and development capabilities within the firm.

Teece (1988) and other scholars in the 1980s (see, for example, Kay, 1988; Coombs, 1988) posit that corporate growth and expansion is an endogenous technological imperative, in which the research and development capabilities of firms largely determine the degree and level of their innovation in product markets. In the 1980s attention in the area of capabilities mainly focused on technological, or research and development capabilities, in the 1990s a shift in the locus of attention to 'dynamic' capabilities took place (Teece et al., 1991; Teece and Pisano, 1994; Teece et al., 1997; Eisenhardt and Martin, 2000).

The dynamics of global competition, particularly among high technology industries, in the 1990s, led to a 'hypercompetitive' environment; in which the development of new strategies became necessary for competitive survival (D'Aveni, 1994, 1995a). It was argued that simply owning the right technological assets guarded by property rights (e.g., patents) was not enough to achieve a competitive advantage Teece and Pisano (1994). They state that firms with a significant competitive advantage are ones that "can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competencies" (p. 538). Thus, the ability of a firm to sense and adapt to ever-changing competitive environments through the integration and continuous re-configuration of organizational skills, assets, and functional competencies is the core of a dynamic capability (Teece et al., 1997; Eisenhardt and Martin, 2000; Fiol, 2001). Moreover, many scholars (D'Aveni, 1994, 1995a, Teece et al., 1997; Makadok, 1998; Eisenhardt and Martin, 2000) claim that competitive advantage cannot be sustained over the long-term; therefore, small, temporary advantages must be continually and dynamically rebuilt. It is the dynamic capability, that is to be the key source of performance, if not survival, in the modern, hypercompetitive economy.

Some scholars in the 1990s looked beyond a purely technological notion or dynamic view of capabilities. Day (1994), for example, describes capabilities in a more general

sense. He suggests that capabilities are the complex bundles of knowledge within the firm that are exercised through organizational processes that enable firms to coordinate and make productive use of their assets. Rather than referring to merely technological or dynamic capabilities, Day (1994) suggests that there are diverse capabilities such as new product development, service delivery, and order fulfillment. Collis (1994) describes capabilities as three-fold. In the first category, capabilities are basic functional activities of the firm such as plant layout and distribution logistics. The second category includes those activities that allow the firm to learn and adapt to changing environmental conditions over time. The third are the metaphysical capabilities that allow the firm "to recognize the intrinsic value of other resources or to develop novel strategies before competitors." However, a common theme among scholars positioned in the capabilities camp is the notion of routines. The notion of routines is not a new concept. Nelson and Winter (1982) define routines as "all regular and predictable behavioral patterns of firms" (1982, p. 14) and posit that routines are the core services (cf. Penrose, 1959) with which the firm generates value from a firm's factor stocks, this being achieved through the application of organizational know-how and skills.

To be brought to bear on a value-creating strategy that affords the firm economic rents, it is held that factor stocks must be transformed into outputs (Davenport, 1993; Collis, 1994). Outputs may be intermediate goods such as context-specific information, new learning or routines, or final end products or services that are sold directly to customers (Amit and Schoemaker, 1993). However, converting tangible input stocks into intermediate or final outputs relies on operational *routines* (Zollo and Winter, 1999; Bhatt, 2000; Galbreath, 2004b).

Operational routines in this research are described as common or general-purpose know-how. Operational routines "enable the continuous repetition of certain tasks which have already been previously carried out" (Fernandez et al., 2000, p. 83). As such, routines are the repeatable processes and decision rules for how a firm's day-to-day activities are completed. For example, firms in similar industries are likely to develop common operational routines (Zuboff, 1988). These common business processes may be transferred and replicated from one context to another, from one firm to another or from

one department or group to another within a single firm.

The firm's various activities (Collis, 1994) are developed when firms match and integrate knowledge from operational routines and the context-specific know-how of individuals and groups. The routines are considered a capability in that they underlie, build, and reconfigure the firm's activities (Collis, 1994). Such functional, dynamic, and strategic or metaphysical activities, comprising many common operational routines, may become capabilities that are difficult to imitate by competitors as they are shaped by a firm's history, culture, and interaction patterns. Although it may be possible for a competitor to copy common routines by replicating specific capabilities, these are unlikely to provide any advantage until they can be modified to the unique history, contexts, and circumstances of the replicating firm (Wernerfelt, 1989).

Collis (1994) and Day (1994) suggest that not all capabilities are sources of competitive advantage. Some capabilities will be performed adequately and others will be performed poorly. However, a few must be performed with superiority in order to outperform competitors (Day, 1994). In short, a firm must have distinctive capabilities to achieve superior levels of success in competitive markets (Day, 1994; Galbreath, 2004b).

Nelson and Winter's (1982) routine hierarchy model is presented to posit a general view of capabilities Figure 2.7. In the view of the capabilities school, basic inputs can be described as factor stocks such as property or capital. Factor stocks are considered static factors of production. That is, they must be converted, or transformed, into outputs to realize their full value-creating or economic potential. Operational routines, themselves a capability, are the enabling, knowledge-based processes used by specific firm activities to affect a desired end-state (Lehmann, 1997; Srivastava et al., 1999). Operational routines are regular and predictable patterns of activity that are made up of a sequence of coordinated actions by individuals and groups (Nelson and Winter, 1982). Firm activities are

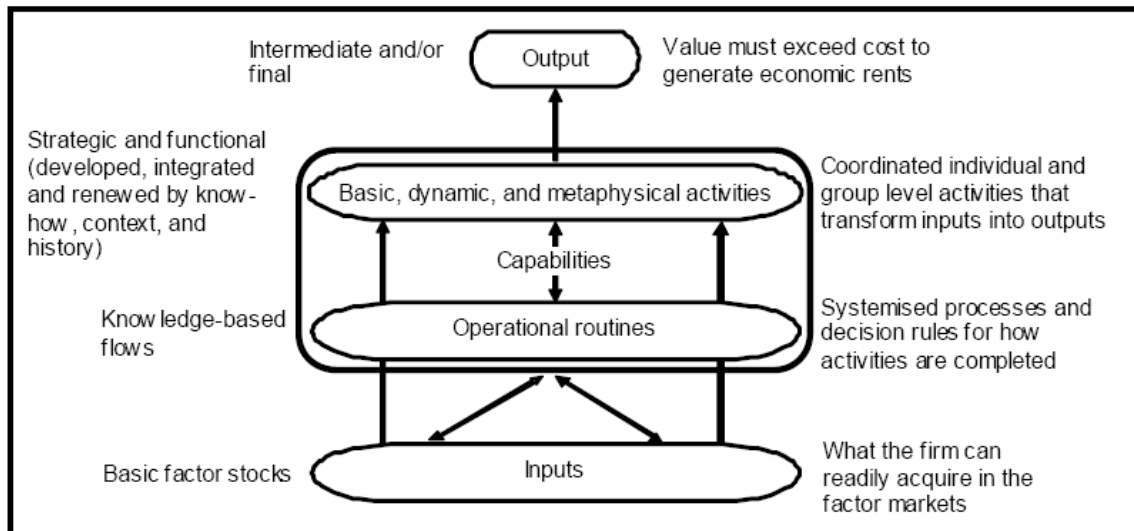


Fig 2.7 Conceptualization of capabilities

the functional, dynamic, and metaphysical activities that through operational routines, transform inputs into value-creating outputs (Day, 1994). Capabilities, consisting of routines and activities, are embodied in an individual, group, and firm-wide know-how. Finally, given their history and context, capabilities may be idiosyncratic to the firm and may exhibit high degrees of value, rareness, inimitability, and nonsubstitutability. Dierickx and Cool (1989) posit that capabilities are built rather than bought and, therefore, profits that accrue due to positions of competitive advantage based on capabilities are much less likely to be dissipated in the competition.

2.3.5. The Core Competency Concept and Competence Based Theory

After the publication of Prahalad and Hamel's (1990) seminal article, "The Core Competence of the Corporation," this concept has become a major topic of scholarly pursuit within the field of strategic management. This concept has emerged as a novel means of re-thinking the notion of the corporation and the roots of competitive advantage (Prahalad and Hamel, 1990).

The work of Prahalad and Hamel (1990) on core competencies sought to redefine the roots of competitive advantage of the corporation or using their term, to rethink the corporation and the fundamental roots of competitive advantage. For decades, the

common view of the roots of competitive advantage was that they lie in a firm's ability to gain a cost leadership position (Boston Consulting Group, 1968, 1975) or a differentiation advantage (Porter, 1980, 1985).

The basis of a cost-leadership position or differentiation advantage lies in the product market arena, where competition is to gain market share (Buzzell et al., 1975). Gaining market share is assumed to be the key-driver of superior performance (Jacobson and Aaker, 1985). Moreover, competitive advantage is viewed as simply a matter of solving the single equation of how to trade off quality for cost. However, De Leo (1994) argues that the 'single equation' principle is too simplistic to explain the roots of sustainable competitive advantage. Traditional strategy approaches that are built upon the product market as the dominant arena of competition have difficulty explaining persistent performance differences across firms within the same industry (Rumelt, 1987). Furthermore, Mintzberg et al. (1998) and Hax and Wilde (2001) argue that such an incessant focus on the product market as the locus of strategy necessarily shifts the attention of managers away from the process of value creation to one of positioning and maneuvering against the backdrop of competitive war, as if positioning and maneuvering are the only relevant dimensions of competition.

The act of positioning and maneuvering in product markets leads strategy to a choice of either emphasizing efficiency, which is generally achieved through performing activities at a lower cost than competitors, or of performing similar activities better than competitors (differentiation) which affords a premium price (Porter, 1985). The product market strategy framework posits that low cost and differentiation positions are mutually exclusive objectives and that *not* choosing between the two will leave a firm 'stuck in the middle' (Porter, 1985). Such a choice and commitment to a product/ market strategy suggests that competitive advantage can be achieved through either a low cost or differentiation position, but not through both positions simultaneously.

These assumptions of the product market strategy framework of low cost or differentiation positions have not gone unchallenged. Several scholars (see, for example, Murray, 1988; Miller, 1992; Cronshaw et al., 1994) suggest that obtaining positions of

low cost and differentiation may indeed be simultaneously possible. Evidence suggests that the most resilient firms are good at everything: they are superb all rounder's, not just good at low-cost or differentiation (Murray; 1988; Cronshaw et al., 1994). In the 1980s, Japanese firms like Canon, Casio, NEC, and Sony, among others, were able to introduce highly differentiated products while consistently achieving low-cost positions, largely through the use of sophisticated manufacturing technology and advanced quality control processes (Prahalad and Hamel, 1990; De Leo, 1994; Ellsworth, 2002).

The strategic positions of many Japanese firms suggested that new forms, or new sources, of competitive advantage existed beyond the traditional product market strategy framework. While modern manufacturing technology and quality control processes were a large contributor to Japanese firms' success, Prahalad and Hamel (1990) argued that Japan's competitive success rested largely in their ability to view themselves in terms of their *core competencies* rather than the product markets they served. Thus, the core competency concept was born.

Prahalad and Hamel (1990) define core competencies as "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies." The definition implies that core competencies are a bundle of constituent skills and technologies, rather than a single, discrete capability or technology. Furthermore, the definition implies that a core competency represents the integration of a variety of individual capabilities that must be coordinated, through routines or operational processes, to achieve a desired end-state.

Javidan (1997) explains the competencies hierarchy comprising of resources, capabilities and competencies. Fig 2.8 explains the competencies hierarchy. At the bottom of the hierarchy are the resources. Resources are the building blocks of competencies and are the inputs to the value chain of the organization. Some resources are tangible and others are intangible like a brand name. The firms have a bundle of resources and they vary in the way they leverage their resources. Capabilities refer to the ability of the firm to exploit its resources.

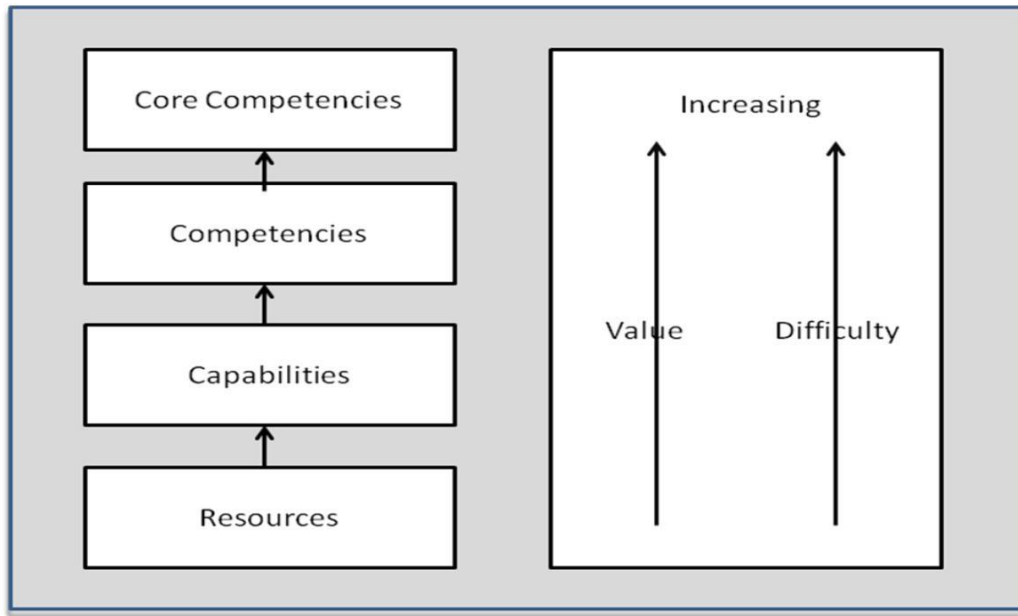


Fig 2.8 The competencies hierarchy

The capabilities are the second level in the hierarchy and consist of business process and routines that manage the interaction among its resources. For example a company's marketing capability can be based among other things, on the interaction among its marketing team, technology (computer hardware and software), and financial resources. Capabilities are functionally based. For example there are marketing capabilities, production capabilities, distribution and human resource management capabilities. These functional capabilities can exploit resources that may exist across the organization. For example, Intel's marketing capability is very much linked to its overall corporate image, so its marketing strategies attempt to take advantage of the company's reputation.

Competencies at the third level of the hierarchy, is a cross functional integration and coordination of capabilities. A typical competency can be successful product development. Such a competency may be the consequence of integrating MIS capabilities, marketing capabilities, R&D capabilities, and production capabilities. At the highest level of the hierarchy is the core competency of the firm. A core competency of the firm is the collection of competencies that are widespread in the firm.

According to Prahalad and Hamal (1990), core competencies require collective

organizational learning, involvement and commitment to integration among various functions and departments of the corporation. Each level in the hierarchy is based on the level below. It results from the integration of the elements in the lower level. Each level encompasses a higher level of value added for the company. Functional capabilities generate value by deploying resources. Competencies add greater value as they expand the boundaries of the capabilities. They result from synergies among capabilities. As an example a bank may have good MIS capability in the sense that it generates high quality information about its customers. It may also possess the skills to develop new financial products to serve the customers better, but it will realize maximum value if it can get its MIS and marketing skill sets to work together to better leverage its assets. Core competencies add the greatest value since they exploit resources and capabilities at the broadest level across the organization. The higher the level in the hierarchy the difficult it is to accomplish. Developing a functional capability requires cooperation of the individuals in one function. Achieving competencies requires the integration and coordination of several functions in the firm. Exploiting core competencies depends on the corporation's ability to achieve integration, communication and cooperation between the different SBUs and other parts of the firm. The larger the number of individuals involved, and the greater the variety of skills and backgrounds, the harder it is to make it happen. The increasing value and difficulty of the higher levels of the competency hierarchy has been the topic of an emerging field of enquiry the knowledge based view of the firm.

Given the above, a core competency is unlikely to reside, in its entirety, in a single individual or small team but rather is an assemblage of individual, group, and organizational know-how, routines and capabilities. The definition also implies an activity (or 'doing') component, which focuses on exploiting skills better than competitors, and a cognitive component which relies on cognitive traits such as values, recipes, and understandings to drive collective organizational learning's (Bogner and Thomas, 1994).

The original conclusion or normative implication of the core competency concept was that firms should strive to build world-class leadership positions in the design and

development of a particular class of product, referred to as 'core products' (Prahalad and Hamel, 1990; Bogner et al., 1999). Coyne et al. (1997, p. 43) state that core competencies are "a combination of complementary skills and knowledge-bases embedded in a group or team that results in the ability to execute one or more critical processes to a world-class standard." Building such a world-class position then affords firms the opportunity to apply their unique core competencies to a variety of potential product markets.

Hamel (1994) argues that core competencies are not product-specific but rather contribute to the competitiveness of a range of products or services and thus, transcend any particular product, service, or single business unit within the firm. By way of example, core competencies may be held in miniaturization, optical-media design, microprocessor design, operating systems development, optomechanics, package transport and delivery, logistics, operations management, and electromechanical design (Prahalad and Hamel, 1990; Stalk et al., 1992; Hamel, 1994; Chiesa and Manzini, 1997; Petts, 1997). Although the basic concept of core competencies may be grasped relatively easily, the logic behind what makes a competency *core* is not as easily understood. The task of understanding the competencies that lie at the center, or the *core*, of a firm's competitive success requires the test of three factors: 1) a core competency must make a significant contribution to the perceived customer benefits of the end product; 2) a core competency should be imperfectly imitable; and 3) a core competency should provide a gateway to a wide variety of markets (Prahalad and Hamel, 1990, Hamel, 1994).

The first test of a core competency revolves around customer value or perceived customer benefit. Hamel (1994, p. 13) states, "a core competency must make a disproportionate contribution to customer-perceived value." Thus, a core competency is a skill which firms leverage to deliver fundamental customer benefit. Customer value has been described in many ways (Zeithaml, 1988; Gale, 1994). Following Hunt and Morgan (1995), customer value can be described as the worth that customers as individuals, as market segments, or as a mass, place on the consequences they attribute to a product.

Customer value stems from either the perceived or expected performance in satisfying customers' functional and psychic needs (Sheth et al., 1991). Customer value perceptions or evaluations can be made along several performance, or benefit, dimensions. The importance of such dimensions can vary dramatically over time, across situations, and among customer segments (Dickson, 1982; Dickson and Ginter, 1987; Gale, 1994; Hunt, 2000). Thus, core competencies not only need to contribute significantly to customer value in the *present*, but they must also evolve and change to contribute significantly to customer value in the *future*, as individual, market segment, and 'mass' tastes and preferences shift over time. Hamel (1994), however, argues that core competencies don't always have to contribute significantly to *customer value* alone. Competencies such as manufacturing skills and business processes, which yield substantial *cost* benefits to producers, may also be considered core competencies. Therefore, while customer value designates the first test of a core competency, there are exceptions to the rule.

The second factor that determines whether a competency is core is its ability to resist imitation. In other words, a core competency must be competitively distinctive or unique. Collis and Montgomery (1995) argue that inimitability is at the heart of value creation because it limits competition. If a core competency can be imitated, any value derived and customer value provided -and thus any profit stream—will be short lived. Therefore, as was discussed in the RBV subsection, certain characteristics or isolating mechanisms must be present in order to enable core competencies to remain inimitable for long periods of time, and thus to be sources of sustained above-average performance.

First, regulatory conditions, in the form of legal protection, may help to sustain the inimitability of a core competency (Hall, 1992). Because core competencies are built over time rather than bought, path dependent conditions may block competitors from easily copying a core competency (Barney, 1989; Dierickx and Cool, 1989). Second, core competencies may be causally ambiguous (Dierickx and Cool, 1989; Reed and Defillippi, 1990; Barney, 1991). Because core competencies consist of complex webs of social interactions, technology, and individual, group and organizational learning,

competitors will likely encounter high degrees of difficulty in disentangling what the core competency is let alone how to re-create it. Thus, causal ambiguity can act as a resource-position barrier for a core competency (Wernerfelt, 1984).

The final determinant of a core competency is its ability to provide a channel or 'gateway' to enter new markets. Hamel (1994, p. 15) states, "core competencies are the gateways to new products." For example, Sharp's core competency in designing and developing flat-screen displays has served as a channel to enter a variety of product markets such as camcorders, laptop computers, video projection screens, and pocket televisions (Hamel, 1994). Casio leverages its core competencies in miniaturization, microprocessor design, material science, and ultrathin precision-casting to enter a variety of product market—from card calculators to pocket televisions to digital watches (Prahalad and Hamel, 1990).

The ability to leverage core competencies to exploit new market opportunities carries similar logic to Wernerfelt's (1984) concept of the resource-product matrix. Wernerfelt (1984) has argued that rather than viewing firms' market opportunities in light of product portfolios, they should be viewed through the lens of the resources controlled by the firm that can be leveraged across a variety of product markets. Looking at portfolios of resources rather than products, firms get a different, richer perspective on growth prospects, as they can more readily identify under which conditions which resources may be exploited to enter new markets (Wernerfelt, 1984).

The resource-product matrix is the same argument posited by the core competency concept (Prahalad and Hamel, 1990; Hamel, 1994). That is, rather than create an end product that may only 'fit' a single market segment, firms should develop core competencies that can be leveraged to create 'core' products (e.g., Sharp's flat screen displays and Honda's power trains) that may be ultimately exploited to build end-products in many different market segments. Finally, similar to the RBV's test of value, rareness, inimitability, and non-substitutability (Barney, 1991), core competencies may not be core if they only pass the customer value and inimitability tests. Competencies must also be able to provide a gateway to new product markets to be considered core.

Are core competencies capabilities?

If ever the terminological haze surrounding resource-based theory is apparent, it is in the discussion of competencies and capabilities. Since Prahalad and Hamel's (1990) original contribution to the concept of core competencies, scholarly work has essentially grown into a 'competency' stream unto itself. Unfortunately, this stream often overlooks or neglects the intent behind Prahalad and Hamel's central thesis. For example, books by Hamel and Heene (1994) and Heene and Sanchez (1997) have highlighted the diverse paths the competency stream has taken.

A variety of articles have focused on competencies, core competencies, dynamic core competencies, meta-competencies, and organizational competencies to explain sustainable competitive advantage and firm growth (Lado et al., 1992; Lei et al., 1996; Marino, 1996; Petts, 1997; Wilcox-King et al., 2001). Sanchez and Heene (1997) have introduced a full-fledged theory of competence-based competition. However, a common and recurring theme is the acknowledgement that competencies and capabilities may be used interchangeably.

Capabilities and competencies may reflect similarities on the conceptual surface. In fact, some scholars (see, for example, Day, 1994) consider the concepts to be synonymous. In other cases, what is described as a competency could just as easily be viewed as a capability (for an example, see Wilcox-King et al., 2001). Unfortunately, the comparison between competencies and capabilities is a misdirected issue. The issue is whether there is a difference between capabilities and *core* competencies. When juxtaposed with core competencies, capabilities may indeed be strategically important to a firm. However, it is unlikely that a *single* capability will provide a firm any long-term competitive advantage (Day, 1994).

By way of example, while sales management may be strategically important to a firm and a firm may be uniquely *competent* in this capability, it is unlikely that a sales management capability alone will provide a firm sustained competitive advantage or yield any sustainable differentiation in the market. However, such an observation misses

the intended idea behind *core* competency altogether. In theory, a core competency is only core when it can capture customer value supremely better than competitors, resist replication attempts from would-be imitators and enter new product markets that exploit growth and further competitive advantage. In this sense, firms will likely have to compete on the basis of more than a single core competency. That is, they will have to combine and integrate many capabilities to develop a few unique, core competencies.

Indeed, the central idea of Prahalad and Hamel's (1990) thesis is that over time firms may develop key areas of expertise in a few competencies (e.g., miniaturization, logistics, microprocessor design, operations management) which when combined and integrated across business units and products, become core to that firm and critical to the firm's long term development. Indeed, capabilities serve as an integral component in developing these key areas of expertise (Bhatt, 2000). Thus, while capabilities may be different to core competencies conceptually, and should not be confused with them, core competencies and capabilities are inextricably linked (Petts, 1997; Bhatt, 2000).

Any attempt at conceptualizing core competencies, while noble, is fraught with a wide array of challenges. That there is little agreement on what core competencies are (let alone capabilities) necessarily makes any attempt at conceptualizing them difficult at best. However, drawing upon the work of earlier subsections within this chapter, an effort will be made to posit a conceptual model of core competencies, in light of the resource-based view of the firm and the capabilities school.

In order to provide a structure through which to conceptualize core competencies, the firm is viewed as a hierarchy of input and output activities. Borrowing from basic marketing concepts, firms must produce products and services that customers value to be successful (Zeithaml, 1988; Sheth et al., 1991; Gale, 1994; Hunt and Morgan, 1995). Therefore, in seeking to gain a competitive advantage that affords the accrual of superior performance, the hierarchy of the firm can be viewed as a conversion process of basic inputs (assets) to final end product outputs (Ramsay, 2001). However, the hierarchy is not merely a 'production function,' but rather includes the dynamics of management and organization (Williamson, 1999). This notion of hierarchy suggests the

firm is then a bundle of factor stocks, routines, and activities—the firm's resources—which when integrated and coordinated, produce unique core competencies.

Borrowing from the posited model of capabilities in the previous subsection, basic factor stocks, which can be acquired readily in the factor markets, serve as the lowest layer in the value creation conversion process. Routines comprise operational processes and decision rules for how activities, including the conversion of basic factor stocks, may be completed to create value flows. The firm's activities are the coordinated individual and group-level activities that are built and reconfigured by knowledge-based routines to create outputs, either intermediate or final.

Where a firm develops, coordinates, and integrates a diverse set of factor stocks, routines, and various activities that can effectively convert inputs into final end products that capture disproportionate amounts of customer value, lack competitive equivalents, and transcend many product markets, such an assemblage of effort may be considered a core competency.

The core competency concept has become an important stream within resource-based theory in that it seeks to explain why some firms consistently perform better than others by looking at unique resource endowments (Petts, 1997). Although not explicitly stated, Prahalad and Hamel's (1990) original work focused on core competencies that were *technical* in nature and that were applied to the manufacturing process in order to exploit new product opportunities in a wide range of markets. However, as with capabilities, a much broader competency conceptualization has developed, allowing the concept to be applied more broadly; for example, to services firms as well (Elfring and Baven, 1997).

Competence Based Theory

In the early 1980s the rapid development of new technologies, increasing globalization of product markets and the appearance of new forms of organizations transformed the way firms compete. Sanchez and Hene (1997) posit that during this transformation phase the development of the theory of strategic management did not keep pace with the

rapidly evolving nature of competition. Stimulated by Hamels (1989) challenge to reconsider the strategic intent of corporate management, in the 1990s a movement to rethink the content and process of strategy theory and practice began under the banner of core competencies (e.g., Prahalad and Hamel, 1990; 1993; 1995) and competence based competition (Hamel and Hene, 1994). A new focus on the strategic role or organizational competencies suggested new sources of competitive advantage that were not recognized by traditional strategy theory. Traditional theory of strategic management emphasizes on accumulating and controlling resources within a single firm, offers little insight to contemporary product markets in which extended networks of firms simultaneously cooperate and compete. The competence perspective on the other hand offers insight to such phenomena by identifying ways in which competitive advantage may be obtained through a superior ability to coordinate flows of intellectual assets and other resources within and between firms that function like open systems (Sanchez and Heene 1996 a).

Sanchez and Heene (1997) posit that the traditional strategy theory has lost much of its power to guide the management of contemporary organizations as it has become more fragmented in to multiple unconnected streams of research and practice. The theory is split with one stream of theory development ignores the internal aspects of organizations to focus on external analysis of competition, while a second major stream largely ignores competitive interactions of firms to focus on the internal works of the organization (Grant, 1995). The external and internal perspectives on firms in traditional strategy theory remain unconnected conceptually and in practice. As a result the traditional strategic theory provides no framework for connecting the multiple internal and external concerns which strategic managers face and somehow must manage to integrate.

The competence theory base for strategy takes as its point of departure, the premise that achieving organizational competence requires effective integration of internal organizational and external competitive dynamics. The objective to build a theoretical foundation for competence based strategic management is that the development of new insights into organizational and competitive dynamics requires an integrative concept of

organizational competence that is explicitly dynamic, systemic, and holistic (Sanchez and Heene 1996 a). By explicitly linking the internal organization processes and external strategic interactions, the competence theory also seeks a framework for integrating the many useful but conceptually unconnected insights developed in prior strategy theory.

With respect to research studies within the stream, they tend to become very focused and idiosyncratic (e.g., case studies) with little generalizability (see, for example, Sanchez et al., 1996). Furthermore, the multitude of definitions of core competencies, competencies, and even capabilities creates confusion as to the differences and similarities of the concepts (Lewis and Gregory, 1996). Aside from the lack of generalizable findings and the definitional differences, one common theme that *can* be found between the various conceptualizations of competencies, core competencies, and capabilities is the notion of the integration of learning and knowledge. With this commonality in mind, the next subsection will discuss the final major stream within resource-based theory, that of the knowledge-based theory of the firm.

2.3.6. The Knowledge-Based Theory of the Firm

In the mid 1990s, the knowledge-based theory of the firm (KBT) garnered support among academics who sought to explain organizational phenomena beyond the traditions of competitive advantage and firm performance (Langlois, 1992; Foss, 1993; Grant and Baden-Fuller, 1995; Conner and Prahalad, 1996; Grant, 1996a; Liebeskind, 1996; Spender, 1996a, b). Spender (1996a, p. 59), for example, argued that the KBT "can yield insights beyond the production-function and resource-based theories of the firm by creating a new view of the firm as a dynamic, evolving, quasi-autonomous system of knowledge production and application." Largely, the KBT argues that the firm exists because markets are inefficient in the creation, application, and transference of knowledge (Kogut and Zander, 1992; Bartlett and Ghoshal, 1993; Nonaka, 1994; Spender, 1994; Nonaka and Takeuchi, 1995; Foss, 1996c; Kogut and Zander, 1996; Choi and Lee, 1997).

In a similar vein, Kogut and Zander (1996, p. 503) propose "that a firm be understood as

a social community specializing in the speed and efficiency in the creation and transfer of knowledge." Choo (1998, p. xi) describes a *knowing* organization as one that possesses "information and knowledge that confer a special advantage, allowing it to maneuver with intelligence, creativity, and, occasionally, cunning." The KBT posits that knowledge, or know-how, is the primary source of value and is *the* resource which explains performance heterogeneity among firms (Williams, 1992; Grant, 1996a).

The above views represent a relatively new perspective on the theory of the firm. Those who hold to a KBT stand in sharp contrast with established theories, such as transaction cost theory (Williamson, 1975), which is grounded in the assumption of human opportunism and the resulting conditions of market failure. Knowledge-based theorists, on the other hand, argue that "organizations have some particular capabilities for creating and sharing knowledge that give them their distinctive advantage over other institutional arrangements, such as markets" (Nahapiet and Ghoshal, 1998, p. 242). Thus, the KBT differentiates itself from other theories of the firm in that it shifts the focus from the historically dominant view of value appropriation to one of value creation (Moran and Ghoshal, 1996).

Essentially, the KBT is considered the 'climax' of resource-based theory (Grant, 1997). However, as mentioned above, while the other streams within resource-based theory are largely concerned with strategic choice and competitive advantage, the knowledge-based view addresses other fundamental aspects of the theory of the firm, and in the spirit of Coase (1937) and Williamson (1975), seeks to explain: 1) why the firm exists; 2) the nature of coordination within the firm; 3) organizational structure, hierarchies, and decision-making authority; and 4) the determinants of firm boundaries (Conner and Prahalad, 1996; Foss, 1996b; Grant, 1996a, 1996b). To understand the KBT, each of these aspects needs to be explained as each can impact on the firm's ability to gain and sustain a competitive advantage.

