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An Empirical Investigation of the Link Between Market Orientation and New Product Performance: The Mediating Effects of Organizational Capabilities

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AN EMPIRICAL INVESTIGATION OF THE LINK BETWEEN MARKET ORIENTATION AND NEW PRODUCT PERFORMANCE: THE MEDIATING EFFECTS OF ORGANIZATIONAL CAPABILITIES

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ABSTRACT

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In today's business world, one of the most important problems that companies encounter is new product failure. The high product failure rate has been a major concern for practitioners for many years. It was reported that almost half of the new products introduced each year will actually fail (e.g., Sivadas and Dwyer 2000; Zirger and Maidique 1990). Given the fact that the increasing level of technological advancement, consumer expectations, and domestic as well as international competitive pressures continue to shorten the product life cycle for new products, it has become extremely important for companies to understand the critical determinants of new product success and failure and to be able to develop satisfactory, failure-free, and long-living products for markets.

The fact that the economic survival of a firm is unarguably dependent upon the successful development and introduction of new products has motivated many scholars to investigate the potential antecedents of new product performance over the last three decades (e.g., Ayers, Dahlstrom, and Skinner 1997; Cooper 1979, 1983, 1990; Cooper and Kleinschmidt 1988; Moorman and Miner 1997). In a number of studies, a market orientation has been presented as a significant factor that positively affects new product performance (e.g., Atuahene-Gima 1995; Cooper 1990, 1994; Cooper and Kleinschmidt 1988; Slater and Narver 1994a, 1994b). In spite of its significance, the relationship

between market orientation and new product performance has received scant scholarly attention (e.g., Atuahene-Gima 1995).

This research study aims to fill this void in the literature. The overall objective of the study is twofold: (1) to empirically investigate the suggested link between market orientation and new product performance and (2) to identify the organizational- and project-level mediators and their interrelationships that facilitate this link. A market-oriented culture is expected to encourage certain behaviors (Narver and Slater 1990) and build/maintain certain skills and capabilities (Day 1994; Slater and Narver 1994b). The purpose of the suggested model is to identify the behaviors, skills, and capabilities of a market-oriented culture that are prone to significantly affect new product performance. A comprehensive theoretical model was suggested based on a careful review of the literature.

The suggested model was tested with data from a sampling frame consisting of U.S. manufacturing companies listed in the *D&B Million Dollar Database*. A sample of 1,804 manufacturing companies was selected from the sampling frame using systematic random sampling. A self-administered questionnaire package was sent to the marketing manager / executive of each selected company with two waves of mailings employed. A total of 129 companies responded to the survey. Of those, 111 responses were usable. The sample covered a wide spectrum of industries and businesses. The fit of the model was assessed using confirmatory factor analysis (CFA) in AMOS 4.

The study revealed that there was no significant relationship between market orientation and organizational innovativeness. A strong positive relationship between market orientation and learning orientation was found which indicated that the internal environment of an organization can affect the degree to which the organization is

learning-oriented. Thus, a learning orientation was proved to be a consequence of a market orientation. The study findings support the notion that a learning orientation can be viewed as a cultural antecedent of organizational innovativeness or innovation orientation as suggested by Hurley and Hult (1998). A higher level of market orientation within an organization resulted in a higher level of integration between the marketing and R&D/engineering functions in the new product development (NPD) process/project undertaken by the organization. A market orientation was also found to have a significant positive effect on the organizational memory level pertinent to the new product's domain. Higher levels of organizational memory pertaining to the new product project resulted in better overall new product performance in the absence of environmental moderators (i.e., competitive intensity, market and technological turbulence). Thus, organizational memory level served as a mediator between market orientation and new product performance. The organizational memory dispersion associated with the new product category had a significant positive effect on the integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization. Furthermore, the possible moderating effects of the organization's age on various links in the suggested model were also investigated. The study results revealed that a market orientation significantly affects a learning orientation for both young and old organizations. However, there was no significant difference in the strength of these effects across the two groups. In the final chapter of this study, managerial implications of the research results were discussed, limitations of the study were addressed, and future research suggestions were provided.

This dissertation is dedicated to
my husband, Dr. Ceyhan Kılıç, and to the loving memories of three beautiful people who are no longer here: Mom, Şahinaz Dursun,
Dad, Zihni Dursun, and my son, Alper T. Kılıç.

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At a young age, when I read classical fictional works of some renowned Turkish, English, French, and Russian novelists, I was always fascinated by their power to touch people's emotions and influence their lives in a positive way, and I admired them for that. I remember myself dreaming about becoming a novelist with a most influential story to tell. Later, when I started to see the world through complex mathematical formulas at a molecular and atomic level, my dream of becoming a novelist slowly faded away. As I realized how complicated the world was, how little we knew about it, and what great work scientists were undertaking in solving the mysteries of the world, I was drawn into a more realistic dream of becoming a scientist. That was why I chose engineering as a career path after the high school.

When I completed this dissertation, I felt that both of my teenage dreams actually came true. In this study, I have a scientific story to tell which is likely to influence many organizations and the behaviors of their employees in a positive way. I am realizing however that I no longer care about whether the story that I am telling is the most influential or not. As long as it is beneficial to even a single organization, I would feel that I have made an important contribution to the ongoing research effort devoted to solving the unknowns of the world. That would be a great feeling.

This study would not have been completed without valuable contributions of many people that I have been fortunate enough to know. I am forever grateful to my husband, Dr. Ceyhan Kılıç, for his continuous love and support, encouragement, and understanding. He has been the main source of my motivation and commitment during the time span of this study. When I felt upset, he always found a way to cheer me up. I

am thankful to my dear mother, Şahinaz Dursun, for always warming my heart with her motherly love and care, always being there for me when I needed her, and sharing my concerns/problems during all of my studies. I am grateful to my dear father, Zihni Dursun, for always supporting my dreams and teaching me the value of learning and education early in my life. I am thankful to God for blessing both of my parents with long lives so that I could have a chance to know them and be with them longer. Special thanks are due to my mother-in-law, Halime Kılıç, and my father-in-law, Akif Kılıç, for their continuous emotional support and encouragement, and their prayers for me during this study. Special thanks are also due to my dear son, Alper T. Kılıç, who brought a lot of joy and happiness to my life and taught me valuable lessons of a lifetime during the short span of his life in this world. My memories with him still make me smile. I wish to thank my niece and friend, Necla Yeni, for bringing home closer with her yearly visits. Finally, I would like to thank all of my sisters, brother-in-laws, nieces, and nephews for their continuous support and best wishes during my doctoral studies.

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CHAPTER ONE

INTRODUCTION

Today's business world is evolving very rapidly. The competitive environment has become more turbulent and more complex. Significant demographic and socioeconomic shifts have occurred. Customers are becoming more demanding and more sophisticated (Slater 1997). Both domestic and international product markets are characterized as fragmented and intensely competitive (Cooper 1984; Slater 1997) with slowing growth patterns (Cooper 1984). Technological change/advancement has been rapid and discontinuous. All of these changes in the competitive environment have led to shortened product life cycles (Slater 1997).

In such an environment, firms are pressured "to develop new products and services that are both timely and responsive to customer needs" (Olson, Walker, and Ruekert 1995, p.48). New product introductions/innovations are acknowledged as critical for firms to survive in the competitive global marketplace (Manu and Sriram 1996) by creating long-term growth and prosperity (Cooper 1984; Holt 1985). In order to do this, firms face a number of challenges.

1.1. An Emergent Problem: New Product Failure

In today's business world, one of the most important problems that companies encounter is new product failure. The high product failure rate has been a major concern for practitioners for years. It was reported that almost half of the new products introduced each year will actually fail (e.g., Sivadas and Dwyer 2000; Zirger and Maidique 1990). Cooper (1988) noted that only one of every four new product projects succeeds commercially. Other estimates indicate failure rate is at anywhere from 35 to 45 percent

(Boulding, Morgan, and Staelin 1997; *Business Week* 1993; Wind 1982). While there are different rates reported, the issue is absolutely a critical one for firm survival in intensely competitive markets.

In spite of the tremendous amount of effort towards improving the product success rate, there has been little significant improvement over the past 25 years (Boulding, Morgan, and Staelin 1997; *Business Week* 1993; Wind 1982). Despite the increasing attention of the marketing, operations, R&D, and business strategy disciplines to new product development (NPD), and dramatic advances in the sophistication of marketing research and modeling techniques, the new product success rate has shown little improvement over time (Urban and Hauser 1993; Wind and Mahajan 1997).

Each year, billions of dollars are spent on industrial R&D in the U.S. alone (Calantone and Cooper 1981). Despite the high risk and cost structure associated with new product development, companies are forced by extremely competitive product markets to develop new products to survive (e.g., Sharp develops and introduces approximately 5,000 new products each year [Smith 1995]). Sivadas and Dwyer (2000) stated that "Organizations . . . find themselves in a double bind. On the one hand they must innovate consistently to remain competitive, but on the other hand innovation is risky and expensive" (p.31).

New products benefit companies by increasing their sales, profits, and competitive strength (Sivadas and Dwyer 2000). Kortge and Okonkwo (1989) suggested that new products significantly contribute to a firm's profitability. On average, the authors noted that 36.5 percent of a firm's current sales were derived from new products that had been introduced over the previous five years. Ayers, Dahlstrom, and Skinner (1997, p.107)

reported that 25% of corporations' sales came from products introduced in the past three years (Also see Mahajan and Wind 1991). For instance, 3M expects to get 30% of its revenues from new products developed within the last four years (Smith 1995). Cooper (1996) suggested that new products introduced within the last three years represented, on average, 28.4 percent of annual sales. Based on his own research, Cooper (1981) reported that 39.1% of current sales of industrial product firms are obtained from new products introduced within the last five years. In brief, new products significantly contribute to the continuous growth of the firm. It has been acknowledged by many scholars that new products have a profound role to play in firm survival (e.g., Cooper 1981, 1996; Sivadas and Dwyer 2000).

Clearly, since R&D resources are limited and the stakes are so high, companies should be able to know what types of new products are more likely to be successful prior to development, and those products that have greater potential for success should be selected (Calantone and Cooper 1981). Given the fact that the increasing level of technological advancement, consumer expectations, and domestic as well as international competitive pressures continue to reduce the product life cycle for new products, it has become extremely important for companies to understand the critical determinants of new product success and failure and to be able to develop satisfactory, failure-free, and long-living products for markets. The fact that the economic survival of a firm is unarguably dependent upon the successful development and introduction of new products has motivated many scholars to investigate the potential antecedents of new product performance over the last three decades (e.g., Ayers, Dahlstrom, and Skinner 1997;

Bayus, Jain, and Rao 1997; Cooper 1979a, 1979b, 1983, 1990a; Cooper and Kleinschmidt 1988; Moorman 1995; Moorman and Miner 1997).

A group of studies on new product performance has predominantly investigated project-level, activity- or process-based factors as the potential determinants of new product success (e.g., Cooper 1979a, 1979b; Kalyanaram and Krishnan 1997; Link 1987). Product uniqueness and superiority, market knowledge and marketing proficiency, and technical and production synergy/proficiency were addressed as the most important predictors of new product success (Cooper 1979b). Management of launch execution, synergy of new product with existing business, completeness of market intelligence, product/market attractiveness, novelty of product, and quality of product were all found to be closely linked to new product success (Link 1987). Furthermore, the quality of the new product development process (Cooper 1996), the process of product definition (Kalyanaram and Krishnan 1997), the tactics used for launching new products (Beard and Easingwood 1996), and the timing of introduction (Bayus, Jain and Rao 1997) have been emphasized as the potential drivers of new product success as well.

Another stream of past research on new product performance has addressed organizational-level predictors of new product performance (e.g., Ayers, Dahlstrom and Skinner 1997; Gupta, Raj and Wilemon 1986; Moorman and Miner 1997). R&D-marketing integration (Ayers, Dahlstrom and Skinner 1997; Gupta, Raj and Wilemon 1986), the team approach in new product development (Olson, Walker, and Ruekert 1995), information utilization processes within organizations (Moorman 1995), the stored knowledge or organizational memory (Moorman and Miner 1997), and managerial controls/relational norms (Ayers, Dahlstrom and Skinner 1997) have been investigated as

possible determinants of new product performance.

In a number of studies, a market orientation has been presented as a significant factor that affects new product performance (e.g., Appiah-Adu 1997; Atuahene-Gima 1995; Cooper 1990a, 1994; Cooper and Kleinschmidt 1988; Pelham and Wilson 1996; Slater and Narver 1994a, 1994b). In spite of its significance, the relationship between market orientation and new product performance has received scant scholarly attention (e.g., Atuahene-Gima 1995; Gatignon and Xuereb 1997; Li and Calantone 1998). Most studies on market orientation have related market orientation to organizational performance (e.g., Han, Kim, and Srivastava 1998; Jaworski and Kohli 1991, 1993; Kohli and Jaworski 1990; Narver and Slater 1990). However, the number of studies that specifically investigate the link between market orientation and new product performance has been very limited (e.g., Atuahene-Gima 1995; Gatignon and Xuereb 1997; Li and Calantone 1998). There may be two possible reasons for this void in the literature. First, new product performance has not been totally ignored, but, often overlooked, and considered as a part of organizational performance in most market orientation studies (e.g., Appiah-Adu 1997; Pelham and Wilson 1996; Slater and Narver 1994a). New product performance has often been represented by a single-item measure (i.e., new product success rate). This narrow perspective and conceptualization of new product performance has precluded scholars from a better understanding of the suggested link. Second, even though the link between market orientation and new product success has long been acknowledged, few scholars have actually emphasized this link as a robust research avenue for future studies (e.g., Atuahene-Gima 1995; Kohli and Jaworski 1990; Narver and Slater 1990).

Indeed, the potential link between market orientation and new product performance deserves closer attention of researchers for two reasons: First, as addressed earlier, the new product failure rate has been alarmingly high for many years. Elaborating the suggested link between market orientation and new product performance may provide valuable insights for both academics and practitioners on how to resolve this business problem. Second, many studies have revealed that organizational variables (i.e., organizational memory, innovativeness, managerial controls, and cross-functional integration) may significantly affect new product outcomes (e.g., Ayers, Dahlstrom and Skinner 1997; Moorman 1995; Moorman and Miner 1997). Past research has suggested that market orientation is likely to affect some of those organizational variables such as integration (Millman 1982), memory (Sinkula 1994), and innovativeness (Hurley and Hult 1998) that impact new product outcomes. Market orientation has been viewed as a form of organizational culture having the potential to generate certain behaviors (Narver and Slater 1990), skills, and capabilities (Day 1994; Slater and Narver 1994b) that lead to superior business performance (Narver and Slater 1990). Innovativeness (Han, Kim, and Srivastava 1998), and collective learning or memory (Day 1994) are among those special capabilities and skills. Empirically investigating the validity of these suggested links may provide a better appreciation for the essence of superior new product performance.

In this study, the link between market orientation and new product performance will be investigated through a theoretical model. Before presenting the anecdotal and empirical evidence that market orientation is positively linked to new product performance, the market orientation literature will be briefly reviewed in the next section.

1.2. Market Orientation in Practice and Research

The increasing complexity, uncertainty, dynamism and competitive intensity of the global business macro-environment have made "knowledge" one of the most valuable assets of an organization (Deshpandé, Farley, and Webster 1993; also see Pelham 1997). The inevitable need for knowledge creation and utilization in order to reduce environmental uncertainty and complexity has stimulated firms to develop organization-wide, customer-focused, market-oriented organizational cultures (Pelham 1997). Knowledge and knowledge-creation mechanisms in an organization have been viewed as a crucial resource for an organization in addition to the traditional resources of production such as labor, land, and capital (Li and Calantone 1998). Popular books such as *In Search of Excellence* (Peters and Waterman 1982) and *A Passion for Excellence* (Peters and Austin 1985) have motivated some American managers to develop a market orientation in their organizations (Pelham 1997).

Market orientation is briefly defined as the implementation of the marketing concept. The market orientation literature has been marked by two widely-acknowledged perspectives on market orientation (Jaworski and Kohli 1996). These are (1) a *behavioral/activities/process perspective* (e.g., Day 1994; Kohli and Jaworski 1990), and (2) a *cultural perspective* (e.g., Deshpandé, Farley, and Webster 1993; Hurley and Hult 1998; Narver and Slater 1990). According to Kohli and Jaworski (1990), market orientation concentrates on "ongoing behaviors and activities in an organization" (Jaworski and Kohli 1996, p.121) including customer and competitor intelligence generation, dissemination of this intelligence throughout the firm, and responsiveness to it. Narver and Slater (1990), however, view market orientation as "the organizational

culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, superior performance for the business" (p.21). According to Narver and Slater (1990), market orientation has three important components: customer orientation, competitor orientation, and interfunctional coordination.