Holmstrom and Tirole (1989) argue that any theory of the firm must resolve to address two central questions: 1) why the firm exists; and 2) what determines its scale and scope. Based upon the characteristics of knowledge described above, the KBT asserts

that knowledge is the critical input into all production processes. Production efficiency requires that knowledge is created and stored by individuals in specialized form. The transformation of inputs into outputs (production) requires the coordination and assembly of many types of knowledge while preserving specialization by individuals.

Given the above conditions, the firm exists to resolve this production dilemma. In other words, the reason the firm exists is to *integrate* knowledge. Grant (1996b) argues that because knowledge is difficult to integrate across markets and that, for example, the value of explicit knowledge is difficult to appropriate through market contracts, the firm acts as a more efficient mechanism for knowledge integration than the market. Grant (1996a, p. 112) states, "firms exist as institutions for producing goods and services because they can create conditions under which multiple individuals can integrate their specialist knowledge."

The firm, hence, exists to integrate individual, specialized knowledge in order to transform inputs into outputs. However, the integration of specialized knowledge from many different individuals in the production process requires organizational *coordination*, which is explored next.

Under the assumption of specialized, individual knowledge as the necessary requirement for efficient production, the fundamental task of the organization is to coordinate the activities of many specialists (Grant, 1996a). Organizational learning theorists, for example, while exploring the transfer and diffusion of knowledge within organizations, have made limited progress in addressing how organizations integrate specialized knowledge between the members of the firm (Kay, 1979; Levitt and March, 1988; Nonaka, 1994).

On the other hand, scholars examining the integration of specialized organizational units suggest that the effort of coordination is dependent upon the characteristics of the process technology deployed (Thompson, 1967; Van de Ven et al., 1976). For example, Thompson (1967) argues that coordination may be based on pooled, sequential, or reciprocal interdependence, while Van de Ven et al. (1976) argue for team

interdependence. However, from a KBT perspective, Grant (1997) argues that there are four mechanisms for integrating specialized knowledge: 1) transfer; 2) direction; 3) sequencing; and 4) routines.

From a knowledge coordination perspective, transfer mechanisms consist of rules (e.g., plans, procedures, standards) that facilitate the transfer of tacit knowledge into readily comprehensible explicit knowledge. To increase the efficiency of transfer mechanisms, direction involves knowledge specialists in one area issuing rules to non-specialists and specialists in other fields in order to guide their productive behavior. On a more complex plane, where direct transfer does not take place between specialists and non-specialists, sequencing can act as an integration mechanism.

Sequencing is basically a mechanism in which specialists' input occurs independent of any time-sequenced production patterns (Thompson, 1967; Nonaka, 1990; Clark and Fujimoto, 1992). Routines, on the other hand, are the regular and predictable behavioral patterns of coordinated activity among many individuals (Nelson and Winter, 1982). According to Grant (1997), the general observations, as described above, form the general foundation of the KBT. However, many ideas of the KBT challenge classic organizational theory. For example, the KBT challenges agency theory and much management theory, which posit that firms are owned and controlled by their stockholders. The KBT suggests that knowledge is the pre-eminent productive resource that resides at the individual level. Therefore, *employees* are the key stakeholders, not stockholders (Grant, 1997).

The assumption that employees are the key stakeholders of the firm challenges traditional notions of organizational structure as well. If organizations exist to integrate *individual*, specialized knowledge, then bureaucratic, hierarchical coordination fails. Grant (1996a, p. 118), states, "When managers know only a fraction of what their subordinates know and tacit knowledge cannot be transferred upward, then coordination by hierarchy is inefficient. Furthermore, if employees control knowledge, which is the pre-eminent source of production, decision-making rights within the firm do not rest solely in the hands of the owners or managers. Decision making within the firm, then, is

jointly owned between stockholders, managers and employees (Aoki, 1990).

Based on the Holmstrom's and Tirole's (1989) requirements of a theory of the firm, the above assumptions of the KBT explain *why* the firm exists. However, to meet the two requirements of a theory of the firm, the KBT must also explain what determines the firm's scale and scope.

In contrast to conventional transaction cost economics, whereby firms are argued to be avoiders of transaction costs that result from market exchanges and opportunism, the KBT permits the expansion of the optimal boundaries of the firm by allowing entrance into any number of transactions in the market. In this respect, at least part of a firm's competitive advantage may rest in sources *outside* of its boundaries; for example, in the resources of a strategic alliance partner (Sanchez and Heene, 1997; Dyer and Singh, 1998). Thus, the KBT views the scope of the firm as potentially very broad. Although Arrow (1971) argues that there is a market for knowledge, knowledge-based theorists argue that markets are inefficient in transferring knowledge (Grant, 1996a; Nahapiet and Ghoshal, 1998). Combining inefficiency in the markets for knowledge along with the economies of scale and scope of most knowledge types, firms are encouraged to expand product lines in order to maximize the utilization of their internal knowledge resources (cf. Arrow, 1962). However, different types of knowledge are applicable to different types of products.

Given the dichotomy between products and knowledge needs, achieving congruence between a firm's knowledge domain and product domain is a significant challenge. Grant (1996a, p. 120) states, "typically, perfect congruence does not exist: the firm's knowledge is not fully deployed by the products it supplies, and the knowledge required by the products supplied is not entirely available from within the firm." Thus, rather than avoid market transactions because of transaction costs and opportunism, the KBT suggests that firms *seek out* collaborative arrangements with other market participants in order to both better utilize their internal knowledge resources and to access and leverage the knowledge resources of other firms in the market.

External, collaborative arrangements necessarily increase the scope, or vertical and horizontal boundaries, of the firm. Also, unlike standard transactions in which one firm gives up its rights to a particular asset, in the exchange of knowledge, the originating firm retains the benefits of the knowledge it generates as well as gaining the benefits of the knowledge acquired from the purchaser in the transaction exchange (Bontis, 1998a). However, the value of knowledge exchange and subsequent learning is predicated upon the extent to which member firms have direct and intimate contact to further an exchange (Arrow, 1974). The above tenets constitute the KBT. To offer a conceptual representation of the theory, concepts have been borrowed from previous streams within this chapter. Foremost, the dissection of the KBT reveals that the integration of knowledge forms the basis of firm capabilities (Grant, 1996b).

Similar to the capability and competency hierarchies, basic factor stocks that can be readily obtained in fungible factor markets serve as the base. At the next levels, routines and specialized, know-how (individual, managerial, firm-wide) are held. Moving up the hierarchy, capabilities are developed when individual, managerial, and firm-wide know-how is integrated through a variety of additional routines. At the highest level of the knowledge hierarchy, highly specialized knowledge and routines are coordinated and integrated to form the core competencies of the firm. The culmination of the conversion process results in a final output. Thus, Figure 2.9 illustrates a conceptual interpretation of the KBT.

Based on the conceptual interpretation of the KBT, the fundamental tenet of the theory is that knowledge is the critical input in production and the primary source of competitive advantage and value creation. Grant (1996a) states:

Indeed, if we were to resurrect a single-factor theory of value in the tradition of the classical economists' labor theory of value or the French Physiocrats land-based theory of value, then the only defensible approach would be a knowledge-based theory of value, on the grounds that all human productivity is knowledge dependent, and machines are simply embodiments of knowledge. (p. 112)

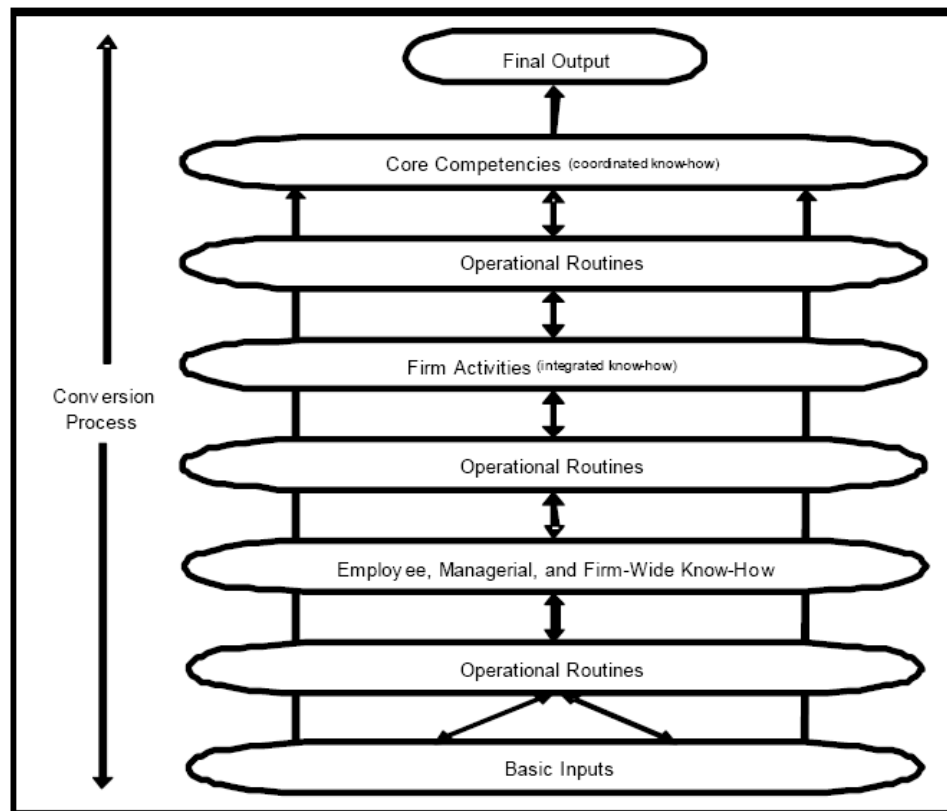


Fig 2.9: Conceptual interpretation of the KBT

Although the KBT is receiving growing treatment in the literature, various forms of knowledge-related thinking are also evolving. By way of example, a number of scholars are advancing micro-issues of knowledge such as the concept of intellectual capital, which is largely based on the knowledge assets of the firm (Saint-Onge, 1996; Roos et al., 1997; Sveiby, 1997; Bontis, 1998b; Klein, 1998; Dzinkowski, 2000). Other scholars are focusing on the issues of knowledge management (Rogers, 1996; Teece, 1998b; von Krogh et al., 1998) while others are even focusing on the emerging structure of the organizational network as knowledge (Kogut, 2000).

2.3.7. Summary

Economic theories of the firm are concerned primarily with predicting the behavior of firms in external markets (Mason, 1939; Solow, 1956; Bain, 1959). On the other hand, organizational theories of the firm analyze the internal structure of the firm and the

relationships between its constituent units and departments (Coase, 1937; Williamson, 1975). Although the field of strategic management has drawn upon both economic and organizational theories, its primary area of interest is explaining why some firms outperform others and the determinants of strategic choice. The most recent thinking on explaining performance variability and the determinants of strategic choice, largely developed in the last decade, has been the resource-based view of the firm (see Table 2.3).

In the area of resource-based theory, there are essentially three common areas that can be highlighted between the various streams (Table 2.4). First, the locus of strategic attention is the resource. Although not altogether excluding the external Finally, while the emphasis on firm-specific resources includes both tangible and intangible resources, the various streams share the assumption that not all resources can be sources of sustainable competitive advantage and superior firm performance.

Therefore, based on the above isolating mechanisms, the assumption is that intangible resources are the key sources of competitive advantage. Such resources are *strategic* resources (Amit and Schoemaker, 1993; Michalisin et al., 1997). The key managerial challenge, then, is to maximize value through the optimal deployment of existing environment, the primary emphasis shared among the various streams in resource-based theory is that firm-specific resources ultimately explain performance variability among firms. Thus, it is the idiosyncratic resources that firms control and deploy that are the sources of their competitive advantage.

A second shared assumption is that resources are more likely to be sources of sustainable competitive advantage and superior firm performance if they are bounded by isolating mechanisms (Lippman and Rumelt, 1982; Rumelt, 1984). Isolating mechanisms create environments where the replicability of resources, or their purchase in factor markets by competitors, is largely undermined; thus, the generation of above-average rents for potentially long periods of time is afforded.

Finally, while the emphasis on firm-specific resources includes both tangible and

intangible resources, the various streams share the assumption that not all resources can be sources of sustainable competitive advantage and superior firm performance. Therefore, based on the above isolating mechanisms, the assumption is that intangible resources are the key sources of competitive advantage. Such resources are *strategic* resources (Amit and Schoemaker, 1993; Michalisin et al., 1997). The key managerial challenge, then, is to maximize value through the optimal deployment of existing resources, while developing the firm's strategic resource base for the future.

Dimensions	Traditional Industrial Organization	Porter's Work on Competitive Advantage	Resource Based View of the Firm
Unit of analysis	Firms	Firms	Resources
Level of analysis	Industries	<ul style="list-style-type: none"> • Industries—Primary • Strategic groups—Secondary 	Firms
Primary sources of competitive advantage	<ul style="list-style-type: none"> • Collusion • Bargaining/market power • Concentration 	Market power via membership in an attractive industry	Idiosyncratic resources
Type of rents	Monopoly	Implied Monopoly	Ricardian, Monopoly, Schumpeterian, or Marshallian (Pareto)
Mechanisms that preserve advantages	Entry barriers: <ul style="list-style-type: none"> • Firm size • Economies of scale • Product differentiation • Vertical integration • Control of distribution 	Entry/mobility barriers: <ul style="list-style-type: none"> • Economies of scale • Product differentiation • Brand identify • Switching costs • Capital requirements • Access to distribution • Absolute cost advantages • Government policy 	Resource position barriers: <ul style="list-style-type: none"> • Resource— <ul style="list-style-type: none"> ◦ Inimitability ◦ Nonsubstitutability Isolating mechanisms: <ul style="list-style-type: none"> • Asset inter-connectedness • Asset mass efficiencies • Casual ambiguity • Social complexity • Specificity/history • Time compression diseconomies
Firm conduct	Deterministic	Not entirely deterministic (e.g., firms, through their independent actions, can attempt to alter industry structure in the their favor)	Voluntaristic
Resource heterogeneity	Degrees of heterogeneity recognized but irrelevant to advantage (industry structure solely determines advantage)	„ Heterogeneity may exist but is equated to the execution of value chain activities (i.e., resources are not sources of advantage in and of themselves)	Heterogeneity is not only present, but can sustain a competitive advantage (i.e., resource heterogeneity is sustainable)
Implications for strategy making	Erect entry barriers to restrict competition in order to protect industry profits	Erect entry/mobility barriers to restrict threats from the five forces in order to protect industry/group profits and overall firm position	Erect resource position barriers to restrict competitive resource duplication in order to protect firm profits

Table 2.3: Comparing Traditional IO, Porter and the RBV

Resource Streams



Main Themes	Resource-Based View of the Firm	Capabilities School	Core Competency Concept	Knowledge-Based Theory of the Firm
Locus of attention is the firm and its resources	<ul style="list-style-type: none"> Firms are bundles of resources including tangible and intangible resources 	<ul style="list-style-type: none"> Firms are comprised of individual and group-level knowledge which leverage resources and routines to create strategic and functional capabilities 	<ul style="list-style-type: none"> Firms embody collective organizational learning that coordinates diverse production skills and multiple streams of technology 	<ul style="list-style-type: none"> Firms exist to integrate and coordinate individual, specialized knowledge
Source of competitive advantage	<ul style="list-style-type: none"> Strategic resources (theorized to be intangible resources) 	<ul style="list-style-type: none"> Knowledge and operational routines (intangible resources) 	<ul style="list-style-type: none"> Knowledge and business processes (intangible resources) 	<ul style="list-style-type: none"> Individual knowledge and operational routines (intangible resources)
Isolating mechanisms	<ul style="list-style-type: none"> History, specificity, immobility, path dependency, causal ambiguity, non-equivalency 	<ul style="list-style-type: none"> Path dependency, causal ambiguity, embeddedness of resources 	<ul style="list-style-type: none"> Time compression diseconomies, path dependency, causal ambiguity, embeddedness of resources 	<ul style="list-style-type: none"> Span of knowledge integration, internal knowledge replication, non-transferability of knowledge, time compression diseconomies
Key management challenge	<ul style="list-style-type: none"> Accumulating, developing, and deploying rent-yielding (i.e., strategic) resources 	<ul style="list-style-type: none"> Develop, integrate, and exploit know-how 	<ul style="list-style-type: none"> Commitment to communication and working across organizational 	<ul style="list-style-type: none"> Coordination and internal transfer of specialist knowledge

Table 2.4: Comparing the Resource-Based family

2.4. Marketing Capabilities

An ever expanding literature has identified various capabilities which the firm can use to obtain a competitive advantage. (Prahalad and Hamel, 1990; Barney, 1991; Day, 1993, 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 firm's needs change (Grant, 1991). One of the salient features of capabilities development is learning through repetition (Prahalad 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).

According to Day (1994), marketing capability is 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. The importance of learning processes in the marketing capability development process has been stressed in recent research (Vorhies and Harker, 2000). Marketing capabilities are developed via learning processes when the firm's employees repeatedly apply their knowledge to solving the firm's marketing problems (Day, 1994; Grant, 1991, 1996).

In explaining the overall marketing capability of the firm, it is important to examine the specific marketing processes that are adopted by firms in its competitive strategy. Atuahene-Gima (1993) conceptualized marketing capability and identified several processes which are used by firms in their efforts to reach target customers with value-added products and services.

The first process is customer service, defined as deeds, processes and performances (Zeithaml and Bitner, 1996) which are largely intangible tasks that satisfy buyer or user needs. A growing number of researchers suggest that superior customer service leads to competitive advantage (e.g. Easingwood and Mahajan, 1989; Morris and Westbrook, 1996). The second process is concerned with the effectiveness of promotional activities in gaining market share and sales growth. Promotional activities cover advertising, sales promotions, publicity and personal selling which are widely used tools to communicate with target markets. Third is the quality of sales people, which reflects the extent of sales-generating skills possessed by firms' employees. The next area is the strength of distribution networks. To have a capability in channel management, relationships with distributors must be formed and effectively managed (Vorhies and Harker, 2000). The fifth process is the extent of resources committed for advertising, which is operationalized as the advertising expenditure as a percentage of sales. Next is the firm's marketing research, which is defined as the set of processes needed to learn about customer needs particularly latent needs and to monitor competitor product and service offerings. The seventh is the ability to differentiate products (to boost the image of products by attributes other than prices such as superior quality, image or service) marketed by the firm. Product and service differentiation has been a key source of competitive advantage (Porter, 1990). The next area of importance is the speed of product introduction. Rapid development of new products and services is an integral component of innovation-based competition (Froehle *et al.*, 2000). These eight processes are adopted in varying degrees by firms in their efforts to reach respective target markets.

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 firms marketing employees repeatedly apply their knowledge and skills to fulfil the market related needs of the business.

Vorhies (2005) investigated the following six marketing areas 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 firm's 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 is 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 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).

The general strategic management and marketing literatures suggest that firm capabilities in a number of functional areas can lead to positive performance (Hunt and Morgan, 1996). The concept of capability development and its impact on performance has been an important focus within the marketing field in recent years (Vorhies et al., 1999). Vorhies (1998, 2000, and 2005) investigated some factors that influence marketing capabilities development and the effect of these capabilities on firm performance. On the basis of an empirical study of 85 firms from fortune 500 companies, business strategy, organizational structure and market information processing capabilities were found to significantly influence marketing capability. The firms with the highest degree of marketing capabilities development outperformed the companies with less developed marketing capabilities leading to a competitive advantage. Vorhies (2000) further proposed to conduct a similar study in the small and medium business sector and proposed using market orientation, organizational culture and industry construct as antecedents to marketing capabilities development to understand the role of marketing within the organization.

2.4.1. Marketing Capabilities in Small Firms

This section explains the marketing capabilities in small firms in detail and previous research carried out in this area.

Möller and Mai (1987) focussed on the marketing problems of small manufacturing companies. He argues that marketing is generally perceived from a too narrow perspective. He proposes that firms shall have a more comprehensive and detailed view of marketing. He developed a marketing capability framework to be used as a qualitative tool for examining the state of the art marketing in small manufacturing companies. According to Möller and Mai (1987), marketing capability is a multifaceted phenomenon and it is a complex combination of the human resources or assets, market assets, and organisational assets of the firm. The human assets refer to the number of people and the level of competence of the personnel responsible for marketing related decision making activities. Market assets refer to the position of a firm in its market and it can be indicated by such variables as market share, number and quality of key customer relationships, position in the marketing channels, and physical facilities

established for carrying out marketing activities (e.g. sales subsidiaries, logistic systems, communication network with customers, suppliers, etc.). Organisational assets refer first to the marketing-related organisational solutions of the company. To what degree do they take into account the needs of effective marketing operations, and how efficiently the integration of marketing with other key functions is taken care of. Further, does the company have an adequate planning system vis-à-vis its competitive environment and scope of operations and how sufficiently does it serve the planning and control of marketing activities. The second aspect of organizational assets comprises the marketing-related strategies, policies, plans, and programs developed and acted upon by the company.

Marketing capability has a scope in both the external and internal fields of management. Marketing capability is needed in assessing a company's position within its environment, in evaluating customer and competitor behaviour, as well as in managing the company's relationship with its customers, competitors, suppliers, and distributors. This field is labelled as the external sub domain of marketing capability. For analytical reasons it can further be divided into the levels of macro environment, industry environment, and task environment.

The internal sub domain of marketing capability is closely intertwined with the management of the firm. Möller and Mai (1987) adopted a four-level perspective for classifying the managerial responsibilities and tasks. Marketing capability is suggested to be related with:

- (i) Defining the business and strategy of the firm.
- (ii) Integration of key functions of the firm (R&D, marketing and production)
- (iii) Managing the marketing function
- (iv) Operational planning and management system of the firm

In short a firm's comprehensive marketing capability is defined by the dimensions of marketing capability related, firstly, to the assessment and monitoring of the macro environment, industry environment, and task environment of the company; and

secondly, to the business mission and strategy development, integration of the company functions, managing of the marketing function, and finally to the management system of the firm. The marketing capability is a multidimensional construct manifested in the form of human assets, market assets, and organizational assets. The marketing capability construct described above is comprehensive and sufficiently detailed to describe the marketing capability of companies and can be used to make detailed recommendations for managerial steps to be taken in the individual target companies.

Weerawardena (2003), examined the role of marketing based capabilities in metal based small manufacturing firms in Australia. This study contributes to the capability based theory of competitive advantage by developing and refining measures for entrepreneurship, marketing capability, innovation and sustained competitive advantage and testing the key theoretical relationships among them. He reported that marketing capabilities influence both the innovation intensity and sustained competitive advantage of the firms.

Moore (2003) investigated the marketing capabilities and firm performance in fashion retailing and reported that customer service capability and market level knowledge had a significant impact on firm performance. Four contexts of marketing capability i.e. customer service capability, store image differentiation, external (market level) knowledge and promotional capability were examined. Each of these areas of capability has been acknowledged as important to success in either general retailing (e.g. Sharma et al., 2000; Wileman and Jary, 1997) and/or in fashion retailing (e.g. Deeter-Schmelzet al., 2000). Within the study, customer service capability refers to the degree to which retailers deliver quality service, provide quality products and handle customer complaints. Capability in store image differentiation refers to the degree that a retailer's external store image and its merchandising image are unique. External market knowledge (capability) refers to the extent of a retailer's understanding of current/potential customers, competitors and industry trends. Promotional capability is defined within the study as the degree to which retailers are effective in differentiating their stores through advertising and promotions.

Leticia (2005) studied market orientation as organizational resource that according to the RBV principles shapes the organizations' strategy. The influence of market orientation on several dimensions of strategy was analyzed as well as the effects of all those variables on business performance. The results indicate that market orientation may be regarded as a valuable resource that according to RBV theory fosters the achievement of a competitive advantage and whose effects are also clearly manifested in the strategic orientation of the organization.

Mavondo (1999) tested environment and strategy as antecedents for marketing effectiveness. The results suggest that strategy making is influenced by the macro and micro environment and significantly guides functional strategies (marketing, manufacturing, human resource management and product innovation) and organizational performance.

Dutta (1999) conducted an empirical study on the marketing capabilities in high technology markets and suggest that marketing, R&D and operations capabilities along with interaction among these capabilities are important determinants of relative financial performance within the industry. Dutta (1999) further contributed to the marketing orientation literature by suggesting that a stronger marketing orientation of a firm should be reflected in a higher marketing capability. He further adds that marketing capability has its greatest impact on the innovative output for firms that have a strong technological base. In other words firms with a strong R&D base are the ones with the most to gain from a strong marketing capability. A firms marketing capability enhances its ability to generate innovative technologies that have applications across a range of industries. This result carries a strong message for managers that a strong market orientation is one of the most fertile sources of ideas for innovation. Thus, marketing needs to be involved from the beginning of the innovation process, when technological ideas are being generated. He also reports that the most important determinant of a firm's performance is the interaction of marketing and R&D capabilities. And according to him this supports the assertion that firms in high technology markets need to excel at two things: the ability to come up with innovations constantly and the ability to commercialize these innovations into the kinds of products that capture consumer needs and preferences.

The industrial organization and evolutionary economics traditions in international business and the resource-based view of the firm in strategic management provide a rich and related set of perspectives on the question of performance in an international environment. Fahy (2000) draws on these perspectives to examine the nature of marketing capabilities across a range of firm types in Hungary, Poland and Slovenia. A number of key strategic capabilities are examined including market orientation, the time horizon of strategic decision making and positioning capability. The study finds that firms with foreign participation have been able to develop a sophisticated level of marketing capability with a resulting positive impact on financial and market performance. Wholly-owned subsidiaries and international joint ventures emerge as equally effective mechanisms for the transfer of marketing capability.

2.4.2. Entrepreneurial Marketing as a Capability

Entrepreneurial marketing is the interface of the two research fields of entrepreneurship and marketing. This is a scholarly concept that continues to blossom in the extant literature. The quantity and quality of related research and writing is increasing, and theoretical as well as empirical works are expanding the frontiers of knowledge (Collingson & Shaw, 2001). Until recently, the two fields had long been regarded as two entirely independent scholarly domains (Hills, Hultman and Miles, 2008). However, research at the interface of marketing and entrepreneurship seeks to bring the two disciplines together, treating them as one (Carson et al., 1995), with some researchers speaking of the emergence of a new paradigm (Collinson, 2002).

Several overlaps between these two disciplines have been identified. Successful entrepreneurs practice marketing, and the better marketers are entrepreneurial (Day et al., 1998). Several entrepreneurial activities, like the identification of new opportunities, the application of innovative techniques, the commercialization of products, or the successful satisfaction of customer needs, are also fundamental aspects of marketing theory (Collinson & Shaw, 2001).

Empirical evidence suggests that a significant relationship exists between an enterprise's marketing and entrepreneurial orientations, both of which directly impact

organizational success. A growing body of literature has focused on the role of marketing in SMEs, although some scholars have also addressed the application of entrepreneurial concepts to the marketing side of an enterprise – regardless of organization size or age. In these cases, attempts have been made to transfer entrepreneurial concepts to marketing concepts, such as marketing strategy, product development, sales, or buyer behavior. On the other hand, many researchers have tried to apply marketing ideas to new enterprises. Without doubt, marketing plays a crucial role not only in developing, producing, and selling products or services, but also in guiding recruiting efforts and raising capital.

However, it can be concluded that successful entrepreneurs undertake marketing in unconventional ways. Entrepreneurial firms in fact often exhibit marketing behavior which is very different to classic textbook approaches (Hills et al., 2009). Entrepreneurial marketing often relies on interactive marketing methods often communicated through word-of-mouth rather than a more traditional marketing mix; monitoring the marketplace through informal networks rather than formalized market research, and generally adopting more entrepreneurial approaches to marketing activities.

Nevertheless, research findings on the interrelation between marketing and entrepreneurship are extremely fragmented so far, and there is no integrated analysis or comprehensive theory yet (Kraus et al., 2009). According to Hills et al., (2008), within the marketing domain, research had predominantly focused on large, resource abundant corporate organizations and ignored small entrepreneurial organizations. This myopic perspective has tended to overlook the resource constraints, capability limits, objectives and contexts of more entrepreneurial firms and the skills and resources employed by entrepreneurs in using marketing as a tool to gain competitive advantage (Miles and Darroch 2006).

A highly entrepreneurial firm with a different organizational context than a highly administrative firm would tend to have a different perspective on marketing. Carson and Gilmore (2000) posit that the nature of SME marketing is that it is dominated by the

inherent characteristics of the entrepreneur. Berthon, Ewing and Napoli (2006) proposed that not all conventional principles prescribed in the marketing literature can be applied in an Entrepreneurial Marketing context. Carson (2000, 1999) suggests that marketing in an organization is contextual and firms with an entrepreneurial structure engage in marketing differently than those firms that operate in a more Administrative Marketing structure (AM). For most of the entrepreneurial marketers, marketing is a social, personal activity and not only an organizational function. Marketing to achieve growth is what many entrepreneurs are passionate about. Entrepreneurs do not consider marketing a function like accounting, finance or HRM, but is often considered as a core function of the firm. The use of innovation to create entrepreneurial rent (Miles and Darroch 2006; Miles, Paul and Wilhite 2003, Covin and Miles 1999) has important implications for marketing. The entrepreneurs use innovation to create value added differences in their marketing programs, rather than adopting a cost based competitive advantage. Therefore entrepreneurial marketing (EM) is not the direct consequence of specific managerial decisions but more the outcome of entrepreneurial processes and culture (Morris, Schindehutte, and LaForge 2002).

The marketing entrepreneurship interface movement is a response to the notion that firms operating in an entrepreneurial context are not well served by the marketing theories, processes and tools. The literature also suggests that entrepreneurial firms have a different set of marketing competencies that typically include superior understanding of customer needs, market trends, and market positioning (Smart and Conant 1994). Hills et al (2008) posit that financially successful, entrepreneurial SMEs may use marketing as a path to create competitive advantage, based on differentiating their marketing program by leveraging their superior knowledge of customers, markets and technologies.

Hultman and Hills (2001) posit on the basis of an empirical study conducted both in Sweden and USA, that there are differences between the strategic orientations, commitment to opportunities, opportunity recognition skills, commitment of resources, control of resources and management structure of traditional administrative marketing and entrepreneurial marketing. Hultman and Hills (2001) report that the successful

entrepreneurs do not behave in the rational, sequential way that is assumed in administrative marketing (AM) theory. Instead they live continuously with the market, their vision and customers present in their minds, constantly thinking to improve customer value. When they recognize a way to use marketing to gain competitive advantage they are not constrained by their previous conceptualization of strategy, but quickly adapt their strategy to the new set of opportunities. The best practices of the highly successful entrepreneurs often ignore traditional marketing constructs. For example they place a heavy emphasis on selling when taking daily marketing decisions.

Entrepreneurial marketing is much more opportunity driven than traditional administrative marketing, as entrepreneurial marketers often create new product and market opportunities through the innovation of products, process, strategy (Hultman and Hills, 2001, Covin and Miles 1999). In an entrepreneurial marketing organization, entrepreneurship and marketing permeates all areas and levels of the organization, with the organization being focused on recognizing and exploiting opportunities. Successful entrepreneurs tend to have a long term orientation to opportunity creation and exploitation that is focused on meeting all the customer's needs by employing creativity and innovation (Collingson and Shaw 2001).

Table 2.5 Entrepreneurial Marketing Process Compared to Traditional Marketing Concepts

Marketing Principles	Traditional Marketing	Entrepreneurial Marketing
Concept	Customer-oriented: Market-driven, product development follows.	Innovation Oriented: Idea driven, intuitive assessment of market needs.
Strategy	Top down segmentation, targeting, and positioning	Bottom up targeting of customer and other influence groups
Methods	The marketing mix Four/Seven P's	Interactive marketing methods. Word of mouth marketing
Market Intelligence	Formalised research and intelligence systems	Informal networking and information gathering

The tendency of many entrepreneurial firms is to have an integrated management structure rather than traditional management functions. This integrated structure fosters the rapid exchange of information and combined with close proximity to the customer enables rapid decision making. Moreover they engage in limited formal planning and are intuitive in their marketing decisions (Lumpkin, Shrader and Hills 1998). Stokes (2000) posits a comparison of marketing as presented in standard textbooks such as Kotler (1997) and marketing as practiced successfully by entrepreneurs and managers of entrepreneurial ventures (table 2.5)

Lassiter (2007) posits that entrepreneurial marketing is both a mindset and a process. The mindset is exemplified by the entrepreneur's relentless pursuit of opportunity and the assembly of resources required to seize it. The process combines the guiding vision of what the customer will want in the future with measured iterative experiments designed to test that vision. These experiments are staged investments that reveal option values to the entrepreneur as well as the proofs required by the people and partners supporting the venture. Individuals- gifted engineers, well connected sales people, trend setting customers, influential distributors, visionary venture investors and critical suppliers surround the entrepreneurial ventures. These individuals are not name less entities and the proofs that they require are not abstract constructs. The entrepreneurial marketing process reverse engineers the path linking two different sets of customers at two different points in time. The process aids the entrepreneur in creating a product roadmap (schedule for development and delivery) running backwards in time from those in the future mainstay customers who are envisioned to deliver the cash flows of the business once it is established to those in the present early adopter customers who will be need to launch the venture. The manager works backward in time from the future to the present by asking what needs to be proven, who needs to believe the proof and what resources are required to conduct the experiment designed to furnish that proof at the critical points in the journey. The entrepreneurial framework comprises of theories used in marketing and entrepreneurial management.

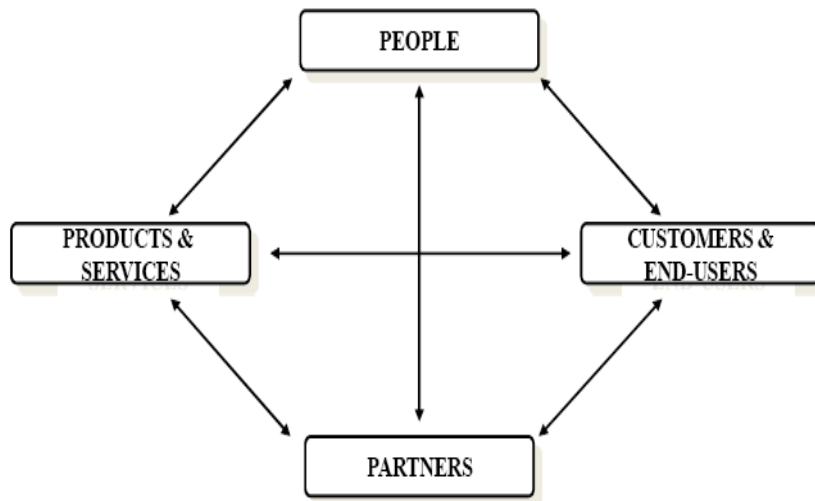


Fig 2.10: A framework for Entrepreneurial Marketing

Marketing balances an obsession with customer with the disciplined allocation of a firms scarce resources among business processes for product development, customer acquisition and customer retention. Entrepreneurial management combines the Hart and Stevenson's (1995), view of the entrepreneur's pursuit of opportunity with Sahlman (1996) view that successful entrepreneurs construct the fit between the people, the opportunity, the context and the deals that define the venture in such a way that the likelihood of success is dramatically improved. The framework thus combines marketing's focus on the link between product and the customer with entrepreneurial managements focus on the link between the people and the partners associated with the venture as integrated through the concept of fit.

A Model of Antecedents and Outcomes of Entrepreneurial Marketing

Morris et al. (2002) posited Entrepreneurial Marketing (EM) as an integrative construct for approaching marketing activities under certain conditions. The EM synthesizes critical aspects of marketing and entrepreneurship in to a comprehensive conceptualization where marketing becomes a process that firms can use to act entrepreneurially. The model proposed by Morris (2002) is presented in Fig 2.11. The model starts with the condition in the external environment.

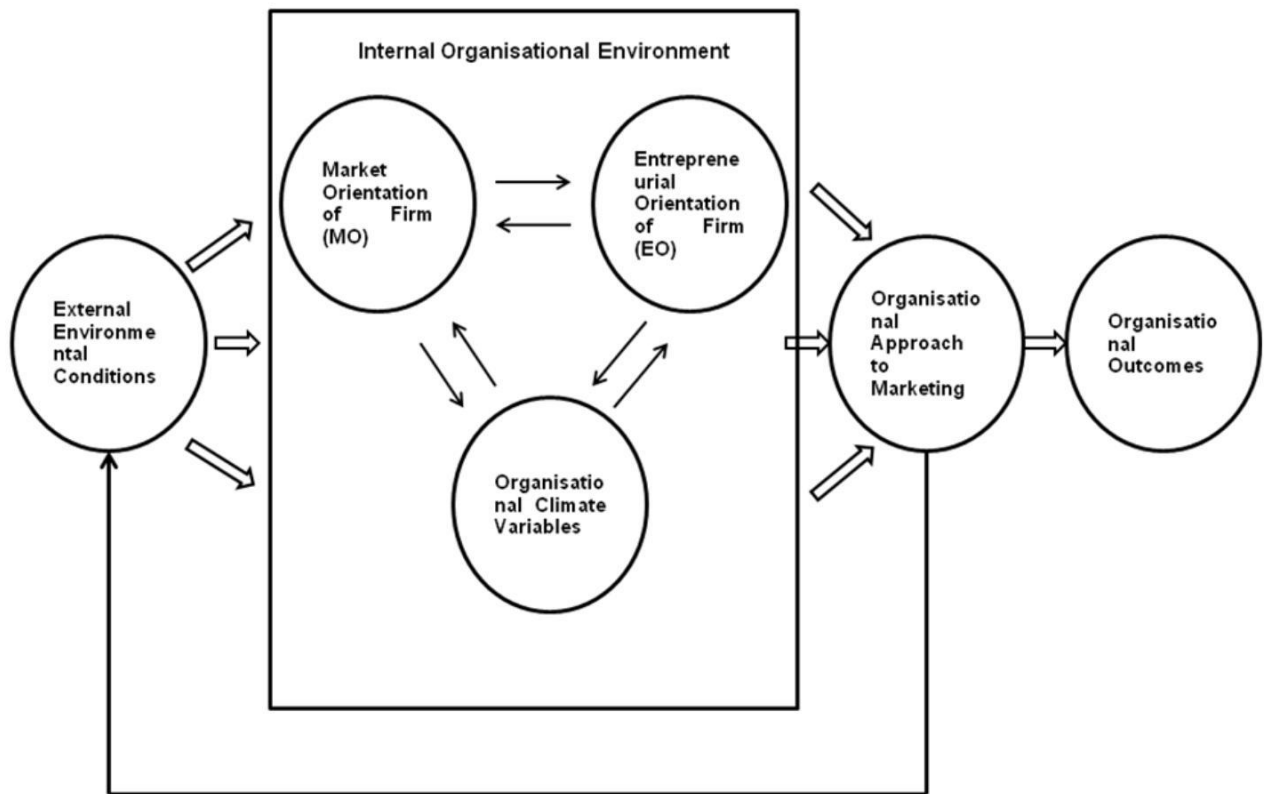


Fig 2.11 : A Model of Antecedents and Outcomes of Entrepreneurial Marketing

The model starts with the condition in the external environment. Relevant variables include demand and supply heterogeneity, bargaining power of suppliers and buyers, the availability of effective substitutes, presence of aggressive competitors, rates of technological change, volatility in economic conditions, and the nature of regulatory policies etc.

For simplicity, such variables are captured by the degree to which the environment is turbulent (a) Market turbulence refers to the extent to which composition and preferences of the organisations customers change over time (Jaworski and Kohli, 1993), (b) Technological turbulence refers to the extent to which technology in an industry is subject to rapid changes (Jaworski and Kohli, 1993).

The levels of environmental turbulence directly affect the various aspects of the internal environment of the firm: market orientation (MO), entrepreneurial orientation (EO), and

internal climate variables. Market orientation is characterised in terms of three components: customer orientation, competitor orientation and inter functional coordination. (Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1995). These two orientations are organisation level characteristics. Entrepreneurial orientation includes overall levels of innovativeness, risk taking and proactiveness within the firm (Miller and Freisen 1983; Zahra 1986, Davis, Covin and Slevin 1994, Zahra and Garvis 2000).

Higher levels of environmental turbulence require firms to demonstrate more adaptability and flexibility in approaching competitors and customers as well as higher levels of innovation and entrepreneurship. Moreover it requires to have a strong strategic orientation to cope the turbulent environment. Under such conditions, conservative, reactive, risk averse management proves to be a liability (Achrol 1991; Webster 1997).

Where firms demonstrate stronger entrepreneurial and market orientations, they tend to approach the marketing function differently. Marketing activities become especially critical under turbulent environmental circumstances. Under placid conditions the firms can concentrate on incremental improvements to their methods of satisfying customer needs. However as the environment becomes fairly turbulent, marketers must take responsibility for introducing entrepreneurship in all aspects of the firms marketing efforts. The marketers must focus more attention on anticipation and quickly responding to the moves of competitors.

Turbulence means fear, uncertainty and doubt among sellers and buyers and forces firms to make quicker decisions and opens up 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 paramount. In short the firms are incentivised to engage in marketing efforts that are more

opportunistic, proactive, risk assumptive, innovative, customer centric, leveraged and value creating.

The firms marketing capabilities are also influenced by a host of organisational climate factors. Entrepreneurial orientation, market orientation and the marketing capabilities of the firm are hindered or facilitated depending on how the organisation adapts its internal environment to reflect the external realities. Marketing capabilities are more developed in companies that develop: flatter, decentralised and cross functional structures (Sanchez 1999), cultures that contain a sense of urgency and that value innovation and change, tolerance of failure, and empowerment of the individual (Cornwall and Perlman 1990; Collins and Porras 1994); control systems designed around the principles of resource slack and accountability for outcomes (Slater and Narver 1995; Mintzberg 1996); strategies emphasising growth, technology leadership, and product market diversification (Ford 1994; Christensen 2001); and the development of human resource management systems that encourage creative problem solving, acceptance of change, employee discretion, a balanced individual-collective orientation, and a tolerance of ambiguity (Schuler 1986; Shane 1996). There is also likely to be a bi-directional relationship, with marketing capability being affected by and affecting these organisation variables.

The marketing capabilities development efforts are expected to affect both the financial and nonfinancial outcomes. Empirical work on the entrepreneurial, marketing and strategic orientation of firms suggest that they are positively correlated with company performance, especially when confronting heterogeneous markets, intense competitive market rivalry and other elements of a turbulent environment (e.g., Narver and Slater 1990; Miles and Arnold 1991; Jaworski and Kohli 1993). However when Marketing capability is introduced as mediator between these orientations and firm performance, the firm is able to produce higher rates of new products, service and process introduction; a more customer centric culture; customers who are more desirable, loyal and satisfied; greater generation of new and value enhanced resources; creation of new organisational forms; and more productive external alliances and networks (Jaworski and Kohli 1993; Hurley and Hult 1998; Achrol and Kotler 1999). Financial outcomes

include realisation of higher proportions of the lifetime value of customers, higher rates of revenue and enhanced profitability (Narver and Slater 1990; Moorman and Rust 1999).

A feedback loop from marketing capabilities to the external environment reflects the fact that marketing capability is not simply a response to the external environment, but can rather serve to redefine the environmental conditions. The entrepreneurial marketer serves as a pioneering role. The creation of new markets, products, distribution channels and communication approaches can represent minor to major disruptions in the external environment. These disruptions frequently result not only in profit opportunities for the firm, but in a range of (typically incremental) innovative activity from competitors attempting to exploit the market opening created by the pioneering firm.

Critical review of the literature on Marketing Capabilities

Research work in the area of marketing capabilities in the context of entrepreneurial firms is relatively new and extremely fragmented.

A large part of the empirical work in the area of marketing capability is done over large and established firms, which are very different from the new technology based firms. As discussed previous work has been both in the theoretical and empirical streams. Kristian Moller (1987) has developed a construct and used it as a qualitative tool to analyse the internal and marketing capabilities of the Finnish and Swedish companies. Although this construct is very comprehensive and includes a lot of variables that are related to marketing capabilities, it does not tell which variables are more important in developing marketing capabilities and what is the direction of causality. In short it just provides a check list of various variables that have to be looked for while evaluating the marketing capabilities of the firms.

Vorhies (2002) has developed the marketing capabilities construct and have empirically tested it. However this research work is done in the context of large firms. Weerawardena Jay (2003) examined the role of marketing capabilities in metal based small manufacturing firms in Australia, which is pretty narrow in scope.

Moore (2003) investigated the marketing capabilities and firm performance in fashion retailing by defining a construct that captures on four contexts of marketing capability i.e. customer service capability, store image differentiation, external (market level) knowledge and promotional capability. Although this provides useful information, it has ignored many important components of marketing capability.

Moreover in most of the cases the researchers have selected a particular industry and a context; therefore the results are difficult to generalize. Some studies report the impact of development of marketing capability on firm performance. However they are mostly in the context of large firms. Some of the studies as discussed above do not have a holistic look on the various antecedents and consequences on marketing capabilities. Many studies take one or two factors as antecedents to marketing capability and do not provide a comprehensive study of the phenomena.

Vorhies (2005) has tested the impact of marketing capabilities on firm performance in the context of US firms. However he did not report on the relative importance of various components of marketing capability.

Although, Morris (2002) has presented an integrative construct of entrepreneurial marketing, it still has to be empirically tested.

In view of the above criticism the following gaps have been identified in the literature.

1. Most of the work is done in the context of large firms
2. The marketing capability construct has been viewed at an aggregate level and the relative importance of various components of marketing capability is not provided.
3. There is no integrated and comprehensive construct for marketing capabilities in the context of small firms which is generalisable across manufacturing and service industry
4. An integrated construct consisting various antecedents and consequences has not been empirically tested before.

2.5. New Technology Based Firms (NTBFs)

The term "new, technology-based firm" has not yet been clearly defined. There are various definitions available in the literature. Rickne and Jacobsson (1996) discuss various ways to classify and distinguish NTBFs from the other firms. The first criterion is to classify according to the nature of the firm's products or services. The downside of this definition is that the products or services offered do not always properly describe the technological core of a firm. The second criterion is to use the patenting intensity to differentiate among other firms. However, Rickne and Jacobsson argued that this approach might fail to reveal the underlying technological and scientific competence of a firm. The third criterion is to use the level of employee education/competence. Rickne and Jacobsson (1996), posit that this criterion is a better indicator of the technological core of NTBFs than the patent-based measure. However, none of these methods can be seen as universal. They have their strengths and weaknesses, and incorporating them into a multidimensional guideline may be beneficial.

Therefore new, technology-based firms in this study are defined as new firms developing and serving knowledge and technology intensive products or services. These are small firms that conduct intensive R&D and that are not subsidiaries of established companies. Moreover they work as independent firms with less than 150 employees.

Functional niches of new technology-based firms

Autio (1997) suggested a model which (Figure 2.12) illustrates the functional role of new, technology-based firms in the process of technology articulation or "the process by which generic scientific knowledge is transformed to application specific technological knowledge" (Autio, 1997, p. 266).

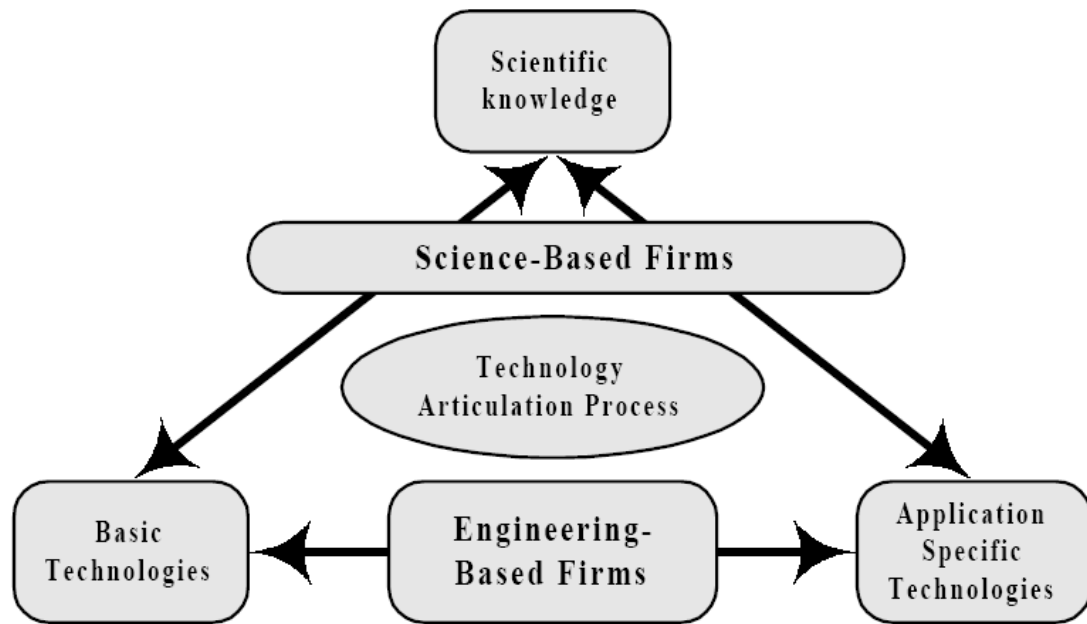


Figure 2.12 Functional niches occupied by new, technology-based firms (adapted from Autio (1997))

The model depicts that scientific knowledge can be transformed into application specific technologies in two principal ways. At first, generic knowledge may be used to develop a basic technology or "a set of physical insights, heuristic principles, and manipulative skills which enables one to control and exploit the properties of natural objects and processes" (Stankiewicz, 1990, p. 18). This basic technology can be subsequently transformed into application specific technologies. It is also possible that scientific knowledge can be directly transformed into application specific technologies. Consequently, there are three potential niches in the process of knowledge transfer that can be exploited by NTBFs:

1. The use of generic research to develop basic technologies;
2. The use of generic research to develop application specific technologies;
3. The application of basic technologies to specific needs and tasks.

Based on the niche orientation of the firm, Autio (1997) proposed classifying NTBFs into two groups: Science-based firms, those which utilize the results of generic research by transforming them into basic technologies or application specific technologies, by

developing very sophisticated products or services with a broad scope of application. Engineering-based firms, those which apply basic technologies to the development of new products or services addressing specific customer needs. In spite of qualitative differences, the roles played by science and engineering based firms are very similar. These firms have heavily contributed in technology transfer and in new job creation as discussed below.

The importance and roles of new technology-based firms

NTBFs have played an important role in technology transfer from R&D institutions to the commercial sector. In many cases they connect public R&D institutions with the commercial sector, accelerate the commercialization of the latest technological achievements as well as the basic research carried out by public research and educational institutions. By transferring technology from the public to the commercial sector in the form of new knowledge and competence, NTBFs improve the knowledge and resource base of domestic economies in both quantitative and qualitative terms.

New job creation is one of the most explicit effects of NTBFs (Rickne and Jacobsson, 1996; Jones-Evans and Westhead, 1996). In spite of this relatively high contribution, many studies indicated that most of NTBFs remain relatively small over time and only a few of them grow into larger firms (Rickne and Jacobsson, 1996; Jones-Evans and Westhead, 1996). However due to their knowledge and competence orientation these firms provide a career opportunity for the highly educated and qualified work force. Although the quantitative contribution of these firms may be lower than expected, the qualitative contributions to technical and economic development are much more. (Autio, 1997, p. 276) argues that the most important contribution of NTBFs is "a catalyzing one, delivered through technology interactions between the firms and their operating environment" This means that utilizing advance knowledge these firms create new technologies/products/services and thereby increase the efficiency of the existing industries by reducing the transaction costs of acquiring technology, improving the development processes of their partners, and generating new waves of innovation (Rickne and Jacobsson, 1996; Autio, 1994).

Moreover, "these new firms provide flexibility and options as a sector of the economy moves from one type of activity, such as heavy manufacturing, to another, such as specialized manufacturing" (Hawkins, 1993, p.140). Therefore these new technology based firms may be seen as an origin for the relatively smooth transition of industry structures toward more advanced and progressive levels.

Characteristics of NTFBs and their founders

The NTBFs have gained lot popularity in the past decades. Some of the characteristics of the new technology based firms in the European Union reported in the literature are as follow.

Table 2.6 Characteristics of new technology based firms in the European Union

Education	High educational attainment. Most NTFB founders have an engineering degree.	Licht et al. (1995)
Age	Technology based starters are older than common starters.	Donckels (1989)
Prior work experience	More likely to have worked in large firms and research centres	Donckels (1989) GMV Conseil (1989)
Employees	On average, NTBFs which are about 10 years old have about 40 employees.	Kulicke (1987)
Growth	Firms in high technology industries grow faster than the average.	Nerlinger (1995)
Innovation	Innovative firms had a greater chance of survival and grew more rapidly.	Bruederl et al. (1993)

Various studies reporting the constraints faced by the new technology based firms (NTBFs) during start up are summarised in table 2.7.

Table 2.7 Constraints faced by NTBFs during start up and in the established phase

Market awareness, finance and shortage of skilled personnel are factors emerging as constraints.	Urban and Arnold (1993)
Credibility, finance and administrative problems are key issues at start up	GMV Conseil (1989)
Managerial competencies and a lack of desire to grow are key constraints	Autio (1995)
Marketing and finance problems are important at start-up. Financing problems dominate in growth phase.	Kulicke (1987)
Lack of knowledge of marketing and financing	Van de Meer and van Tilberg (1984)
Marketing and recruiting difficulties	Laranja (1995)
Shortage of finance, marketing and entrepreneurial knowledge	Landstörn (1987)

Simon (1996) has highlighted the key marketing success factors in the successful German firms. According to his study these entrepreneurial firms take care of both customer needs and product/technology perspectives in to account. In spite of the fragmentation and fuzziness of many of these markets, they are well informed about them due to the closeness to their markets. These firms carve out super niches and create unique products that self define the markets in which they are dominant. While these companies are very close to their customers, they are not marketing professionals. These firms focus on trust and long term relationships with their customers. Customers are considered as a valuable source of information. The top management of these firms make it a priority to have a direct contact with the customers.

3. Conceptual Model and Research Hypotheses

The purpose of this chapter is to construct a model of determinants and outcomes of marketing capabilities. The model basically comprises of three parts i.e. the external environment in which the company is operating, the internal pool of resources and capabilities which are not only impacted by the external environment but interact with each other in a certain way and eventually impact firm performance.

Following the development of the conceptual model, a series of theoretically justified hypotheses, which explore the relationship between the resource constructs and firm success, are posited.

3.1. The External Environment

The external environment that a firm operates in has been shown to impact 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 the marketing function, within the organization (Ruekert et al., 1985).

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 (Miller et al., 1988), 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 Jaworski, 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 Jaworski, 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 Jaworski, 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.

3.2. Defining the Resource Pool (A conceptual model)

The RBV has as its central focus the exploitation of firm resources in order to gain a sustainable competitive advantage that affords the accrual of superior performance (Wernerfelt, 1984; Barney, 1991; Peteraf, 1993; Hunt and Morgan, 1995). However, creating an all inclusive list of resources is a daunting, if not an impossible task, given the often diverse and disjointed conceptual definitions in the extant literature (Fahy, 2000; Hoopes et al., 2003). As Caloghirou et al. (2004, p. 234) note, "research on firm-specific assets and capabilities has not reached maturity. Consequently, the existing literature lacks widely accepted and consistent operationalizations of the relevant constructs."

Perhaps the main reason for the ambiguity is that the boundaries, constituents, and definitions of resources vary widely according to the perspective of different interest groups. Furthermore, 500 hundred year-old accounting practices and modern day accounting rules and standards have helped little to develop a definitive and robust categorization—if not definition—of resources beyond those that are tangible and that can be recorded on corporate financial statements.

Given the lack of standardized nomenclature and the fact that resource definitions can vary widely depending on who is defining them and in what context, it stands to reason that when focusing on resources as the sources of competitive advantage, "it may well be impossible to list the complete set...of sources of competitive advantage" (Collis, 1994, p. 147). Collis (1994) further posits that the "ultimate" underlying resource(s) of a firm's competitive advantage will never be found.

Similarly, Barney (1991, p. 110) states, "although managers may have numerous hypotheses about which resources generate their firm's advantages, it is rarely possible to rigorously test these hypotheses." He further states that (p. 110), "as long as numerous plausible explanations of the sources of sustained competitive advantage exist within a firm, the link between resources controlled by a firm and sustained competitive advantage remains somewhat ambiguous.

Barney (1991) and Collis (1994) paint a rather bleak picture for empirically testing RBV theory. Indeed, because the RBV necessarily focuses attention on the unique, idiosyncratic, and largely unobservable resources of firms, "empirical testing of the resource-based theory faces great challenges" (Hoskisson et al., 1999, p. 442). On the other hand, this does not mean that controlled, systematic attempts to uncover theoretically predicted relationships between resources and firm success should not be undertaken or that such efforts will not have both empirical and practical benefit (Godfrey and Hill, 1995).

For example, Levitas and Chi (2002) strongly encourage the undertaking of empirically based research on the RBV, even if resource constructs are difficult to operationalize.

They believe that the benefits of attempting to empirically examine and verify patterns of resource effects on firm success far outweigh the void of having no results at all.

Certainly, the link between resources and firm success is neither straightforward nor simple, and no single researcher or research study has defined the relationship fully. Instead, different scholars have studied different aspects of the connection. This study reflects one such approach. It must be recognized though, that the ability to study all potential resources that may or may not contribute to firm success would be beyond the scope of a single dissertation study.

The issue of defining resources within the RBV stream is difficult is clearly apparent. For example, Wernerfelt (1984, p. 172) states, "by a resource is meant *anything* which could be thought of as a strength or weakness of a given firm". The use of the term *anything* suggests a potentially infinite number of resources. An unbound, infinite number of resources could impede empirical research in that the researcher simply could never investigate all the potential variables, especially in a single study.

Furthermore, given isolating mechanisms such as path dependency, causal ambiguity, and social complexity, competitors, let alone firm managers, may have difficulty in identifying the specific resources that are sources of firm success (Barney, 1991; Donaldson, 2002). If this is a problem for firms and their competitors, this must surely be a problem for the researcher as well. It is recognized therefore, that "the boundaries between the concepts of resources, skills and capabilities are *not* clear" (Anderson and Kheam, 1998, pp. 164-165). Facing the inherent difficulty in defining resources, this research seeks a pragmatic, if not perfect, approach in identifying, analyzing, and developing a robust conceptualization of a firm's resource pool.

3.2.1. Introduction to Definitions of Resources

In order to develop a conceptual model and to define resources so that hypotheses can be developed and tested, this dissertation emphasizes three fruitful avenues: 1) empirical studies that examine a variety of resource effects on firm success; 2) general theoretical and conceptual work in the extant literature that associate resources to competitive

advantage and/or firm performance; and 3) respected practitioner views that are designed to guide strategic thinking on the exploitation of resources to achieve superior value creation. The research covers various streams from strategic management literature, marketing literature, intellectual capital and knowledge management literature.

Developing the conceptual model is achieved by a systematic process of: 1) conceptually defining resources; and 2) organizing resources into a conceptual model that can be used as a framework for the parameterization of hypotheses. Given the potential confusion as to exactly what a resource is and what the boundaries may or may not be for defining them, attention is turned to defining the various resource constructs.

What is a Resource? Defining the Firm's Resource Portfolio

Fahy (2000) argues that there is significant ambiguity surrounding definitions, terminology, and conceptualizations of the rent-generating factors that constitute the central focus and theme of the RBV (cf. Hoopes et al., 2003). He suggests that in order to overcome this ambiguity, the label *resources* should be adopted as a general, all-embracing term for rent-generating factors ascribed to the RBV. For purposes of this study, a resource is defined as a firm-level factor that has the potential to contribute economic benefit.

Resources are separated into two fundamental categories; namely, tangible resources and intangible resources (Fahy, 2000; Hay et al., 2004). Tangible resources include those factors containing financial or physical value as reflected in the firm's financial statements. Intangible resources include those factors that are nonphysical or nonfinancial, sources of economic benefit and are rarely, if at all, included in the firm's financial statements. To further elucidate resources, the following subsections define the tangible and intangible resources.

3.2.2. Resource Definitions

3.2.2.1. Tangible Resources

Tangible resources are defined as those factors that can be observed, are financial in nature, have physical properties, are owned and controlled by the firm, and contain an accounting value as recorded on the firm's financial statements. Tangible resources have been described as the firm's basic factor stocks (Amit and Schoemaker, 1993). By their very nature, tangible resources have a tangible embodiment (i.e., they can be seen, touched, and measured by accounting standards). Anderson and Kheam (1998) argue that there is generally no disagreement over what encompasses tangible resources. Therefore, little effort is made to present an extensive amount of literature to define these resources.

3.2.2.2. Intangible Resources

The concept *intangible* suggests something that cannot be perceived or measured. By their very nature, intangible resources, unlike tangible resources, are much more difficult to define (Blair and Wallman, 2001). Srivastava et al. (1998), for example, argue that tangible resources have historically been measured (i.e., financially valued) by firms and are presented on financial statements for the purpose of accounting disclosure. On the other hand, intangible resources are harder to measure, do not appear on a firm's financial statements (with the exception of a few intangible assets) and therefore cannot be directly measured or valued in the context of firm success (Srivastava et al., 1998). However, many scholars acknowledge that it is indeed intangible resources, rather than tangible resources, that contribute the most to firm success (Itami and Roehl, 1987; Amit and Schoemaker, 1993; Hall, 1993; Michalisin et al., 1997). Thus, the attempt to adequately define intangible resources is necessary for the parameterization of hypotheses that can be used to empirically test the main prescription of the RBV.

Lev (2001, p. 5) defines an intangible resource as "a claim to future benefits that does not have a physical or financial (a stock or bond) embodiment." The International Accounting Standards 38 (IASB, 1998, in Lev, 2001, p. 151) defines intangible

resources as "nonmonetary assets without physical substance held for use in production or supply of goods and services, for rental to others, or for administrative purposes that are identifiable, that are controlled by an enterprise as a result of past events, and from which future economic benefits are expected to flow to the enterprise."

In a final example, Blair and Wallman (2001, p. 3) define intangible resources "as nonphysical factors that contribute to or are used in producing goods or providing services, or that are expected to generate future productive benefits for the individuals or firms that control the use of those factors."

For the purposes of this research, intangible resources are defined as those factors, held for both short-term and long-term value creation, that are nonphysical. Surprisingly, although several classification schemes exist for intangible resources, virtually no theoretical guidance has been offered to determine *how* to classify intangible resources or *why* they should be classified or categorized in any certain way. However, Hall (1992, 1993) is one of the few who offers a process for determining how and why one might go about classifying intangible resources.

Hall (1992, 1993) suggests that intangible resources essentially fall into two categories: 1) assets; and 2) skills. If the intangible resource is something that the firm 'has,' it is an asset. If the intangible resource is something that the firm 'does,' it is representative of the firm's skills (know-how) or its capabilities. However, the distinction between assets and capabilities may not be easy to make (Anderson and Kheam, 1998). Some have suggested that intangible *assets*, for example, are what are left behind—once tangible assets are accounted for—after employees leave at night (Edvinsson and Malone, 1997). Everything else then, would be considered a capability.