The present study adopts a cultural perspective on market orientation and uses the MKTOR scale suggested by Narver and Slater (1990) for several reasons: First, the model suggested in this study is based on the cultural view of a market orientation. The view of a market orientation as an integral part of firm culture is of critical importance for the foundation of the suggested model. The MKTOR scale is more consistent with this perspective of a market orientation than the MARKOR scale suggested by Kohli, Jaworski, and Kumar (1993). Second, Narver and Slater's (1990) conceptualization of a market orientation (i.e., customer orientation, competitor orientation and inter-functional coordination) in the MKTOR scale allows the establishment of the links between market orientation and the other variables of the model at the component-level. In other words, the links between each dimension of the MKTOR scale and the other variables of the model are largely supported by the literature. It is relatively easier to justify the hypotheses of the model using Narver and Slater's (1990) conceptualization and scale. Third, Pelham (1993) and Oczkowski and Farrell (1998) believed that the MARKOR scale does not include those measurement items that reflect the essences of providing value for customers. Therefore, they considered this scale a very narrow conceptualization of a market orientation. Statistically, Oczkowski and Farrell (1998) found that the MKTOR scale seemed to be more reliable than the MARKOR scale.

Finally, the MKTOR scale has been widely acknowledged and frequently used by renowned scholars in market orientation studies (e.g., Gatignon and Xuereb 1997; Han, Kim, and Srivastava 1998; Lukas and Ferrell 2000; Siguaw, Brown, and Widing 1994).

Research on market orientation has emerged recently and received substantial interest from marketing scholars (Deshpandé and Farley 1996). A large volume of studies on market orientation has focused on such descriptive issues as how companies implement market orientation strategy in their respective organizations (e.g., Day 1990, 1994, 1998; Ruekert 1992). Another significant stream of research on market orientation concentrated on developing more reliable and valid market orientation measurement scales (e.g., Deng and Dart 1994; Deshpandé and Farley 1996; Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993; Narver and Slater 1990). Some of these studies have focused on making a comparison or criticism of the extant measurement scales (e.g., Deshpandé and Farley 1996; Oczkowski and Farrell 1998). The current research direction has been towards developing more parsimonious and reliable measures of market orientation that have potential for global and inter-industry applications (e.g., Deshpandé and Farley 1996; Kohli, Jaworski, and Kumar 1993).

A substantial amount of research explores the relationship between market orientation and business performance in a single or a multi-industry context in the U.S., as well as in international settings (e.g., Deshpandé, Farley and Webster 1993; Han, Kim, and Srivastava 1998; Jaworski and Kohli 1991, 1993; Kohli and Jaworski 1990; Narver and Slater 1990; Pelham and Wilson 1996). Within this specific research context, the moderating or mediating effects of various organizational variables (i.e., learning orientation, innovativeness, and so on) on the relationship between market orientation and

firm performance (e.g., Baker and Sinkula 1999; Han, Kim, and Srivastava 1998; Hurley and Hult 1998) have been a popular research subject.

Given that recently the research attention to the exploration of the market orientation-performance linkage has grown dramatically, it is surprising that, to date, a very limited number of empirical studies have explored the potential link between market orientation and new product performance either directly (e.g., Atuahene-Gima 1995; Gatignon and Xuereb 1997; Li and Calantone 1998) or indirectly (e.g., Pelham 1997; Pelham and Wilson 1995; Slater and Narver 1994a). Apparently, current research has failed to explore the relationship between market orientation and new product performance in more specific studies. In the following section, the potential link between market orientation and new product performance is elaborated.

1.3. Market Orientation — New Product Performance Link

In the 1990s, many firms have started to share the notion that they will be more profitable if they can develop and maintain a strong market orientation within their organization, especially in the area of new product development and R&D (Hauser, Simester, and Wernerfelt 1996). These goals were the top-listed, top-ranked, emergent research priorities of The *Marketing Science Institute* (MSI) between 1992 and 1994 (Hauser, Simester, and Wernerfelt 1996). Narver and Slater (1990, p.33) suggested that researchers should investigate the relationship between market orientation and various performance dimensions, such as new product success, more specifically. According to Slater and Narver (1994b), the current empirical research has shown that there is "a strong relationship between market orientation and several measures of business performance, including profitability, customer retention, sales growth and new product

success" (Slater and Narver 1994b, p.22).

It is widely acknowledged that a thorough knowledge of user needs is a very important factor for the success of product innovation (e.g., Baker, Siegman, and Rubinstein 1967; Kulvik 1977; Myers and Marquis 1969; Robertson 1973; Rothwell, Freeman, Horsley, Jervis, Robertson, and Townsend 1974). A series of studies conducted by Robert G. Cooper (e.g., Cooper 1979a, 1979b, 1983, 1984, 1997; Cooper and Kleinschmidt 1988) tried to identify either the keys to new product success or the reasons for failure. Often these were retrospective studies based on actual results of earlier new product development projects and lists of basic variables that impacted these outcomes. The data used for these studies was obtained from Project NewProd. NewProd is a series of research studies that identify the factors that underlie new product success and failure. These studies were first conducted in the early 1970s. They investigated nearly 1000 new product case histories in more than 250 companies in North America and Europe (Cooper 1990a).

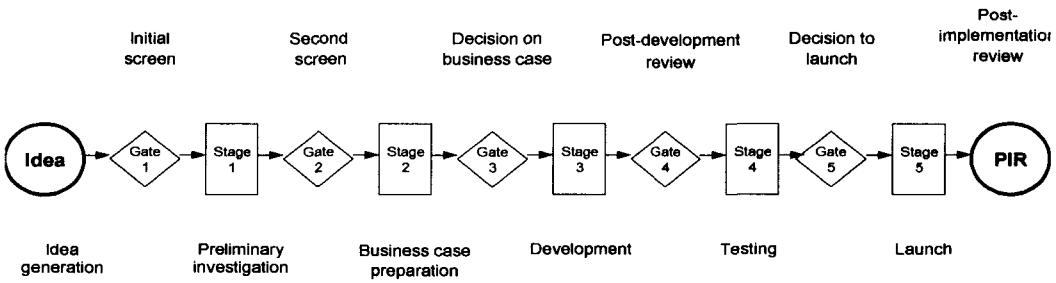
Cooper (1979b) suggested that the success of industrial products is primarily dependent upon the firm's market orientation — market-oriented activities, market information, and the marketing mix. Cooper (1983) recognized that: 1) a strong market orientation, 2) management action, 3) a product with real customer advantages, and 4) successful innovation fostered by internal communication and coordination between internal groups were all necessary for the success of new industrial products.

Cooper (1984) explored whether a new product strategy that a firm chooses to pursue affects the success of the new product program. New product performance was measured by a variety of measures, including the percentage of current company sales

made up by new products, the extent to which the new product program met its performance objectives, the success of the program relative to competitors, the overall success of the program and so on. The author used a sample of 170 industrial product companies recently involved with new product development that were located in the provinces of Ontario and Quebec, Canada. The target respondents were managers. A response rate of 72% was achieved. The author noticed that a small group of companies (15.6% of the sample) with a balanced strategy had exceptionally higher new product performance than the other companies studied regardless of firm or industry type. These firms were "technologically sophisticated, oriented, and innovative" (Cooper 1984, p.155, originally in italics). These firms successfully balanced their technological power with a strong market orientation through a greatly focused program.

Cooper (1997) identified five stages and five gates between idea generation and post implementation review (PIR) in a *stage-gate process* of new product development (see Figure 1.1). These stages include, orderly, *preliminary investigation*, *business case preparation*, *development*, *testing*, and *launch*. These gates include, orderly, *initial screen*, *second screen*, *decision on business case*, *post-development review*, and *decision to launch* (see Cooper 1997, p.22-23 for more information on a stage-gate process). Here, each stage covers "a set of prescribed or mandated parallel, cross-functional activities, and builds in best practices" (Cooper 1997, p.22). There are go/kill decision points between these stages which are called 'gates'. These gates function as filters that "open or close the door for projects to move to the next stage, and weed out the mediocre projects" (p.22). Through this process, a "funneling effect" is created (Cooper 1997, p.22).

Figure 1.1 A Stage-Gate Process of New Product Development (Cooper 1997, p.22).



Cooper (1997) argued that especially the early stages of the new product development process are critical to the success of the new product. The stages of *preliminary investigation* and *business case preparation* are the critical early stages of new product development. These early stages are labeled by the author as the 'up-front homework', 'building the business case', or the '"fuzzy" front end'. In the preliminary investigation, "the technical and marketplace merits" of the proposed new product project are evaluated in a quick manner (Cooper 1997, p.22). The *preliminary investigation* stage includes preliminary market assessment, preliminary technical assessment, and preliminary business assessment. *Business case preparation* consists of detailed market studies (i.e., market analysis, user needs-and-wants study, value-in-use study, competitive analysis, and concept tests), detailed technical assessment, operations assessment, and detailed financial analysis and risk assessment. The quality and the adequacy of these activities that are undertaken in the early stages have a "pivotal" role in the outcomes of the new product development process (Cooper 1997, p.21). The author contended that a

strong preparatory analysis can increase new product success by 43.2%. Drawing on his extensive work on new product success, Cooper (1997) suggested that "Successful businesses emphasize the voice of the customer and a strong market orientation, especially in the early stages" (p.21, originally in italics). The author sees the lack of market analysis, especially in the early stages of the development, as the most important factor in new product failures.

Most of the studies by Robert G. Cooper suggest that a strong market orientation has a very crucial role to play in new product success. According to Cooper (1984), being market-oriented means that the firm has "a strongly market oriented new product process; it was dominated by a marketing group; the firm is proactive in identifying market needs; and new product ideas tended to be market-derived" (Cooper 1984, p.156). He also stated that "the process is not dominated by a technical group" (Cooper 1984, p.161). Cooper's (1984) definition of market orientation is closely related to the definitions of market orientation suggested by Kohli and Jaworski (1990) and Narver and Slater (1990).

These studies suggest the existence of a positive relationship between market orientation and new product performance. However, the sampling frames and/or the research methodologies used in these studies were limited in that: 1) many of these studies used industrial new product development projects in the sampling frame (e.g., Cooper 1979b,1984,1994) and 2) these studies identified a "strong market orientation" as one characteristic of a successful new product project in addition to many other characteristics and failed to investigate the relationship between market orientation and new product performance in a well-grounded theoretical framework (e.g., Cooper 1979b; Cooper and Kleinschmidt 1988).

Another group of studies have superficially investigated the relationship between market orientation and new product success in the context of the market orientation-company performance linkage (e.g., Greenley 1995c; Pelham and Wilson 1995; Pelham 1997; Slater and Narver 1994a). Slater and Narver (1994a) investigated possible moderating effects of competitive environment on the strength of the relationship between market orientation and firm performance. Their sample consisted of 81 strategic business units within a forest products company and 36 strategic business units in a diversified manufacturing corporation (Slater and Narver 1994a). Market performance was measured by the respondent's assessment of SBU's return on assets (ROA), sales growth, and new product success relative to all other competitors in the SBU's principal served market over the past year. This study showed that market orientation is positively associated with sales growth and new product success.

Greenley (1995c) investigated the link between market orientation and company performance in the UK context. His model was similar to that of Narver and Slater (1990). Market orientation was measured by the scale suggested by Narver and Slater (1990). Company performance was measured by return on investment, new product success rate and sales growth. A survey was conducted over a sample of 1000 UK companies. The target respondents were the managing directors or CEOs. The sample included both consumer and industrial products companies as well as service and product companies in similar proportions. The study results indicated that the relationship between market orientation and firm performance is moderated by environmental factors. Based on the study results, the author concluded that maintaining a market orientation may not be beneficial under the circumstances of high market turbulence, low customer

power, and high technological turbulence. It was observed that technological change has a moderating effect on the market orientation-performance relationship when performance was measured by new product success rate. In other words, technological change moderates the relationship between market orientation and new product performance. This relationship is positive when the rate of technological change is low (Greenley 1995c).

Pelham and Wilson (1995) explored the relationship between market orientation and firm performance in a theoretical model with a sample of small firms. New product success was treated as a dimension of marketing effectiveness. The propositions were tested by using longitudinal data for 1992-1993 from a university's database. The target informants were presidents or CEOs of 68 small Michigan firms operating in a variety of industries. The authors concluded that by maintaining a strong market orientation, small firms can increase their marketing effectiveness (new product and market development success), market/growth share, and profitability. Similarly, Pelham (1997) investigated the mediating effects on the relationship between market orientation and profitability. In this research, firm performance was measured by *firm effectiveness* (i.e., relative product quality, new product success, and customer retention), *growth/share* (i.e., sales level, growth rate, and target market share), and *profitability* (i.e., return on equity, gross margin, and return on investment). The author surveyed a sample of 160 industrial firms. According to the results, market orientation has a direct and significant impact on firm effectiveness (i.e., new product success). Firm effectiveness serves as a mediating variable between market orientation and the firm performance dimensions of sales growth/market share and profitability.

Most studies found a positive connection between market orientation and new product success (e.g., Pelham and Wilson 1995; Pelham 1997; Slater and Narver 1994a). A few studies found a conditional relationship between these variables (e.g., Greenley 1995c).

However, these studies have a few common drawbacks that need to be addressed. First, these studies failed to investigate the relationship between market orientation and new product performance in a more specific manner. In other words, these studies viewed new product success as a component of overall business performance. Their main focus was to investigate the market orientation-organizational performance link. Second, in these studies, new product success was mostly measured by a single-item measure such as new product success rate (Greenley 1995c), and relative new product success (Slater and Narver 1994a). This kind of measurement may not effectively reflect the essence of new product performance. New product performance is a multi-dimensional construct (Cooper and Kleinschmidt 1995; Griffin and Page 1993). The present study aims to overcome these drawbacks. It investigates the potential relationship between market orientation and new product performance with new product performance being assessed using a multidimensional scale.

There have been several current research attempts to explain this postulated positive relationship in a theoretically-grounded and empirically-tested model (e.g., Atuahene-Gima 1995; Gatignon and Xuereb 1997; Li and Calantone 1998). These studies have been designed to specifically examine the relationship between market orientation and new product performance. However, this research effort has not been sufficient to fulfill the void in this area. The shortcomings of these studies will now be discussed.

Atuahene-Gima (1995) investigated the relationship between market orientation and new product development activities and performance along with the effects of environmental conditions and product characteristics for a sample of 275 Australian manufacturing and service firms. The study provided strong support for the linkage between market orientation and new product development and performance; however, the conceptualization and operationalization of market orientation was different from that of Narver and Slater (1990) and Jaworski and Kohli (1993). Market orientation was operationalized by the following three sub-constructs developed by the author: (1) collection and use of market information, (2) development of market-oriented strategy, and (3) implementation of market-oriented strategy (Atuahene-Gima 1995).

The present study differs from that of Atuahene-Gima (1995) in three ways: First, the present study assesses the degree of market orientation by an accepted and often validated scale developed by Narver and Slater (1990). The use of this scale is expected to increase the comparability of the results. Second, the study by Atuahene-Gima (1995) failed to explore the mediating effects of organizational- and project-level process variables between market orientation and new product performance. The present study aims to fill this gap by investigating the mediating impacts of various process variables that are believed to influence new product performance (i.e., learning orientation, organizational memory level and dispersion, innovation orientation, and marketing/R&D integration). Finally, the current research is conducted in a U.S. setting with a larger sample.

Gatignon and Xuereb (1997) examined three different strategic orientations of the firm (customer, competitor, and technological) in the context of product innovation. They

attempted to explain which strategic orientations lead to the development of products with the "right" characteristics. The authors developed a structural model linking the strategic orientation of the firm to the performance of a new product. According to Gatignon and Xuereb (1997), the strategic orientation of a firm consists of three distinct orientations: customer, competitor, and technology (or product). Even though Gatignon and Xuereb (1997) introduced the term interfunctional coordination under the title of the firm's strategic orientation, they did not place it under the firm's strategic orientation in their suggested framework. They viewed interfunctional coordination as an important part of the organizational structure. Customer orientation, competitor orientation, and interfunctional coordination were measured by scales suggested by Narver and Slater (1990). The suggested model was tested with a sample of 3000 marketing executives randomly drawn from a commercial list containing a wide range of industries in the U.S. A total of 393 marketing executives completed the survey. The resulting response rate was 14%. The study results indicated that consumer and technology orientation together in markets in which demand is relatively uncertain led to products that performed better. Additionally, a competitor orientation was found useful to market innovations when demand was not too uncertain (Gatignon and Xuereb 1997).

This study by Gatignon and Xuereb (1997) gave valuable insights into the appropriate operating conditions for each strategic orientation. However, it failed to explore the overall impact of a market orientation on new product performance. Instead, the study used a component-wise approach and viewed each component of market orientation as a distinct alternative orientation with different new product outcomes and characteristics. The authors treated interfunctional coordination as a driver of the

interactions among the three types of orientation. The current study considers market orientation as an integral element of a firm's culture rather than a strategic orientation of the firm. Here market orientation will be represented by three dimensions (e.g., customer orientation, competitor orientation, and interfunctional coordination). These dimensions are seen as complementary to each other, not as alternatives to each other. Additionally, the study by Gatignon and Xuereb (1997) did not explain the process or interplay between organizational- and project-level variables that help to establish a bridge between the firm's strategy and new product success/characteristics. Accordingly, the current study explores the various moderators of the suggested relationship between market orientation and new product performance.

Li and Calantone (1998) explored the effect of market knowledge competence on new product advantage and new product performance with a sample of 1074 U.S. software companies. New product advantage served as a mediating variable between market knowledge competence and new product market performance. The major results of the study suggest that market knowledge competence enhancing new product advantage leads to better new product market performance (Li and Calantone 1998). Li and Calantone's (1998) definition of market knowledge competence is closely associated with the elements of a market orientation. *Market knowledge competence* is defined as "the processes that generate and integrate market knowledge" (Li and Calantone 1998, p.14). In other words, market knowledge competence is a series of processes aimed at producing market knowledge. Market knowledge competence consists of three processes: (1) the customer knowledge process, (2) the competitor knowledge process, and (3) the marketing-R&D interface. The customer and competitor knowledge processes have three

key elements of knowledge generation: information acquisition, interpretation, and integration.

The differences between the current study and the study by Li and Calantone (1998) are fivefold. First, as it can be noticed, some dimensions of market knowledge competence are conceptually similar to the elements of a market orientation suggested by both Kohli and Jaworski (1990) and Narver and Slater (1990). Li and Calantone (1998) captured the two main domains of a market orientation — customer and competitor orientation — in their operationalization of market knowledge competence. However, with a clear departure from the earlier studies on market orientation, they did not include inter-functional coordination in the model. Therefore, the study results might not be directly comparable to the results of a market orientation-new product performance study. The present study, however, utilizes the well-known measure of market orientation suggested by Narver and Slater (1990). Second, in Li and Calantone's (1998) study, market knowledge competence is actually associated with the firm's new product development program. The current study views market orientation as a part of organizational culture. Third, in Li and Calantone's (1998) study, new product advantage is the only mediating variable between market knowledge competence and new product market performance. This study failed to investigate the mediating effects of other potential variables (i.e., learning orientation, innovation orientation and organizational memory) between market knowledge competence and market performance. The current study examines the effects of these organizational- and project-level mediators between market orientation and new product performance. Fourth, in Li and Calantone's (1998) work, new product performance was measured using only financial measures (i.e., before-

tax profit, return on investment, product market share, and pretax profit margin). The current study aims to measure new product performance using multiple dimensions. Finally, Li and Calantone's (1998) study was an industry-specific study (U.S. software companies), and its results are more applicable to that specific industry. This study will use a multiple-industry context (U.S. manufacturing companies), and therefore, its results are expected to be applicable to a variety of businesses.

Surprisingly, to date, the research effort that has been specifically directed at empirically investigating the market orientation-new product market performance link has been limited to the relatively small group previously discussed. These studies had serious limitations as demonstrated. The current study aims to fill this void in the literature. The overall objective of this study is twofold: (1) to empirically investigate the suggested link between market orientation and new product performance and (2) to identify the organizational- and project-level mediators that facilitate this link. The relationship between market orientation and new product performance and the mediating effects of organizational- and project-level variables are depicted in a theoretical model which is displayed in Figure 1.2. The following section elaborates on this proposed model.

1.4. The Proposed Model

Market orientation has been seen as a form of organizational culture (e.g., Narver and Slater 1990). A market-oriented culture is expected to encourage certain behaviors (Narver and Slater 1990) and build/maintain certain skills and capabilities (Day 1994; Slater and Narver 1994b). These qualities of a market-oriented culture are essential for the creation of superior customer value which in turn leads to superior business

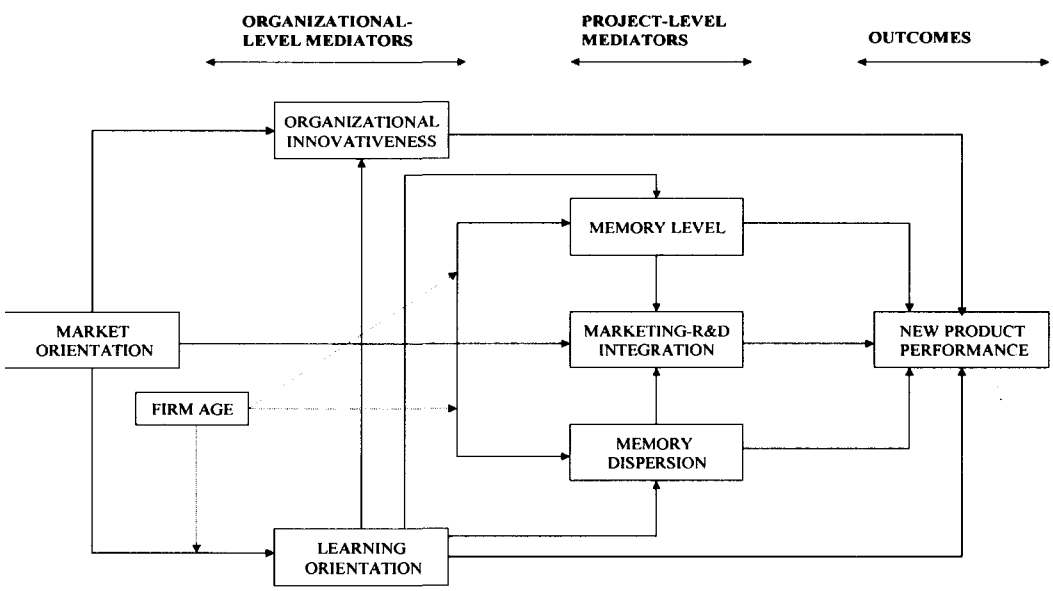
performance (Narver and Slater 1990). Past research has indicated that innovativeness (Han, Kim, and Srivastava 1998) and collective learning (Day 1994) are among those special capabilities and skills.

The purpose of the suggested model is to identify those behaviors, skills, and capabilities of a market-oriented culture that are prone to significantly affect new product performance. A careful review of the literature indicates that learning orientation, innovation orientation, organizational memory level/dispersion, and the R&D-marketing integration can be considered as those capabilities and skills that have the potential to influence new product performance. In the suggested model, it is assumed that these capabilities and skills are triggered by or flourish in a market-oriented culture. They serve as mediators between market orientation and new product performance. They enable a market-oriented organization to process and utilize market knowledge more effectively. A close review of the relevant literature provides compelling evidence that these proposed links exist. These links are depicted in the suggested model and are empirically tested in the study.

The proposed model displayed in Figure 1.2 is based on the argument that a market-oriented culture is likely to adopt or develop certain behaviors, skills, and capabilities (Day 1994; Narver and Slater 1990; Slater and Narver 1994b) that lead to superior company performance (Narver and Slater 1990), and, in particular, better new product performance. The suggested model borrows constructs from multiple literatures, including strategic marketing management, innovation and new product management, and organizational learning and memory. The suggested model is centered around the

following three research questions: (1) Does market orientation influence new product performance? The up-to-date anecdotal and empirical evidence suggests that such a series of relationships may exist. (2) If it does, which organizational- and project-level skills and capabilities are created by a market orientation? Do they have mediating roles in the postulated relationship between market orientation and new product performance? (3) Are there any interrelations among these mediating variables (skills and capabilities) as well? The current research study aims to respond to all of these important research questions.

Figure 1.2. The Model of the Market Orientation-New Product Performance Link.



1.5. Contributions of the Study

The suggested model is expected to contribute to the literature in five ways: *First*, when the model is tested and validated, it will have significant implications for business practitioners. The suggested model assumes that a market-oriented organization has

certain skills, capabilities, and behaviors that enable it to process and utilize market knowledge more effectively. The effective knowledge processing and utilization in an organization translate into positive new product outcomes. From the practitioner's perspective, such a model might serve as a guide to understand how to improve new product performance by moderating the degree of market orientation in the organization. In addition, this model might shed some light on how market intelligence should be processed and utilized to generate favorable new product outcomes.

Second, the model synthesizes and effectively integrates two related literatures that seem to have grown apart from each other. These are the market orientation literature and the new product performance literature. A set of organizational- and project-level process variables used in the model (i.e., organizational memory level and dispersion, and marketing/R&D integration) was borrowed from the new product performance literature. Recently, a number of studies attempting to identify the factors behind new product success have adopted a different research approach that can be called a "focused approach" (e.g., Ayers, Dahlstrom, and Skinner 1997; Bayus, Jain and Rao 1997; Gupta, Raj, and Wilemon 1986; Moorman 1995; Moorman and Miner 1997; Olson, Walker and Ruekert 1995). One area of this research stream has specifically focused on identifying the organizational antecedents of new product performance (e.g., Ayers, Dahlstrom, and Skinner 1997; Gatignon and Xuereb 1997; Gupta, Raj, and Wilemon 1986; Moorman 1995; Moorman and Miner 1997; Olson, Walker and Ruekert 1995). The studies with a focused approach have concentrated on one or a few success variables at a time and have attempted to elaborate the possible relationships between these variables and new product

performance in different theoretical frameworks. Some of these organizational variables are closely associated with a market orientation. The close relationships between market orientation and these variables have been mostly based on anecdotal evidence. All these variables, including R&D-marketing integration, organizational memory level and dispersion, and innovativeness, are closely connected to market orientation, and to each other. The suggested model aims to establish and test these interrelationships among these variables within the market orientation-new product market performance chain. Thus, the model is expected to effectively integrate these two different literatures.

Third, according to the author's best knowledge, none of the frameworks suggested so far incorporate the R&D-marketing interface, organizational memory level and organizational memory dispersion within the market orientation-new product performance linkage. Therefore, a significant void exists in current theoretical models of market orientation. While organizational memory level and dispersion (Moorman and Miner 1997) and the systematic integration between R&D/engineering and marketing (Gupta, Raj, and Wilemon 1986) are deemed to be critical for new product innovativeness and success, not many theoretical or empirical investigations have been conducted to shed light on this subject (Gupta, Raj, and Wilemon 1986). Also, the association between market orientation and the R&D-marketing interface in the organization is something that should be investigated. The suggested framework aims to bridge this literature gap by testing these postulated links. Thus, the inclusion and testing of such important constructs with multiple cause-effect links in a comprehensive theoretical framework will be a substantial contribution to the ongoing research effort and

the applied business field.

Fourth, in this study, the relationship between market orientation- innovation orientation will be explored. Thus, this study is expected to shed some light on the conventional debate regarding whether the marketing concept or a market-oriented approach is detrimental to (e.g., Bennet and Cooper 1979; McGee and Spiro 1988) or beneficial to organizational innovativeness in an organization (e.g., Hurley and Hult 1998).

Fifth, the model will be tested over a large random sample of U.S. manufacturing companies. The sampling frame will include a variety of businesses. Therefore, the final results of this study are expected to be applicable to a wide variety of industries instead of being limited only to one industry as they are in some of the earlier studies.

1.6. The Proposed Methodology

In this study, the proposed model will be tested with data from a sampling frame consisting of U.S. manufacturing companies listed in the *D&B Million Dollar Database*. The sample will include a variety of industries. The sample will cover a wide range of industries for two purposes: (1) to increase the applicability or the generalizability of the study findings (Baker and Sinkula 1999; Gatignon and Xuereb 1997; Olson, Walker, and Ruekert 1995) to a variety of industrial settings, and (2) to reduce industry biases (Olson, Walker, and Ruekert 1995). As a result, since one of the main goals of the study is to develop and test a model that is applicable to a wide variety of industries, a multi-industry approach is a necessity.

A self-administered questionnaire, along with a cover letter and a postage-paid return envelope, will be used for data collection. The survey will be conducted at a corporation's strategic business unit (SBU) level. In the present study, senior marketing managers/executives of each business unit will be chosen as key informants. Individuals in these positions are expected to be sufficiently knowledgeable about their firm's business practices associated with market orientation and some other organizational processes (Deng and Dart 1994; Gatignon and Xuereb 1997). The respondent will be asked to identify the most recent new product development project which satisfies all of the following three conditions: (1) the respondent should be actively involved in the development of the selected new product, (2) the selected new product should be introduced into and commercialized in the U.S. market by his/her business unit, and (3) the selected new product should be in the market for a minimum of one year and a maximum of five years. The respondent will be asked to use the selected product as a reference in answering some of the questions. In the current study, a five-year time frame will be used to identify new products since it seems to be a reasonably long time for a new product project to be effectively commercialized. This practice is consistent with the extant literature (e.g., Atuahene-Gima 1995; Cooper 1984; Li and Calantone 1998).

Prior to the major survey, a fieldwork and a pretest will be conducted. In the fieldwork, 6 marketing managers from the selected companies located in New York, New Jersey and Connecticut will be interviewed for the refinement of the proposed model and the measurement scales. Then, the preliminary questionnaire will be pretested with a random sample of 40 marketing managers in order to obtain the final, refined version of

the questionnaire.

The questionnaire will be constructed to examine a firm's business practices on the basis of primarily market orientation and a number of organizational- and project-level variables. All variables included in the model will be measured on multiple-item scales derived from prior research. However, minor modifications in wording over these measurement scales might be necessary. Moreover, according to the findings of the fieldwork and pretest, addition or omission of some scale items might be mandatory. All constructs will be measured from the marketing manager's perspective. Various types of response categories for scales will be employed. Market orientation will be measured using the scales developed by Narver and Slater (1990). Some of the constructs (e.g., market orientation) will be measured at the organizational level while the rest (e.g., new product performance) will be measured at the project level. The data will be analyzed using a confirmatory factor analysis (CFA) in AMOS 4.

Overall, this dissertation is organized as follows: The subsequent section, Chapter 2, gives a comprehensive review of the previous scholarly research on market orientation. Chapter 3 presents the proposed model and research hypotheses. Chapter 4 provides information on data collection and data analysis methods that will be employed in the research process and discusses the results of the analysis. Finally, Chapter 5 will address the contributions and limitations of the study and present managerial and research implications along with concluding thoughts.

CHAPTER TWO

LITERATURE REVIEW

In the beginning of this chapter, the events and institutions that have contributed to the development of the market orientation research will be presented. Then, the marketing concept literature will be revisited for the purpose of providing a finer understanding of the roots/foundations of market orientation. Finally, the extant research on market orientation will be presented and the strengths and weaknesses of these studies will be discussed in detail.

2.1. The Emergence of Market Orientation Research

The significance of a market orientation for a business has been acknowledged by both practitioners and scholars (e.g., Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990). In spite of its widely acknowledged significance, the number of conceptual and empirical studies on market orientation has been limited. Only recently, the research interest on this subject has risen substantially (e.g., Deshpandé and Farley 1996). Several factors have played crucial roles in the recent surge of academics' and practitioners' interest in market orientation. First, popular books such as *In Search of Excellence* (Peters and Waterman 1982), and *A Passion for Excellence* (Peters and Austin 1985) have motivated some U.S. managers to foster a market orientation in their organizations. Second, both George Day's and Fred Webster's leadership functions within the *Marketing Science Institute* (MSI) played significant roles in the early development of the market orientation research (Jaworski and Kohli 1996). Third, the *Marketing Science Institute* has tried to increase research interest in market orientation

among academics. MSI has encouraged scholars to focus on market orientation as an emergent research area (Cravens, Greenley, Piercy, and Slater 1998) by providing funding for scholarly research and generating research ideas and/or agenda pertaining to it (Deshpandé 1999). It has arranged multiple conferences to raise awareness on market orientation and provided financial support for academic research on the subject (Deshpandé 1999; Hauser, Simester, and Wernerfelt 1996; Jaworski and Kohli 1996).

According to Deshpandé (1999, p.1-3), the following major MSI-led developments directed research attention to market/marketing orientation. In April 1987, The *Marketing Science Institute* organized a conference in Cambridge, Massachusetts, on the topic "Developing a Marketing Orientation". At this conference, the need for strong scholarly research to better define, measure, and model the market orientation construct was addressed. In addition, at the MSI conference in September 1990, the findings from MSI-funded as well as other empirical studies on market orientation were reviewed, and directions for future research were provided. The number of dissertation studies devoted to market orientation increased with MSI's leading role (Deshpandé 1999). MSI's effort to create awareness about the strategic significance of a market orientation for firms and MSI's support of the annual Alden G. Clayton doctoral dissertation proposal competition have helped market orientation become a popular subject for dissertation thesis research (Deshpandé 1999). It is important to note that research on implementing a market orientation has become one of MSI's three "capital" research topics and has received the highest research priority for funding by MSI for the 1994-1996 period (Deshpandé 1999; Also see Hauser, Simester, and Wernerfelt 1996). Notably, MSI has shaped the market

orientation research agenda (Jaworski and Kohli 1996).