Such guidance for discriminating between assets and capabilities may be grossly oversimplified. Given the wide-ranging conceptual definitions in the literature (Fahy, 2000; Hoopes et al., 2003; Ray et al., 2004), there appears to be a fine line as to whether some intangible resources are in fact assets or capabilities. However, Hall's (1992, 1993) approach is adopted in that intangible resources are identified as either assets (what the

firm has) or capabilities (what the firm does).

3.2.3. Capabilities

Perhaps of all of the resource constructs that constitute the RBV, capabilities remain the most amorphous and difficult to define, as they have been operationalized in multiple and inconsistent ways (Hoopes et al., 2003). Collis (1994) states that "there are almost as many definitions of organizational capabilities as there are authors on the subject." Amit and Schoemaker (1993), for example, refer to capabilities as organizational processes. Day (1994) argues that although closely intertwined with organizational processes, capabilities are separate and can be defined as bundles of skills and accumulated knowledge (Hall, 1992). On the other hand, various measures of capabilities have been studied including alliance management (Kale et al., 2002), entrepreneurship (Hult and Ketchen, 2001), integrated production (Song, 2002), innovation (Yeoh and Roth, 1999), and even financial measures such as activity, liquidity, and leverage (Lawless et al., 1989).

According to Grant (2002), whether defined as organizational processes (or organizational routines) or as firm-level 'activities' such as research and development, marketing, customer service, etc., know-how is the fundamental building block of capabilities. Know-how involves knowledge that is tacit, complex, causally ambiguous, and difficult to codify (Nelson and Winter, 1982). Crossan et al. (1999) suggest that know-how is mainly held and exercised by individuals (e.g., employees, managers) and collectively by teams and even the firm at large. Thus, it can be argued that know-how is the basis of capabilities, whether conceptualized as routines or specific firm-level activities.

Given the above discussion, capabilities may be best understood as those factors that are built upon or are reflective of know-how, both tacit and explicit, which individuals and teams possess and exercise, including routines (Fahy, 2000). In some cases, the know-how may reside in individuals; in other cases the know-how may be reflective of groups and the firm at large. For the purposes of this research, capabilities include, entrepreneurial orientation, market orientation and strategic orientation and marketing

capabilities.

The above resources serve as the foundation and basis of the empirical tests to be carried out by this research. However, in order to elucidate a more meaningful approach to the understanding of the resources used in this study, a conceptual model is posited that considers these resources/capabilities as an entire system, rather than as separate, individual ones.

3.3. Proposed Conceptual Model

The proposed model consists of external environmental factors, various capabilities i.e. entrepreneurial orientation, market orientation, strategic orientation and marketing capabilities and moreover the firm performance. These capabilities impact with each other in different ways as depicted in the model. The various components of the model are discussed below.

3.3.1. Environmental Turbulence

The external environment that a firm operates in has been shown to impact 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 the marketing group, within the organization (Ruekert et al., 1985).

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 (Miller et al., 1988), 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 Jaworski, 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 Jaworski, 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 Jaworski, 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.

On the basis of the above discussion the following hypotheses are postulated.

H1a: The higher the level of environmental turbulence, the higher is the entrepreneurial orientation.

H1b: The higher the level of environmental turbulence, the higher is the market orientation.

H1c: The higher the level of environmental turbulence, the higher is the strategic orientation.

3.3.2. Entrepreneurial Orientation

More recently, the entrepreneurship literature has drawn on a resource-based view to explore the contribution of entrepreneurship to organizational performance. Dess et al. (1999), argue that entrepreneurship is a key driver of organizational transformation and strategic renewal through the creation and combination of organizational resources. Similarly, Zahra et al. (1999, p. 169) suggest that entrepreneurial activities can provide a “foundation for building new competencies or revitalizing existing ones”. Indeed, Stevenson and Gumpert’s (1985) view of entrepreneurs as being skilled in the use of resources (e.g., financial capital, intellectual capital, skills, competencies) is consistent with this emerging perspective. Stevenson has argued that entrepreneurs are concerned primarily with improving the firm’s ability to use, exploit and/or extract value from available resources.

The entrepreneurial orientation (EO) of a firm is considered as a main resource and capability resulting in the growth of the small firm. The growth seems to come out as an important demonstration of the entrepreneurial orientation of small firms (Davidsson, 1989; Green and Brown, 1997). Prior conceptual research suggests a positive integration between entrepreneurial orientation and the resource-based view. Many authors (Barney, 1991; Rumelt, 1991; Amit and Schoemaker, 1993; Day, 1994; Janney and Dess, 2006) when referring to the RBV, they present resources and capabilities as essential to gaining a sustained competitive advantage and, consequently, to a superior performance.

Wernerfelt (1984), Learned, et al. (1969) and Porter (1985) adopted RBV from a strategic point of view considering a resource as a strength that firms can use to formulate and to implement their strategies. The resources and capabilities of the firm are the main competencies for formulating strategy (Grant, 1991). Previous research considers the strategy dimensions of great importance (Mintzberg, 1973; Miller and Friesen, 1984; Miller, 1987; Lumpkin and Dess, 1996) and besides this they consider that an EO (entrepreneurial orientation) has a great impact in growth. Miller and Friesen, (1982), claim that entrepreneurial firms innovate courageously and regularly, while taking considerable risks in their product/market strategies. Miller (1983)

identifies the initiative of a firm concerning: (i) innovation; (ii) risk taking; and (iii) proactiveness, as the essential dimensions of entrepreneurship. For Miller (1983) an entrepreneurial firm is the one that commits itself into the innovation of product/market, undertakes actions which are slightly risky and it is the first one to come out with proactive innovation which beats the competitors. These three dimensions, which constitute entrepreneurship, have already been mentioned by Miller and Friesen (1982) as the three, of a total of eleven dimensions, of the process of strategic decision-making which confirms that Miller conceives entrepreneurship from a strategic approach. This definition, concerning the entrepreneurial strategy, focuses more on the entrepreneurship process, than on the actor behind it (Wiklund, 1998), that is, it emphasises more the entrepreneurial process than the entrepreneur.

When studying the strategy of small firms and in particular the strategic choices, which can influence the growth, it looks pertinent to discuss about the dimensions of EO (entrepreneurial orientation). Miller (1983) suggests that an entrepreneurial firm is one that “engages in product market innovativeness, undertakes somewhat risky ventures, and first to come up with proactive innovations, beating competitors to the punch. A non-entrepreneurial firm is one that innovates very little, is highly risk adverse, and imitates the moves of competitors instead of leading the way.” Miller (1983) developed a measuring instrument to capture the dimensions of EO in empirical research. This measuring instrument has influenced the subsequent research.

Based on Miller (1983), Covin and Selvin (1989), and Merz et al. (1994) use the same measuring instrument, but argue that such an instrument reflects the strategic orientation of the entrepreneur and that it should be considered as a philosophy of entrepreneurial behaviour which guides the firm as it deals with the environment. Brown (1996) suggests that entrepreneurial orientation is connected with the will that a firm possesses to commit itself into entrepreneurial behaviour. Lumpkin and Dess (1996) argue that the essential act of entrepreneurship is characterised by the new entry. This can be achieved if there is an incorporation to a new or current market with a new or current product, or still, if there is the launching of a new business. EO suggests an independence of action, a willingness to explore new ideas and markets and attempts to destroy the market

leader's position by discovering new markets (Janney and Dess, 2006). The various dimensions of entrepreneurial orientation are discussed in detail as follows.

3.3.2.1. Dimensions of an Entrepreneurial Orientation

The origin of ENTRESALE is the seminal work of Miller and Friesen (1978), who identified eleven strategy-making process dimensions, including adaptiveness, analysis, integration, risk-taking, and product-market innovation. In a later study, Miller (1983) provided the first operationalization of the EO construct, with the dimensions of innovation, risk-taking, and proactiveness. Miller's definition is the basis of scales used in a number of later studies (e.g., Covin & Slevin, 1989; Lumpkin & Dess, 2001; Wiklund, 1999). EO is seen as a latent construct with highly correlated dimensions (Lumpkin & Dess, 1996). These three dimensions of EO were supplemented by Lumpkin and Dess (1996), who added "propensity to act autonomously" and a "tendency to be aggressive towards competitors."

Innovation, risk-taking, and proactiveness are widely accepted dimensions of EO. The dimensions of EO are shown to be engaged in a complex relationship (Richard, Barnett, Dwyer, & Chadwick, 2004) and are a subject of various studies. For example, Kropp (2008) found that the decision to start an international entrepreneurial business venture is positively related to the proactiveness and risk-taking components of EO, while the innovativeness component of EO is not a factor in the startup decision. Naldi (2007) also found that the three dimensions differentially impact performance of family firms. Risk-taking is a distinct dimension of EO in family firms and is positively associated with proactiveness and innovation. Family firms take risks to a lesser extent than non family firms. Risk-taking in family firms is negatively related to performance. Hughes and Morgan (2007) also showed that only proactiveness and innovativeness have a positive influence on business performance while risk-taking has a negative relationship. On the other hand, Frishammar (2007) posited that innovativeness is positively related to new product development, while proactiveness and risk-taking show no such relationship. Coulthard (2007) reviewed four Australian industry studies and found positive correlations between performance and the dimensions of

innovativeness and proactiveness. However, the dimensions of competitive aggression, risk-taking and autonomy varied in importance and over time.

Entrepreneurial orientation correlates positively with firm performance (De Clercq & Rius, 2007; Smart & Conant, 1994; Tang, Tang, Marino, Zhang & Li, 2008; Wang, 2008; Wiklund, 1999; Zahra, 1991). Covin and Slevin (1986) gave empirical evidence to support the validity of the entrepreneurial orientation scale, with a correlation coefficient of 0.39 between an entrepreneurial posture and a multivariate index of firm performance. While some studies found a direct and statistically significant relationship between entrepreneurial orientation and performance (Smart & Conant, 1994; Wiklund, 1999; Zahra, 1991), others included environmental hostility as a moderating variable between the EO and performance relationship (e.g., Covin & Slevin, 1989; Zahra, 1993; Zahra, Covin, & Slevin, 1995). Khandwalla (1977) analyzed the relationships between the organizational structure, the outside environment, and the performance of firms, developing items that would later become a part of the EO scale. He observed that the entrepreneurial style is more effective for smaller firms in hostile environments (Khandwalla, 1977). Miller and Friesen (1978) found that effective firms in hostile environments are more entrepreneurially oriented than are ineffective firms in the same environments.

EO (entrepreneurial orientation) has shown benefit for the firm in the way that it shapes firm's performance (Chow, 2006; Hughes, Hughes, & Morgan, 2007; Jantunen, Puumalainen, Saarenketo, & Kylaheiko, 2005; Jogaratnam & Tse, 2006; Kaya & Seyrek, 2005; Lumpkin, Wales, & Ensley, 2006; Runyan, Droge, & Swinney, 2008; Stam & Elfring, 2008), intellectual capital (Wu, Chang, & Chen, 2008), and firm's growth (Moreno & Casillas, 2008). EO also enables more effective technology commercialization (Li, Guo, Liu, & Li, 2008), international entrepreneurial business venture start ups (Kropp et al., 2008), propensity to internationalize activities (Ripollés-Meliá, Menguzzato-Boulard, & Sánchez-Peinado, 2007), and the capability of an organization to manage knowledge. New product or process innovation are often a result of EO, thereby upgrading organizational competence and effectiveness (Lee & Sukoco, 2007). As such, EO leads to increased organizational commitment (De Clercq

& Rius, 2007), strategic planning (Li, Eliza, & Gu, 2006), and performance (Mostafa, Wheeler, & Jones, 2005).

However, a look at mediation between EO and firm performance yields mixed results. Some research suggests that EO performance lineage is mediated by intellectual capital (Wu et al., 2008) and learning orientation (Wang, 2008), as well as a number of other factors. For example, Stam (2008) showed that the combination of high network centrality and the existence of extensive bridging ties strengthen the EO and performance relationship. The age of the firm also moderates the EO and performance linkage, suggesting that EO–performance relationship is stronger in younger firms (Runyan et al., 2008). Lumpkin et al. (2006) also demonstrated the benefit of EO change over time. They found that young firms are more likely to take advantage of EO than are older, more established ones.

3.3.2.2. Measures of Entrepreneurial Orientation

The most frequently used measure of EO is ENTRESALE. This scale originates with the work of Khandwalla (1977) and subsequent development by Miller and Friesen (1978). The samples were 50 large Canadian and 88 large American companies. ENTRESALE had a Cronbach's alpha of 0.64 (below the usual criterion of 0.70). Ginsberg (1985) used a modified version of Miller and Friesen's (1982) scale as well as Khandwalla's (1977) scale and achieved an alpha of 0.76. The Ginsberg scale was used by Morris and Paul (1987), resulting in an alpha of 0.78. Finally, Covin and Slevin (1989) in their study of entrepreneurial strategic posture, included modified Miller and Friesen's (1978) scale and the Khandwalla's (1977) scale. The resulting scale had an alpha of 0.87. A number of other studies also used ENTRESALE (see Table 3.1). Presently, ENTRESALE is accepted as an established measure of EO within organizations.

Table 3.1: Researchers using Entrescale

Authors and Year	Scale Origin
Lumkin and Dess 2001	Covin & Covin 1990; Covin & Slevin 1986; 1989
Khandwalla 1977	Miller 1983
Wilklund 1999	Miller & Friesen 1982
Becherer and Maurer 1997	Covin & Slevin 1989
Mile and Arnold 1991	Covin & Slevin 1989
Covin and Slevin 1989	Khandwalla 1977; Miller & Friesen 1982
Khandwalla 1985	Pioneering Innovative Scale (newly developed)
Ginsberg 1985	Khandwalla 1977; Miller & Friesen 1982
Miles and Snow 1978	Khandwalla 1977
Miller and Friesen 1978	Khandwalla 1977

3.3.2.3. Impact of Entrepreneurial Orientation on Market Orientation, Strategic Orientation and Marketing Capabilities

Some researchers consider entrepreneurship as an antecedent to market orientation. The rationale for this was that by searching for product-market prospects, entrepreneurial firms tend to concentrate on customer needs and thereby become market oriented (e.g., Miles and Arnold, 1991; Morris and Paul, 1987). Hult and Ketchen (2001) drawing on the resource-based view of the firm suggest that market orientation and entrepreneurship are organizational capabilities that contribute to the creation of a unique resource, “positional advantage”, which positively affects performance. Atuahene-Gima and Ko (2001) argued that performance is optimized when the organization is both highly market oriented and entrepreneurial.

Entrepreneurial orientation increases a firm's information acquisition and utilization activities in creative, proactive and risk-taking ways. Information generation processes refer to the collection of primary or secondary information from organizational stakeholders (Moorman, 1995). This involves environmental scanning, intelligence activities and the importation of resulting information into the firm. Information generation can be personal and impersonal—because in practice, entrepreneurs collect information from both of these sources. Personal sources of information are defined as those involving direct contact with people on a regular basis (Smeltzer et al., 1988), and include family, friends and customers. Some entrepreneurs prefer such intimate sources

as they are viewed to be more directly relevant and reflective of their immediate operating environment (Schafer, 1990; Brush, 1992; Cooper et al., 1995). By the same token, impersonal sources are those without direct human contact (Smeltzer et al., 1988). Even though impersonal sources lack intimacy and firm-specificity, a survey by Sawyerr, Edbrahimi and Thibodeaux (2000) indicates that some entrepreneurs rely on impersonal sources such as newspapers and trade publications because they perceive them to have a more balanced approach and indicative of general trends and information. Such impersonal sources are inexpensive and may also provide some information on competitor marketing strategies, which is difficult to be obtained through personal means.

The response to the information collected i.e. Information utilization is particularly important to firms' final decisions, because information is deemed to be worthless unless it is put to good use (Wilton and Myers, 1986; Deshpandé and Zaltman, 1982; Ottum and Moore, 1997). Menon and Varadarajan (1992) suggest that information utilization be conceptualized in terms of type and extent of usage in the decision-making process. They classify information utilization into action-oriented use, knowledge-enhancing use and affective use. Action-oriented use refers to information utilization that results in changes in the user's activities, practices or policies; knowledge enhancing use would change the user's knowledge; while affective use would change the user's psychological status, such as her satisfaction or dissatisfaction, confidence or lack thereof, and trust or mistrust (Menon and Varadarajan, 1992).

Compared to action-oriented use, knowledge-enhancing use and affective use are difficult to measure because of their intangible outcomes. As a result, information utilization is measured as the extent to which a firm directly applies market information to influence marketing-related actions (Deshpandé and Zaltman, 1982; Menon and Varadarajan, 1992). Past research indicates that small business owners regard marketing decisions as the most important, ahead of other corporate decisions such as finance and employee compensation (Pineda et al., 1998). In this study, marketing decision-making based on the 4Ps framework is operationalized, which stands for product, price, promotion and place, also known collectively as the marketing mix. Despite its age, the

4Ps classification of the marketing mix remains the predominant method of understanding the essence of marketing (van Waterschoot and van den Bulte, 1992).

Johnson and Kuehn (1987) find that the small business owner/manager spends a large amount of time to seek marketplace information. For this reason, Kaish and Gilad (1991) labeled entrepreneurs as "avid information searchers." Entrepreneurial orientation will increase a firm's information acquisition and utilization activities in creative, proactive and risk-taking ways. In most cases, information acquisition and utilization tend to be risky as they involve substantial effort and expenditures. In addition, the outcomes of these activities are uncertain as they depend on many other influencing factors. Therefore, only SMEs with high levels of entrepreneurial orientation are likely to be active in information acquisition and utilization.

Moreover, having a proactive orientation involves discovering and satisfying the latent, unarticulated needs of customers through collecting customer and competitor-based information (Slater and Narver, 1998). The external culture embedded in the proactive orientation also facilitates information utilization, entailing the design and implementation of marketing actions that influence external constituencies. As such, SMEs that display high levels of entrepreneurial orientation tend to constantly scan and monitor their operating environment in order to find new opportunities and strengthen their competitive positions (Covin and Miles, 1999).

Zaltman (1986) argues that if a firm has pro-innovation bias, information is more likely to be shared and used. The innovativeness aspect of entrepreneurial orientation would promote change and creative behaviors, which encourage active exchange of ideas, increase information flows and novelty in new product development (Menon and Varadarajan, 1992; Han et al., 1998).

Information is a powerful knowledge resource that can enhance competitive advantage. In particular, information pertaining to a firm's customers and competitors are crucial towards the development of market orientation (Narver and Slater, 1990). Such information identifies changing customer desires and patterns. For example, it can

reveal that customers favor certain brands or pay more attention to price and quality than to variety and novelty (Miller and Friesen, 1982), increase awareness on customer purchase trends and buying power (Xu and Kaye, 1995), and alert entrepreneurs to the disadvantages of their product lines and the superiority of the product lines of competitors (Miller and Friesen, 1982). Information on competitor locations and pricing policies are also critical towards the formation of SME competitive strategies (Butler et al., 2000).

Keh, H. T., (2006) investigated the effects of entrepreneurial orientation and marketing information on the performance of small and medium sized firms. The results indicated that entrepreneurial orientation plays an influential role on the acquisition and utilisation of marketing information, and also has a direct effect on firm performance.

Wernerfelt (1984), Learned, et al. (1969) and Porter (1985) adopted RBV from a strategic point of view considering a resource as a strength that firms can use to formulate and to implement their strategies. In this case we take the entrepreneurial orientation as a resource that impacts the strategic orientation of the firm. Entrepreneurship is thus viewed as a dynamic capability, which allows the organization to “reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997). Miles and Arnold (1991) provide support for the view of entrepreneurship as a dynamic capability, suggesting that “without entrepreneurship, business would be neither dynamic nor adaptive”.

Bhuian (2005) suggest that entrepreneurship provides a filter through which organizations view and direct market intelligence processes. That is, entrepreneurship will influence the way in which what are essentially quantitative market orientation processes are performed. This view is consistent with the dynamic capabilities perspective (Teece et al., 1997) in which the learning between, and the coordination and reconfiguration of, key organizational competencies leads to competitive advantage. The effect of entrepreneurship on market orientation processes may occur in a number of ways. For example, embracing constructive risk taking may drive organizations to continually revise the sources from which their market intelligence is generated. This

enables a firm to generate additional insight while managing their exposure to risk (i.e., affecting the quality of intelligence generation). An organization that is proactive in its approach to product development is likely to demonstrate a similar proactive approach in seeking out those within the organization who most require market intelligence (i.e., affecting the quality of intelligence dissemination). Innovativeness will lead organizations to incorporate market intelligence in novel ways (i.e., affecting the quality of intelligence responsiveness).

Accordingly, we posit that entrepreneurial orientation has positive relationship with marketing capabilities, market orientation, strategic orientation and firm performance.

Hypotheses: Impact of EO on various capabilities and Firm Performance

H2a: The higher the level of entrepreneurial orientation, the higher is the marketing capabilities.

H2b: The higher the level of entrepreneurial orientation, the higher is the market orientation.

H2c: The higher the level of entrepreneurial orientation of the firm, the higher is the strategic orientation.

3.3.3. Market Orientation

Market Orientation is defined as the extent to which a firm engages in the generation, dissemination and response to market intelligence pertaining to current and future customer needs, competitor strategies and actions, channel requirements and abilities, and the broader business environment. (e.g. Kohli and Jaworski, 1990).

The marketing orientation concept has been approached from two perspectives i.e. cultural aspect or a constituent part of the organisations culture (Slaver and Narver, 1995) or as a series of specific conducts in accordance with this orientation (Kohli and Jaworski, 1990). These two approaches are not mutually exclusive, but rather must be

considered as complementary (Jaworski and Kohli, 1996). A true market orientation is reflected in both the firm's culture and performance.

According to Hunt and Morgan (1995) terminology, resources are defined as a set of tangible and intangible entities that allow a firm to produce in the most effective and/or efficient way a valuable commercial offer for one or several market segments. Market orientation can therefore be seen as an intangible resource (a firm's norms, abilities, and procedures) that provides the necessary information to completely satisfy the customer's needs and preferences (Day, 1994). Similarly, a thorough evaluation of the competitor's behaviour that fosters market orientation should lead to surpass their commercial activities (Hunt and Morgan, 1995). It is therefore asserted that market orientation is a relevant resource as expressed by Grant (1995)

An important aspect in the resources' capacity to generate a competitive advantage is its scarcity. Market orientation is considered to be rare; otherwise the most market orientated firms would be unable to obtain superior performance. As a resource is common to all market competitors it loses its differentiating potential. The research proves the relationship between higher levels of market orientation and business results (Narver and Slater, 1990; Jaworski and Kohli, 1993, Pelham and Wilson, 1996; Avlonitis and Gounaris; Hooley et al., 2000). The literature has also analysed the moderating role of the environments conditions between the relationship of market orientation and firm performance, revealing that the relationship is robust in most of the cases. Therefore the character of market orientation as a valuable resource is confirmed.

The question of whether market orientation is lasting and inimitable is another important aspect. The market orientation's capacity to generate benefits throughout time rests on its own long-term orientation and on the fact that it promotes a constant search for new opportunities that generate higher value, in this way, market orientation focuses on firms permanent adaptation to their environment (Kohli and Jaworski, 1990; Greenley and Foxall, 1998).

This characteristic is complemented with the difficulty to imitate market orientation.

This is derived, on the one hand, from its intangible character, which prevents its transference or purchase in the market. On the other hand, market orientation rests on the whole organization's commitment to the development of the activities of obtaining information, dissemination and response, which implies complex organizational routines as well as a shared system of values that cause the imitation likelihood not to be immediate at least without falling into time and effort costs. On top of all that, it is likely that efficiency at the level of market orientation will increase the longer it is being executed (Hunt and Morgan, 1995).

The traditional literature based on the resource based theory posits that firms with superior firm market orientation achieve superior business performance because they have a greater understanding of customers expressed wants and latent needs, competitors capabilities and strategies, channel requirements and developments, and the broader market environment requirements than their rivals (Hult and Ketchen, 2001; Jaworski and Kohli, 1993).

In sum, from all these arguments we can state that market orientation is an organizational resource which can lead to the development of marketing capabilities and as a result impacts firm performance. Evidently, market orientation plays this role together with other organizational resources.

Dutta (1999) investigated the impact of market orientation on marketing capability and suggest that a stronger market orientation of a firm is reflected in a higher marketing capability.

The hypothesis from this discussion is formulated as follows.

H3a: The higher the level of market orientation of the firm, the higher is the marketing capabilities.

3.3.3.1. Market Orientation and Firm Performance

Kara, Ali (2005) investigated that market orientation has a significant impact on firm performance in the context of small sized firms. Market orientation provides a company with better understanding of its customers, competitors and environment, which subsequently leads to firm performance.

The significance of the marketing concept for corporate management is the subject of a long-standing controversy as some researchers argue that a market oriented focus can be detrimental to the innovation and long term success as it seduces a company into being narrowly interested in the short term. Fritz (1996) shows that market orientation as a part of the top management, contribute to firm success. Fritz (1996) defines market orientation within the conceptual model of corporate management as a comprehensive and organized set of customer and competitor oriented basic values and attitudes, corporate goals like customer satisfaction and competitiveness and basic strategies like market segmentation, quality leadership, differentiation, and customer oriented product innovation. He reports that the market orientation is one of the key dimensions of corporate management along with other orientations. The market orientation is an important factor for firm success and reduction in the market orientation is a serious mistake. The higher the position of the executive in charge for the marketing function, the higher is the marketing orientation and the greater is the contribution to firm success. Moreover the closer the cooperation between marketing, production, and R&D, the higher is the market orientation and the greater the contribution to corporate success. In the context of new technology based firms the marketing function is the hand of top managers and entrepreneurs, which helps in building a higher orientation and moreover helps in strong and closer cooperation between marketing, production and R&D.

3.3.3.2. Influence of Market Orientation on the Strategic Orientation of the Firm

Morgan and Strong (1998) defend that the organisational resource of market orientation conditions the type of strategy developed: the effects of market orientation are manifest in the form of strategic orientation adopted by the organisation.

Vijande (2005) investigated the relationship between market orientation and six dimensions of competitive strategy developed by Venkatraman (1989): Aggressiveness, Analysis, Defensiveness, Futurity, Proactiveness and Riskiness. The study suggests the acceptance of all of the above hypotheses except for the impact of market orientation to encourage to take risks in the organisation. This result indicates that Market orientation is associated with risk aversion. Therefore it is posited that.

H3b: The higher the level of market orientation of the firm, the higher is the strategic orientation.

3.3.4. Strategic Orientation

Different researchers have identified many different aspects of the strategy construct (Kerin et al., 1990). In this study, 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).

Two commonly seen strategies are the differentiation strategy and the cost leadership strategy (Porter, 1980). The differentiation strategy requires producing and marketing a superior product appealing to relatively price-insensitive buyers. The value created by this strategy stems from meeting customer needs better than non-differentiated rivals. Competitive advantage for the differentiator arises from positioning the differentiated product to select target markets who are willing to pay a premium for superior need satisfaction (Day and Wensley, 1988). In contrast, the cost leadership strategy focuses on achieving the lowest cost position within an industry. This strategy is most effective where large groups of price-sensitive customers exist, as this strategy's effectiveness

depends on maximizing efficiencies through investment in process technology (Day and Montgomery, 1983).

Although the differentiator and cost leadership strategies are useful for theoretical purposes, recent research (Chrisman et al., 1988; Hamel and Prahalad, 1989; Day, 1990) has focused on the ability of firms to adopt elements of both strategies at the same time. This is an important development, as Porter (1980) did not originally allow for this development. Firms attempting to implement both strategies were stereotyped as 'stuck-in-the-middle', with the implication being that they were doomed to underperform better-positioned rivals. To achieve success under this dual strategy the firm must create and maintain a large market share by differentiating products based on process improvements that lead to real performance advantages. Furthermore, these products must be positioned appropriately, relative to competitor's products and must be offered at competitive prices.

The formulation of a business strategy appropriate to the demands of the business, including environmental factors, such as customer needs and competitor actions, as well as internal issues, such as process improvements and quality initiatives, is necessary to provide direction to the firm (Day, 1990; 1994). Based on the strategic direction provided by a coherent business strategy, marketing managers can develop functional marketing strategies and implementation plans designed to achieve the goals of the strategy. To implement these plans, resources must be allocated according to the needs of the business, particularly as they relate to customers and competitors. As a part of this ongoing process, market research, product development, pricing, promotion and distribution plans and programmes can be developed to enable the firm to meet its business and marketing goals. In essence, the business strategy enables marketing managers to know how to allocate resources to create the marketing processes needed to implement the strategy (Day, 1994). As a result of these factors, the development of a coherent business strategy is seen as having a direct, positive impact on the development of marketing capabilities. It is therefore posited that

H4a: The higher the level of Strategic Orientation, the higher is the Marketing Capabilities.

3.3.5. Marketing Capabilities

According to Day (1994), marketing capability is 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. The importance of learning processes in the marketing capability development process has been stressed in recent research (Vorhies and Harker, 2000). Marketing capabilities are developed via learning processes when the firm's employees repeatedly apply their knowledge to solving the firm's marketing problems (Day, 1994; Grant, 1991, 1996).

In explaining the overall marketing capability of the firm it is important to examine the specific marketing processes that are adopted by firm in its competitive strategy. Atuahene-Gima (1993) conceptualized marketing capability and identified several processes which are used by firms in their efforts to reach target customers with value-added products and services.

The first process is customer service, defined as deeds, processes and performances (Zeithaml and Bitner, 1996) which are largely intangible tasks that satisfy buyer or user needs. A growing number of researchers suggest that superior customer service leads to competitive advantage (e.g. Easingwood and Mahajan, 1989; Morris and Westbrook, 1996). The second process is concerned with the effectiveness of promotional activities in gaining market share and sales growth. Promotional activities cover advertising, sales promotions, publicity and personal selling which are widely used tools to communicate with target markets. Third is the quality of sales people, which reflects the extent of sales-generating skills possessed by firms' employees. The next area is the strength of distribution networks. To have a capability in channel management, relationships with distributors must be formed and effectively managed (Vorhies and Harker, 2000). The fifth process is the extent of resources committed for advertising, which is operationalized as the advertising expenditure as a percentage of sales. Next is the firm's marketing research, which is defined as the set of processes, needed to learn about customer needs particularly latent needs and to monitor competitor product and service offerings? The seventh is the ability to differentiate products (to boost the image of

products by attributes other than prices such as superior quality, image or service) marketed by the firm. Product and service differentiation has been a key source of competitive advantage (Porter, 1990). The next area of importance is the speed of product introduction. Rapid development of new products and services is an integral component of innovation-based competition (Froehle et al., 2000). These eight processes are adopted in varying degrees by firms in their efforts to reach respective target markets.

Weerawardena, Jay (2003) operationalized the marketing capability construct using these marketing processes. With the aim of capturing the distinctiveness of the overall marketing capability, each of the processes discussed above were measured relative to those of the firm's closest competitors. As a further indicator of the distinctiveness, respondents were asked to rate the strength of each of the processes in comparison to those of firm's closest competitors.

Vorhies (1999) investigated the following six marketing areas for evidence of capabilities.

- 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.
- Pricing is another area and is defined as the processes needed to competitively price the firm's products and services and monitor prices in the market.
- 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.
- 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.

- 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.
- 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 must be performed effectively (Day 1994). Vorhies (1999) reported a strong impact of marketing capabilities on firm performance.