2.2. The Earlier Literature Review Studies

A few studies have attempted to review the literature on market orientation (e.g., Jaworski and Kohli 1996; Wensley 1995). Wensley's (1995) review, which is published in *British Journal of Management*, concentrated on three different areas of marketing including market structure and segmentation, market networks and inter-firm relationships, and the implementation of market orientation and the marketing concept in organizations. In terms of market orientation, the author focused on the relationship between market orientation and competitive success in both the U.S. and U.K. studies, the effect of environmental moderators on this relationship, and the measurement instruments of a market orientation. This study was harshly criticized by Greenley (1995b) in the same journal and issue. Greenley (1995b) found this review quite informative and contributing since it gave "an accurate description of the central market orientation studies" (p.S88). The author added that this review lacked "constructive criticism" (p.S87) of the market orientation studies in the U.S. and U.K. contexts. Wensley (1995) presented several criticisms of market orientation research but did not offer convincing evidence to support these criticisms in the review (Greenley 1995b). Wensley (1995) did not attempt to identify similarities, differences, and connections, if any, across the market orientation studies. Additionally, the author failed to mention the contributions of these studies, if any, to the market orientation literature. The review, as being acknowledged by Greenley (1995b), is not particularly interpretative or insightful. Also, the review lacked logical connection and cohesion.

Jaworski and Kohli (1996) critically reviewed the market orientation literature in far greater detail as compared to Wensley (1995), and offered very insightful suggestions/ideas for future research. The review concentrated on: (1) the meaning of market orientation, (2) its relationship with several emerging topics/themes in the literature (e.g., market information processing, organizational learning, knowledge use, industry foresight and driving markets), (3) the quality of market-oriented behaviors, (4) impact of a market orientation, and (5) issues in enhancing a market orientation (Jaworski and Kohli 1996, p.119). The authors presented four different definitions of a market orientation (e.g., Day 1994; Deshpandé, Farley, and Webster 1993; Kohli and Jaworski 1990; Narver and Slater 1990), and highlighted the similarities and differences among these definitions and their implications for future research. They reviewed the relationships among various emerging issues and market orientation. The authors focused on antecedents and consequences of a market orientation and provided several recommendations for future research. Their review effectively synthesized a variety of market orientation studies and identified important research streams. They successfully pinpointed emerging problems and voids within each research stream as well. Accordingly, they provided very insightful and feasible conceptual and methodological suggestions for future studies.

The current review of the market orientation literature differs from the review by Jaworski and Kohli (1996) in several ways: First, the present study reviews the market orientation research from two perspectives: a *conceptual* perspective and an *empirical* perspective. The conceptual perspective focuses on conceptual studies as well as

anecdotal evidence that covers issues like definition, scope, and development of a market orientation. The empirical perspective concentrates on studies that examine the market orientation scales, the implementation of a market orientation, the market orientation-performance studies, and the links between market orientation and various important organizational/business constructs. Second, in the current review, the number of studies included and the amount of coverage given to each study are greater than those in Jaworski and Kohli's (1996) review. Finally, in the present review, the market orientation scales and major models/frameworks that have been suggested to date are presented and discussed.

2.3. The Marketing Concept Revisited: An Overview

Market orientation is viewed as the implementation of the marketing concept (e.g., Kohli and Jaworski 1990). These two concepts are closely related. Therefore, before starting a comprehensive review of conceptual and empirical research on market orientation, the marketing concept will be revisited. This brief review of the marketing concept is expected to provide a better understanding of the roots of a market orientation.

The marketing concept has emerged as a critical marketing management approach. It is regarded as a key issue in the marketing discipline (Kohli and Jaworski 1990). It was also referred to the "marketing philosophy", or "total marketing", or "integrated marketing" (Barksdale and Darden 1971). General Electric Company was known as the first firm to implement the principles of the marketing concept in the firm's operations (Barksdale and Darden 1971).

A review of the literature of the last 45 years unveils that relatively little attention has been given to the marketing concept among academics. A number of studies have focused on descriptive work on the extent to which organizations have adopted the marketing concept (e.g., Barksdale and Darden 1971; Hise 1965; McNamara 1972). Other studies have addressed the virtues of the marketing concept (e.g., McKitterick 1957), the shortcomings of the marketing concept (e.g., Houston 1986; Tauber 1974), and the potential factors that facilitate or impede the implementation of the marketing concept (e.g., Felton 1959; Webster 1988). Keith's (1960) article on the marketing concept is regarded as one of the earliest and most popular articles. It is a descriptive work that illustrates the adoption of the marketing concept in an applied setting (Houston 1986). In this article, Keith (1960) introduced the Pillsbury Company's evolution through the three managerial phases, starting with the *production era*, continuing with the *sales era* and ending with the *marketing era*. This evolutionary process is directed to a stronger organization (Houston 1986).

Several scholars have attempted to define and explain the marketing concept (e.g., Felton 1959; Konopa and Calabro 1971; McNamara 1972). Some of these definitions are presented below. The marketing concept is:

> "A corporate state of mind that insists on the integration and coordination of all of the marketing functions which, in turn, are melded with other corporate functions, for the basic objective of producing maximum long-range corporate profits" (Felton 1959, p.55; Houston 1986, p. 81).

> "A philosophy of business management, based upon a company-wide acceptance of the need for customer orientation, profit orientation, and the recognition of the important role of marketing in communicating the needs of the market to all major corporate departments" (McNamara 1972, p.51).

> "The external consumer orientation . . . as contrasted to internal preoccupation and orientation around the production function; profit goals as an alternative to sales volume goals; and . . . complete integration of organizational and operational effort" (Houston 1986, p.81; Konopa and Calabro 1971, p.9).

Clearly, these definitions of the marketing concept share some common elements. The marketing concept has generally been characterized by the three basic elements: (1) customer orientation or customer focus, (2) integrated effort, and (3) profit direction or market-driven (Bell and Emory 1971). *Customer orientation* or *customer focus* requires knowledge of the customer which means a comprehensive understanding of his/her needs, wants, and behavior. Knowledge of the customer should be the focal point of all marketing action in a company. In other words, this means that a company should be able to develop products and services to satisfy customers' needs and wants (Bell and Emory 1971). The main objective of the marketing concept is to provide customer satisfaction at a profit (Houston 1986). In his famous article, Marketing Myopia, Levitt (1960) emphasized the notion that the customer and his/her satisfaction are the focal points of a business. *Integrated effort* ultimately requires the entire company to be in tune with the market by placing emphasis on the integration of the marketing function with R&D, product management, sales, and advertising to increase the firm's total effectiveness/ performance (Bell and Emory 1971). Finally, *profit direction* or *market-driven* requires the shifting of the company's focus from sales volume to profit. The aim of the marketing concept is to make money for the company by focusing attention on profit rather than on sales volume (Bell and Emory 1971).

2.4. Market Orientation Research: A Conceptual Perspective

A significant volume of conceptual research on market orientation has discussed such descriptive issues as how to install a strong market orientation or market-oriented thought and behavior within an organization (e.g., Day 1990, 1994, 1998; Hunt and Morgan 1995; Jaworski and Kohli 1993; Ruekert 1992). A number of scholars have offered different definitions and conceptualizations of market orientation (e.g., Deshpandé, Farley, and Webster 1993; Kohli and Jaworski 1990; Narver and Slater 1990). In the following sections, definitional/conceptual issues of market orientation, various approaches to establishing a strong market orientation, and factors that influence the development of market orientation will be elaborated.

2.4.1. Definitions of Market Orientation

Throughout the literature a variety of terms have been used interchangeably to address a market orientation. The terms market-oriented, market-driven (Day 1994; Deshpandé, Farley, and Webster1993), customer orientation (Deshpandé and Farley 1998, 1999; Shapiro 1988; Webster 1988), customer focus (Deshpandé and Farley 1998, 1999) or customer-focused, customer-oriented, and customer-centric are often used synonymously. "Close to the customer" has been a key term to express a market orientation (Caruana, Ramaseshan and Ewing 1998; Peters and Waterman 1982; Shapiro 1988; Webster 1988). Narver and Slater (1990) and Kohli and Jaworski (1990) have chosen to use the term "market orientation" over the terms "the marketing concept" or "marketing orientation" in their articles. In the current study, the term market orientation will mainly be used.

Many scholars have presented their views on which term is more appropriate to use to address a market orientation. Sargeant and Mohamad (1999) said that the term market orientation seems to be more appropriate since it is "less politically charged and does not inflate the importance of the marketing function in the organization" (Sargeant and Mohamad 1999, p.44). It implies that marketing is the responsibility of the all functional units in the organization, not just the marketing function (Sargeant and Mohamad 1999). According to Slater and Narver (1994b, 1998), market orientation and marketing orientation are entirely different concepts. To the authors, a marketing orientation refers to "an emphasis on the marketing function" (p.24). Caruana, Ramaseshan and Ewing (1998) believed that a marketing orientation refers to the specific activities of the marketing department or division. Under a marketing orientation, the marketing function gains importance and is placed at the top of a hierarchical structure in the organization. Traditional marketing activities gain importance even though they are not major or appropriate core capabilities of the firm. Such an overemphasis on and empowerment of one functional area in the organization automatically leads to interdepartmental conflicts over issues like resource allocation and business priorities (Slater and Narver 1994b). Therefore, using a marketing orientation as synonymous with a market orientation is misleading, given the fact that "Customer value is created by core capabilities throughout the entire organization" (Slater and Narver 1994b, p.24).

Deshpandé (1999) stated that "market-oriented, customer-focused, market-driven, and customer-centric have become synonymous with proactive business strategy in firms worldwide" (p.1). Likewise, according to Deshpandé and Webster (1989), Shapiro (1988), and Slater and Narver (1995), the terms 'market-oriented', 'market driven', and

'customer focused' are synonymous. Day (1998) stated that "a strong market orientation is embedded deeply in the genetic make-up of a market-driven organization" (p.8). When stating that there is strong evidence that market-driven companies outperform their rivals, Day (1998) referred to the findings of the studies by Deshpandé, Farley, and Webster (1993), Jaworski and Kohli (1993) and Narver and Slater (1990) as evidence. Day (1994) argued that "organizations can become more market oriented by identifying and building the special capabilities that set market-driven organizations apart" (p.38). Furthermore, according to Day (1998, p.8), there are seven distinctive behavior and capabilities of a market-driven organization: (1) offering superior solutions and experiences, (2) focusing on superior customer value, (3) converting satisfaction to loyalty, (4) energizing and retaining employees, (5) anticipating competitors' moves, (6) viewing marketing as an investment, not a cost, and (7) nurturing and leveraging brands as assets. These behaviors and capabilities are also associated with a market orientation. Day (1994, 1998) used the term "market-driven" to define an organization with a strong market orientation. Based on the arguments offered by Day (1994, 1998), being market-driven can be considered either the same as a market orientation or a crucial component of a market orientation. In either case, it is appropriate to say that the arguments related to market-driven organizations apply to market-oriented organizations as well. Following Deshpandé and Webster (1989), Shapiro (1988), and Slater and Narver (1995), the term 'market-driven' and the term 'market-oriented' will be used interchangeably in this study.

On the other hand, Jaworski and Kohli (1996) believed that the terms market-oriented, market-driven, and customer-oriented do not share the same meanings, and are not synonymous. The term market orientation focuses on a larger set of market forces and

stakeholders, not only customers. Whereas, the term customer orientation emphasizes a focus on customers. In a commentary of Christensen and Bower's (1996) study, Slater and Narver (1998) underscored the distinctions between the two types of customer orientation. These are a customer-led philosophy and a market-oriented philosophy. These are often confused with each other. A customer-led business is likely to be reactive, have a short-term focus, emphasize customers' expressed wants/needs, and customer satisfaction. On the other hand, a market-oriented business is prone to act proactively, to adopt a long-term orientation, to understand and satisfy customers' both expressed and latent wants/needs, and to emphasize customer value (Slater and Narver 1998).

A comprehensive examination of the current literature on market orientation reveals that there has been no consensus among scholars on the definition of market orientation. Marketing scholars have not reached a complete agreement on what constitutes to a market orientation. The debate on this issue is ongoing (Cadogan, Diamantopoulos, and Mortanges 1999; Caruana, Ramaseshan and Ewing 1998). According to Siguaw, Simpson, and Baker (1998), for the most part, different definitions of market orientation have mainly been developed from different conceptualizations of the marketing concept. Therefore, it is possible that the variations in the definitions of a market orientation can be reflective of the diverse perspectives that have been adopted over time to define the marketing concept (Siguaw, Simpson, and Baker 1998).

A market orientation has been seen as the implementation of the marketing concept (e.g., Kohli and Jaworski 1990), that is considered as a business philosophy, an ideal or a policy statement (Barksdale and Darden 1971; Kohli and Jaworski 1990; McNamara 1972). Recently, more comprehensive, informative definitions of market

orientation were suggested by Kohli and Jaworski (1990), and Narver and Slater (1990). These definitions have been widely-accepted and frequently-cited by marketing scholars throughout the literature.

Kohli and Jaworski (1990) offered a formal operational definition of a market orientation. According to them:

> "*Market orientation is the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it*" (Italics added, p.6).

Kohli and Jaworski (1990) attempted to delineate the domain of the market orientation construct through a comprehensive model. Their definition of the market orientation concept is based on a field research conducted through in-depth interviews with 62 managers in four U.S. cities. The results indicated that, without exception, the managers interviewed agreed that a customer focus is the central element of a market orientation. For many practitioners, a customer orientation did not mean just the collection of customer information concerning their needs and preferences through customer research. Indeed, it meant the gathering of *market intelligence* that is based on information about *exogenous* factors affecting customer wants and needs, and information about *current* and *future* needs of customers (Kohli and Jaworski 1990). This is an indication of the fact that practitioners have a long-term-oriented view. Moreover, market orientation is not seen solely as a responsibility of the marketing department. Interestingly, the idea that profitability is a component of market orientation is not supported by the field findings. Rather, all viewed profitability as a consequence of a market orientation, not as a part of it (Kohli and Jaworski 1990).

Narver and Slater (1990) viewed market orientation as:

> "*the organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, superior performance for the business*" (Italics added, p.21).

Narver and Slater (1990) suggested customer orientation, competitor focus, and cross-functional coordination as the three pillars of market orientation. These pillars were characterized as being long-term in vision and profit-driven (Narver and Slater 1990).

Deshpandé, Farley, and Webster (1993) saw customer orientation as synonymous with a market orientation since they accepted a traditional definition of a market, that is, "the set of all potential customers of a firm" (p.27). They defined customer orientation as:

> "*the set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise*" (p.27; Also see Jaworski and Kohli 1996, p.120).

This view of a market orientation (or customer orientation) is consistent with the three components of a market orientation suggested by Narver and Slater (1990) with the exception of a competitor orientation. In other words, Deshpandé, Farley, and Webster's (1993) definition of a market orientation reflects both the contents of customer orientation and interfunctional coordination defined by Narver and Slater (1990).

Deshpandé and Farley (1996) defined market orientation according to the content of their parsimonious 9-item market orientation scale developed from the three existing scales through a comprehensive meta-analysis procedure. They briefly defined market orientation as:

> "*the set of cross-functional processes and activities directed at creating and satisfying customers through continuous needs-assessment*" (p.14; Also see

Deshpandé and Farley 1998, p.213; Deshpandé and Farley 1999, p.112).

According to Kohli and Jaworski (1990), a market-oriented organization is one whose actions are consistent with the marketing concept. In other words, a market-oriented or market-driven organization is the one in which the three pillars of the marketing concept (customer focus, coordinated marketing, and profitability) are successfully implemented (Kohli and Jaworski 1990). However, Hunt and Morgan (1995) argued that market orientation "is not the same thing as, nor a different form of, nor the implementation of, the marketing concept. Rather, it would seem that a market orientation should be conceptualized as supplementary to the marketing concept" (p.34). They proposed that:

> "*a market orientation is (1) the systematic gathering of information on customers and competitors, (2) the systematic analysis of the information for the purpose of developing market knowledge, and (3) the systematic use of such knowledge to guide strategy recognition, understanding, creation, selection, implementation, and modification.*" (Hunt and Morgan 1995, p.1, emphasis added; Wrenn 1997, p.34).

Finally, Day (1994) viewed market orientation as a set of excellent skills:

> "*market orientation represents superior skills in understanding and satisfying customers*" (Italics added, p.37; Day 1990; Also see Jaworski and Kohli 1996, p.120).