The general strategic management and marketing literatures suggest that firm capabilities in a number of functional areas can lead to positive performance (Hunt and Morgan, 1996). The concept of capability development and its impact on performance has been an important focus within the marketing field in recent years (Vorhies et al., 1999).

The firms having a higher level of marketing capability are able to produce higher rates of new products, service and process introduction; a more customer centric culture; customers who are more desirable, loyal and satisfied; greater generation of new and value enhanced resources; creation of new organisational forms; and more productive external alliances and networks (Deshpande, Farley and Webster 1993; Jaworski and Kohli 1993; Hurley and Hult 1998; Achrol and Kotler 1999). The marketing capabilities development efforts are therefore expected to affect both the financial and nonfinancial outcomes.

On the basis of the above discussion it is postulated that

H5: The higher the level of Marketing Capability, the higher is the firm performance.

3.3.6. Firm Performance

The conceptualisation of a market-driven firm as the one that has a customer-value centred strategy, supported by a market orientation, has been discussed by Day (1993; 1994). An important question therefore becomes: do these market-driven firms outperform their less market-focused rivals? Recent theoretical research in marketing has supported this idea as market-driven firms have consistently been predicted to outperform their internally focused competition (Day 1990; 1994; Hunt & Morgan 1995). It is interesting to note that these predictions are largely based on the idea that market-driven organisations will develop knowledge, skills, resources, and ultimately capabilities that are rare, heterogeneous, and difficult to imitate (Barney 1991; Hunt & Morgan 1995). Further these capabilities will enable market-driven organisations to achieve positions of sustainable competitive advantage, ultimately resulting in superior financial performance (Day 1994; Day & Wensley 1988; Hunt & Morgan 1995). Furthermore, empirical evidence from the more narrow market orientation research supports a positive impact on performance (Jaworski & Kohli 1993; Narver & Slater 1990; Oczkowski & Farrell 1998).

To better understand the impact of marketing capabilities on firm performance, it is necessary to first define the relevant dimensions of the organisational performance construct. Organisational performance is a multidimensional construct, tapping financial, operational, and customer-related performance domains (Venkatraman & Ramanujam 1986). Growth reflects increases in sales and is often reflected in market share gains (Venkatraman 1989). Growth in sales and market share are important to a business to ensure long-term viability and resource availability (Varadarajan 1983). Profitability primarily reflects current performance (Venkatraman 1989). Profitability is viewed by some (e.g. Hunt & Morgan 1995) as the ultimate organisational outcome and is commonly used in strategic management studies.

Market-driven firms are well equipped to attain high levels of performance in each of the previously outlined areas (Day 1994). Market-driven firms excel at finding attractive markets, determining customer needs, and developing goods and services to meet those needs (Day 1990). By developing market information and focusing it around

strategic actions, these market-driven firms are predicted to be better at introducing new products to the market and will have larger numbers of successful new products than their competition (Slater & Narver 1994). Having built a market-focused, customer-needs centred product development capability, these firms are expected to stay in touch with current and potential customer needs and competitor moves better than more internally focused (Day 1990).

3.3.7. An Integrative Model of Marketing Capability

A conceptual model delineating the linkages between marketing capabilities and its drivers and outcomes is presented in figure 3.1. The model starts with the condition in the external environment. Relevant variables include demand and supply heterogeneity, bargaining power of suppliers and buyers, the availability of effective substitutes, presence of aggressive competitors, rates of technological change, volatility in economic conditions, and the nature of regulatory policies etc.

For simplicity, such variables are captured by the degree to which the environment is turbulent (a) Market turbulence refers to the extent to which composition and preferences of the organisations customers change over time (Jaworski and Kohli, 1993), (b) Technological turbulence refers to the extent to which technology in an industry is subject to rapid changes (Jaworski and Kohli, 1993). The levels of environmental turbulence directly affect the various aspects of the internal environment of the firm: Entrepreneurial Orientation (EO), Market Orientation (MO) and Strategic Orientation (SO) of the firm.

Entrepreneurial Orientation includes overall levels of innovativeness, risk taking and proactiveness within the firm (Miller and Freisen 1983; Zahra 1986, Davis, Morris and Allen 1991, Covin and Slevin 1994, Zahra and Garvis 2000). Market orientation is characterised in terms of three components: intelligence generation, intelligence dissemination and the ability to respond. Strategic orientation of the firm means that the firm is coherent in its business strategy and is adopting a clear cut strategy i.e. either a cost strategy, differentiation strategy or a mix of both of these strategies.

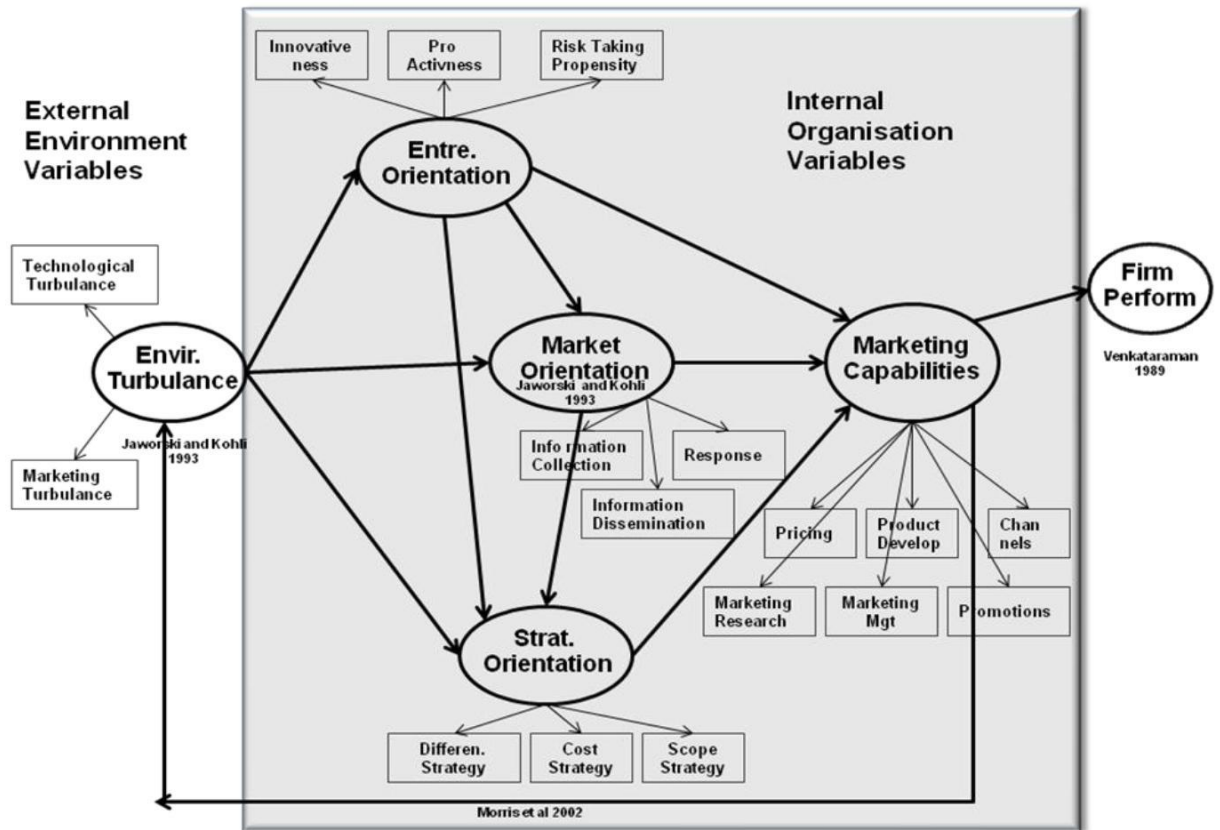


Fig 3.1: The integrative model

Higher levels of environmental turbulence require firms to demonstrate more adaptability and flexibility in approaching competitors and customers as well as higher levels of innovation and entrepreneurship. Moreover it requires to have a strong strategic orientation to cope the turbulent environment. Under such conditions, conservative, reactive, risk averse management proves to be a liability (Achrol 1991; Webster 1997). Where firms demonstrate stronger entrepreneurial, market and strategic orientation, they tend to approach the marketing function differently. Marketing activities become especially critical under turbulent environmental circumstances. Under normal conditions the firms can concentrate on incremental improvements to their methods of satisfying customer needs. However as the environment becomes fairly turbulent, marketers must take responsibility for introducing entrepreneurship in all aspects of the firms marketing efforts. The marketers must focus more attention on anticipation and quickly responding to the moves of competitors.

Turbulence means fear, uncertainty and doubt among sellers and buyers and forces firms to make quicker decisions and opens up 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 paramount. In short the firms are incentivised to engage in marketing efforts that are more opportunistic, proactive, risk assumptive, innovative, customer centric, leveraged and value creating.

The firms marketing capabilities are also influenced by a host of organisational climate factors. Entrepreneurial orientation, market orientation, strategic orientation and the marketing capabilities of the firm are hindered or facilitated depending on how the organisation adapts its internal environment to reflect the external realities. Marketing capabilities are more developed in companies that develop: flatter, decentralised and cross functional structures (Sanchez 1999), cultures that contain a sense of urgency and that value innovation and change, tolerance of failure, and empowerment of the individual (Cornwall and Perlman 1990; Collins and Porras 1994); control systems designed around the principles of resource slack and accountability for outcomes (Slater and Narver 1995; Mintzberg 1996); strategies emphasising growth, technology leadership, and product market diversification (Ford 1994; Christensen 2001); and the development of human resource management systems that encourage creative problem solving, acceptance of change, employee discretion, a balanced individual-collective orientation, and a tolerance of ambiguity (Schuler 1986; Shane 1996). There is also likely to be a bi directional relationship, with marketing capability being affected by and affecting these organisation variables.

The marketing capabilities development efforts are expected to affect both the financial and nonfinancial outcomes. Empirical work on the entrepreneurial, marketing and strategic orientation of firms suggest that they are positively correlated with company performance, especially when confronting heterogeneous markets, intense competitive market rivalry and other elements of a turbulent environment (e.g. Morris and Paul

1987, Narver and Slater 1990, Davis, Morris and Allen 1991; Miles and Arnold 1991; Jaworski and Kohli 1993). However when marketing capability is introduced as mediator between these orientations and firm performance, the firm is able to produce higher rates of new products, service and process introduction; a more customer centric culture; customers who are more desirable, loyal and satisfied; greater generation of new and value enhanced resources; creation of new organisational forms; and more productive external alliances and networks (Deshpande, Farley and Webster 1993; Jaworski and Kohli 1993; Hurley and Hult 1998; Achrol and Kotler 1999). Financial outcomes include realisation of higher proportions of the lifetime value of customers, higher rates of revenue and enhanced profitability (Narver and Slater 1990; Deshpande, Farley and Webster 1993; Moorman and Rust 1999).

A feedback loop from marketing capabilities to the external environment reflects the fact that marketing capability is not simply a response to the external environment, but can rather serve to redefine the environmental conditions. The entrepreneurial marketer serves as a pioneering role. The creation of new markets, products, distribution channels and communication approaches can represent minor to major disruptions in the external environment. These disruptions frequently result not only in profit opportunities for the firm, but in a range of (typically incremental) innovative activity from competitors attempting to exploit the market opening created by the pioneering firm.

4. Methodology

The purpose of this chapter is to present the methodology used to test the hypotheses. The chapter addresses the development of an appropriate procedure for the research including a description of the process used to develop the survey questionnaire, pilot study procedures, and the final sample selection.

Remenyi (1998) states that a methodology represents an operational framework within which to conduct research and within which the facts are placed so that their meaning may be seen more clearly. The development of an appropriate methodology for this study involves a consideration of the broad, alternative methodological approaches, whether qualitative or quantitative.

The field of strategic management seeks to explain a variety of complex issues and organizational phenomena. Many of the research methodologies reflect this complexity. By way of example, strategic management research has employed a variety of methodologies depending on the questions under study; these methodologies include sample selection models (Barnett et al., 1994), heterogeneous diffusion models (Greve, 1996), network analysis (Gulati, 1995), panel data analysis (Gimeno and Woo, 1996), cognitive mapping (Barr et al., 1992), event history analysis (Blodgett, 1992), and structural equation modeling (Hitt et al., 1996). Hitt et al. (1998) argue that different types of research methods will continue to be used by strategy researchers depending on the research questions under study.

Historically, early strategic management researchers employed specific methodological techniques to examine organizational phenomena. For example, the works of Ansoff (1965) and Andrews (1971), among others, particularly focused on the normative aspect of strategy, in which knowledge could be imparted to practitioners, rather than pursued purely for scientific advancement. It was believed that because firms are so individually unique and the variables so uncontrollable, the scientific approach to research was inappropriate, if not impossible (Learned et al., 1969). Furthermore, many of the early researchers believed that generalizability was infeasible and undesirable, given the complexities of each firm studied. Thus, the preferred methodology for research was

qualitative, focusing on detailed case studies of single firms or industries (Hoskisson et al., 1999). Where generalization was required, it was accomplished through means of induction, built upon comparative studies of multiple cases (Rumelt et al., 1991).

Induction involves the inference of a generalized conclusion from the patterns observed between particular instances (Remenyi et al., 1998). Using an inductive process, it is entirely acceptable to formulate a research topic or question from experience or intuitive notions rather than reflection on established theory and concepts. A lack of theory and the heavy emphasis on normative approaches to research plagued the early years of strategic management, during which time its viability as a management science was under question. With the heavy emphasis on qualitative and inductive reasoning approaches among early strategy researchers, criticism was encountered from other academic disciplines. This was due to the lack of a more robust scientific method, by which empirical tests of theory could allow for broader generalizations. Schendel and Hatten (1972) argued that in order for the field of strategic management to advance, new theories would need to be developed from which hypotheses could be derived and empirically tested.

As the development of the strategic management field progressed, economics (particularly IO economics) heavily influenced the research agenda, shifting methodologies from qualitative, inductive case-based studies to positivistic, deductive approaches, which helped elevate the field to a more rigorous, scientific academic discipline (Hoskisson et al., 1999). The adoption of a quantitative, in preference to a qualitative, approach, usually requires a clear understanding of the type of evidence required, and how to collect and analyze that evidence within a well-defined theoretical framework.

In the case of developing an appropriate research method, a framework may be derived either from a review of the literature or from previous research that is sufficient enough to enable the researcher to start with a clear expectation of how a particular phenomenon is likely to behave, from which the researcher can formalize a model or paradigm (Dubin, 1976; Remenyi et al., 1998). Thus, given the research question(s) under study

and the availability of different methodological options, whether they are qualitative, inductive procedures or quantitative, deductive procedures, a suitable methodology based on precedent wherever possible—unless a suitable case can be made for a new methodological approach—must be selected (Remenyi et al., 1998).

A quantitative, positivistic approach has been selected as the methodological choice for this study. A positivistic approach is one concerned with positive facts, not speculation upon ultimate causes or origins (Astley, 1985; Bettis, 1990; Deetz, 1996; Pfeffer, 1993). Positivistic research is based on three principles: 1) finding facts; 2) documenting facts; and 3) the use of scientific methods (Wicks and Freeman, 1998). In the first instance, if one assumes that there are underlying laws and principles that govern how things work in the world, then it is the task of the researcher to discover what these laws and principles are. In the second instance, once the laws and principles are discovered, the researcher documents and describes the facts. In the last instance, the means of discovery is through scientifically grounded study.

The key advantage of the scientific method is that it "allows researchers to test their hypotheses and rely on objective measures (data) to support their findings" (Wicks and Freeman, 1998). Such an approach avoids speculation and bias (Wicks and Freeman, 1998). Furthermore, through the use of quantitative, scientific methods, data are generated that can then be replicated for verification purposes in future studies. Replication of results is critical for theory testing (Rudner, 1966). Thus, the positivistic approach offers opportunity for testing the hypotheses posited using RBV.

The RBV asserts that only resources that are valuable, rare, inimitable, and non substitutable can be sources of competitive advantage. With rare exception, such resources are described as intangible, rather than tangible. The question then becomes, is this assertion empirically correct? That is, can the RBV's main prescription be verified and if so, what method should the researcher use to verify it?

According to the literature, several methods are prescribed and are, in fact, encouraged (Rouse and Daellenbach, 1999; Hoskisson et al., 1999; Barney et al., 2001; Lockett and

Thompson, 2001). These include ethnography, participant observation, and large-scale scientific studies. While ethnography and participant observation methods might "facilitate rich depictions of organizational phenomenon, they are not adept at generating empirically robust conclusions" (Barney et al., 2001, p. 637). To generate empirically robust conclusions from data, scientific approaches are recommended as they afford the systemic interpretation of results (facts) across large samples (Astley, 1985).

A positivistic, scientific methodology is important for three main reasons to test the prescriptions of RBV. First, in order to measure the effect of a particular resource on firm success, it must be measured quantitatively. By quantitatively measuring an independent variable's (i.e., a resource's) effect on firm success, one derives factual data that is useful for verifying RBV theory. Verifying theory is the purpose of empirical research (Popper, 1959; Rudner, 1966). Second, the RBV research stream tends to be idiosyncratic in that studies focus on a very limited set of resource variables or single firm or industry contexts. While such studies are beneficial, they are limited in their generalizability (Michalisin et al., 1997). By quantitatively studying resource effects across a large sample of multiple industries and firms, the results improve generalizable findings for the RBV. According to Michalisin et al. (1997) and Levitas and Chi (2002), this is an important need in RBV research because it adds broader, more robust tests of the theory.

Many claims have been made with respect to which resources are the most important determinants of firm success, both within the RBV and new economy literature. By seeking to verify the main prescription of the RBV through a positivistic approach, this study aims to add to the quantifiable, empirical research base. This both addresses the need for scientific facts with respect to testing resource-based theory as well as for generating results that can be studied in future research for the purpose of replication and verification.

4.1. PROCEDURE

Fahy (2002) undertook a resource-based analysis of sustainable competitive advantage

and explains that multiple resource constructs can be used to measure organizational phenomena and survey questionnaires using Likert-type scales to collect data on resource and performance constructs are a valid method in RBV research; and moreover the relationships among the various resource (independent) variables can be used to explain performance levels.

Fahy's (2002) study sheds specific insight into the development of a methodology to study the present research question. Perhaps the key feature of Fahy's (2002) study is that it demonstrates that a nonexperimental field survey can be used to ask CEOs to directly assess individual resources and their impact on firm success. In this respect, Fahy (2002) relies on the judgment of the highest level of informant (Phillips, 1981; Kumar et al., 1993) within the organization to collect research data.

4.1.1. Research Design

The primary objective of this research is to assess the effect of different resources/capabilities on marketing capabilities and on firm success through a series of theoretically justified research hypotheses. To test the posited hypotheses, a cross-sectional field study is used. According to Kerlinger (1992), field studies are nonexperimental scientific inquiries designed to discover the relations among variables in real social structures, such as communities, institutions, and organizations. Cross-sectional and specifically sample survey field studies are particularly useful for gaining a representation of the reality of a social structure utilizing a single administration research instrument. A number of advantages of sample survey research are identified.

Cross-sectional sample survey research, allows the researcher to gather a sizeable amount of information from a relatively large sample (Kerlinger, 1992). Second, Scandura and Williams (2000) suggest that sample survey research maximizes the representative sampling of population units studied and therefore improves the generalizability of the results. Third, sample survey research, compared to experimental research, is strong in realism, which can be very important in studying dynamic, real-life business situations (Kerlinger, 1992). Finally, information obtained in sample survey research, even subjective measures of firm performance, is often very accurate, because the instrument is specifically designed to address the research questions (Dess

and Robinson, 1984; Slater, 1995).

4.1.2. Instrumentation

A major consideration of field-based survey research is the development of valid and reliable measures of the unobservable constructs (Churchill, 1979). For example, many research studies within the field of strategic management have sought to measure the unobservable constructs of industry structure and firm-specific effects on performance variability in order to validate both resource-based and industry structure theories. Studies that have sought to examine the relative effects of industry- and firm-specific factors on performance variability generally compare the profits of industries, firms, corporations (i.e., parent companies), and even strategic groups. However, because these studies mainly draw their data from secondary sources such as PIMS, Compustat, FTC, and other large databases, they are extremely limited in their ability to study resources at the individual level.

The use of secondary data sources (e.g., Compustat) to study resource effects on firm success is largely an issue with respect to intangible resources (Das and Tang, 2000). Unlike tangible resources, there are no generally accepted accounting standards that afford firms an opportunity to report the value of their intangibles. Without robust data on intangible resources, researchers are left with only a few proxy measures such as investments in advertising or research and development to use in the analysis.

Furthermore, Das and Tang (2000) argue that the difficulty in measuring many unobservable resource constructs, namely intangible resources, makes it hard to use and assess secondary data with sufficient validity. Thus, alternative means of capturing data on resource constructs is required. One approach is the use of a questionnaire, which is the most common method of data collection in field research (Stone, 1978). According to Slater and Atuahene-Gima (2004), the survey-based (i.e., questionnaire) approach is in many cases the only appropriate method for gathering data in order to address some strategy research questions.

4.1.3. Survey Questionnaire Development and Item Generation

The difficulty of conducting resource-based research is compounded by the fact that many resource construct spaces are unobservable if not unbounded (Cameron and Whetten, 1983; Godfrey and Hill, 1995; McMillan and Joshi, 1997; Webster, 2002).

In order to develop scale items that best capture the domain of each construct, items from other instruments (Hansen and Wernerfelt, 1989;; Welbourne and Wright, 1997; Dawes, 2000; Vorhies and Harker, 2000; Carmeli, 2001; Spanos and Lioukas, 2001; Fahy, 2002; Kaleka, 2002) were reviewed.

In order to select the items, item reliability (where reported) is first checked to ensure that it meets minimum acceptable thresholds (e.g., Cronbach alpha of .60 or greater). Second, both convergent and discriminant validity are examined (where reported) to determine if the resource items predicted to measure a particular construct, in fact, do measure that construct. Lastly, after all items are generated, theoretical guidance and judgment is used to select the items that best meet the domain of the specific construct as defined in this study. However, where possible, the scales encapsulate items used in previous studies to maintain consistency.

Frazer and Lawley (2000) have argued that questionnaires should be simple, to the point, and easy to read. Therefore, item language is developed at a high school level of comprehension. Furthermore, items do not exceed medium-length (16-24 words) as suggested by Horst and Andrews (1968). The overall length of the questionnaire is well below 12 pages, which is acceptable for administration via mail (Hoinville and Jowell, 1978; Frazer and Lawley, 2000). Finally, business leaders in the field were contacted to assess clarity, relevance, and face validity of the questionnaire (Gay and Diehl, 1992) prior to the administration of a pilot study. A current CEO in Germany provided his assessment and feedback. Generally, no one particular problem concerning the questions, wording, or relevance of content was identified. The questionnaire is provided in Appendix A.

4.1.4. Operationalisation of Constructs

The following resources/capabilities named 1) Entrepreneurial orientation, 2) Market orientation, 3) Strategic orientation and 4) Marketing capabilities were selected for this study. Environmental turbulence was selected as an external variable and firm success was selected as an outcome variable.

The measurements of the constructs used in this research were 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.

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 firms key decision maker's 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 type questions were used (1 = not at all; 7 = to a great extent).

Strategic Orientation

Strategic orientation 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 firm's market development approach was measured (Doty, Glick, and Huber 1993). Seven point Likert type questions were 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).

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 type scales (1 = not at all; 7 = to a great extent).

Firm Performance

An analysis of resource-based studies reveals that the firm success construct is operationalized on essentially two domains, namely *external* or market- based performance (e.g., market share, market-to-book ratios, sales growth) and *internal* or financially based performance (e.g., profitability). In this study, firm success is operationalized by adapting a scale from Spanos and Lioukas (2001) and consists of five items covering different aspects of organizational performance i.e. market-based performance and financially based performance. To operationalize market-based

performance, two items are used: market share and sales growth. To operationalize financially based performance, three items are used: profitability, ROI, & return on sales.

With respect to RBV and performance, several RBV researchers (e.g., Miller and Shamsie, 1996; Powell and Dent-Micallef, 1997; Spanos and Lioukas, 2001), in fact, include both profitability and market-based measures (e.g., sales growth, market share) to study the association between resources and firm success. Thus, while profitability may be most related to the theoretical domain of the RBV, this study, following several precedent studies, treats the firm success construct as multidimensional and has an interest in explaining the association between resources and market-based performance as well. Lastly, by including market-based measurements, this study will help to establish the range and robustness of RBV theory beyond a single performance construct.

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 firm's performance relative to that of major competitors. Seven point Likert scale was used (1 = not at all; 7 = to a great extent).

4.1.5. Statistical Techniques

To test the relationships between various resources/capabilities and firm success, statistical technique for hypothesis testing specifically, multiple hierarchical regression analysis and structural equation modeling (PLS and AMOS) is used.

Multiple regression analysis is a statistical technique that provides an index of the degree of relationship (1 = perfect relationship, 0 = no relationship) between the criterion variable(s), on the one hand, and the weighted combination of the predictor variables as specified by the regression equation, on the other hand—that is, R (Hair et al., 1995). Regression analysis predicts changes in a dependent variable by simultaneously accounting for the impact of various independent variables via their weighted combination. Interpreting the results of regression analysis may be more easily

evaluated by examining the *R*-squared (R^2) statistic, which indicates the proportion of variance in the dependent variable that is shared by the weighted combination of independent variables (Hair et al., 1995).

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. As Gefen, Straub, and Boudreau (2000, p.6) point out, SEM has become *de rigueur* in validating instruments and testing linkages between constructs.

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), management information systems (e.g., Dibbern, Goles, Hirschheim, & Jayatilaka, 2004), e-business (e.g., Pavlou & Chai, 2002), organizational behavior (e.g., Higgins, Duxbury, & Irving, 1992), marketing (e.g., Reinartz, Krafft, & Hoyer, 2004), and consumer behavior (e.g., Fornell & Robinson, 1983). Since 1987, for instance, more than 20 studies using PLS have been published in five top-tier marketing journals (Eggert, 2007) –the majority in the last six years. PLS is the method of choice for success factor studies in marketing (Albers, 2009) and for estimating the various national customer satisfaction index models (e.g., Fornell, 1992). 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. As of March 2008, more than 30 articles on international marketing using PLS were published in double-blind reviewed journals.

In international marketing research, both CBSEM and PLS provide a powerful framework for estimating causal models with latent variables and systems of simultaneous equations with measurement errors. CBSEM and PLS path modeling

constitute two complementary, yet distinctive, statistical techniques for estimating parameters of conceptual models. A critical review of the PLS application in international marketing reveals that this methodology has increased in popularity, especially for multigroup analyses of PLS results for different nations. PLS is based on least squares estimation with the primary objective being to maximize the explanation of variance in a structural equation models dependent constructs. 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”. In contrast, the primary measures used in CBSEM are overall goodness-of-fit measures that assess how well the hypothesized model fits the observed data. The model estimation is theory-oriented and emphasizes the confirmatory, rather than the exploratory, analysis. Consequently, in international marketing research, CBSEM should be used either to empirically confirm a system of hypotheses that underlie a causal model or to test and compare results for alternative theoretically established causal models. 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). PLS offers excellent capabilities for work with small samples and formative measurement, as the methodology is sufficient for most success factor (cause indicator) analyses in international marketing research. A final concern refers to the choice of SEM method. There may be situations in which CBSEM is preferable, in other situations PLS may be preferable. Moreover, there may be situations where using CBSEM is desirable but unobtainable, for example, due to violations in some key CBSEM assumptions (e.g., regarding sample size, distribution, and model identification); in such cases, PLS may provide a realistic alternative to CBSEM. Some authors also critically point out that both CBSEM and PLS follow the classical test theory paradigm, while especially for international marketing applications alternative methodologies following the probabilistic test theory may be advisable (Ewing, Salzberger & Sinkovics, 2005).

Both PLS and CBSEM are used to test the proposed model. The results from both of these methods will be compared. However in view of the modest sample size and the complexity of the model and the relatively low theoretical information, PLS results seem to be more robust.

4.1.6. Reflective vs. Formative Indicators

The reflective measurement theory is based on the idea that latent constructs cause the measurement variables and that the error results in an inability to fully explain these measures. In contrast the, formative measurement theory is modelled based on the assumption that the measured variables cause the construct. The error in the formative measurement models is an inability to fully explain the construct. The formative constructs are not considered latent. Instead they are viewed as indices where each indicator is a cause of the construct.

The reflective models are more employed in social sciences and are thought to represent many individual difference characteristics and perceptual measures. Modelling a factor incorrectly can cause misinterpretation and result in wrong conclusions. The ultimate decision on the type of the measurement model should be based on the true nature of the construct being studied. Hair et al. (2007) has given a list of following questions that can be helpful in addressing this issue

1. What is the direction of causality between the multiple indicators and the factor (construct)
 - a. Reflective items are caused by the factor.
 - b. Formative items cause the factor.
2. What is the nature of the covariance among indicator items?
 - a. If the items are expected to covary highly with each other, then reflective model is more appropriate. If an indicator should not be highly related to the others, you probably should delete it. Thus with reflective models, all of the indicators will tend to move together. Higher interterm covariance provides evidence consistent with reflective indicators.
 - b. Formative indicators of a factor are not expected to show high covariance. Thus, an index may be composed of numerous measures that share no common basis. As a result, formative indicator items are not expected to move together.
3. Is high duplicity present in the content of the items?

- a. If all of the indicator items share a common conceptual basis, meaning they all indicate the same thing, then the measurement model is best considered reflective. When all the items represent the same concept, dropping an item does not materially change a constructs meaning.
 - b. With formative indicator models, dropping an item produces a material change in the construct.
- 4. How do the indicators relate to other variables?
 - a. All of the indicators of a single construct relate to other variables in a similar way with a reflective measurement model.
 - b. The indicators of a formative construct need not relate to other variables in a similar way.

All of the constructs used in the study were evaluated using the above criteria. Environmental Turbulence, Entrepreneurial Orientation, Market Orientation, Marketing Capability and Firm Performance were reflective as the direction of causality was from the construct to the indicators and the indicators for each construct showed a reasonable level of covariance. In addition the indicators share a common conceptual basis.

The construct of strategic orientation was however a bit confusing as the correlation of the indicators for this construct was low. However as the various indicators shared the same conceptual basis, this construct was also considered to be a reflective indicator.

4.1.7. Use of Summated Scales (Factor Scores)

The model for the study is a second order factor model. Due to the large number of variables, the issue of model identification arise while modelling the second order factor model. To avoid the issue of under identification, first order factor model was developed using factor scores. Factor scores of the lower order constructs were obtained using CFA analysis and used as indicators in the research (Hair, 2007). Factor scores are a composite measure of each factor computed for each subject (Hair, 2007). Conceptually the factor score represents the degree to which each individual score high on the group of items with high loadings on a factor. Thus, higher values on the variables with high loadings on a factor will result in a higher factor score. One of the

key characteristics of a factor score is that it is computed based on the factor loadings of all variables on the factor, whereas summated scale is calculated by combining only selected variables. Therefore, although the researcher is able to characterise a factor by the variables with the highest loadings, consideration is given to the loadings of other variables, albeit lower on the factor score.

4.2. Pilot Study

Following responsible survey research practice (Hinkin, 1995; Frazer and Lawley, 2000), the instrument was tested, through the administration of a pilot study, to assess the wording, construct reliability and validity, and to improve its psychometric characteristics. A pilot study questionnaire was administered to a sample of 25 Business students at the chair of Marketing, Technical University, Berlin. In order to assess and improve the readability and clarity of the pilot study survey, the respondents were asked to suggest ways in which the survey could be improved. Additionally, a post-hoc, in-person review with the respondents was used to collect feedback for further refinement of the survey.