Some scholars have tried to identify the similarities and differences among these definitions (e.g., Day 1994; Jaworski and Kohli 1996). According to Day (1994), the different definitions of market orientation suggested by Deshpandé, Farley, and Webster (1993), Kohli and Jaworski (1990), Narver and Slater (1990), and Shapiro (1988) are not alternative to each other rather they complement each other. He believed that each of the

four definitions of market orientation represents principal features of a market orientation (p.37, in smaller fonts): (1) a set of beliefs that puts the customer's interests first (Deshpandé, Farley, and Webster 1993), (2) the ability of the organization to generate, disseminate, and use superior information about customers and competitors (Kohli and Jaworski 1990), and (3) the coordinated application of interfunctional resources to the creation of superior customer value (Narver and Slater 1990; Shapiro 1988). Similarly, Jaworski and Kohli (1996) analyzed the four different definitions of a market orientation, suggested by Day (1994), Deshpandé, Farley, and Webster (1993), Kohli and Jaworski (1990), and Narver and Slater (1990), and determined the similarities and differences among these definitions. They identified four similarities among the four well-known definitions: First, all maintain an external focus. Second, in all definitions, the central focus is the customer. Third, all definitions suggest a broader focus that include not only customers but also some other influential forces, such as competitors, technology, regulation, and other stakeholders. Fourth, all definitions accept the importance of being responsive to customer needs and wants. They recognized two differences among the definitions. First, each definition is based on one of the two alternative perspectives: (1) a *behavioral/activities/process* perspective versus (2) a *cultural* perspective. Day (1994), and Kohli and Jaworski (1990) adopted the former perspective while Deshpandé, Farley, and Webster (1993), and Narver and Slater (1990) followed the latter in their definitions. Second, Jaworski and Kohli (1996) believed that the terms market-oriented, market-driven, and customer-oriented do not share the same meaning. The term market orientation concentrates on a larger set of market forces and stakeholders, not only customers. Whereas, the term customer orientation emphasizes only customers.

2.4.2. Cultural Perspective versus Behavioral Perspective

Jaworski and Kohli (1996) believed that both the cultural and behavioral perspectives of market orientation are important. They agreed that even though values and beliefs may have more influence on the behaviors and activities within the organization, their measurement is more likely to be affected by social desirability biases than the measurement of actual behaviors or activities. Additionally, for many reasons (i.e., resource constraints), behaviors and activities within the firm may not be reflective of true values and beliefs that the firm actually holds (Jaworski and Kohli 1996). According to the authors, "from a manager's perspectives, it may be more important to focus on what an organization actually does than what it feels is important" (Jaworski and Kohli 1996, p.121). As a result, from both the research and practical perspectives, a choice between focusing on values/beliefs and focusing on activities/behaviors is important. The authors noted that the choice made will affect research design-related issues such as conceptualization and measurement (Jaworski and Kohli 1996). Therefore, the choice should be made carefully.

2.4.3. How to Develop a Market Orientation

The issue of how to develop a market orientation has not been fully examined by researchers (Day 1994; Payne 1988). Payne (1988) pointed out the lack of research on how to develop a marketing orientation. Day (1994) confirms that "Little is known, . . ., about the characteristics of successful programs for building market orientation" (p.37). Some studies have specifically focused on this issue and suggested various approaches to successfully developing a market orientation (e.g., Day 1994; Payne 1988). The other studies, especially empirical ones, provided useful insights on different aspects of

adopting and improving a market orientation based on their empirical results (e.g., Greenley 1995c; Slater and Narver 1994b). In this section, various ways of and different views about developing market-oriented thinking and behaviors within an organization are presented and discussed.

Almost all of the scholars who studied the issue of how to develop a market orientation appear to be agreed upon one aspect: Developing a market orientation is not a simple task at all. In fact, it is a very arduous one. Payne (1988) stated that "The transition to a marketing orientation is a considerable challenge for management" (p.52). Payne (1988) clearly expressed his opinions about the potential difficulties encountered in developing a market orientation in his following statement:

> "There is no such thing as a quick path to market orientation. No one appointment, reorganization, or pronouncement will make an organization marketing-driven. The change requires a long-term view of customers and competition and a recognition that developing a marketing capability will require years of continuous work. Such effort should be looked upon as an *investment* by top management." (Payne 1988, p.53)

The difficulties associated with developing a market orientation are four-fold: First, building a strong market orientation is a long-term investment with long-term outcomes (Appiah-Adu 1997; Payne 1988). However, firms tend to focus on short-term gains. This tendency may create difficulties in developing a market orientation (Greenley 1995c; Payne 1988). Second, becoming market-oriented requires the facilitation of a great deal of employee training and a substantial amount of investments in capital-intensive processes and activities. Therefore, it may be costly (Appiah-Adu 1997; Slater and Narver 1994a; Steinman, Deshpandé, and Farley 2000). Third, building a market-oriented organization demands the rigorous and concerted effort of top management and

employees at every level (Day 1998). Finally, developing a market orientation involves transforming an organizational culture to a market-oriented one. Changing an organization's culture is an extremely difficult task to undertake (Cravens, Greenley, Piercy, and Slater 1998; Pelham and Wilson 1995; Slater and Narver 1994a).

2.4.3.1. Approaches to Developing a Market Orientation

Several approaches to developing a market orientation have been introduced (e.g., Day 1994; Jaworski and Kohli 1996; Payne 1988; Slater and Narver 1994b). These approaches are reviewed below:

Payne's (1988) Approach

Payne (1988) introduces one viable approach to developing a marketing orientation in an organization. According to Payne (1988), "Successful development of a marketing orientation requires a thorough understanding of the organization's existing culture and a carefully constructed program of management development, support activities, and follow-up to overcome the organizational inertia that can impede the transition to marketing effectiveness" (p. 46). The author suggested that a program aimed at increasing market orientation in an organization can be developed in three ways: First, all of the potentially conflicting orientations in the organization should be uncovered and well-understood. An organization might have product, cost, capacity, and erratic orientations in addition to a marketing orientation. The examination of these orientations is expected to help the organization develop an organizational mission and the values for top management that are compatible with a marketing orientation. Second, the present levels of marketing effectiveness should be assessed. Third, a plan should be developed and executed to increase marketing orientation when the present level of marketing

effectiveness of the organization is measured and the need for improvement is determined. The achievement of a marketing orientation is a question of establishing marketing processes that involve the whole company and a continuous match of its products and its customers' needs rather than activities.

This conceptual study by Payne (1988) should be regarded as an important contribution to the market orientation literature. This study provides more detailed, prescriptive guidelines on how to develop a market orientation in an organization. This approach suggested in this work is based on a different conceptualization of a market orientation made by Philip Kotler. Payne (1988) considers a market orientation as a process-based phenomenon. His approach appears to be consistent more with the behavioral perspective of a market orientation. Payne (1988, p.53) believed that developing a marketing orientation involves "the question of establishing processes rather than activities" within the organization.

Programmatic versus Adaptive Approach

Slater and Narver (1994b) suggested two alternative strategies that may be pursued in developing a market orientation in an organization. These are the *programmatic* approach and the *adaptive* approach. The *programmatic approach* which is outlined by Beer, Eisenstat and Spector (1990) is based on the philosophy that organizational change occurs when individual beliefs and behaviors change. It operates in a top-down fashion. It focuses more on the attitudes and activities of individuals. Firms pursuing this approach are more likely to adopt change programs (Slater and Narver 1994b). Under this approach, management has the power in making decisions and decreeing actions (Slater and Narver 1994b). Organizational structures and administrative

systems are changed to prepare a ground for future competitive efforts. Mostly, the program is undertaken by consultants or staff experts who try to instill the philosophy of a market orientation in the minds of employees through training and communication (Slater and Narver 1994b). Indeed, this is an attempt to transform employees' current values, beliefs, and behaviors into more market-oriented forms. The ultimate purpose is to make the entire business culture market-oriented.

The *adaptive approach* is based on learning. This approach assumes that management and employees continuously learn from their experiences that they gain in creating customer value. According to this learning, they make necessary adjustments in strategy, structures, systems and staffing (Slater and Narver 1994b). Main performance measures are determined early in the process. Also, short-term performance improvement goals are set. The firm begins to receive the positive results of its effort early, and continuous improvement is expected to occur throughout the program (Slater and Narver 1994b). According to Slater and Narver's (1994b) observation, the adaptive approach appears to be more efficient than the programmatic approach in achieving the transition to a market orientation. They believed that the assumption of the adaptive approach about individual behavior change is more realistic.

Top-down versus Bottom-up Initiatives

Jaworski and Kohli (1996) identified two main approaches to enhance the level of market orientation within the organization. These are *top-down* initiatives and *bottom-up* initiatives (Also see Narver and Slater 1991, and Day 1994). *Top-down initiatives* are associated with organizational change efforts and require the active participation of senior management with a leading role (Jaworski and Kohli 1996). Kohli and Jaworski (1990)

identified three major organizational levers that have important roles in enhancing the degree of market orientation. These levers include senior management actions, interfunctional relationships, and organization-wide systems (Jaworski and Kohli 1996). In order to increase the level of market orientation, a special emphasis should be given to increasing the coordination, communication, and interaction among all functional groups within the organization. This can be accomplished through decreasing interfunctional conflicts and increasing interfunctional connectedness (Jaworski and Kohli 1996). Furthermore, some alterations in the organization may be needed. For example, some modifications in the organizational structure might be useful. Also, market-based reward systems can be introduced to the organization to increase market orientation (Jaworski and Kohli 1996).

Bottom-up initiatives are organizational change efforts that are initiated first by the lower/middle levels of the organization, usually by a "champion manager", and then, ultimately, spread throughout the entire organization (Jaworski and Kohli 1996, p.130). Jaworski and Kohli (1996) argue that "Per this approach a business should first develop a strategy for creating buyer value, learn from its efforts at value creation, and continually adapt its structure, staffing, systems and other organizational properties" (Jaworski and Kohli 1996, p.130). Jaworski and Kohli (1996) advise practitioners to use a balanced combination of top-down and bottom-up initiatives to increase their market orientation.

Emerging Capabilities Approach

Day (1994), in his conceptual work, stressed the important role of capabilities in developing market orientation in an organization. He suggested the *emerging capabilities* approach to strategy as a new way to accomplish and maintain a market orientation.

Organizations can increase their level of market orientation by identifying and developing those special capabilities that are unique to market-driven organizations (Day 1994). There are two critical capabilities: market sensing and customer linking. Building strong market sensing and customer linking capabilities is an integral part of the process of developing a market-driven organization (Day 1994). Deshpandé and Webster (1989), Shapiro (1988), and Slater and Narver (1995) considered the terms 'market-oriented', 'market driven', and 'customer focused' to be synonymous. Day (1994, 1998) used the term "market-driven" to describe a firm with a strong market orientation. Day (1998) stated that "a strong market orientation is embedded deeply in the genetic make-up of a market-driven organization" (p.8). It seems that, to Day (1994, 1998), the 'market-driven' characteristic of a firm is the key to a strong market orientation. Based on the arguments offered by Day (1994, 1998), being market-driven can be considered either the same as a market orientation or a crucial component of a market orientation. Market-driven firms are likely to have outstanding outside-in capabilities including market sensing, customer linking, and channel bonding capabilities (Day 1994). Potential facilitators of market-oriented behaviors can be accomplished by pursuing an approach that combines bottom-up redesign and top-down direction (Also see Jaworski and Kohli 1996). The capabilities approach to strategy and TQM provide guidance to developing effective programs to strengthen market sensing and customer-linking capabilities. Day (1994) suggests a prescriptive change program which includes various components (p.49). This change program must be implemented in concert with the other means of or other actions directed at developing a market orientation. Day (1994) provided valuable, operational

suggestions for managers on how to improve the level of market orientation in their organization.

2.4.3.2. Top Management Involvement

Top management leadership is essential for the successful development of a market orientation (Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990; Slater and Narver 1994b). According to Slater and Narver (1998, p.1003), "strong leadership is a characteristic of market-oriented businesses." Top management is expected to create a firm environment that fosters a market orientation. Slater and Narver (1994b) provided some insights about how top management can develop such a fostering environment in their following expression:

> "To accomplish this, senior management provides general guidelines for business unit managers on how the culture should change, empowering them to initiate and tailor customer value strategies. In addition, top management set specific business unit standards for customer satisfaction and other measures of market performance. . . . By communicating and discussing business unit successes with other units in the organization, top managers reinforce success and increase organizational learning. Most important, senior managers lead by example" (Slater and Narver 1994b, p.26).

Top management is in charge from the beginning to the end of the change program (Slater and Narver 1994b). Top management provides prescriptive guidelines and desired performance standards for business unit managers and supplies them with the necessary power and support to meet the standards. A market orientation is developed at the business unit level first under the close guidance of top or senior management. Then, it is transferred to the whole organization through managerial-level interactions and information exchanges among its SBUs. This view seems to be consistent with the other views suggested in the literature. Some scholars suggested that the development of

market orientation should be undertaken at the SBU level rather than at the corporate level (e.g., Kohli and Jaworski 1990; Ruekert 1992; Workman, Homburg, and Gruner 1998).

It has been suggested that enhancing the level of interfunctional coordination among functional units will increase the degree of market orientation in the organization (e.g., Clark and Wheelwright 1993; Menon, Jaworski, and Kohli 1997; Song, Neeley, and Zhao 1996). Clark and Wheelwright (1993) argued that senior/top management can develop a strong cross-functional coordination or integration in several ways: First, it can create an organizational framework or context that nurtures and enhances cross-functional integration or coordination Second, top management can establish and communicate what the best possible patterns of involvement, coordination, and communication among functional units ought to be. Third, it can remove barriers to trust and nurture respect between functional units. And, finally, it can provide technological tools and methods which increase the quality and effectiveness of the communication and interaction among functional units. Furthermore, Menon, Jaworski, and Kohli (1997) suggest that top management with an effective management style which is based on less risk aversion, more empowerment of employees through more decentralized structures, and the use of market-based reward systems can improve interfunctional interactions. Thus, the degree of a market orientation may be increased. Song, Neeley, and Zhao (1996) noted that senior management can increase interfunctional collaboration, communication, and informational exchanges by establishing formalized rules and procedures for communication and interaction, such as written documents about policies, procedures, job descriptions, budgets, schedules, and project specifications.

In brief, the involvement of top management is a "must" in developing a strong market orientation within an organization. Top management needs to adopt appropriate management style and organizational structure that are likely to promote communication, interaction, integration, and coordination across functional units. More importantly, top management must set an example to business unit managers on how to be market-oriented.

2.4.3.3. Role of the Marketing Function

The question of what role the marketing function should play in a market-oriented organization is a crucial one (Moorman and Rust 1999). Surprisingly, few studies have addressed or investigated the role of the marketing function in a market-oriented organization so far (e.g., Moorman and Rust 1999; Slater and Narver 1994b; Workman 1993; Workman, Homburg, and Gruner 1998). Past research has discussed the structure/organization of the marketing function (e.g., Hise 1965; McNamara 1972; Moorman and Rust 1999; Workman, Homburg, and Gruner 1998), the role of the marketing function in a market-oriented organization (e.g., Moorman and Rust 1999; Slater and Narver 1994b; Workman, Homburg, and Gruner 1998), and the factors that are likely to affect the power of the marketing function (e.g., Workman 1993; Workman, Homburg, and Gruner 1998).

The marketing department is a significant component of an organization. It has an important role "in communicating the needs of the market to all major corporate departments" (McNamara 1972, p.51). Moorman and Rust (1999) found that managers from a wide range of businesses and six different functional affiliations viewed marketing as the function which governs various connections between the organization and the

customer. The major connections include the customer-product, the customer-service delivery, and the customer-financial accountability connections. Indeed, the product-customer connection is a traditional one. The last two connections have been developed recently as a result of the advancing information technology and the growing service economy (Moorman and Rust 1999). The importance of the marketing function is determined by its usefulness within the framework of the organization. Moorman and Rust (1999) described "*the value of the marketing function within the firm* as the degree to which it is perceived to contribute to the success of the firm relative to other functions" (p.182). Thus, the higher the contribution of the marketing function to the firm's performance, the higher its perceived value will be (Moorman and Rust 1999).

The marketing function has an important role to play in a market-oriented organization. Moorman and Rust (1999) constructed a framework that explains the extent or boundaries of the marketing function's responsibilities and how it works in a market-oriented firm environment. They investigated the contribution or value of the marketing function as an organization pursues a process or functional structural approach to the management of marketing activities. The authors utilized a sample of 1200 managers from six different functional departments (i.e., marketing, human resources, R&D, operations, accounting, and finance) across a number of US business organizations. The research findings revealed that the marketing function is really important for the organizations (Moorman and Rust 1999). The authors believe that "the marketing function can and should coexist with a market orientation and . . . . the effectiveness of a market orientation depends on the presence of strong function that includes marketing" (p.180). They maintained a view that the marketing function has a significant role in the

organization with a strong market orientation. In a contrary argument, however, Slater and Narver (1994b) contended that the marketing function has a less significant role when an organization has a strong market orientation and vice versa. The fact that customer value is created by the contribution of every individual in every functional department of the entire organization implies that developing and maintaining a market orientation in an organization is not a task that is appropriate for only the marketing function. Even, Slater and Narver (1994b) argued that when a firm develops a strong market orientation throughout the organization, the marketing function is expected to be less important since all other functions are committed to creating and delivering superior customer value. A strong emphasis on cross-functional coordination weakens internal functional boundaries, and eventually, those boundaries lose their meaning (Homburg, Workman, and Jensen 2000; Slater and Narver 1994b). Workman, Homburg, and Gruner (1998) supported this view as well. They proposed that a higher level of market orientation has a "paradoxical effect" on the power of the marketing function within the organization. The higher the number of functional units involving marketing activities, the less the power of the marketing department (Workman, Homburg, and Gruner 1998). In an organization with a strong market orientation, the marketing function is expected to have less power.

Slater and Narver (1994b) seem to agree with Moorman and Rust (1999) on the significant role of the marketing function in a market-oriented organization only when the organization has a weak market orientation and/or a desire to improve the level of its market orientation. Slater and Narver (1994b) noted that when the organization has a poor market orientation and its internal orientation is based on production or R&D, the marketing function may be required to take an active role in installing market-oriented

thinking, and in developing and maintaining a market-oriented culture within the entire organization. They maintained that since its success is dependent on other functional departments for the timely and efficient development, production, and delivery of the product, it would not be surprising for marketing to be the first function that fully appreciates the value of a market orientation. Marketing may demonstrate the advantages of being truly market-oriented to top management and to other functions (Slater and Narver 1994b). As marketing helps the entire organization enhance its market orientation, the role of marketing weakens. As a result, marketing's own value and power will suffer. As mentioned, Moorman and Rust (1999) do not seem to agree with this view of the role of the marketing function under a market orientation.

Overall, based on the preceding discussions, it can be argued that the marketing function is vital to the successful development or enhancement of market orientation in a firm with no or a low level of market orientation (e.g., Slater and Narver 1994b). The marketing function provides a rich foundation for market-oriented thinking and behavior to cultivate (e.g., Moorman and Rust 1999; Slater and Narver 1994b). As the level of market orientation increases, the marketing function becomes less important and less powerful since marketing activities are dispersed across functional units within the organization (e.g., Slater and Narver 1994b; Workman, Homburg, and Gruner 1998). Now, even traditional responsibilities of the marketing function are shared by other functional units. This leaves the marketing function with limited responsibilities, and therefore, with less power.

Indeed, a few studies have explored or discussed the role of marketing in the firm (e.g., Moorman and Rust 1999; Workman 1993). Further research should attempt to

develop a general theory of marketing and its role within the firm in general (Workman 1993). Especially, the extent of marketing's role in a market-oriented firm should be explored thoroughly. For example, what incentives, if any, should be offered to the marketing personnel to mobilize them into building a strong market orientation at the expense of their functional power and traditional responsibilities. The current conceptual and empirical work fails to clarify this point.

2.4.3.4. Employee Involvement

Many scholars appear to agree on the notion that employees at all levels of the organization have a profound role in the development of a market orientation (e.g., Day 1994; Day and Wensley 1988; Kohli and Jaworski 1990; Martin, Martin and Grbac 1998; Slater and Narver 1994b). In a market-oriented organization, employees actively participate or are involved in market-oriented activities (Kohli and Jaworski 1990; Slater and Narver 1994b). Employee involvement in marketing activities is a crucial part of a market orientation. It leads to successful implementation of market-oriented activities and successful development of a market-oriented culture (Martin, Martin and Grbac 1998). For example, in a market-oriented firm, managers and employees throughout the firm are expected to establish and maintain close relationships with their customers. They either call on their customers or invite them into their own facilities to constantly monitor their changing needs and figure out ways to satisfy them (Slater and Narver 1994b).

In order to encourage and enhance employee involvement in market-oriented activities, organizations need to be willing to empower their employees. *Employee involvement* in market-related activities consists of "providing employees with the necessary market information and empowering them to autonomously take action to

devise the means to better satisfy customer needs" (Martin, Martin and Grbac 1998, p.494). Employee involvement often requires "delegation of individual responsibility", "autonomous decision making", and "developing workers with positive feelings of self-efficacy" (Martin, Martin and Grbac 1998, p.494). Employee empowerment seems to be a pre-requisite for the success of employee involvement. *Employee empowerment* includes the delegation or sharing of power with employees. It is also seen as both the relational construct based on resource sharing and the motivational construct based on enhancing self-efficacy and individual power-driven motivation (Martin, Martin and Grbac 1998).

Employee motivation and empowerment, and interfunctional coordination create more opportunities for success (Slater and Narver 1994b). In a market-driven firm, employees are given a considerable amount of power to solve customer problems (Day 1994). According to some scholars, there are no distinctions between market-driven firms and market-oriented firms (e.g., Deshpandé and Webster 1989; Shapiro 1988; Slater and Narver 1995). They are actually considered to be the same. Day (1994, 1998) used the term 'market-driven' to define a firm with a strong market orientation. Therefore, the arguments associated with market-driven firms also apply to market-oriented firms (e.g., Deshpandé and Webster 1989; Shapiro 1988; Slater and Narver 1995). Market-driven firms successfully resolve customer problems without seeking any approvals from a higher authority (Day 1994). Menon, Jaworski, and Kohli (1997) noted that the empowerment of employees at the lower levels of the organization through the decentralization of decision making processes seems to be beneficial. It appears to reduce conflicts and enhance interdepartmental connectedness (Menon, Jaworski, and Kohli 1997). The authors further observed that "Decision-making responsibilities seem to help

employees become goal focused and develop networks necessary to achieve the stated goals" (Menon, Jaworski, and Kohli 1997, p.195). Employee empowerment is a key to a strong market orientation.

In a market-oriented culture, in order to promote employee involvement and empowerment, the importance of employees' involvement is effectively communicated to all organizational levels in a top-down manner. The sharing of market-related intelligence throughout the organization and the forming of informal or formal cross-functional teams are strongly encouraged (Day 1994; Day and Wensley 1988; Kohli and Jaworski 1990; cf., Martin, Martin and Grbac 1998; Slater and Narver 1995). Martin, Martin and Grbac (1998) suggested that *goal setting* is a promising technique to increase employee involvement to develop a strong market orientation in a firm in transitional economies. "*Goal setting* is a motivational technique that has been found through years of research to increase employee productivity" (Martin, Martin and Grbac 1998, p.496; emphasis added). The authors argued that this goal setting technique can also be an important remedy for solving the problems related to employee involvement and empowerment resulting from the three characteristics (i.e., individualism and collectivism, power distance, and uncertainty avoidance) of a national culture
(Martin, Martin and Grbac 1998).

It is clear from the preceding discussions that the workforce in a market-oriented firm has an active role in developing market orientation. Due to the significance of employee involvement in developing a market orientation, firms need to be very careful about recruiting and retaining the best people possible. They should provide the best training possible to those selected (Slater and Narver 1994b). Some firms take this effort

further and involve their key customers in decisions involving the hiring and training of contact people, along with the development of motivation and reward systems for employees (Slater and Narver 1994b). In market-driven firms, rewards are awarded on the basis of customer-related measures such as determinable achievements in customer satisfaction and retention (Day 1994).

From both the behavioral and cultural perspectives of a market orientation, the role of employees in developing a strong market orientation is unarguably pivotal (e.g., Day 1994; Day and Wensley 1988; Kohli and Jaworski 1990; Martin, Martin and Grbac 1998; Slater and Narver 1994b). To the author's best knowledge, despite its centrality, the potential effect of employee involvement and empowerment on the success of the development program has not received significant research attention to date. Future research studies should examine whether firms with a high degree of employee involvement and/or empowerment are more likely to meet their development objectives/goals better and earlier than those with a low level of employee involvement and/or empowerment. A high level of employee participation and empowerment may enhance the firm's ability to develop a strong market orientation in a relatively short period of time. Empirical probes of all these issues would be a unique and significant contribution to this line of research.

2.4.4. Deviations From Being Market-Oriented

As stated earlier, the terms 'market-driven' and 'market-oriented' are considered to be synonymous (e.g., Deshpandé 1999; Deshpandé and Webster 1989; Shapiro 1988; Slater and Narver 1995). Deshpandé (1999) claimed that "market-oriented, customer-focused, market-driven, and customer-centric have become synonymous with proactive

business strategy in firms worldwide" (p.1). When presenting the evidence that market-driven companies outperform their rivals, Day (1998) referred to the findings of the studies by Deshpandé, Farley, and Webster (1993), Jaworski and Kohli (1993) and Narver and Slater (1990) as evidence. Thus, it would be appropriate to say that the arguments regarding market-driven organizations may be applicable to market-oriented organizations as well. Following Deshpandé (1999), Deshpandé and Webster (1989), Shapiro (1988), and Slater and Narver (1995), the term 'market-driven' and the term 'market-oriented' are considered to be synonymous in the present study. Therefore, the following discussion regarding market-driven organizations will be included in this section of the study.

Day (1998) classified less successful practices of being market-driven in three groups: The *self-centered*, the *customer compelled*, and the *skeptical*. The self-centered firms are the firms "who may have been market-driven at one time but don't realize until they encounter, trouble that they have lost their focus" (Day 1998, p.1). Especially, successful firms (e.g., IBM) are more likely to involve the *self-centered trap*. Since these firms experienced the benefits of being market-driven at one time, they had a clear and shared understanding of how to deliver superior customer value. But, as the time passes, this understanding is taken for granted by the next generations of managers. "The dire consequences of this inward focus may be obscured for years until the value proposition loses touch with changes in the market or the original meaning is distorted beyond recognition by the original target market" (Day 1998, p.2). The self-centered trap is similar to the *competency trap* in which a core organizational capability (in this context, being able to create superior customer value) becomes a trap. This occurs "when new

procedures or capabilities may be more effective than old ones but the organization is unwilling or unable to reject the capability it has invested in so heavily" (Slater and Narver 1999, p.243). Generative learning is constrained and organizational learning becomes ineffective (Dickson 1992; Slater and Narver 1999).

The organization in the *customer compulsion trap* focuses on satisfying every customer instead of satisfying those who are worth pursuing (Day 1998). There is a tendency to give the customer whatever he or she wants. Soon customers notice the organization's weakness and try to exploit it by threatening to switch if the latest move by a rival supplier is not matched (Day 1998). This results in increasing costs and increasing pressure on prices (Day 1998). Consequently, the organization starts to disbelieve the value of a market orientation. The skeptical firms are the firms "who doubt the advisability of being led by customers and put their faith in superior judgment and technology as the key to a long-run competitive advantage" (Day 1998, p.2). It may be very difficult for the organization to rebuild its trust of a market orientation.

The *skepticism trap* occurs when the organization starts to question the value of the giving of priority to customer needs and wants in decisions. Some scholars argue that it is wise to ignore the customer voice in some contexts since customer ideas cannot lead to innovative, breakthrough products and services (Day 1998; Hamel and Prahalad 1994). Also, it is argued that the continuous effort to understand the customer better through increasing numbers of focus groups and surveys serves as an impediment to the realization of real work. Therefore, ignoring the customer helps companies offer new products which are safe and bland (Day 1998; Martin 1995).

The issue of possible delinquencies in maintaining a desired level of market orientation within the company has not been discussed by the marketing community in a broader scale yet. Therefore, this conceptual study by Day (1998) has been very enlightening to practitioners as well as scholars. Day (1998) sees all these unsuccessful practices of being market-driven as different forms of organizational myopia. Day (1998) clearly expresses the problems and traps involving the management of a market orientation within organizations. Sustaining a strong market orientation over time is a challenging task. Future studies should explore the depth of these potential traps in solid conceptual as well as empirical works.

2.4.5. Broadening the Scope of a Market Orientation

In the market-driven era, the market has the "pivotal role" in the design, development, and implementation of new organizational strategies and in the discard of the old ones (Cravens 1998, p.237; Cravens, Greenley, Piercy, and Slater 1998; Day 1994). Developing effective new market strategies can create great opportunities for businesses. Designing market strategies on the basis of a reactive stance and/or a proactive stance can significantly affect the success of businesses (Baker and Sinkula 1999; Chandy and Tellis 1998). Some studies have stressed the importance of a proactive stance for businesses and the need for broadening the scope of a market orientation to include *proactive responsiveness* or *market insight* or the *driving markets* concept as an integral part of it. (e.g., Jaworski and Kohli 1996; Jaworski, Kohli and Sahay 2000; Chandy and Tellis 1998).

Recently, several scholars have contended that the scope of a market orientation is actually broader than that previously defined (e.g., Jaworski and Kohli 1996; Jaworski,

Kohli and Sahay 2000). Jaworski, Kohli and Sahay (2000) criticized the current literature for defining a market orientation as an approach that mainly focuses on existing or current customer needs/preferences and market structure (customer-led). They believe that this would be a narrow conceptualization of a market orientation. Indeed, a market orientation is more than that and aims to proactively shape the customer preferences and/or the market structure rather than accepting them as given. *Market/industry foresight* or *proactiveness* has been seen as an integral part of a market orientation. *Market* or *industry foresight* has been viewed as an extremely crucial, subset element of being market-oriented by Jaworski and Kohli (1996). Jaworski and Kohli (1996, p.126) defined market foresight as "a strategic orientation to market that moves beyond the short-term current customers and competitors to the broader forces that shape markets." In another definition, industry foresight has been referred to "an organization's ability to anticipate and perhaps even shape the evolution of markets" (Also see Hamel and Prahalad 1994; Jaworski and Kohli 1996, p.125). Obviously, market or industry foresight broadens the concept of market orientation. Thus, a market orientation is characterized by not only a reactive position but also a proactive position towards markets.

According to Jaworski and Kohli (1996), the issue of "being market driven versus driving markets" is a critical one. Most of the research on market orientation implicitly advises firms to be reactive towards their markets rather than being proactive. The authors suggest that "the explicit incorporation of a proactive stance in addition to a reactive stance would be more accurate from a descriptive as well as a prescriptive standpoint" (Jaworski and Kohli 1996, p.126). They argue that the third dimension (i.e., responsiveness to market intelligence) of a market orientation should contain both

reactive and proactive responses (Jaworski and Kohli 1996). Proactive responsiveness is especially important for high-tech firms such as Texas Instruments, Hewlett-Packard, Intel, and Motorola (Jaworski and Kohli 1996). Proactiveness enhances the ability of the firm to anticipate future technological developments, market and economic trends, and possible demographic shifts ahead of its competition.

Chandy and Tellis (1998) addressed the benefits of being proactive. They reminded scholars that too much emphasis on current customer needs can be damaging especially from the innovativeness standpoint. Based on the results of their empirical study, Chandy and Tellis (1998) argued that "radically innovative firms tend to focus on the future customers and competitors that could enter their markets, more than on those with whom they currently deal" (p.484). Chandy and Tellis (1998) urged scholars working on market orientation that a strong focus on current customers can actually lead firms to give less attention to future customers. Also, such a focus can be misleading and cause many future opportunities to be missed. They believed that the current market orientation research should differentiate between current and future customers.

Baker and Sinkula (1999) discussed the importance and potential for proactiveness in particularly learning-oriented organizations. They asserted that firms with a strong learning orientation would prefer to lead the market rather than being led by the market (Baker and Sinkula 1999). The authors argued that:

> "breakthroughs do not always come from reacting to the market as it is. Innovation sometimes requires the vision to predict what the market may become. That is, a firm with a strong learning orientation may recognize that customer satisfaction may not always be maximized through a strict interpretation of the feedback received from current customers, channels, and competitors but instead through innovative disruptions to the status quo that consider, but do not rely solely on, outside-in processes" (Baker and Sinkula 1999, p.415).

This argument gives considerable support to Chandy and Tellis's (1998) argument that radical innovativeness may be a product of taking a proactive stance toward the market. Baker and Sinkula (1999) maintained that "in an environment in which no new overt signals from competitors, customers, or channels demand change, improving performance may depend totally on the motivation and ability of an organization to look proactively at the environment in a new way and, in essence, to change it themselves to their advantage" (p.423). Such proactiveness can be achieved through a strong learning orientation. However, a strong learning orientation may not be enough alone if the "firms with both strong learning and market orientations may be best able to uncover and respond to both explicit and latent environmental forces through a combination of adaptive and generative learning that enables innovative and reactive marketplace behaviors" (Baker and Sinkula 1999, p.423). Day (1998) highlighted the crucial role of a strong learning orientation in developing a proactive market stance within the organization. Day (1998) argued that "leading customers to where they want to go is inherently risky, so firms must be willing to continually learn and refine their judgments through broad scanning and experimentation" (p.5). Apparently, organizations should back their market orientation with a strong learning orientation to achieve and sustain a continual proactive stance and behavior.

Jaworski, Kohli and Sahay (2000) put more consideration into the ideas suggested by Jaworski and Kohli (1996) about proactiveness or driving markets. They extended the earlier work of Jaworski and Kohli (1996) by identifying two approaches to being market-oriented via a theoretical framework (Jaworski, Kohli and Sahay 2000, p.46). Jaworski,

Kohli and Sahay (2000) suggested that there are two approaches to being market-oriented: a *market-driven* approach and a *driving-markets* approach. The market-driven approach involves "a business orientation that is based on understanding and reacting to the preferences and behaviors of players within a given market structure" (Jaworski, Kohli and Sahay 2000, p.45; the original is in italics). A market-driven business accepts the market structure and/or actions of market players as given, and tries to develop superior customer value under these given conditions. It prefers to adapt its offerings to "the voice of the customer" (Jaworski, Kohli and Sahay 2000, p.45). The driving-markets approach, or market driving approach refers to "influencing the structure of the market and/or the behavior(s) of market players in a direction that enhances the competitive position of the business" (Jaworski, Kohli and Sahay 2000, p.45; the original is in italics). Their conceptualization of a market orientation provides valuable insights that should enable practitioners to develop a strong, full-scale market orientation in their firms. The authors explained the extent of the driving-markets approach in great details and provided insightful information and real-life examples about how a firm can reshape market structure and/or market behavior properly. Also, this study unveiled further possible avenues of research for scholars. The authors suggested that the determination of conditions under which the driving-markets approach works, the development of appropriate measurement devices for evaluation of a firm's market-driving behaviors, and the investigation of the extent to which market behaviors can be shaped are viable, fertile topics for future research (Jaworski, Kohli and Sahay 2000). Certainly, the issue of driving markets or "proactive responsiveness" should be investigated more closely in future studies (Jaworski and Kohli 1996, p.127). According to Jaworski and Kohli

(1996), future research on the issue of driving markets should focus on identifying the types of firms and conditions which can effectively allow effective market shaping.