4.2.1. Discussion of Pilot Study Results

The specification of which items belong to which resource constructs reflects theoretical analysis and reasoning. However, to assess the psychometric characteristics of the measurements for each of the constructs, a series of tests were conducted to explore their reliability and validity.

4.2.2. Reliability

Reliability examines whether the measurement of a given construct can be repeated; that is, reliability assesses whether the measurement of a construct can be duplicated over time instead its being a random event (Hair et al., 2006). As suggested by Nunnally (1978), the reliability of the measures is tested using Cronbach's alpha. Reliability should be the first measure calculated to assess the quality of the instrument (Churchill, 1979). From a construct reliability perspective, although Powell and Dent-Micallef (1997) claim that no precise ranges exist to evaluate the Cronbach alpha, the most commonly cited minimum threshold is .70 (Nunnally, 1978). However, other scholars (Churchill, 1991; Sekaran, 2000; Slater, 1995) have suggested that reliability

coefficients (i.e., Cronbach's alpha) as low as .60 are acceptable for hypothesis testing.

In order to gain the highest possible reliability coefficient, select items are dropped from select constructs. After excluding unreliable items, the reliability coefficients for the pilot study data range from .54 to .92, majority of them within the acceptable range described in the literature. Lastly, no anomalies are found between the reliability coefficients in the pilot study and other similar studies.

4.2.3. Validity

To assess the convergent and discriminant validity of the constructs, factor analysis with VARIMAX rotation is conducted. VARIMAX rotation is used because it centers on simplifying the columns of the factor matrix. Here, there tend to be some high loadings (i.e., closer to 1) and some low loadings (i.e., closer to 0). Interpretation is easiest when the variable-factor correlations are either closer to 1, indicating a clear association, or closer to 0, indicating a poor association (Hair et al., 1987). In order to assess that the items relate to their stipulated constructs, they were forced into six factors.

The items load on their predicted construct, thus confirming convergent validity. Loadings were at the .50 level or higher, which is considered very significant (Hair et al., 1987). With respect to discriminant validity, all items load higher on their predicted constructs than on their cross-loadings, thus suggesting a good fit.

4.3. Main Study

4.3.1. Sampling Frame

A sample was drawn from both manufacturing and services industries in order to derive new empirical insight into RBV theory and to maximize the generalizability of the results (Michalisin et al., 1997). The justification for selecting a sample of manufacturing and services firms of various sizes is the fact that resource-based theory, in general, is concerned more with resource-based advantages than monopoly power or specific industries within which resources may be applied (Fahy, 2002). Fahy (2002) argues that an important research agenda within the RBV stream should be to investigate what types of resources are associated with firm success in different

contexts. Furthermore, a primary purpose of this study is to generalize results beyond a particular industry or sector to the population of for-profit business firms operating in markets that are not particularly regulated, protected, or controlled by government.

In this study, the unit of analysis is the resource. Specifically, the small technology firms in Berlin are surveyed to assess the relationship between resources and firm success. To develop the sample, the necessary parameters considered are as follows

1. Only firms with at least 2 or more employees;
2. Only firms that had been in business for about two years; and
3. Firms within manufacturing and services classifications.

The justification of the above sample parameters is as follows. First, to ensure a minimum operating structure, only firms with 2 or more employees have been included (Spanos and Lioukas, 2001). Fahy (2002), for example, argues that the RBV does not emphasize discrepancies between firm sizes, as its main concern is resource-based rather than monopoly-based (i.e., size-based) advantage. Second, only firms that had been in business for about 2 years are included (Reed and DeFillippi, 1990; Barney, 1991; Rouse and Daellenbach, 1999; Cockburn et al., 2000; Helfat, 2000; Fahy, 2002). Previous resource-based research studies have used three years in order to proximate the sustainability of firm success (Hall, 1992; McMillan and Joshi, 1997; Powell and Dent-Micallef, 1997; Spanos and Lioukas, 2001). Rouse and Daellenbach (1999) and Spanos and Lioukas (2001) argue that if researchers are going to pin-point the true sources of competitive advantage, examining only single year measurements of success may bias results.

Finally, given the specific focus of the sample frame, only those firms classified as operating in either a manufacturing or services industry are included. Other organizations, such as agriculture, mining, public administration, and community services are excluded due to their lack of relevance to this study. Also, the inclusion of both manufacturing and services is considered necessary to ensure an adequate sample

size and generalizability of the results (Spanos and Lioukas, 2001). Table 4.1 displays those industries included in the final sample.

Table 4.1 Types of firms interviewed

1	Bauwesen	Consruction and Civil Engineering
2	Biotechnologie	Biotechnology
3	Chemische Technologien,	Chemical Engineering and Techno.
4	Elektronik	Electronics
5	Energietechnik	Energy Technology
6	Gerätebau	Equipments Industry
7	Informations, Kommunikations, Nachrichtentechnik	IT and Communication
8	Lasertechnik	Laser Tecgnology
9	Maschinenbau	Mechanical Engineering
10	Mikroelektronik	Micro Electronics
11	Oberflächentechnik/ Beschichtungen	Materials Engineering
12	Optik	Optics
13	Produktionstechnik/ Verfahrenstechnik	Production Technology
14	Sensorik	Sensors
15	Software	Software
16	Technische Dienstleistungen	Design and Technical Services
17	Technologietransfer, -vermittlung	Technolgy Transfer
18	Transporttechnik, Transportwesen	Transport technology
19	Umweltschutz, Umwelttechnik	Environmental Technology
20	Werkstofftechnik	Materials Technology

4.3.2. General Characteristics of the New Technology Based Firms

The following characteristics were observed in the new technology based firms while conducting interviews.

- These firms were founded by engineers, scientists, alumni, professors and students. Minimum education of the founder was a Diplom and went up to a PhD and Post Doctorate.
- Most of the companies were spinned off as a result of research at the various universities and research institutes.

- Almost all of the founders worked and gained experience before they started the new venture.
- The founders had a strong technical knowhow in a narrow and a particular area i.e. Bio-technology, Mechanical Engineering, Bio-chemistry, Thermo graphic imaging, Renewable Energy etc and these firms have a unique and a niche product.
- The founders had their own contacts and network to start with.
- They used various techniques to find initial customers i.e. used the credibility of their universities and research institutes, personal contacts, attended related conferences and industrial exhibitions.
- Most of have them had a small number of customers and do not have a formal marketing department.
- Marketing activities in most of the cases are being carried by the CEO.

4.3.3. Sample Size

A database with executive names, company names, and addresses of the firms was obtained from the Technical University and Humboldt University alumni data base and the Adlershof and Wedding Technology Park. A final sample, consisting of about 800 manufacturing and service firms was used to administer the questionnaire. A large sample size was adopted for this study in order to offset an anticipated low response rate of 15 - 20 percent, and to maximize the generalizability of the results (Remenyi et al., 1998).

4.3.4. Justification of the Selected Sample

Three reasons support the selection of the sample. First, there is an extensive body of empirical research that studies the impact of various hypothesized determinants of firm performance (Capon et al., 1996). However, the studies are dominated by data from the United States and to a lesser extent data from other large economies such as Germany, Japan and the United Kingdom. Furthermore, a search in the top-tier journals that have most extensively covered the RBV in the last ten years i.e. Academy of Management Journal, Journal of Management, and Strategic Management Journal, does not report

any substantial empirical efforts exploring the RBV with respect to the small technology firms. Thus, expanding the empirical efforts of the RBV, particularly beyond those in the United States, is warranted to test the theory outside of a limited domain.

The second reason for selecting a German sample is with respect to the emergence of the German high technology firms over the last several years. Finally, the choice of a German sample is for practical reasons as well. Given the nature of the research, namely a dissertation study, certain limitations with respect to conducting the empirical portion of the effort are imposed; i.e., time and budgetary constraints limited the collection of the data necessary to carry out the empirical tests to a German sample.

4.3.5. Informant Selection

According to Rousseau (1985), organizational concepts should be measured at the organizational level. However, Doving (1996) points out that surveys cannot be filled out by an organization; therefore, higher-level data must be inferred from a single informant. Phillips (1981) and Kumar et al. (1993) argue that informant selection must be done carefully. Informants must have adequate knowledge to answer questionnaires in survey-type research and the motivation and authority of the potential informant should be considered in order to enhance response rates (Phillips, 1981; Kumar et al., 1993). Thus, selecting an appropriate informant for the objectives of the study is critical (Huber and Power, 1985).

Given the objectives of this study, the Chief Executive Officer (CEO), or equivalent, is chosen as the key informant. Unlike participating respondents who report information about themselves (e.g., level of job satisfaction), participating informants offer their judgments and perceptions about specific organizational properties and activities, for example, firm success (Phillips, 1981). Slater (1995) suggests that key informants are a reliable source of information about directly unobservable organizational variables.

Although a single informant is used in this study, it is recognized that the use of a single informant could potentially bias the results by introducing measurement error (Phillips,

1981; Bagozzi et al., 1991). However, Hall (1992) and Fahy (2002) argue that the CEO is the only informant who has the specialized knowledge to adequately assess the firm's resource base with respect to its performance. Alternatives to key informant approaches were discussed by Slater (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). Huber and Power (1985) find that when several informants vary in their knowledge of issues, a simple average of responses is less accurate than the answers provided by a single knowledgeable informant. Lastly, Shortell and Zajac (1990) and Gatignon et al. (2002) argue that using a knowledgeable single informant is a valid approach to measuring strategy research questions and that the bias introduced by such an informant is likely to be negligible compared to multiple informant responses.

The use of CEOs in organizational research is wide spread, since organizations are ultimately a reflection of their top management (Hambrick, 1981a, 1981b; Hambrick and Mason, 1984). Zahra and Covin, (1993) argue that CEOs provide data as reliable and valid as multiple informants. Furthermore, the CEO is the most knowledgeable informant regarding the objectives of this study (Huber and Power, 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. Therefore, the use of the CEO, or its equivalent, as the single best informant in this type of study was appropriate (Aaker, 1989; Hall, 1992; Spanos and Lioukas, 2001; Fahy, 2002).

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.

4.3.6. Data Collection

The process of administering the questionnaire and collecting instrument data was two-phased. In the first phase, a number of approaches were utilized. First, a cover letter was developed to describe the objectives of the study, to assure informants of their privacy and confidentiality, and to offer the summary results of the study. Delener (1995) suggests that the personalization of cover letters, an assurance of confidentiality, and the offering of incentives are positively associated with response rates. Furthermore, the introduction to the questionnaire described the research as being associated with and sponsored by the Department of Marketing, Technical University Berlin. Sponsorship can be an important determinant of response rate (Delener, 1995). Lastly, Heneman (1974) shows that subjects are more likely to give unbiased responses when their anonymity is assured. Thus, all informants were assured anonymity.

Given the particular target informant (i.e., CEOs), the questionnaire is designed to be to the point, easy to understand and read, while at the same time capturing the data necessary to carry out the research (Frazer and Lawley, 2000). The final version of questionnaire (Appendix A) contains 84 questions (77 scale items plus 7 general questions). The general flow of the questionnaire uses the 'funnel approach' as suggested by Sekaran (2000), where informants are asked general questions regarding organizational phenomena first and then questions regarding specific company information, such as the level of sales turnover and profitability, in the latter sections of the questionnaire.

The survey was conducted over the months of June 2008 to August 2008. After the final sample was determined, telephone call was made to the companies and a request was made to respond the questionnaire. About 150 companies agreed to participate in the survey. A completed survey kit (cover letter, questionnaire) was sent to all firms in the sample frame.

5. Analysis and Results

The purpose of this chapter is to explain the empirical results of the main study conducted to test the proposed model and research hypotheses. The first section provides the general descriptives of the survey respondents. The next section examines and assesses the scales measuring the key constructs. Finally, the results of the statistical tests used to test the hypotheses are provided.

5.1. GENERAL CHARACTERISTICS OF THE SAMPLE

5.1.1. Response Rate

Using the Technical University, Humboldt University Alumni firms and the Adlersof and Wedding Technology Park data base, 800 small technology firms were selected from both manufacturing and services industries as the sampling frame. Out of the 800 companies 150 responded. Thus, the response rate is about 18 percent, which is comparable to other resource-based studies using similar informants and industries (Soo et al., 2001; Spanos and Lioukas, 2001).

Of the 150 completed responses, 7 were ineligible as they were pretty big with more than 100 employees. Additionally, histograms, correlations, and frequencies were run to check for miscoded data and outliers.

5.1.2. Common Method Bias

The measurement of the research constructs relies solely on the perceptual judgment of a single individual, in this case, the CEO or equivalent. Thus, the measurements of the data are based on the responses of a single individual with no additional assessment taken from other individuals. Using such a measurement technique raises the issue of common method bias, which can be particularly dangerous when a single informant fills out items that tap into independent and dependent variables within the same survey instrument. However, the factor analyses that are reported subsequently demonstrate that a single factor solution does not emerge. Hence, there is unlikely to be any common method bias.

5.1.3. Demographic Descriptive Statistics

Age of Firm

The number of years in business range from about two years (the required number to be included in the sample) to a high of 25 years. The mean number of years in business is 5.69 and the standard deviation is 5.018. No cases are missing for the age of the firm data.

Number of Employees

The number of full time employees range from a low of 2 – the required number to be included in the sample to a high of 53. The mean number of employees is 11.23 and the standard deviation is 11.389. No cases are missing for the age of the firm data.

Types of Business of the Firms

Services are the largest business activity within this sample. Manufacturing accounts for 54 firms and the Services account for 87 firms. No cases are missing for the age of the firm data.

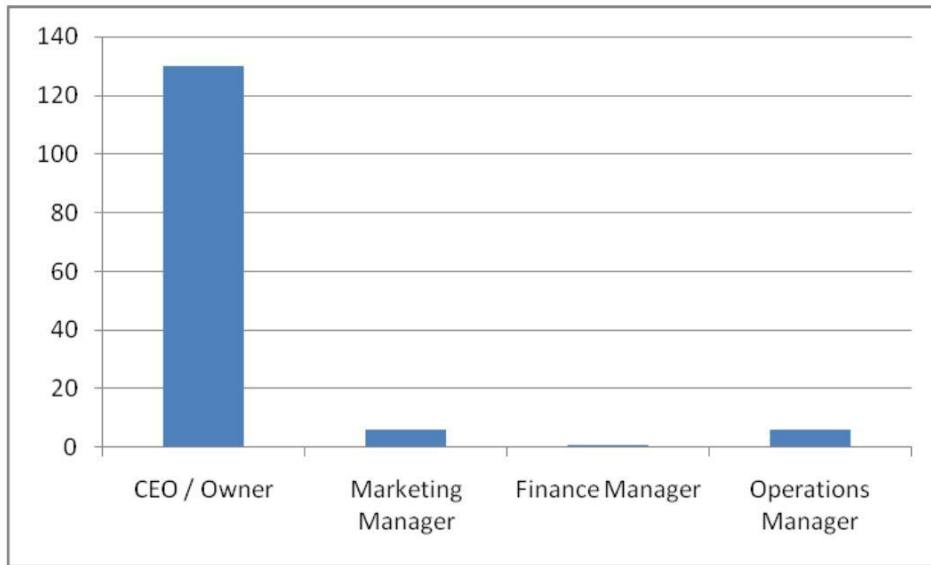
Marketing Activities Supervision

In the majority of the cases the marketing activities are supervised by the CEO himself and in only seven cases the marketing activities were being conducted independently by the marketing department. This data is in line with the fact that the small technology based firms are being tightly managed by the CEO and he is involved in all of the major decisions.

Survey Respondents

In about 130 of the cases the respondent to the survey questionnaire were the CEOs or the owner of the firm himself. While in few of the cases the marketing manager, finance manager or the operations manager filled the questionnaire as depicted in fig 5.1.

Fig 5.1 Survey of Respondents



5.2. PSYCHOMETRIC EVALUATION OF THE CONSTRUCTS

The following section describes the tests undertaken to examine the constructs in this study. Specifically, tests for construct reliability, discriminant validity and convergent validity are conducted. Construct reliability tests the degree to which individual items used in a construct are consistent in their measurements (Nunnally, 1978). Convergent validity tests the degree that items designed to load on the same construct do, in fact, load on that construct (Carmines and Zeller, 1979). Discriminant validity tests the degree to which items measuring one construct relate exclusively to the construct and not to another (Churchill, 1979). As a final set of analysis, correlations, tolerances and VIF (Variance Inflation Factors) were also examined to assess the presence of multicollinearity among the various variables.

5.2.1. Reliability

To test the reliability of the constructs, Cronbach's alpha is used. A widely cited minimum threshold for the Cronbach alpha is .70 (Nunnally, 1978). However, Churchill (1991), Sekaran (1992), and Slater (1995) suggest that a reliability alpha as low as .60 is generally acceptable. All of the constructs, with the exception of few used in the final sample meet or exceed the .60 threshold. Although all the constructs meet

the minimum coefficient threshold, in order to gain the highest possible alpha and thus reliability, select items are dropped. Table No 6.1 displays each construct and its associated reliability coefficient.

Table 5.1 Construct reliability

Construct	No of Items	Chronbach Alpha (Reliability)
Marketing Capability		
Market Research	4	0.899
Pricing	4	0.656
Product Development	4	0.811
Channels	4	0.829
Promotion	3	0.806
Market Management	4	0.793
Environmental Turbulence		
Market Turbulence	5	0.670
Technological Turbulence	6	0.772
Market Orientation Scale		
Intelligence Generation	5	0.687
Intelligence Dissemination	5	0.760
Responsiveness	6	0.605
Strategic Orientation Scale		
Differentiation	5	0.780
Cost Leadership	4	0.682
Product Market Scope	3	0.791
Entrepreneurial Orientation Scale		0.818
Innovativeness	3	0.626
Proactiveness	4	0.547
Risk taking ability	3	0.647
Company Performance	5	0.844

Moreover the Kaiser Maier Olkin test value for all of the factors was greater than 0, 5 and was found to be significant as mentioned in Table 5.2. KMO (Kaiser Mayer Olkin)

value shall be greater than 0.5 and the test of sphericity shall be significant (Hair et al., 2006) to proceed with factor analysis.

Table 5.2 Factor Analysis tests of KMO and Bartlett's Test of Sphericity

Factors developed in Factor Analysis	KMO	Sig
Entrepreneurial Orientation	0.799	Sig
Innovative	0.576	Sig
Proactive	0.551	Sig
Risk-taking	0.659	Sig
Marketing Capabilities	0.820	Sig
Marketing Research	0.817	Sig
Pricing	0.704	Sig
Product Development	0.780	Sig
Channels	0.786	Sig
Promotion	0.690	Sig
Market Management	0.715	Sig
Firm Performance	0.725	Sig
Strategic Orientation		
Differentiation	0.794	Sig
Cost Leadership	0.591	Sig
Product Market Scope	0.644	Sig
Marketing Orientation		
Intelligence Generation	0.756	Sig
Intelligence Dissemination	0.747	Sig
Responsiveness	0.596	Sig
Environmental Turbulence		
Market Turbulences	0.601	Sig
Technological Turbulences	0.750	Sig

5.2.2. 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 .50 or greater are considered to be very significant (Hair et al., 1987). Using SPSS, all constructs have been forced into five factors and rotated using the VARIMAX rotation

method to assess their loadings. For all five constructs, items meet or exceed the .50 significance-loading thresholds (Table 5.3). When items constructed to load on the same construct do, in fact, load on that construct, one may surmise the existence of convergent validity. For this data set, the evidence suggests support for convergent validity.

Table: 5.3 Convergent Validity

	Item No	Mean	Std Deviation	Loading	Item to Total Correlation
EO	Innovativeness	-,0052430	1,02423574	,840	,626
	ProActiveness	,0102709	1,02371765	,816	,705
	RiskTaking	,0196457	1,00588532	,791	,665
MO	IntelliGeneration	-,0521268	,98430467	,889	,663
	IntelliDissemination	-,0158563	1,01557173	,869	,756
	ResponseRev	,0000000	1,00000000	,814	,790
SO	Differentiation	-,0070416	1,02244667	,816	,666
	Cost	,0228340	,98981863	-,578	,334
	Scope	,0057674	1,00867154	,494	,244
ET	Mkt Turb	0.0000	1.0000	0.668	0.817
	Tech Turb	0.0000	1.0000	0.668	0.817
MC	MktResearch	-,0120218	,99444302	,837	,560
	Pricing	,0007991	1,01290906	,780	,334
	ProdDevelopment	,0121854	1,00246943	,749	,324
	Channels	-,0217217	,98008736	,687	,473
	Promotions	,0003500	,99450570	,578	,608
	MktManagement	-,0322096	,99738269	,569	,700
Performance	Market share growth relat. to competition	4,76	1,404	,849	,515
	Growth in sales of products / services	4,78	1,441	,815	,539
	Business profitability	4,46	1,367	,809	,721
	Return on Investment	4,32	1,442	,734	,664
	Return on Sales	4,45	1,315	,718	,655

Average Variance Extracted (AVE) is used as measure of convergent validity in PLS method. Average Variance Extracted was proposed by Fornell and Larker (1981) as a measure of the shared or common variance in a Latent Variable (LV), the amount of variance that is captured by the LV in relation to the amount of variance due to its measurement error (Dillon and Goldstein 1984). Their average variance extracted (AVE) for X with indicators x_1, x_2, \dots, x_n is

$$AVE = \frac{\sum[\lambda_i^2]Var(X)}{\sum[\lambda_i^2]Var(X) + \sum[Var(\epsilon_i)]}$$

where λ_i is the loading of x_i on X , Var denotes variance, ϵ_i is the measurement error of x_i , and Σ denotes a sum (Fornell & Larker, 1981). Thus, a compelling demonstration of convergent validity would be an AVE of .5 or above. (Nunnally 1993). The details of the results are provided in Appendix A.

5.2.3. Discriminant Validity

One way to test discriminant validity 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).

Table 5.4 : Test of Discriminant Validity

	Component			
	Market Orientation	Entre. Orientation	Env. Turbulence	Strategic Orientation
ResponseRev	,883			
IntelliDissemination	,806			
IntelliGeneration	,755			
ProActiveness		,877		
RiskTaking		,732		
Innovativeness		,694		
Cost			,830	
MktTurbulenceRev			,548	
TechTurbulenceRev			,482	
Scope				,762
Differentiation				,494

To assess discriminant validity, factor analysis is used. To evaluate the measures, a comparison was made between the loadings of an item with its associated factor (construct) to its cross-loading. All resource items are found to have higher loadings with their corresponding factors in comparison to their cross-loadings (Table5.4). Only

one item that of cost based strategy is loaded to Environment Turbulence. In general the overall evidence suggests the existence of discriminant validity.

5.2.4. Correlations between key measures

The correlation coefficients of all the variables used to test the hypotheses are summarized in Table 5.5 and Table 5.6. Given that correlations between predictor (independent) variables can cause problems with multicollinearity in regression analysis (Mason and Perreault, 1991; Mendenhall and Sincich, 1993), examining the significance of the correlation coefficients takes on added importance.

Table 5.5: Correlation between various constructs

Correlations						
	StratOrienta	EntreOrientat	MktOrienta	EnvTurbula	MktCapability	Performance
StratOrientation	1	,394**	,308**	,127	,323**	,216**
EntreOrientation	,394**	1	,453**	,348**	,478**	,287**
MktOrientation	,308**	,453**	1	,356**	,582**	,245**
EnvTurbulence	,127	,348**	,356**	1	,372**	-,049
MktCapability	,323**	,478**	,582**	,372**	1	,354**
Performance	,216**	,287**	,245**	-,049	,354**	1

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

Although there are some significant inter-correlations between the predictor variables, all of the correlation coefficients are below the level considered to be serious, which is generally accepted as .80 or higher (Licht, 1995). Thus, independence among the predictor variables appears not to be in violation and multicollinearity is unlikely a problem. However, two final tests are conducted to assess the presence of multicollinearity. First, the tolerance values (designated as TOL in the regression models below) for each predictor variable is calculated and none are found to be below .60. Tolerance values at .10 or below indicate high correlation (Hair et al., 1995). Second, the variance inflation factors (designated as VIF in the regression models below) for the independent variables are calculated and are below two, which is well below the guideline of ten recommended by Mendenhall and Sincich (1993). Given the

VIF and tolerance levels found in the analysis, multicollinearity does not appear to be a problem.

Table 5.6 : Correlation between various sub constructs of marketing capability

	MktResearch	Pricing	ProdDevelopment	Channels	Promotions	MktManagement
MktResearch	1	,299**	,315**	,378**	,543**	,551**
Pricing	,299**	1	,194*	,313**	,368**	,382**
ProdDevelopment	,315**	,194*	1	,234**	,262**	,507**
Channels	,378**	,313**	,234**	1	,488**	,474**
Promotions	,543**	,368**	,262**	,488**	1	,545**
MktManagement	,551**	,382**	,507**	,474**	,545**	1

Table 5.7: Collinearity Statistics

		Collinearity Statistics	
		Tolerance	VIF
	EntreOrientation	,723	1,382
	MktOrientation	,775	1,290
	StratOrientation	,824	1,214

5.3. TESTS OF HYPOTHESES

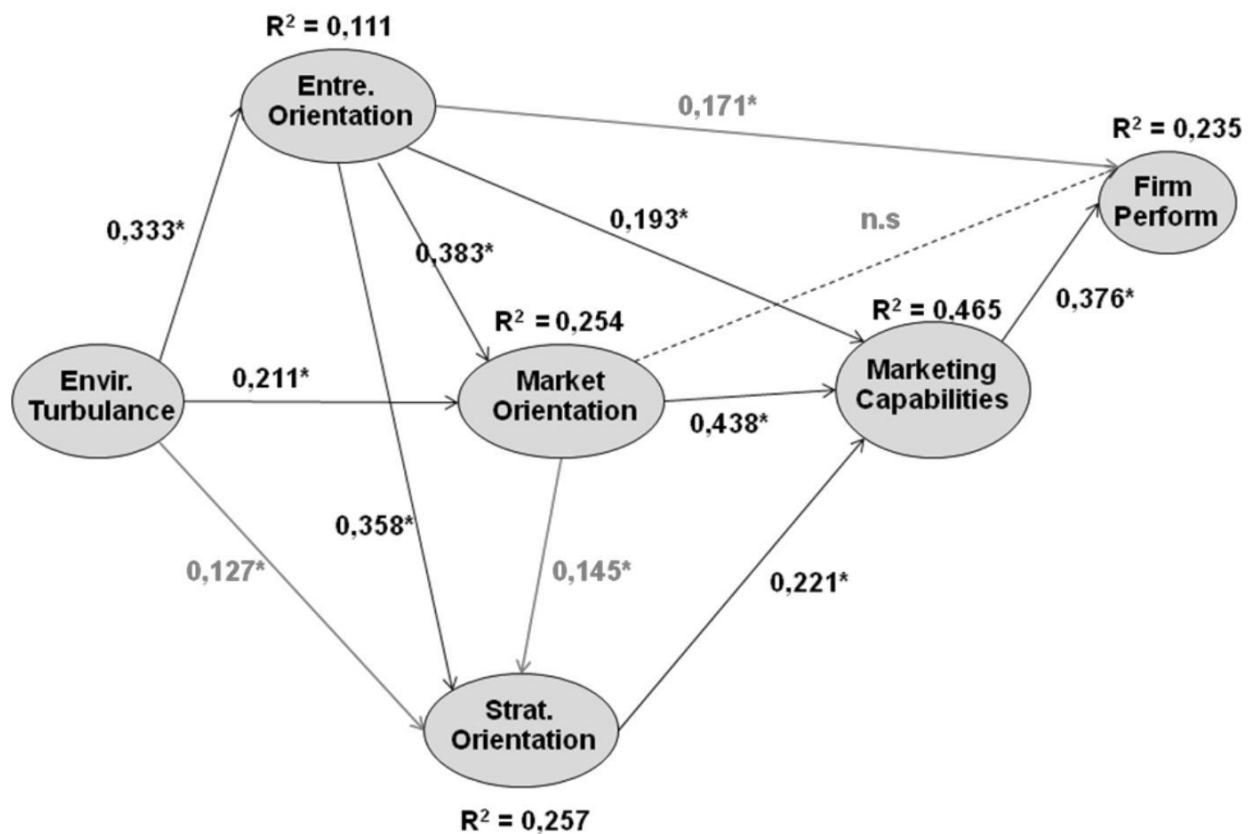
To test the relationships between various resources/capabilities and firm success, statistical technique for hypothesis testing i.e. multiple regression analysis and structural equation modeling (PLS and AMOS) is used.

5.3.1. Testing of the overall model using Smart PLS

For the measurement of SEM with empirical data, two different statistical methodologies can alternatively be applied: the covariance structure-analysis and PLS (Fornell & Bookstein, 1982). PLS was used as the conditions are less limiting and the sample size is relatively small (large samples are often required for assessing covariance structural models).

The statistical software application SmartPLS 2.0 (Ringle et al., 2005) for PLS-based path modeling with latent variables was applied to measure and test the causal model for the determinants of marketing capability and its impact on firm performance. All the constructs were modelled as single order constructs as PLS does not have the provision to model second order constructs. Summated scales were developed using Factor analysis and the resulting factor scores for each item were used to model the framework. The causal model and the empirical measurement results are illustrated in figure 5.2.

Fig 5.2: Path Coefficients using PLS



In the SEM (structural equation model) higher environmental turbulence (latent exogenous variable) results in to the highest impact (weight of 0,333) on the latent endogenous variable entrepreneurial orientation. Its effect on the market orientation has a lower weight (0,211), while the impact on strategic orientation (weight of 0,127) is the lowest.

While investigating the strategic orientation construct, entrepreneurial orientation has the highest impact (with a weight of 0,358) on the latent endogenous variable strategic orientation followed by market orientation (weight of 0,145) and that of environmental turbulence (weight of 0,127) .

In the case of the market orientation construct, entrepreneurial orientation results in to a higher impact (weight of 0,383) and the environmental turbulence (weight of 0,211) makes a smaller contribution to explain the latent variable market orientation.

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 0,438, the largest explanatory share for the latent endogenous variable marketing capabilities with an R^2 of 0,465. Strategic orientation follows next with a weight (0,221), while entrepreneurial orientation has the lowest weight (0,193).

In the final stage of the structural equation model, the impact of marketing capability on firm performance is tested. A higher level of marketing capability leads to higher value of firm performance (weight of 0,376) with an R^2 of 0,235.

The above 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. In the long run the higher level of marketing capabilities is determined by the direct and indirect effect of entrepreneurial orientation, market orientation, strategic orientation and environmental turbulence.

Entrepreneurial orientation has the highest total effect (Appendix B, Table B-4 Total Effects) on the development of marketing capabilities (weight of 0,458) followed by market orientation (weight of 0,448) and strategic orientation (weight of 0,223). Thus entrepreneurial orientation has the highest explanatory share for the latent endogenous variable marketing capabilities with an R^2 of 0,454. The influence of strategic orientation is considerably lower.

It can be seen further that entrepreneurial orientation has a very strong total effect on market orientation, strategic orientation and marketing capabilities. Therefore a strong focus and development of entrepreneurial orientation is very important instrument for the new technology based firms to achieve a high level of firm performance.

In order to assess the reliability of these results, the model evaluation is carried out as below.

Model Evaluation

There are no concluding recommendations for evaluating a SEM based on PLS. Therefore the model-assessment is based on the suggestions of Chin (1998). The parametric-based procedures for evaluating the covariance-fit under the application of the covariance structural approach are not appropriate for the distribution-free, non-parametric PLS-approach. Instead, prediction-oriented measures are used for the evaluation of the structural model. These tests can be carried out with the results of the statistical software application Smart PLS 2.0 and are applied for the evaluation of the structural model as well as the reflective measurement models. The Measures for the evaluation of PLS-model, proposed by Chin (1998) are given in Appendix C.