2.5. Market Orientation Research: An Empirical Perspective

The empirical studies of market orientation have unambiguously outnumbered the conceptual ones. A substantial amount of research effort has been devoted to the relationship between market orientation and business performance in a single or a multi-industry context in the U.S. as well as in international settings (e.g., Deshpandé, Farley, and Webster 1993; Greenley 1995c; Homburg and Pflesser 2000; Jaworski and Kohli 1993; Kohli and Jaworski 1990; Matsuno and Mentzer 2000; Narver and Slater 1990). More specifically, the market orientation-performance linkage has been investigated in an international context (e.g., Deshpandé and Farley 1999; Deshpandé, Farley, and Webster 1993; Selnes, Jaworski, and Kohli 1996), in different business settings (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Kumar and Subramanian 2000; Voss and Voss 2000), and in a small business context (e.g., Appiah-Adu 1997; Pelham 1997; Pelham and Wilson 1995). A small group of empirical studies have examined the various forms or patterns of market orientation that exist within organizations (e.g., Greenley 1995c; Lado and Rivera 1998; Liu 1996).

A significant body of research on market orientation has attempted to develop more reliable and valid market orientation measurement scales (e.g., Deng and Dart 1994; Deshpandé and Farley 1996; Homburg and Pflesser 2000; Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993; Matsuno and Mentzer 2000; Narver and Slater 1990). Few studies have made a comparison or criticism of the extant measurement scales (e.g, Cadogan, Diamantopoulos, and Mortanges 1999; Deshpandé and Farley 1996;

Oczkowski and Farrell 1998; Wrenn 1997).

A specific research effort has been directed toward the effects of market orientation on sales behavior and attitudes (e.g., Menguc 1996; Siguaw, Brown, and Widing 1994), and on channel relationships (e.g., Baker, Simpson, and Siguaw 1999; Siguaw, Simpson, and Baker 1998, 1999; Steinman, Deshpandé and Farley 2000). A group of scholars have explored the relationship between market orientation and organizational learning/learning orientation (e.g., Baker and Sinkula 1999; Slater and Narver 1995), market information processing (e.g., Sinkula 1994), and innovation/ innovativeness (e.g., Atuahene-Gima 1996; Han, Kim, and Srivastava 1998; Hurley and Hult 1998; Lukas and Ferrell 2000). Table 2.1 provides a brief review of all of these studies:

Table 2.1

A Summary Table of Major Empirical/Conceptual Studies on Market Orientation

Author	Primary Focus	Sample	Independent Variable(s)	Dependent Variable(s)	Method	Major Findings
Studies of the Market Orientation-Firm Performance Relationship.						
Kohli and Jaworski (1990)	To develop a theoretical framework explaining antecedents and consequences of a market orientation.	In-depth interviews with 62 marketing vs. nonmarketing managers from a diverse sample of companies. Interviews with 10 academicians at two large U.S. universities for model development.	*Antecedents*: senior management factors, interdepartmental dynamics, and organizational systems. *Moderators*: market turbulence, technological turbulence, the level of competition, and the strength of general economy.	Business performance (i.e., ROI, profits, sales volume, market share, sales growth, and so on), esprit de corps, job satisfaction, organizational commitment of employees.	A theoretical framework. A conceptual study.	Market orientation was clearly defined. A number of research propositions were suggested for future research.
Jaworski and Kohli (1993)	To test and validate the theoretical framework which is suggested by Kohli and Jaworski (1990).	*Sample I*: 27 SBUs. Response rate: 88.9% for marketing, 77.8% for nonmarketing. 229 SBUs. Response rate: 79.6% for marketing, 70% for nonmarketing. *Sample II*: 487 respondents. Response rate: 47.2% Multiple respondents. Managerial Level (executives).	*Antecedents*: Top management (emphasis and risk aversion), interdepartmental dynamics (conflict and connectedness), organizational systems (formalization, centralization, departmentalization, and reward systems) *Moderators*: market turbulence, competitive intensity, technological Turbulence.	Market orientation measured by a 32-item and four-dimension scale. *Consequences*: employees (organizational commitment and esprit de corps) and business performance.	A theoretical model. A regression analysis.	Market orientation was conceptualized and operationalized. A new scale for market orientation was developed. A market orientation is related to overall (judgmental) business performance (but not market share), employee's organizational commitment, and esprit de corps.
Narver and Slater (1990)	To develop a valid measure of market orientation and to investigate its effect on business profitability.	A sample of 440 respondents in 140 forest product divisions or SBUs of a major Western corporation. Response rate: 84%.	Market Orientation *Business-Specific Factors* (relative cost and relative size), *Market-Level Factors* (growth, concentration, entry barriers, buyer power, seller power, technological change).	Business Performance (top managers' assessment of the SBU's return on assets-ROA).	The *Independent Effects Model*. A regression Analysis.	Market orientation is strongly associated with business profitability for both the commodity and noncommodity businesses.
Slater and Narver (1994a)	To explore whether or not competitive environment affects the relationship between market orientation and performance and the focus of the intelligence generation activity (i.e., a greater emphasis on customer analysis relative to competitor analysis, or vice versa).	81 SBUs of a forest products company and 36 SBUs of a diversified manufacturing corporation. Response rate: 84% for the forest products corporation, 74% for the diversified manufacturing corporation. Multiple respondents. Top Management Level.	Market orientation measured by the scale developed by Narver and Slater (1990). Environmental variables (i.e., technological turbulence, market turbulence, market growth, buyer power, competitive hostility, and competitor concentration).	Market performance (i.e., the respondent's assessment of ROA, sales growth, and new product success relative to all other competitors in the SBU's principal served market over the past year).	-----	They did not find a strong support for the moderating role of a competitive environment on the strength of the market orientation-performance relationship as well as on the effectiveness of different relative emphases within a market orientation.
Greenley (1995c)	To investigate the link between market orientation and company performance in the	A sample of 1000 large UK companies. Usable responses: 240	Market orientation measured by MKTOR. Relative cost, relative size, ease of market	Company performance (i.e., return on investment, new product success	A multiple regression analysis.	The relationship between market orientation and firm performance is moderated by environmental factors. Maintaining a market

	UK context by testing a model similar to that of Narver and Slater (1990).	Top Management Level (managing directors or CEOs). Corporate Level.	entry, customer power, technological change, market turbulence, market growth, and competitor hostility.	rate, and sales growth).		orientation may not be beneficial under the circumstances of high market turbulence, low customer power, and high technological turbulence.
Homburg and Pflesser (2000)	To develop and validate a measurement model of the market-oriented organizational culture. To test interrelations among the different layers of the culture and investigate the links between the market-oriented behaviors and performance outcomes.	*Fieldwork*: A content analysis of 50 published reports and field interviews with 10 managers. *Survey*: 1100 managers in 1100 SBUs from five industries in Germany. Response rate: 15.7% Managerial-SBU Level. (General managers, marketing managers, and managers from other functional units).	Layers of market-oriented organizational culture: *shared basic values* supporting market orientation, *norms* for market orientation, *artifacts* of market orientation, and market-oriented *behaviors*. Market-oriented behaviors measured by the MARKOR scale. *Moderators*: Market dynamism.	Market and financial performance.	A multiple-layer model of market-oriented organizational culture. Item-to-total correlations, explanatory and confirmatory factor analyses.	Artifacts (positive or negative) have a significant direct impact on the market-oriented behaviors. Market-oriented behaviors directly affect market performance which, in turn, impacts financial performance. The positive relationship between market-oriented behaviors and market performance is moderated by market dynamism.
Matsuno and Mentzer (2000)	To investigate the moderating effect of business strategy type on the relationship between market orientation and business performance. To develop a better market orientation measurement instrument.	A sample of 1000 U.S. manufacturing companies. Response rate: 38.76% Managerial Level (marketing executive-vice president or director level).	A new 22-item market orientation scale that was developed on the basis of the scales by Jaworski and Kohli (1993) and Kohli, Jaworski, and Kumar (1993). *Moderators*: Business strategy type (i.e., defenders, prospectors, analyzers, and reactors).	Economic performance (i.e., ROI, market share growth, relative sales growth, and percentage of new product sales to total sales).	A moderated regression, confirmatory factor and multiple-group structural equation analyses.	The results supported the existence of the moderating effects of business strategy type on the strength of the link between market orientation and firm performance.
Ruekert (1992)	To examine the effect of market orientation on the corporation's processes and systems, employees' job attitudes, and firm performance.	5016 respondents from 5 SBUs of a large, *Fortune 500*, high technology company in the U.S. Overall response rate: 70% *Sample I*: 400 responses. *Sample II*: 400 responses. Managerial/Operational Level.	Market orientation, measured by the 23-item scale developed by Ruekert (1992).	Corporation's processes and systems, employees' job attitudes, and firm performance.	-----	There is a positive connection between the level of market orientation and the degree of long-term financial performance.
Deshpandé, Farley, and Webster (1993)	To investigate the empirical links among culture, customer orientation, innovativeness, and business performance in a supplier-buyer context.	50 quadrants (a matched set of buyer-seller dyads or pairs). Sampling unit: a quadrad Interviews with 2 corporate level marketing executives from each of 50 Japanese supplier firms and 2 purchasing executives from the customer firm.	Customer orientation measured by a 9-item scale developed by Deshpande, Farley, and Webster (1993). Type of organizational culture, and Innovativeness.	Business performance (i.e., judgmental measures of profitability, size, market share, and growth rate compared to those of the largest competitor firm for that particular business).	-----	There is no significant link between the marketer's self-reported customer orientation and business performance. However, there is a positive relationship between the marketer's customer orientation reported by customers and business performance.
Deshpandé and Farley (1999)	To test *a universal high performance model*, which includes some common characteristics of high-performing organizations in two Asian countries-Japan and India.	224 interviews with 56 quadrads in Japan. 116 interviews with 29 quadrads in India. Sampling unit: a quadrad	Market orientation, measured by the scale developed by Deshpandé, Farley, and Webster (1993). Organizational innovativeness, organizational climate, and organizational culture.	Performance (i.e., profit, firm size, market share, and growth rate relative to the business's largest competitor).	A universal high performance model. A discriminant analysis.	Market orientation and organizational culture are main predictors of organizational success. Significant differences between Indian and Japanese firms centered around their corporate cultures and market orientations, rather than around their climates or innovativeness.

The Context-Specific Studies of the Market Orientation-Performance Relationship.

Au and Tse (1995)	To explore the relationship between market orientation and company performance.	Samples of 69 Hong Kong hotels and 250 New Zealand hotels and motor lodges. Response rates: 59.4% for Hong Kong, 59.2% for New Zealand. Managerial Level (general managers).	Market orientation measured by the modified version of Kotler's (1977) questionnaire, and some other dimensions developed by the authors.	Performance (hotel's occupancy rate).	PCA, simple correlation and regression analyses.	There is no significant relationship between market orientation and hotel performance for the both samples.
Sargeant and Mohamad (1999)	To examine the relationship between market orientation and business performance in hotel industry.	A sample of 200 hotel groups in the UK. Response rate: 43% Managerial Level (marketing director).	Market orientation measured by the modified form of the scales by Parasuraman, Berry, and Zeithaml (1983) and Deng and Dart (1994).	Performance (i.e., profitability and turnover).	A cluster analysis.	Market orientation does not have a direct effect on business performance in this sector.
Tse (1998)	To investigate the relationship between market orientation and firm performance in property companies.	A sample of 26 property developers and managers from large property companies in Hong Kong. Personal interviewing.	Market orientation assessed by a modified version of Kotler's (1977) questionnaire and other measures.	Company performance (i.e., total asset, total equity, sales, net income, return on investment, return on equity and profit margin).	A simple correlation analysis.	There is no significant correlational relationship between market orientation and company performance for large property companies.
Cadogan, Diamantopoulos, and Mortanges (1999)	To develop a measure of an export market orientation. To examine the relationship between export market orientation and export performance.	Samples of 1327 UK exporters and 231 Dutch exporters. Response rate: 15% for the UK sample and 46% for the Dutch sample.	Export market orientation. The scale developed by the authors is based on the scales suggested by Jaworski and Kohli (1993), and Narver, Jacobson, and Slater (1993).	Export performance (i.e., sales performance, perceived performance relative to management's export objectives, and overall assessment of the firm's export success).	Correlation/variance, factor and discriminant analyses.	Each of elements of export market orientation is positively and significantly associated with each dimension of export performance for the both UK and Dutch samples with only one exception.
Raju, Lonial, and Gupta (1995)	To explore the relationship between market orientation and company performance in healthcare sector.	A sample of 740 hospitals in five states. Multiple (4) respondents from each hospital. Response rate: 24% Top Management Level.	Market orientation, measured by a modified form of the MARKOR scale.	19 judgmental performance measures reduced to 3 measures (i.e., financial performance, market/product development, and internal quality).	Exploratory factor and regression analyses.	Market orientation has a significant influence on each of the performance dimensions.
Kumar and Subramanian (2000)	To examine the adoption of market orientation by U.S. hospitals and its effect on hospital performance.	A sample of 600 hospitals. Response rate: 28.5% Managerial Level (hospital administrator).	Market orientation, measured by Kumar, Subramanian, and Yauger (1998)'s scale that was refined and an expanded version of the scale developed by Narver and Slater (1990).	Hospital performance (i.e., growth in revenue, return on capital, return on new services, ability to retain patients, and controlling expenses).	MANOVA and univariate analyses.	Overall market orientation improves hospital performance. Hospitals with a competitor-focused market orientation showed superior performance.
Caruana, Ramasesshan and Ewing (1998)	To investigate the generalizability of the market orientation-company performance relationship for universities and public sector.	502 heads from public organizations and 184 department heads in all Australian and New Zealand universities. Response rate: 35.5% for public sector and 46.2 % for universities. Managerial Level	Market orientation, measured by the modified version of the MARKOR scale.	Performances of public sector and universities.	A regression analysis.	There is a positive relationship between market orientation and performance for both the public sector and universities. Particularly, responsiveness seemed to be exerting a greater influence on the firm performance in both type

		(Senior managers, and department heads).				of organizations.
Voss and Voss (2000)	To investigate the relationship between customer orientation and business performance in an artistic context.	A sample of 128 non-profit professional theaters. Response rate: 79% (Managerial Level) Managing directors of theaters.	Strategic orientation (market orientation), industry characteristics, strategic position, organizational characteristics, and product characteristics.	Theater performance (i.e., seating capacity, perceived quality, and so on).	A theoretical framework. Regression and factor analyses.	Customer orientation is *negatively* associated with subjective and objective measures of subscriber performance. Customer orientation has neither positive nor negative influence on single-ticket buyers.
Studies Investigating the Market Orientation-Firm Performance Link in the Small-Firm Context.						
Pelham and Wilson (1995)	To explore the relationship between market orientation and firm performance.	Longitudinal data for 1992-1993 from a sample of 68 small Michigan firms from a variety of industries. The data obtained from a university's database. Top Management Level.	Market orientation, measured by the scale suggested by Pelham (1993) based on the measures developed by Narver and Slater (1990) and Jaworski and Kohli (1993). Strategy, market environment, and organization structure.	Business position variables (i.e., relative product quality, marketing effectiveness, growth/share, and profitability).	A theoretical model. Stepwise regression, correlation, and path analyses.	Formalization, coordination, and control systems have a strong effect on market orientation. Maintaining a strong market orientation, small firms can increase their marketing effectiveness (new product and market development success), market/growth share, and profitability.
Pelham (1997)	To investigate the mediating effects on the relationship between market orientation and profitability.	A sample of 160 industrial firms. A mail survey.	Market orientation.	Firm performance (i.e., firm effectiveness, growth/share, and profitability).	A theoretical model.	Market orientation has a direct and significant impact on firm effectiveness. Firm effectiveness serves as a mediating variable between market orientation and firm performance dimensions of sales growth/market share and profitability.
Appiah-Adu (1997)	To investigate the relationship between market orientation and firm performance. To examine moderating effects of various environmental variables on this relationship.	A sample of 500 small manufacturing and service firms in U.K. Response rate: 22%. Managerial Level (directors/executives).	Market orientation, measured by scale developed by Pelham and Wilson (1996). *Moderators*: Market and technological turbulence, competitive intensity, and market growth.	Firm performance (i.e., new product success, sales growth, and profitability).	A regression analysis.	Market orientation has a positive impact on new product success and a significant and positive effect on sales growth and profitability levels. Market turbulence, competitive intensity, and market growth act as moderators under certain conditions.
Horng and Chen (1998)	To investigate antecedents and consequences of a market orientation.	A sample of 500 small- and medium-sized Taiwanese manufacturing companies. Response rate: 15.2%. Top Management Level.	*Antecedents*: Top management variables and organizational system variables.	Market orientation, measured by a modified version of scale by Jaworski and Kohli (1993). *Consequences*: Overall business performance, organizational commitment, and esprit de corps of employees.	A regression analysis.	Market orientation is a significant determinant of overall business performance, employees' organizational commitment, and esprit de corps.
Studies Pertaining to the Link Between Market Orientation and Organizational Learning/Learning Orientation.						
Sinkula (1994)	To enhance the marketer's understanding of the market information processing and knowledge creation mechanisms.	----	----	----	A conceptual study.	A set of research propositions were developed to be tested in the future research.