Evaluation of the reflective measurement model

The marketing capability latent variable is being measured by the following indicators i.e. product development, market research, promotions, pricing, channels and market management. As a latent construct, the variable explains the variance of each indicator to a great extent. The factor-loadings determine the power of the interrelations between marketing capability and its indicators. Assessing the empirical results, factor loadings in the reflective measurement model has a very high value of 0,857 for the market management indicator followed by promotions (factor loading 0,785) and market research (factor loading 0,738). Besides, the factor loadings of product development (0,64) and channels (0,635) are close to the minimum value demanded in literature. The factor loading for pricing is (0,533) is somewhat lower.

Entrepreneurial orientation is measured by the following indicators i.e. innovation, proactiveness and risk taking. As a latent construct, the variable explains the variance of each indicator to a great extent. The factor-loadings determine the power of the interrelations between entrepreneurial orientation and its indicators. Assessing the empirical results, all factor loadings in the reflective measurement model have a value higher than 0.8. 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 0,78. Therefore the variable explains the variance of each indicator to a great extent. Strategic orientation is measured by the indicators such as differentiation, cost based strategy and product scope strategy. Two of the indicators differentiation and product scope have a loading higher than 0,7. The cost based strategy indicator has a very low loading. Therefore there is a very low power of the interrelation between entrepreneurial orientation and cost based strategy. Environmental turbulence is measured by the indicators such as market turbulence and technological turbulence. All the indicators have a loading higher than 0,8. 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 ρ_C and the average variance extracted. The coefficient of reliability ρ_C – that indicates the internal consistency of the latent construct bundled indicator-variables – has an empirical value of 0,8 (see Table B-6) for all of the constructs except the strategic orientation construct which has a lower value of 0,56 but still close to the minimum recommended value. 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 except a value of 0,4 for strategic orientation.

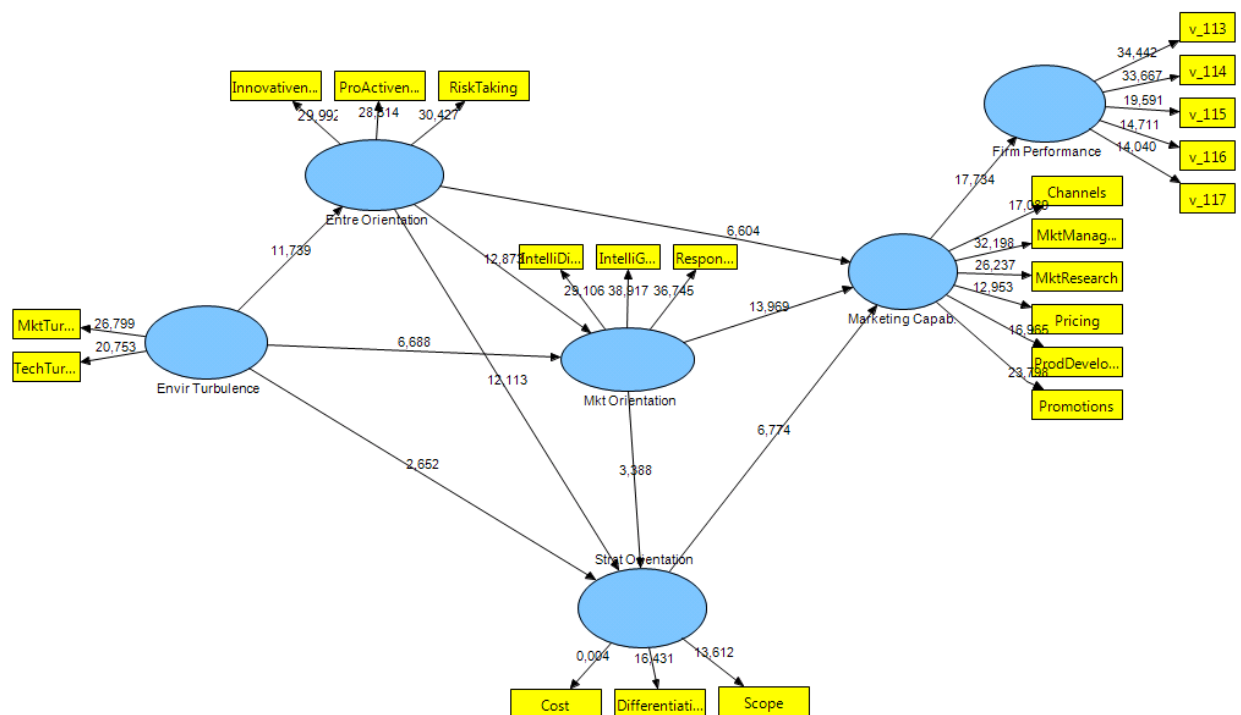
Furthermore, the discriminant validity of reflective measurement models must be assessed. Discriminant validity was assessed and discussed in the previous section and it is not discussed in this section. Hence, it can be noted that the indicators for all of the

constructs mentioned in the model are properly making the respective reflective constructs.

Evaluation of the structural model

The central criterion for evaluating the structural measurement model is the (rate of reliability) R^2 of the latent endogenous variable marketing capability, which has a value of 0,454. This “substantiated” result indicates that 45,4 percent of the variance of the latent endogenous variable marketing capability is explained by the latent variables entrepreneurial orientation, market orientation and strategic orientation. Similarly the R^2 of the latent endogenous variable firm performance has a value of 0,216. This “substantiated” result indicates that 21,6 percent of the variance of the latent endogenous variable firm performance is explained by marketing capability.

Fig 5.3 : t values using PLS (All values significant at the 0.01 level)



Additionally, the significance of the interrelations between marketing capability and entrepreneurial orientation (weight of 0,208), market orientation (weight of 0,418) as well as strategic orientation (weight of 0,224) has to be estimated using resampling

techniques (Chin & Newsted, 1999, p. 328). Therefore, the bootstrapping procedure (Efron & Tibshirani, 1993) has been applied. On this basis, a t-test has been carried out to determine the significance of the interrelations between the latent endogenous and the other latent variables. The results indicate that all the relations are statistically significant (see Appendix Table B-8).

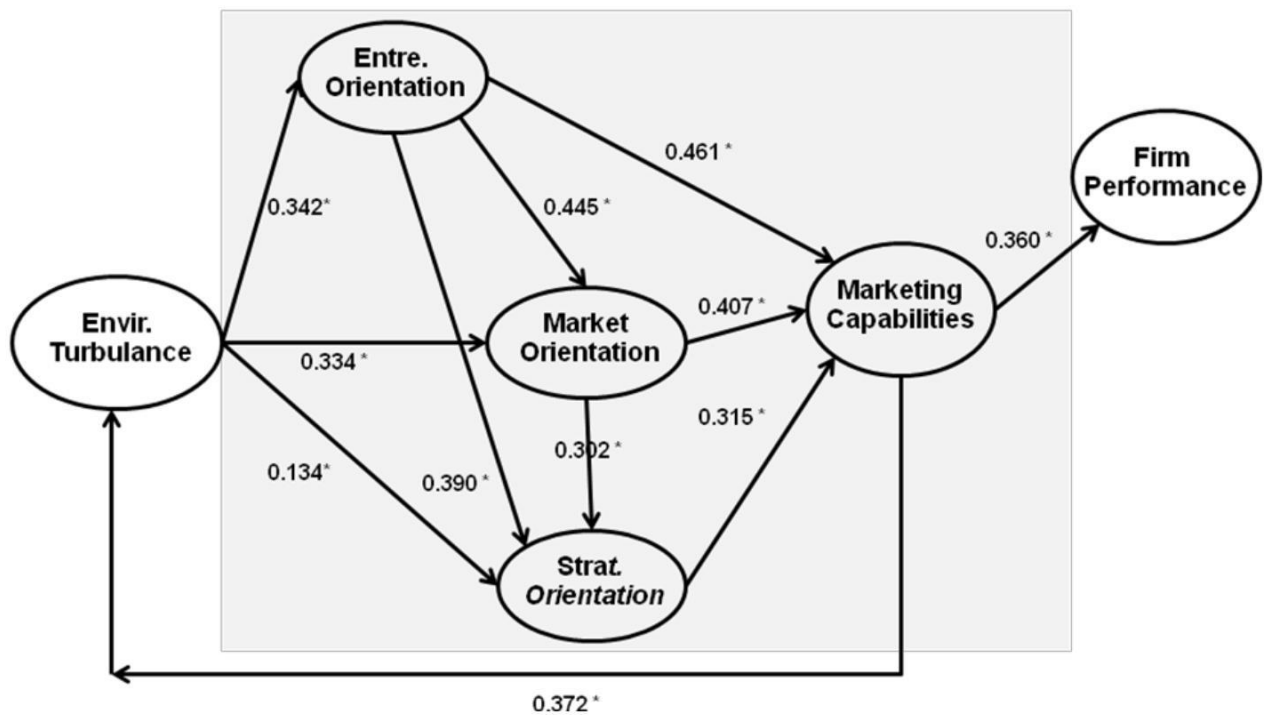
The detailed PLS quality criteria are given in Appendix B. The various tests are carried out using PLS Smart. Other results such as total effects, correlations between variables, path coefficients and composite reliability are given in Appendix B.

5.3.2. Testing of the overall Model using Regression Analysis and Comparison with PLS results

Multiple regression analysis is a statistical technique that provides an index of the degree of relationship (1 = perfect relationship, 0 = no relationship) between the criterion variable(s), on the one hand, and the weighted combination of the predictor variables as specified by the regression equation, on the other hand—that is, R (Hair et al., 2006). Regression analysis predicts changes in a dependent variable by simultaneously accounting for the impact of various independent variables via their weighted combination. Interpreting the results of regression analysis may be more easily evaluated by examining the R -squared (R^2) statistic, which indicates the proportion of variance in the dependent variable that is shared by the weighted combination of independent variables (Hair et al., 2006).

The results obtained from both methods are presented in the following tables. The results obtained using regression analysis confirms the results obtained using PLS. The only difference is in the case of the relationship between environmental turbulence and strategic management. PLS shows this relation to statistically significant. As the PLS based model tests the framework in a holistic way and the quality criteria is fulfilled, the PLS results are preferred.

Fig 5.4 : Results of the Model using Regression and Factor Analysis



5.3.3. Hypotheses 1: Impact of Environmental Turbulence on various capabilities

The sub hypotheses tested are as follows.

H1a: The higher the level of environmental turbulence, the higher is the entrepreneurial orientation.

H1b: The higher the level of environmental turbulence, the higher is the market orientation.

H1c: The higher the level of environmental turbulence, the higher is the strategic orientation.

Regression analysis was carried out with the environmental turbulence as the independent variable for each of the following dependent variable. The various statistics are reported in the following table.

Table 5.8 : Hypotheses 1

	Dependent Variable	R	R ²	F	Unstand-ardised Beta	t	PLS Path Coef.	Signif.
H1a	Entrepreneurial Orientation	0.333	0.111	17.45	0.342*	4.189	0.338	Sig
H1b	Market Orientation	0.331	0.110	17.334	0.334*	4.165	0.217	Sig
H1c	Strategic Orientation	0.132	0.017	2.495	0.134 ns	1.58 ns	0.117	Sig

* p < .05; ** p < .01; *** p < .001; ns: not significant model

5.3.4. Hypotheses 2: Impact of Entrepreneurial Orientation on various capabilities

The sub hypotheses tested are as follows.

H2a: The higher the level of entrepreneurial orientation of the firm, the higher is the marketing capabilities of the firm.

H2b: The higher the level of entrepreneurial orientation of the firm, the higher is the market orientation of the firm.

H2c: The higher the level of entrepreneurial orientation of the firm, the higher is the strategic orientation of the firm.

Regression analysis was carried out with the entrepreneurial orientation as the independent variable for each of the following dependent variable. The various statistics are reported in the following table.

Table 5.9 : Hypotheses 2

	Dependent Variable	R	R ²	F	Unstandardised Beta	t	PLS Path Coef.	Signif.
H2a	Marketing Capabilities	0.478	0.229	41.799	.461*	6,465	0.208	Sig
H2b	Market Orientation	0.453	0.205	36,343	.445*	6.029	0.374	Sig
H2c	Strategic Orientation	0.394	0.155	25,926	.390*	5.092	0.371	Sig

* p < .05; ** p < .01; *** p < .001; ns: not significant model

5.3.5. Hypotheses 3: Impact of Marketing Orientation on various Capabilities

The sub hypotheses tested are as follows.

H3a: The higher the level of market orientation of the firm, the higher is the marketing capabilities of the firm.

H3b: The higher the level of market orientation of the firm, the higher is the strategic orientation of the firm.

Regression analysis was carried out with the market orientation as the independent variable for each of the following dependent variable. The various statistics are reported in the following table.

Table 5.10 : Hypotheses 3

	Dependent Variable	R	R ²	F	Unstandardised Beta	t	PLS Path Coef.	Signif.
H3a	Marketing Capabilities	0.582	.338	72.129	.407*	8.493	0.418	Sig
H3b	Strategic Orientation	0.297	.088	13.664	.302*	3.696	0.138	Sig

* p <.05; ** p <.01; *** p <.001; ns: not significant model

5.3.6. Hypotheses 4: Impact of Strategic Orientation on Marketing Capabilities

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

Regression analysis was carried out with the strategic orientation as the independent variable and marketing capability as the dependent variable. The various statistics are reported in the following table.

Table 5.11 : Hypotheses 4

	Dependent Variable	R	R ²	F	Unstandardised Beta	t	PLS Path Coef.	Sig
H4	Marketing Capabilities	0.323	0.105	16,462	0.315*	4.057	0.224	Sig

* p <.05; ** p <.01; *** p <.001; ns: not significant model

5.3.7. Hypotheses 5: Impact of Marketing Capability on Firm Performance

H5: The higher the level of Marketing Capability, the higher is the firm performance.

Regression analysis was carried out with the marketing capability as the independent variable and firm performance as the dependent variable. The various statistics are reported in the following table.

Table 5.12 : Hypotheses 5

	Dependent Variable	R	R ²	F	Unstandardised Beta	t	PLS Path Coef.	Sig
H5	Firm Performance	0.354	0.125	20.139	0.360*	4.488	0.485	Sig

* p <.05; ** p <.01; *** p <.001; ns: not significant model

5.3.8. Hypotheses 6: Impact of Marketing Capability on Environmental Turbulence

H6: The higher the Marketing Capability the higher the Environmental Turbulence a firm can create.

Regression analysis was carried out with the marketing capability as the independent variable and environmental turbulence as the dependent variable. The various statistics are reported in the following table.

Table 5.13 : Hypotheses 6

	Dependent Variable	R	R ²	F	Unstandardised Beta	t
H6	Environmental Turbulence	0.372	0.139	22.715	0.372*	4.766

* p <.05; ** p <.01; *** p <.001; ns: not significant model

5.3.9. Testing the Sub Model: Impact of Entrepreneurial Orientation on Marketing Capabilities using AMOS

Covariance based structural equation modelling software; AMOS (Analysis of moment structures ver. 17.0) was used to test the model. Due to the high complexity of the model (many second order constructs and about 84 items), the identification issues

resulted in the misfitting of the model. The model was therefore divided in to sub models and some of them were tested to confirm the results obtained using PLS based structural equation modelling.

Fig. 5.5 depicts the model comprising entrepreneurial orientation and marketing capabilities. The results show reasonably good overall model fit and supports the hypotheses H2. The values of the fit indices are pretty high. The structural path estimate is significant. The loading estimates are significant and consistent with the theoretical expectations.

Table 5.15 shows the overall fit statistics of resulting from testing the model. The chi square is 45,081 with 26 degrees of freedom ($p < 0.05$). The RMSEA value is less than the recommended value of .08 and it is within a range that is associated with good fit. The model CFI is ,949 and GFI is ,931 which indicate a good fit.

Fig 5.5 Path Coefficients using AMOS

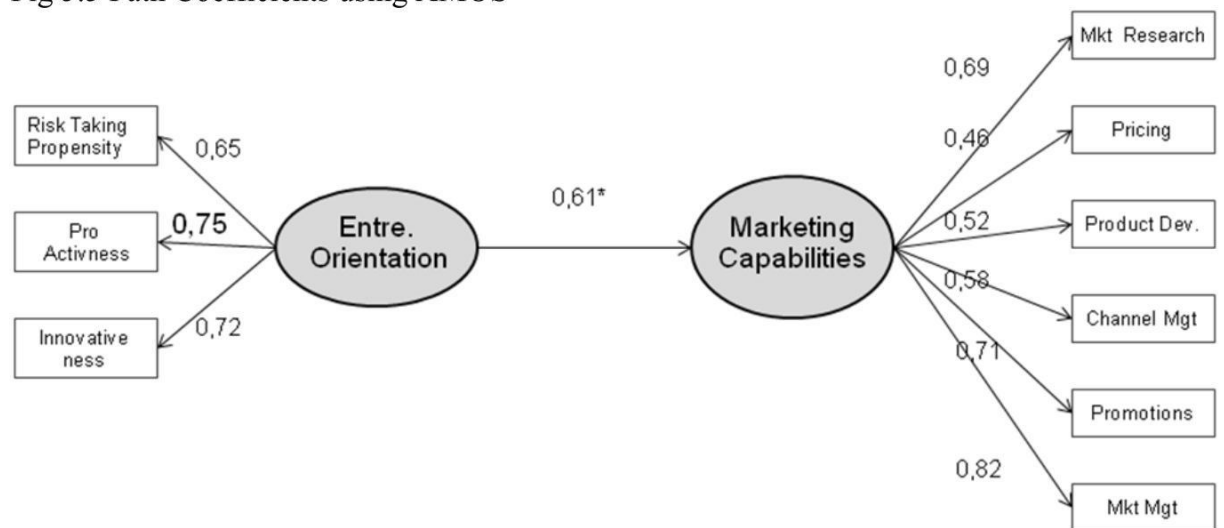


Table 5.14: Various outputs of AMOS

Regression Weights

	Standadardised Estimate	S.E.	C.R.	P
Marketing_Capabilities <--- Entreprenurial_Orientation	,574	,116	4,950	***
RiskTaking <--- Entreprenurial_Orientation	1,000			
ProActiveness <--- Entreprenurial_Orientation	1,057	,157	6,731	***
Innovativeness <--- Entreprenurial_Orientation	,911	,145	6,263	***
MktResearch <--- Marketing_Capabilities	1,000			

		Standadardised Estimate	S.E.	C.R.	P
Pricing	<--- Marketing_Capabilities	,689	,139	4,948	***
ProdDevelopment	<--- Marketing_Capabilities	,771	,139	5,545	***
Channels	<--- Marketing_Capabilities	,832	,137	6,073	***
Promotions	<--- Marketing_Capabilities	1,032	,143	7,241	***
MktManagement	<--- Marketing_Capabilities	1,191	,149	7,992	***

Table 5.15 Fit Indices

Chi-square = 45,081

Degrees of freedom = 26

Probability level = ,012

RMSEA (Root Mean Square Error of Approximation)

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,072	,034	,106	,148
Independence model	,270	,247	,294	,000

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,061	,931	,881	,538
Saturated model	,000	1,000		
Independence model	,325	,486	,358	,389

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,890	,848	,950	,929	,949
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

5.3.10. Testing the Sub Model: Impact of Market Orientation on Marketing Capabilities using AMOS

Fig. 5.6 depicts the model comprising market orientation and marketing capabilities. The model is a very good fitting model and supports the hypotheses H3. The values of the fit indices are pretty high. The structural path estimate is significant. The loading estimates are significant and consistent with the theoretical expectations.

Table 5.17 shows the overall fit statistics of resulting from testing the model. The chi square is 40,501 with 26 degrees of freedom ($p < 0.05$). The RMSEA value is less than the recommended value of .08 and it is within a range that is associated with good fit. The model CFI is ,969 and GFI is ,937 which indicate a good fit.

Fig 5.6: Path Coefficients using AMOS

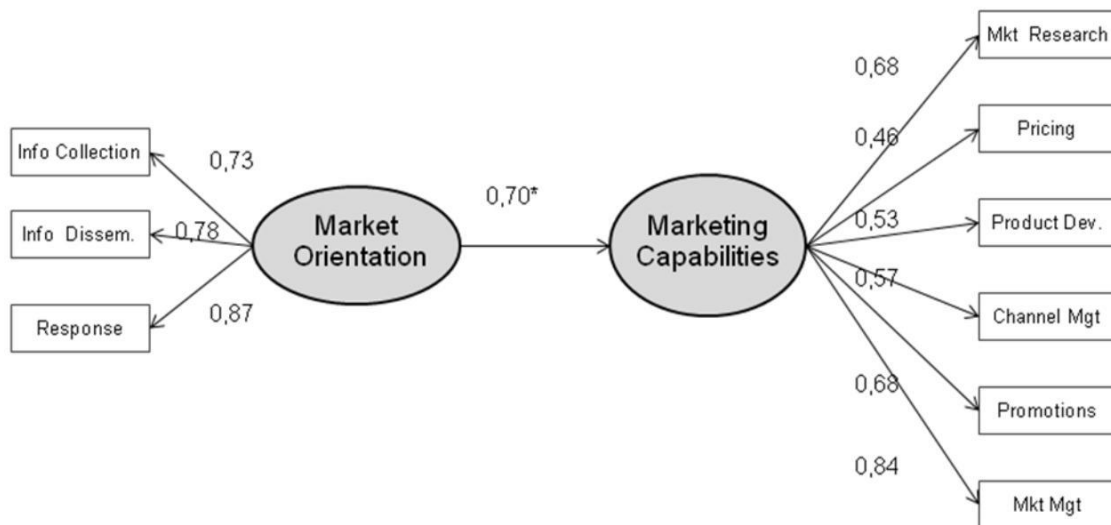


Table 5.16: Various output of AMOS

Regression Weights

			Standadardised Estimate	S.E.	C.R.	P
Marketing_Capabilities	<---	Market_Orientation	,548	,086	6,364	***
Response	<---	Market_Orientation	1,000			
IntelliDissemination	<---	Market_Orientation	,905	,093	9,706	***
IntelliGeneration	<---	Market_Orientation	,826	,091	9,110	***
MktResearch	<---	Marketing_Capabilities	1,000			
Pricing	<---	Marketing_Capabilities	,689	,139	4,966	***
ProdDevelopment	<---	Marketing_Capabilities	,784	,138	5,665	***
Channels	<---	Marketing_Capabilities	,821	,136	6,033	***
Promotions	<---	Marketing_Capabilities	1,000	,141	7,104	***
MktManagement	<---	Marketing_Capabilities	1,225	,149	8,240	***

Table 5.16: Various output of AMOS

Table 5.17 Fit indices

Chi-square = 40,501

Degrees of freedom = 26

Probability level = ,035

Model	RMR	GFI	AGFI	PGFI
Default model	,053	,937	,891	,541
Saturated model	,000	1,000		
Independence model	,363	,427	,283	,341

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,918	,887	,969	,956	,969
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

RMSEA (Root Mean Square Error of Approximation)

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,063	,017	,099	,268
Independence model	,300	,277	,324	,000

6. General Discussion

The purpose of the final chapter is to summarize the results of the study, explain those results, describe limitations, and suggest possible future research directions. First, the chapter contains a discussion of the results presented in Chapter 5. Second, the results of Chapter 5 are placed within the context of the current academic literature. Following the theoretical implications, a discussion of the study's relevance to managers is presented. Next, the study's limitations are highlighted. Finally, the last section suggests possible directions for future research

6.1. DISCUSSION OF FINDINGS

The central purpose of this research is to verify the main prescription of the RBV and competence based management theory. Resources/capabilities are operationalized across four constructs: entrepreneurial orientation, market orientation, strategic orientation and marketing capabilities. The integrative model consists of the external environment variables, the various capabilities and firm performance. The integrative model describes the various hypotheses to be tested. A summary of the findings of this study is provided below.

The first hypotheses assess the impact of environmental turbulence on the internal capabilities of the firm.

Hypotheses 1	Findings
H1a: The higher the level of environmental turbulence, the higher is the entrepreneurial orientation.	Sig
H1b: The higher the level of environmental turbulence, the higher is the market orientation.	Sig
H1c: The higher the level of environmental turbulence, the higher is the strategic orientation.	Sig

All of the three sub hypotheses are supported in this research. An environment is considered turbulent when it produces many rapid changes. The sub dimensions of environmental turbulence used in this research 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 Jaworski, 1990). Turbulence

evokes fear, uncertainty and doubt among sellers and buyers alike, and forces firms to be more entrepreneurial, market oriented and have a coherent business strategy.

Higher levels of environmental turbulence have significant impact on the entrepreneurial orientation of the firm and require firms to demonstrate more adaptability and flexibility in approaching competitors and customers, to have high levels of innovation and entrepreneurship. As the environments become fairly turbulent, marketers must take responsibility for introducing greater levels of entrepreneurship into all aspects of the firms marketing efforts.

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 Jaworski, 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 Jaworski, 1990; Jaworski and Kohli, 1993; Slater and Narver, 1995).

Environmental variation has been reported to impact on the strategy of the organization (e.g. Duncan, 1972; Hrebiniak and Joyce, 1985). Miller et al., (1988), posited that more turbulent environments were shown to be related to the development of a strategic orientation. Therefore firms must adopt a coherent business strategy to focus their energies in these turbulent times.

Hypotheses 2

Hypotheses 2, examines the impact of entrepreneurial orientation on marketing capabilities, market orientation and strategic orientation of the firm.

Hypotheses	Findings
H2a: The higher the level of entrepreneurial orientation of the firm, the higher is the marketing capabilities.	Sig
H2b: The higher the level of entrepreneurial orientation of the firm, the higher is the market orientation.	Sig

H2c: The higher the level of entrepreneurial orientation of the firm, the higher is the strategic orientation.	Sig
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The hypotheses support that the higher level of entrepreneurial orientation has strong impact on marketing capabilities, market orientation and strategic orientation of the firm. These impacts will be discussed one by one.

In a turbulent environment 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. Therefore a higher entrepreneurial orientation has a strong impact on the various marketing capabilities and firms tend to be innovative, proactive and risk assumptive while conducting new product development, pricing, promotion, distribution, market management and market research tasks. 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 2002).

A higher entrepreneurial orientation is found to have a strong impact on the market orientation of the firm. Kaish and Gilad (1991) state that entrepreneurs are avid information searchers. Entrepreneurial orientation increase a firm's information acquisition and utilization activities in creative, proactive and risk-taking ways. In most cases, information acquisition and utilization tend to be risky as they involve substantial effort and expenditures. In addition, the outcomes of these activities are uncertain as they depend on many other influencing factors. Therefore, only firms with high levels of entrepreneurial orientation are likely to be active in information acquisition and utilization.

Zaltman (1986) argues that in firms having a pro-innovation bias, information is more likely to be shared and used. The innovativeness aspect of entrepreneurial orientation would promote change and creative behaviors, which encourage active exchange of

ideas, increase information flows and novelty in new product development (Menon and Varadarajan, 1992; Han et al., 1998).

Moreover, having a proactive orientation involves discovering and satisfying the latent, unarticulated needs of customers through collecting customer and competitor-based information (Slater and Narver, 1998). As such, firms that display high levels of entrepreneurial orientation tend to constantly scan and monitor their operating environment in order to find new opportunities and strengthen their competitive positions (Covin and Miles, 1999).

Similarly a higher entrepreneurial orientation leads to a higher strategic orientation of the firm. A firm that is innovative, proactive and risk assumptive is better able to articulate a coherent strategy. Many studies have reported a direct impact of entrepreneurial orientation on the firm performance. In the present study this direct impact is not modeled in the integrative framework as it is postulated that entrepreneurial orientation impacts firm performance through a mediating impact of marketing capabilities. The direct impact of entrepreneurial orientation on firm performance was tested and found to be less than that through marketing capability.

Hypotheses 3

Hypotheses	Findings
H3a: The higher the level of market orientation of the firm, the higher is the marketing capabilities.	Sig
H3b: The higher the level of market orientation of the firm, the higher is the strategic orientation.	Sig

Hypotheses 3 supports that a higher level of market orientation impacts the marketing capability and the strategic orientation of the firm. These sub hypotheses are discussed in detail.

A higher marketing orientation leads to a higher level of information collection, dissemination and response capability. The traditional literature based on the resource based theory posits that firms with superior firm market orientation achieve superior

business performance because they have a greater understanding of customers expressed wants and latent needs, competitors capabilities and strategies, channel requirements and developments, and the broader market environment requirements than their rivals (e.g., Hult and Ketchen, 2001; Jaworski and Kohli, 1993). A higher market orientation leads to a strong impact on the various components of the marketing capability. Firms with higher market orientation lead to strong product development, pricing, promotion, market research, market management and distribution capabilities. In sum, from all these arguments, market orientation is an organizational resource which leads to the development of marketing capabilities.

Hypotheses H3b supports that a strong market orientation leads to a strong strategic orientation. Morgan and Strong (1998) posit that the market orientation conditions the type of strategy developed and the effects of market orientation are manifest in the form of strategic orientation adopted by the organisation.

Hypotheses 4

Hypotheses 4 examines the impact of strategic orientation of the firm on the marketing capabilities.

Hypotheses	Findings
H4a: The higher the level of strategic orientation of the firm, the higher is the marketing capabilities.	Sig

Hypotheses 4 supports that a high level of strategic orientation leads to higher levels of marketing capabilities. The formulation of a business strategy appropriate to the demands of the business, including environmental factors, such as customer needs and competitor actions, as well as internal issues, such as process improvements and quality initiatives, is necessary to provide direction to the firm (Day, 1990; 1994). Based on the strategic direction provided by a coherent business strategy, marketing managers can develop functional marketing strategies and implementation plans designed to achieve the goals of the strategy. As a result the development of a coherent business strategy is seen as having a direct, positive impact on the development of marketing capabilities.

Hypotheses 5

Hypotheses	Findings
H5: The higher the level of marketing capability, the higher is the firm performance.	Sig

Hypotheses 5 supports that a higher level of marketing capabilities leads to higher firm performance. Higher level of marketing capabilities is expected to affect both the financial and nonfinancial outcomes (Narver and Slater 1990, Davis, Morris and Allen 1991; Miles and Arnold 1991; Jaworski and Kohli 1993). Higher marketing capabilities enable the firm to understand its customers in a better way, invest in new product development, price the product in a competitive way, effective management of distribution channel, promotion of the product and the overall ability to coordinate action among the diverse elements in the firm needed to implement a marketing program.

Hypotheses 6

Hypotheses	Findings
H6: The higher the marketing capability the higher the environmental turbulence a firm can create.	Sig

Hypotheses 6 is significant and support that the higher the marketing capabilities of firms the higher the environmental turbulence a firm can create. This reflects the fact that marketing capability is not simply a response to the external environment, but can rather serve to redefine the environmental conditions. The entrepreneurial marketer serves as a pioneering role. The creation of new markets, products, distribution channels and communication approaches can represent minor to major disruptions in the external environment.

Given the above findings, the data suggests full support for all of the hypotheses. The association between capabilities and firm performance is not surprising as this is central in the RBV theory. However, surprisingly the present work suggests that marketing capabilities play a crucial role in firm performance. The role of marketing capability as a mediator leads to a much higher firm performance than without it. The direct paths from entrepreneurial and market orientation to firm performance were also modeled as

in appendix D. Surprisingly the direct paths from entrepreneurial orientation, market orientation and strategic orientation to firm performance exhibit a small value and they are not significant in the case of market and strategic orientation. This phenomenon indicates the importance of the development of marketing capabilities.

Details of the marketing capability construct

The various components of the marketing capability construct have varying degree of importance. The over overall ability to coordinate among the diverse elements in the firm, to implement a marketing program is the most important capability as it has the highest factor loading followed by marketing research capability, promotions capability, product development capability, channels management capability and the pricing capability.

The above findings support other work done in this area. A discussion with some of the entrepreneurs also reinforced the fact that the ability to coordinate among the diverse elements of the firm to implement the marketing program was very important. The small firms in this study had a higher ability to coordinate among the various departments. These firms were also very good at knowing their customers through marketing research. The marketing research in most of the cases was informal as the entrepreneurs had a work experience in the same industry and not only knew the customer but held close and intimate relationships with them. Their knowledge about the customer needs along with the intimate relationship with the customer helped them in promoting their products/services and convincing the customers to use the product. The superior technological knowhow along with information of the customer needs enabled them to build a strong product development capability.

Details of the strategic orientation construct

Strategic orientation is measured by the indicators such as differentiation, cost based strategy and product scope strategy. Two of the indicators product differentiation and product scope have a loading higher than 0,7. The cost leadership indicator has a very low loading. Therefore there is a very low power of the interrelation between strategic orientation and cost based strategy. These new technology based firms were more

focused on product differentiation and product scope and were not interested in cost based leadership. The reason for this was that these firms had a very differentiated and a niche product and there was no immediate competitor. This enabled most of the firms to charge premium prices. This indicator could have been removed due to low loading. However the removal had a negligible impact on the overall model, therefore it was retained.

Discussion of the overall model

A review of the integrative structural equation model results indicates that a higher level of marketing capability leads to higher value of firm performance.

Therefore the development of marketing capabilities is an important instrument to achieve a high level of firm performance. Higher levels of marketing capabilities are determined by the direct and indirect effects of entrepreneurial orientation, market orientation, strategic orientation and environmental turbulence.

Entrepreneurial orientation has the highest total effect on the development of marketing capabilities followed by market and strategic orientation. Thus entrepreneurial orientation has the highest explanatory share for the latent endogenous variable marketing capabilities with an R^2 of 0,454.

However it can be seen further that entrepreneurial orientation has a very strong total effect on market orientation, strategic orientation and marketing capabilities. Therefore a strong focus and development of entrepreneurial orientation is very important for the new technology based firms to achieve a high level of firm performance.

6.2. THEORETICAL IMPLICATIONS

This section highlights the important theoretical implications arising from the study. All of the hypotheses posited in the integrated framework are true and significant and therefore support the framework.

The proposed frame work supports the resource based view of the firm as the impact of various capabilities on firm performance is strong and significant. Moreover the integration of the internal and external variables in to a frame work that has a feedback loop tests the competence based management theory.

The proposed framework highlights the importance of marketing capabilities in the model. Previous work highlighted the impact of entrepreneurial, market and strategic orientation on firm performance. However the present work suggests that marketing capabilities play a crucial role in firm performance. The role of marketing capability as a mediator leads to a much higher firm performance than without it. The direct paths from entrepreneurial and market orientation to firm performance were also modeled as in appendix D. The path coefficients were small and even not significant in the case of market orientation.

Moreover the internal variables of the firm impact each other in various ways as posited in the framework. This confirms some of the earlier work and implies the importance of these internal capabilities.

Entrepreneurship provides a filter through which organizations view and direct market intelligence processes. That is, entrepreneurship influences the way in which market orientation and strategic orientation processes are performed. This view is consistent with the dynamic capabilities perspective (Teece et al., 1997) in which the learning between, and the coordination and reconfiguration of, key organizational competencies leads to competitive advantage. The effect of entrepreneurship on market orientation processes may occur in a number of ways. For example, embracing constructive risk taking may drive organizations to continually revise the sources from which their market intelligence is generated. This enables a firm to generate additional insight while managing their exposure to risk (i.e., affecting the quality of intelligence generation). An organization that is proactive in its approach to product development is likely to demonstrate a similar proactive approach in seeking out those within the organization who most require market intelligence (i.e., affecting the quality of intelligence dissemination). Innovativeness will lead organizations to incorporate market intelligence in novel ways (i.e., affecting the quality of intelligence responsiveness).

Firms should place particular emphasis on the collection, analysis and dissemination of information within the company and then taking appropriate action to this information. This finding is encouraging as there is a large body of literature that supports the argument that higher levels of market orientation would lead to a better organizational performance (Kara 2005).

Firms should place particular emphasis on the collection, analysis and dissemination of information within the company and then taking appropriate action to this information. The information acquisition and utilization are important and salient for firms that have high levels of entrepreneurial orientation. Business owners should have creative, proactive and risk taking ways to seek innovative information and utilize the acquired information. Firms that closely monitor customers needs tend to improve creativity by producing novel and meaningful offerings and marketing programs that in turn reinforce organizational innovations through the firm's entire business system (Im and Workman, 2004).

A deep understanding of customers, such as their purchasing habits, psychological makeup and lifestyles can help the small firms to conduct better market segmentation and find new niche markets. Second entrepreneurial willingness to dominate competitors by a combination of proactive and aggressive moves can be more effectively realized by acquiring and using information about customers and competitors. With the appropriate information, the small firms can have a better understanding of their customers changing needs and act accordingly. Finally intelligent entrepreneurial risk management also demands information acquisition and utilization because it is widely recognized that information can reduce risk during decision making. With valuable information, the new technology based firms can evaluate their options, identify the most profitable opportunity and thus control uncertainty to some extent (Keh et al., 2002). In this way the new technology based firms can exploit risky opportunities as well as lessen unnecessary uncertainty. Over all the results support that having an entrepreneurial orientation pays off in the long run (Wiklund, 1999)

6.3. MANAGERIAL IMPLICATIONS

Competition is a dynamic phenomenon: markets change, the rules of competition change, technology changes, and therefore success is not permanent. Thus, a critical issue for managers is how they can guide their organizations to a consistent level of success. Of course, there are no definitive answers. However, the results of the present study provide insights that might be helpful to managers. This section highlights the following important managerial implications arising from the study: 1) the value of intangible resources; 2) the role of marketing capability; 3) the important components of marketing capability that impact firm success.

The intangible resources like entrepreneurial orientation, market orientation, strategic orientation and marketing capabilities lead to superior firm performance.

The posited frame work describe the role and impact of various capabilities on each other and how they help in developing marketing capabilities, which in turn leads to firm performance. This study highlights the necessity of firms to develop superior entrepreneurial 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.

The entrepreneurs need to critically evaluate and maintain competencies in market intelligence generation, dissemination, and responsiveness over time. Managers should look for opportunities to improve the way in which intelligence is generated (e.g., deriving information from multiple sources, using different channels in obtaining market information). Similarly, management might revise the way in which market intelligence is disseminated throughout the organization, such as prioritizing those to whom information is most relevant.

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., 2000). Being the first to uncover such latent needs provides impetus to adjust the marketing mix elements accordingly.

As the managers develop entrepreneurial and market orientation, they have to focus on their strategic orientation and come up with a coherent business strategy. A coherent business strategy will help them in directing their resources in the best possible way. 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. Finding 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.

6.4. RESEARCH LIMITATIONS

No research study is without limitations and the present one is no exception. It is important to understand the limitations inherent in this study. One of the limitations of the study is that it incorporates a limited number of internal firm capabilities i.e. entrepreneurial, markets, strategic and marketing capabilities. Other important resources and capabilities were left to keep the model parsimonious.

Another limiting issue is the use of the key informant approach (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 (Barnes, 1984, 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, 1995) and this may bias the results.

Alternatives to key informant approaches were discussed by Slater (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 respondent's demographics demonstrate, care in respondent selection, yielded responses from knowledgeable top marketing decision makers. 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 area. Therefore small technology firms in other parts of the country and the world shall also be studied to verify and generalise the results in this study.

Any control variables i.e. personal characteristics (educational levels) which could affect the owners entrepreneurial, market, strategic and marketing capabilities and other industry characteristics were not utilised in the study.

Another limitation of this study is its cross sectional design. An important step for further research is the collection and analysis of longitudinal data to rule out alternative explanations.

6.5. FUTURE RESEARCH DIRECTIONS

Although there are many possible future research directions, the discussion below focuses on three prominent options. Specifically, the discussion centers on: 1) construct refinement; 2) expanding the resources under study; and 3) the study of resource interactions.

The marketing capability constructs needs to be refined further to contain the other facets of entrepreneurial marketing capability not covered in this construct. Some of the other elements for the marketing capability construct as proposed by Vorhies (2005) are marketing communication (public relation skills, brand management skills and processes and developing and executing advertising programs) and selling capabilities (selling skills, sales management and sales support).

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

A thorough and detailed investigation in to the impacts of entrepreneurial orientation on the various components of market orientation i.e. information acquisition, dissemination and response shall be done independently to understand the importance of these linkages (Keh et al., 2002).

Many resources and capabilities interact with other resources. These interaction effects have to be understood and considered for future research. Some of the possible interactions are as follows. The moderating effect of environmental turbulence on the entrepreneurial orientation and marketing capability relationship is one such area. Slater and Narver (1994) state that the possibility of a moderating effect is consistent with the theory that environment moderates the effectiveness of organisational characteristics.

Numerous studies have found that the effectiveness of a particular strategic orientation is contingent on the dynamics of the market. Therefore the moderating impact of the environmental turbulence on various relationships can be tested in future research.

In a similar fashion other moderating effects can be tested. The interaction effect of entrepreneurial orientation on the market orientation and marketing capability relationship can be tested.

The diversity of approaches in the literature indicates that the combinative effects of market orientation and entrepreneurship on firm performance are undoubtedly complex. Clearly, both orientations are important and potentially complementary (Atuahene-Gima and Ko, 2001). Bhuian (2005) has investigated the moderating effect of entrepreneurship on the relationship between market orientation and performance in a sample of not for profit hospitals. A similar research can be carried out in the new technology based firms.

Drawing on traditional resource-based theory and its recent dynamic capabilities theory extensions, Morgan and Vorhies (2009) examine both the possession of market orientation and the marketing capabilities through which resources are deployed into the marketplace as drivers of firm performance in across-industry sample. They report that the interaction between a firm's market orientation and marketing capabilities is positively associated with the firm's business performance. A similar investigation on the small and technology firms is proposed.

6.6. CONCLUSION

This study has provided useful insights into the marketing capability construct and the various factors influencing the marketing activities in the small technology firms. An integrative framework models the various internal resources (capabilities) and external factors like environmental turbulence (market and technological turbulence). The various hypotheses posited in the study are empirically tested and found to be significantly true. The various firm capabilities i.e. entrepreneurial orientation, market orientation and strategic orientation have a positive impact on the development of

marketing capabilities. Furthermore, the firms with highly developed marketing capabilities demonstrate high level of firm performance.

In short this study has contributed in the following areas by

- Solidifying a framework regarding marketing capabilities within which resources and capabilities are more adequately conceptualized and measured. An integrative framework of the determinants and outcomes of marketing capabilities in the context of small technology firms enhances and contributes to the capability and competence-based strategic management theory and moreover adds on to the relatively new research area of the entrepreneurship and marketing interface.
- Empirical testing of the framework to test the resource based view and the competence based management theory in the context of new technology based firms.
- Improving the generalisability of the results by examining the various capabilities in new technology based firms in the manufacturing and services sector.
- Helping managers better understand the role of marketing capabilities in achieving a sustainable competitive advantage and to know to invest in the important resource and capability base. Managers interested in sustained competitive advantage should invest in developing and enhancing those resources and capabilities that impact marketing capabilities. Moreover the managers shall focus and develop those marketing capabilities which enhance 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 supports the framework posited by Morris (2002).

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LIST OF APPENDICES

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APPENDIX A - Questionnaire



Technische Universität Berlin

Lehrstuhl für Marketing

Univ.-Prof. Dr. Trommsdorff

Determinants of Marketing Capabilities in Alumni Companies

Empirical Survey

A research project at

Lehrstuhl für Marketing
Technical University Berlin

Please help us to better understand the concept of marketing capability and gain privileged access to the results!

Instructions for filling out the questionnaire

1. Preliminary remarks
 - a. Please complete the questionnaire.
 - b. You can also fill it out online at <http://www.unipark.de/uc/shahid/f68a/>
 - c. You will need 15 minutes to complete the questionnaire.
 - d. You will be asked questions on
 - i. Environmental turbulence
 - ii. Strategic Orientation
 - iii. Entrepreneurial Orientation
 - iv. Market Orientation
 - v. Marketing Capability
 - vi. Organisational Performance
2. When answering the questions, we kindly ask you to consider the following.
 - a. Do not hesitate to provide us with estimates. We are asking specifically for your personal judgement.
 - b. A fully completed questionnaire is very valuable to us. However do not hesitate to send us an incomplete questionnaire, If you feel uncomfortable answering a particular question.
3. If you are interested in the study results type yes here.

If you have any questions, do not hesitate to contact us:

Shahid Qureshi Department of Marketing Technical University, Berlin Phone:0049-30-31424769 http://www.marketing-trommsdorff.de Shahid@marketing-trommsdorff.de	
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PART A: Strategic Orientation of your company

Please rate your company on a scale of 1 (Not at all) to 7 (Extensively)

Differentiation: To what extent is the strategy of your business to	1	2	3	4	5	6	7
1. Provide unique products or services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Offer higher quality products and / or services than your competitors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Offer innovative products and services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Offer highly differentiated products and services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Offer products and / or services with distinctly different features from those of competing products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cost Leadership: To what extent is the strategy of your business to	1	2	3	4	5	6	7
1. Be the lowest cost producer in your industry?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Provide your customers with the lowest prices among your major competitors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Emphasise efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Strive for high volume to spread costs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Market Scope: Compared to your competitors, to what extent does your business strategy call for	1	2	3	4	5	6	7
1. Offering more products and/or services than your competitors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Offering a broader range of products / services than competitors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Serving more market segments than your competitors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART B: Entrepreneurial Orientation of your company

Please rate your company on a scale 1 (Not at all) to 7 (Extensively)

In general, the top managers of my firm favour:

A strong emphasis on the marketing of tried and true products

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

A strong emphasis on R&D, technological leadership, and innovations.

In the past five years:

My firm has marketed no new products /services

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

My firm has marketed many new products /services

Changes in products /services have been minor

☐ ☐ ☐ ☐ ☐ ☐ ☐

Changes in products /services have been dramatic

In dealing with its competitors, my firm:

Typically responds to actions which competitors initiate

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

Typically initiates actions to which competitors then respond.

Is very seldom the first business to introduce new products / services, administrative techniques, technologies etc

☐ ☐ ☐ ☐ ☐ ☐ ☐

is very often the first business to introduce new products / services, administrative techniques, technologies etc

Typically seeks to avoid competitive clashes, preferring a live and let live" posture.

☐ ☐ ☐ ☐ ☐ ☐ ☐

Typically adopts a very competitive, "undo the competitors" posture.

Top managers of this firm

have a strong tendency for low risk projects (with normal rates of return)

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

have a strong tendency for high risk projects (with chances of very high rates of return)

A policy of growth primarily financed through internally generated funds

☐ ☐ ☐ ☐ ☐ ☐ ☐

A policy of growth primarily financed through external sources such as borrowing.

Top managers of my firm believe that it is best to explore new opportunities cautiously via "one step at a time" adjustments.

1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐

Bold and wide ranging changes are necessary to achieve the firms objectives.

When confronted with external uncertainty, my firm

adopts a cautious "wait and see" posture in order to minimise costly mistakes.

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

Adopts a "bold and aggressive" posture to maximise potential opportunities.

PART C: Market Orientation of your company

1 (Not at all) to 7 Extensively)

Intelligence Generation: Please indicate how much you agree with the following statements.	1	2	3	4	5	6	7
1. We meet with customers at least once a year to find out what products/services they will need in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. We survey end users at least once a year to assess the quality of our products/services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. We often talk with or survey those who can influence our end users purchases(e.g. retailers or distributors)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. We collect industry information through informal means.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. We periodically review the likely effect of changes in our business environment on customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Intelligence Dissemination: Please indicate how much you agree with the following statements	1	2	3	4	5	6	7
1. We have interdepartmental meetings at least once a quarter to discuss market trends and developments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The Marketing people in our company spend time discussing customers future needs with other functional departments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The company circulates documents (reports, newsletters) that provide information on our customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When something important happens to a major customer or market, the whole management team knows about it in a short time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When one department or group discovers something important about competitors, it is quick to alert other departments or groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Responsiveness: Please indicate how much you agree with the following statements	1	2	3	4	5	6	7
1. We periodically review our product /service development efforts to ensure that they are in line with what customers want.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Our business plans are driven more by market research than by technological advances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Several departments or groups meet periodically to plan responses to changes taking place in our business environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. If a major competitor were to launch an intensive campaign targeted at our customers, we would implement an immediate response.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Customer complaints are very important in this company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. We are quick to respond to significant changes in our competitor's pricing structure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART D: Environmental Turbulence

1 (Not at all) to 7 (Extensively)

Market Turbulence

To what extent does each of the following statements characterise the external environment in which your business operates?

	1	2	3	4	5	6	7
1. We frequently change our marketing practices to keep up with competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. We frequently change our marketing practices to keep up with customer needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The rate at which products and services become obsolete in this industry is very slow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our customer's products and service preferences change all the time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Our customers tend to look for new products all the time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Technological Turbulence

To what extent does each of the following statements characterise the external environment in which your business operates?

	1	2	3	4	5	6	7
1. It is very important for our business to adapt to changing market trends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The technology used to provide our products and services change rapidly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The technology used to provide our products and / or services is well established.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Technological changes provide big opportunities in our industry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Many new products and service ideas have been made possible through technological breakthroughs in this industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Technological developments in our industry are relatively minor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART E: Marketing Capability

1 (Not at all) to 7 (Extensively)

Market Research: Please indicate how much you agree or disagree with the following statements concerning your business' marketing capabilities **Scale 1-7**

	1	2	3	4	5	6	7
1. Our marketing research ability help us find more new customers than do our competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Market research skills help us develop effective marketing programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. We use our marketing research information more effectively than our competition uses their own marketing research information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our marketing research expertise helps us develop better marketing programs than our competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Pricing	1	2	3	4	5	6	7
1. Pricing has a major impact on marketing program success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Our pricing approach is more effective than our competition's.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. We know competitor's pricing tactics better than they know ours.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our prices are more competitive than our competitors prices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Development	1	2	3	4	5	6	7
1. We do a better job of developing new products/services than our competition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Our product/service development takes place as planned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Our product/service development gives us an edge in the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our product/service development efforts are more responsive to customer needs than those of our competition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Channels	1	2	3	4	5	6	7
1. We have better relationships with distributors than do our competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Our distribution system is more efficient than our competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. We work more closely with distributors and retailers than do our competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our distribution programs are vital for marketing program success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Promotion	1	2	3	4	5	6	7
1. Advertising is a vital component of our promotional program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Our sales promotions (coupons, free samples, etc) are more effective than those of our competition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Our advertising programs are more effective than those of our competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Market Management							
1. Our abilities to segment and target-market help us compete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. We manage our marketing programs better than our competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Our marketing management skills give us a competitive advantage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our ability to coordinate various departments and groups helps us to respond to market conditions faster than our competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART F: Company Performance

1 (Much Slower) to 4 (the same) 4 (Much Faster)

Company performance	1	2	3	4	5	6	7
Please evaluate the performance of your company over the past year relative to your major competitors							
Market share growth relative to competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth in sales of our products and or services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return on Investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return on Sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part G:

Company related Information

1. Since how long has been your firm in business? (please specify number of years)
2. How many full time equivalent employees do your firm has? (please specify a number)
3. Our firm is of the following type
 1. Privately owned firm
 2. Publicly listed firm
 3. Other
4. The primary business of our firm is
 - Manufacturing
 - Services
 - Wholesale
 - Retail
 - Research and Development
 - Banking/Finance/Insurance
 - Other
5. Who is responsible for the strategic marketing decisions in your company?
6. What is your position (designation) in the company
 - CEO
 - Marketing Manager
 - Finance Manager
 - Operations Manager
 - Owner
 - Other
7. Please write the name of your company (You can ignore this question, if you want to keep information confidential)

APPENDIX B

Table B-1 PLS Quality Criteria

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality
Entre Orientation	0,682736	0,865862	0,114065	0,748151	0,663421
Envir Turbulence	0,662343	0,796595		0,503425	0,667007
Firm Performance	1,123991	1,0231	0,215891	0,844877	0,951442
Marketing Capabilities	0,487565	0,848203	0,45356	0,793383	0,493894
Mkt Orientation	0,729617	0,890008	0,241558	0,820101	0,734454
Strat Orientation	0,393967	0,562734	0,256231	0,015846	0,391113

Table B-2 Correlation between the Latent Constructs

	Entre Orientation	Envir Turbulence	Firm Performance	Marketing Capabilities	Mkt Orientation	Strat Orientation
Entre Orientation	1					
Envir Turbulence	0,337735	1				
Firm Performance	0,354308	0,039225	1			
Marketing Capabilities	0,500217	0,343053	0,464641	1		
Mkt Orientation	0,447115	0,343089	0,329188	0,587587	1	
Strat Orientation	0,471806	0,289741	0,212959	0,46544	0,343867	1

Table B-3 R Square Values

	R Square
Entre Orientation	0,114065
Firm Performance	0,215891
Marketing Capabilities	0,45356
Mkt Orientation	0,241558
Strat Orientation	0,256231

Table B-4 Total Effects

	Entre Orientation	Envir Turbulence	Firm Performance	Marketing Capabilities	Mkt Orientation	Strat Orientation
Entre Orientation			0,213042	0,45851	0,37389	0,422097
Envir Turbulence	0,337735		0,129331	0,278345	0,343089	0,289741
Firm Performance						
Marketing Capabilities			0,464641			
Mkt Orientation			0,208423	0,448568		0,137972
Strat Orientation			0,103947	0,223715		

Table B-5 Cross Loadings

	Entre Orientation	Envir Turbulence	Firm Performance	Marketing Capabilities	Mkt Orientation	Strat Orientation
Cost	0,014775	0,230038	-0,107148	0,087915	-0,01658	0,000413
Differentiation	0,412289	0,209481	0,193623	0,372095	0,409288	0,844112
Scope	0,30046	0,191543	0,15259	0,326387	0,076055	0,685109
IntelliDissemination	0,362962	0,286823	0,288134	0,485755	0,866697	0,243456
IntelliGeneration	0,424525	0,31659	0,293173	0,53626	0,82785	0,379776
ResponseQ1_3_5	0,346377	0,268451	0,257201	0,472739	0,867382	0,237842
MktManagement	0,42368	0,227754	0,493733	0,857337	0,561743	0,341436
MktResearch	0,381548	0,219464	0,313987	0,738156	0,434559	0,334182
ProdDevelopment	0,445602	0,238471	0,326145	0,646356	0,460762	0,408199
Promotions	0,355839	0,282658	0,247156	0,735138	0,346508	0,34579
Pricing	0,17424	0,223774	0,198817	0,532512	0,256608	0,102751
Channels	0,214328	0,287785	0,27307	0,635389	0,292947	0,349759
Innovativeness	0,83853	0,311645	0,19415	0,394013	0,439206	0,456844
ProActiveness	0,825087	0,185188	0,37047	0,420847	0,272482	0,349033
RiskTaking	0,815051	0,323861	0,334062	0,428392	0,376635	0,352333
TechTurbulenceRev	0,317374	0,779059	-0,073482	0,172873	0,23401	0,161361
MktTurbulenceRev	0,240316	0,847202	0,12108	0,370332	0,318763	0,299818
v_114	0,525048	0,149229	1,255051	0,645706	0,451779	0,283196
v_115	0,184267	-0,122136	0,986782	0,281406	0,129116	0,093448
v_116	0,245406	-0,266738	0,917457	0,22043	0,165086	0,219986
v_117	0,106284	-0,124485	0,860557	0,268959	0,172116	0,036628

Table B-6 Composite Reliability

	Composite Reliability
Entre Orientation	0,865862
Envir Turbulence	0,796595
Firm Performance	1,0231
Marketing Capabilities	0,848203
Mkt Orientation	0,890008
Strat Orientation	0,562734

Table B-7 Path Coefficients

	Entre Orientation	Envir Turbulence	Firm Performance	Marketing Capabilities	Mkt Orientation	Strat Orientation
Entre Orientation				0,207906	0,37389	0,370511
Envir Turbulence	0,337735				0,216813	0,117271
Firm Performance						
Marketing Capabilities			0,464641			
Mkt Orientation				0,417701		0,137972
Strat Orientation				0,223715		

Table B-8 : Total Effects and Significance of the estimated coefficients in the structured model

	Original Sample (O)	Sample Mean (M) (bootstrap)	Standard Deviation (STDEV)	Standard Error (STERR)	T statistics
Entre Orientation -> Firm Performance	0,213042	0,214652	0,016955	0,016955	12.6
Entre Orientation -> Marketing Capabilities	0,458510	0,460071	0,026140	0,026140	17.5
Entre Orientation -> Mkt Orientation	0,373890	0,375850	0,029296	0,029296	12.8
Entre Orientation -> Strat Orientation	0,422097	0,419527	0,030441	0,030441	13.8
Envir Turbulence -> Entre Orientation	0,337735	0,339491	0,030495	0,030495	11.0
Envir Turbulence -> Firm Performance	0,129331	0,130034	0,010405	0,010405	12.4
Envir Turbulence -> Marketing Capabilities	0,278345	0,279060	0,021415	0,021415	13.0
Envir Turbulence -> Mkt Orientation	0,343089	0,341410	0,027784	0,027784	12.3
Envir Turbulence -> Strat Orientation	0,289741	0,290353	0,037814	0,037814	7.7
Marketing Capabilities -> Firm Performance	0,464641	0,466388	0,022007	0,022007	21.1
Mkt Orientation -> Firm Performance	0,208423	0,209608	0,014413	0,014413	14.4
Mkt Orientation -> Marketing Capabilities	0,448568	0,449689	0,026969	0,026969	16.6
Mkt Orientation -> Strat Orientation	0,137972	0,137717	0,037437	0,037437	3.6
Strat Orientation -> Firm Performance	0,103947	0,102349	0,015111	0,015111	6.8
Strat Orientation -> Marketing Capabilities	0,223715	0,219632	0,031679	0,031679	7.0

Note: All t values are significant at the 0.01 level

Table B-9 Factor loadings and their significance

	Original Sample (O)	Sample Mean (M) (bootstrap)	Standard Deviation (STDEV)	Standard Error (STERR)	T statistics
Channels <- Marketing Capabilities	0,194607	0,194961	0,012986	0,012986	15.0
Cost <- Strat Orientation	0,130071	0,131129	0,068239	0,068239	1.9*
Differentiation <- Strat Orientation	0,744716	0,739636	0,035101	0,035101	21.2
Innovativeness <- Entre Orientation	0,447205	0,447442	0,021659	0,021659	20.6
IntelliDissemination <- Mkt Orientation	0,372233	0,373520	0,014284	0,014284	26.0
IntelliGeneration <- Mkt Orientation	0,441833	0,441117	0,015582	0,015582	28.3
MktManagement <- Marketing Capabilities	0,328758	0,329655	0,013589	0,013589	24.1
MktResearch <- Marketing Capabilities	0,251854	0,251964	0,012853	0,012853	19.5
MktTurbulenceRev <- Envir Turbulence	0,664442	0,665678	0,036846	0,036846	18.0
Pricing <- Marketing Capabilities	0,135357	0,134492	0,014582	0,014582	9.2
ProActiveness <- Entre Orientation	0,350348	0,350948	0,017063	0,017063	20.5
ProdDevelopment <- Marketing Capabilities	0,276161	0,278766	0,018813	0,018813	14.6
Promotions <- Marketing Capabilities	0,214936	0,214761	0,013079	0,013079	16.4
ResponseQ1_3_5 <- Mkt Orientation	0,359260	0,358985	0,012859	0,012859	27.9
RiskTaking <- Entre Orientation	0,412167	0,412092	0,017050	0,017050	24.1
Scope <- Strat Orientation	0,541990	0,543138	0,044040	0,044040	12.3
TechTurbulenceRev <- Envir Turbulence	0,561039	0,561492	0,036612	0,036612	15.3
v_113 <- Firm Performance	0,293611	0,294903	0,015942	0,015942	18.4
v_114 <- Firm Performance	0,272302	0,273238	0,013961	0,013961	19.5
v_115 <- Firm Performance	0,118672	0,117679	0,012399	0,012399	9.5
v_116 <- Firm Performance	0,092958	0,090904	0,013378	0,013378	6.9
v_117 <- Firm Performance	0,113423	0,113327	0,012610	0,012610	9.0

All t values are significant at the 0.01 level, except the second value which is not significant.

Appendix C: Measures for the evaluation of PLS-model, Chin, 1998

Criterion	Description
<i>Evaluation of the structural model</i>	
R ² of latent endogenous variables	R ² -results of 0.67, 0.33 and 0.19 for latent endogenous variables in the structural model are describe as “substantial”, “moderate” and “weak” by Chin, 1998, p. 323).
Estimates for path coefficients	The estimated values for path relationships in the structural model should be at significant levels. This significance can be evaluated using the bootstrapping procedure.
f ² for the effect size	$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$ <p>f²-values of 0.02, 0.15 and 0.35 can be viewed as a gauge for whether a predictor latent variable has a weak, medium or large effect at the structural level.</p>
Prediction relevance (Q ² and q ²)	<p>The blindfolding procedure is processed to calculate:</p> $Q^2 = 1 - \frac{\sum_o E_o}{\sum_o O_o};$ <p>D is the omission distance, E is the sum of squares of prediction errors, and O is the sum of squares of observations. Q²-values above zero give evidence that the observed values are well reconstructed and that the model has predictive relevance (Q²-value below zero indicate a lack of predictive relevance). In correspondence to f², the relative impact of the structural model on the observed measures for latent dependent variables can be assessed:</p> $q^2 = \frac{Q^2_{included} - Q^2_{excluded}}{1 - Q^2_{included}}.$
<i>Evaluation of reflective measurement models</i>	
Factor loadings	Factor loadings should be higher than 0.7.
Composite reliability (ρ _c)	$\rho_c = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum \text{var}(\epsilon_i)}$ <p>where λ_i is the component loading to an indicator and var(ε_i)=1- λ_i. The composite reliability as a measure of internal consistency should be higher than 0.6.</p>
Average variance extracted (AVE)	$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum \text{var}(\epsilon_i)}$ <p>where λ_i is the component loading to an indicator and var(ε_i)=1- λ_i. The average variance extracted should be higher than 0.5.</p>
Discriminant validity	<p>The extracted average variances of the latent variables should be greater than the square of the correlations among the latent variables, indicating that more variance is shared between the latent variable component and its block of indicators than with another block representing a different block of indicators.</p> <p>Cross-loadings are another test of discriminant validity. It is expected that each block of indicators load higher for its respective latent variable than indicators for other latent variables. If an indicator has a higher correlation with another latent variable, then the appropriateness of the model may be reconsidered.</p>
<i>Evaluation of formative measurement models</i>	
Significance of weights	Estimates for formative measurement models should be at significant levels. This significance can be evaluated using the bootstrapping procedure.
Multicollinearity	Manifest variables in a formative block must be tested for multicollinearity. The variance inflation factor (VIF) can be used for such tests. Values that are higher than ten reveal a critical level of multicollinearity and the measurement model must be reconsidered.

Appendix D

PLS model showing direct paths from Entrepreneurial Orientation and Market Orientation to firm performance.