	To identify and describe the relationship between market information processing and organizational learning.					
Slater and Narver (1995)	To develop a theory of learning organization that provides a broader perspective on our apprehending of the advantages of market orientation. To motivate scholars to conduct more research on the learning organization.	----	----	----	A conceptual study.	A market-oriented organizational culture is likely to provide a more effective ground for the cultivation of the learning organization only if it is supplemented by a spirit of entrepreneurship and appropriate organizational climate, structures, processes, and incentives for operationalizing the cultural values. In brief, the crucial elements of a market orientation are necessary, but not sufficient, to create a learning organization
Baker and Sinkula (1999)	To examine the synergistic and independent effects of market orientation and learning orientation on organizational performance.	A sample of 1000 marketing and 1000 nonmarketing business executives (min. rank: vice presidency). Multi-industry sample. Overall response rate: 21% (60% for marketers, and 40% for nonmarketers). Top Management/SBU Level.	Market orientation, measured by MARKOR, and learning orientation.	Organizational performance (i.e. new product success, overall performance, and change in market share relative to the firm's largest competitor).	A theoretical model. Confirmatory factor analysis and regression analysis.	There is a positive relationship between market orientation and overall performance. There is a significant and positive relationship between market orientation and new product success. Learning orientation does not have a moderating effect on the link between market orientation and overall performance.

Studies Pertaining to the Link Between Market Orientation and Innovation.

Hurley and Hult (1998)	To construct a theoretical framework that explains the potential relationships among innovation constructs (i.e., innovativeness and capacity to innovate) and competitive advantage/performance.	A sample of 20,088 employees from 56 groups or divisions of a large R&D agency of the U.S. federal government. Response rate: 48%. Operational Level.	Structural and process characteristics, cultural characteristics (i.e., market focus, learning and development, status differentials, participative decision making, support and collaboration, power sharing, communication, and tolerance for conflict and risk), organizational innovativeness, capacity to innovate.	Competitive advantage, and performance.	A theoretical framework. The framework partially tested. Factor and regression analyses.	Even though the authors included market orientation as a cultural antecedent to organizational innovativeness in the theoretical framework, they did not empirically investigate it in the study. Therefore, this study did not produce any empirical results related to market orientation.
Han, Kim, and Srivastava (1998)	To investigate the mediating effect of organizational innovativeness on the market orientation-	A sample of 225 banks. Response rate: 59.5% Senior Management	Market orientation, measured by the scale developed by Narver and Slater (1990), environmental	Organizational performance (i.e., growth and profitability).	A systematic framework. A confirmatory factor analysis	Market orientation facilitates organizational innovativeness, which positively influences organizational performance

	corporate performance relationship.	Level.	turbulence (market and technological) and organizational Innovation as a *mediator*.		and a three-stage least squares analysis (3SLS).	through a mediating effect.
Lukas and Ferrell (2000)	To investigate the relationship between market orientation and product innovation at the component level.	A sample of 561 SBUs from 800 U.S. manufacturing companies. Return rate: 34.6%. SBU Level.	Market orientation, measured by MKTOR (i.e., customer orientation, competitor orientation, and interfunctional coordination).	Product innovation (i.e., line extensions, me-too products, and new-to-the-world products).	Canonical correlation and regression analyses.	The type(s) of product innovation is contingent upon customer orientation, competitor orientation and interfunctional coordination. Customer orientation is likely to increase the introductions of new-to-the-world products and decrease the number of me-too products launched.

Studies Pertinent to the Market Orientation/Market Knowledge Competence-New Product Performance Relationship.

Atuahene-Gima (1995)	To investigate the relationship between market orientation and new product development activities and performance at the project level.	A sample of 600 Australian firms from services and manufacturing industries. Response rate: 47.7% Project-based.	Market orientation, measured by the scale developed by Ruekert (1992). *Moderators*: environmental hostility, degree of product newness to customers and firms, and stage of the product life cycle.	*New product activities* (i.e., proficiencies of development and launch activities, product advantage, service quality, marketing synergy, technology synergy, and interfunctional teamwork), and *new product performance* (i.e. market and project performance).	A conceptual framework. Regression and split group analyses.	Market orientation has a significant positive relationship with new product development activities and performance. The environment and the type of new products (radical versus incremental) moderate the relationship between market orientation and new product performance.
Xuereb and Gatignon (1997)	To investigate the effects of three different strategic orientations of the firm (customer, competitive, and technological) on innovation performance and innovation characteristics.	*Pretest*: a few marketing managers. *Survey*: A sample of 3000 marketing executives from a broad cross-section of industries. Response rate: 14%. SBU Level. Project-based.	Firm strategic orientation (customer, competitor, and technological), firm resources, innovation characteristics, and market characteristics. *Moderators*: Interfunctional coordination, and market characteristics.	Innovation performance, and innovation characteristics (i.e., product radicalness/similarity, product advantage, and product costs).	A conceptual model. A regression analysis.	A strong technological orientation leads to superior products. When demand is relatively uncertain, a firm with both consumer and technology orientation can achieve superior performance levels for their products. A competitive orientation in high-growth markets is useful.
Li and Calantone (1998)	To test the effect of market knowledge competence on new product advantage and market performance in a project level.	A sample of 1074 U.S. software companies. Response rate: 24.8% Top Management Level. Project-based.	R&D strength, and market knowledge competence, marketing-R&D interface, customer and competitor knowledge processes. *Antecedents:* external and internal factors.	New product advantage and new product market performance.	A conceptual model of market knowledge competence. Generalized least squares (GLS) method in EQS.	Each component of market knowledge competence has a positive influence on new product advantage, which is also positively related to product market performance.

Studies Pertinent to the Link Between Market Orientation and Channel Relationships.

Baker, Simpson, and Siguaw (1999)	To probe the impact of a supplier's perceptions of a reseller's market orientation on the supplier's perceptions of various indicators of a long-term channel relationship.	A sample of 380 suppliers from a wide variety of industries. Response rate: 33.7% Upper Management Level.	Supplier's perception of distributor's market orientation, measured by the scales developed by Deshpandé, Farley and Webster (1993), and Deshpandé and Farley (1996).	Relationship indicators/ constructs (i.e., trust, cooperative norms, commitment, and satisfaction).	A hypothesized model. LISREL and a factor analysis.	There is a significant strong association between the supplier's perception of the reseller's market orientation and the perceptions of important relationship marketing constructs such as reseller's credibility, benevolence, cooperative norms, commitment and

						satisfaction.
Siguaw, Simpson, and Baker (1998, 1999)	To investigate the effect of the supplier's market orientation on the distributor's market orientation and its perception of various channel relationship variables.	A sample of 179 supplier-distributor dyads from various industries. Response rate: 36.96%.	Supplier's market orientation, measured by MARKOR.	Distributor's market orientation and channel relationship indicators (i.e., trust, cooperative norms, commitment, and satisfaction with financial performance).	A hypothesized model. A path analysis via LISREL methodology.	The supplier's market orientation affects its distributor's market orientation and its commitment to the relationship.
Steinman ,Deshpandé, and Farley (2000)	To extend the research done by Deshpandé, Farley, and Webster (1993) by investigating the *extent of a possible* disagreement between suppliers and customers about the appropriate level of a supplier's market orientation.	Samples of U.S. and Japanese firms from a variety of manufacturing and service industries. *Sampling unit: a quadrad* (the combination of two buyer-seller dyads). Interviews with 2 marketing executives from each buyer and seller organization.	Supplier's and customer's assessments of length of customer's relationship with supplier, importance of customer's relationship with supplier, and market orientation of supplier, measured by a 9-item scale developed by Deshpandé, Farley, and Webster (1993).	Similarity of perception, and market orientation gap.	A correlation analysis.	The market orientation gap exists, in general, suppliers tend to view themselves more market-oriented than customers think they are in the actual as well as normative measures.

Studies Pertinent to the Market Orientation and Sales Force Behavior and Attitudes.

Siguaw, Brown, and Widing (1994)	To explore the effects of a firm's market orientation, the salesperson's orientation, and the differences between these orientations on the salesperson's job attitudes.	A sample of 1644 salespeople. Response rate: 16.9% Operational Level (sales force).	Market orientation measured by MKTOR, customer orientation measured by the SOCO scale, and the difference between two orientations.	The salesperson's behavior and job attitudes (i.e., role ambiguity, role conflict, job satisfaction and organizational commitment).	A conceptual model. Ordinary least squares (OLS) regression.	The firm's market orientation significantly influences the salesperson's customer orientation and job attitudes.
Menguc (1996)	To replicate and extend the study by Siguaw, Brown, and Widing (1994) by testing the suggested model with the Turkish sample.	A sample of 1119 sales/ sales-related management personnel from various industries in Turkey. Response rate: 35.9% Operational/ Management Level.	Market orientation measured by MKTOR, customer orientation measured by SOCO scale, and the difference between two orientations.	The salesperson's behavior and job attitudes (i.e., role stress— ambiguity and conflict—, job satisfaction and organizational commitment).	A conceptual model. LISREL 7, a confirmatory factor analysis, and ordinary least squares (OLS) regression.	The original study's finding was confirmed. Customer orientation and the difference between the firm's and salesperson's orientations have significant effects on job attitudes.

Other Market Orientation Studies.

Maignan, Ferrell, and Hult (1999).	To explore the antecedents and consequences of corporate citizenship. Market orientation is considered as an antecedent of corporate citizenship.	*Sample I*: 1000 marketing executives from the *1996 Directory of Members of the AMA.* Response rate: 23.25% *Sample II*: 154 executive MBA students from four different states.	Corporate Citizenship *Antecedents*: organization's culture (i.e., market orientation, humanistic orientation, and competitive orientation). Market orientation measured by MKTOR.	*Outcomes*: employee commitment, customer loyalty, and business performance (i.e., return on assets, return on investments, profits growth, and sales growth).	A Theoretical Framework. Structural equation modeling via LISREL.	There is a positive relationship between market orientation and corporate citizenship for both the first and second samples.

2.5.1. Market Orientation Measurement Scales

As the importance of market orientation is acknowledged by increasing numbers of academicians and practitioners, increasing research efforts have been directed to measurement issues pertaining to market orientation. In recent years, a number of marketing scholars have devoted their attention to identifying the major domains of the market orientation construct and developing more reliable and valid measures of it (e.g., Atuahene-Gima 1995; Deng and Dart 1994; Deshpandé and Farley 1996; Homburg and Pflesser 2000; Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993; Matsuno and Mentzer 2000; Narver and Slater 1990). Another stream of research on market orientation measurement scales has focused on making a comparison or criticism of the extant measurement scales (e.g, Deshpandé and Farley 1996; Oczkowski and Farrell 1998; Wrenn 1997). However, the number of these studies has been relatively small.

Some earlier studies highlighted various measurement concerns of scholars (See Lawton and Parasuraman 1980; McNamara 1972) regarding the marketing concept or a market orientation. However, most of the time, the primary focus of these studies was not to develop a measurement scale. Therefore, the measures they utilized were not developed on the basis of systematical procedures for scale development (Kohli, Jaworski, and Kumar 1993). Rather, the earlier studies on the adoption of the marketing concept often relied on very simple measures (Deng and Dart 1994).

The utilization of a multi-item measure of market orientation is quite new in the literature. Kotler (1977) can be regarded as the one of the earliest scholars that attempted to define the domain of market orientation and to measure it. Kotler (1977) developed a marketing effectiveness audit or scale that can be used by managers in assessing how well

their organization understands and implements marketing. He measured marketing effectiveness through five dimensions: *consumer philosophy*, *integrated marketing organization*, *adequate marketing information*, *strategic orientation*, and *operational efficiency*. These dimensions are closely linked to the dimensions of market orientation such as customer orientation, competitor orientation, cross-functional coordination (Narver and Slater 1990), and market intelligence generation (Kohli and Jaworski 1990). Even though the domains of the two concepts may not overlap perfectly in every aspect, they are definitely closely related to one another (Kotler 1977). He used a questionnaire or audit to measure the level of marketing effectiveness. According to Au and Tse (1995) and Tse (1998), the major pitfall of the questionnaire was the wording of the questions. Since the questionnaire was intended to be used for self-evaluation, the questions were asked in a direct manner rather than in an indirect manner. As a result, it was possible that respondents were more likely to give socially desirable responses rather than true responses in a large scale survey (Au and Tse 1995; Tse 1998). In spite of its apparent limitation, the marketing effectiveness audit can be considered as one of the first steps toward developing multi-dimensional, more reliable measures of market orientation.

To the author's best knowledge, the earliest, reliable, comprehensive, multi-item measures of market orientation were developed by Narver and Slater (1990) and Jaworski and Kohli (1993). These scholars have also developed clear and precise definitions of the domain of the market orientation construct. Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993) defined a market orientation, as mentioned earlier, as the organization-wide generation of market intelligence pertinent to current and future needs/preferences of customers,

dissemination of this intelligence across the various departments vertically and horizontally in the organization, and organizational responsiveness to this intelligence. In other words, the authors viewed market orientation as a multi-dimensional construct including four dimensions (i.e., intelligence generation, intelligence dissemination, response design, and response implementation). Narver and Slater (1990), however, viewed a market orientation as a combination of customer orientation, competitor orientation, and interfunctional coordination. These two scales are widely-recognized by scholars and frequently-used in recent empirical studies pertaining to market orientation. Both Jaworski and Kohli (1993) and Narver and Slater (1990) developed these scales as parts of their empirical studies focusing on the market orientation-organizational performance relationship.

2.5.1.1. Major Market Orientation Scales

Narver and Slater (1990) conceptualized a market orientation and developed a valid, reliable measure of market orientation which is labeled as MKTOR. However, the primary purpose of their study was to explore the relationship between market orientation and business profitability. According to Narver and Slater (1990), a market orientation contains three behavioral components (customer orientation, competitor orientation and interfunctional coordination) and two decision criteria (long-term focus and profitability). In order to develop a measure of market orientation and test the proposed model, 440 respondents in 140 forest product divisions or strategic business units (SBUs) of a major Western corporation were surveyed. A response rate of 84% was achieved. They found evidence of the construct validity for the three-component model of a market orientation. These components were customer orientation, competitor

orientation, and interfunctional coordination. Long-term focus and profitability were simply disregarded.

Kohli, Jaworski, and Kumar (1993) believe that the scale proposed by Narver and Slater (1990) is closely associated with Day and Wensley's (1988) conceptualization which is based on competitor-orientedness, customer-orientedness, and inter-functional coordination. Narver and Slater's (1990) conceptualization of market orientation closely parallels Kohli and Jaworski's (1990) conceptualization. Three behavioral components (i.e., customer orientation, competitor orientation, and interfunctional coordination) suggested by Narver and Slater (1990) involve intelligence generation, dissemination, and managerial action. This scale has certain advantages. First, the scale was developed at the SBU level, not at the corporate level. This feature of MKTOR makes this scale more operational and also largely applicable to both a single organization and an organization with multiple SBUs. A small group of scholars have argued that market orientation should be evaluated at the SBU level since the levels of market orientation within separate SBUs of the same corporation can vary significantly (e.g., Kohli and Jaworski 1990; Ruekert 1992). Furthermore, Workman, Homburg, and Gruner (1998, p.26) suggested that marketing processes/activities are mostly performed at the SBU/divisional level. Second, MKTOR can serve as a good diagnostic tool in organizations in measuring the level of a market orientation.

However, MKTOR has two limitations. First, MKTOR was based on the data obtained from many SBUs of a single corporation in a specific business area (i.e., forest products divisions). This characteristic of the sample may restrict the generalizability of this scale. Second, even though this scale is based on a cultural perspective of market

orientation, its content is more reflective of behavioral aspects of a market-oriented culture. Homburg and Pflesser (2000) noted that the earlier studies that adopted a cultural perspective of market orientation have generally utilized behavioral measures to assess market orientation. These studies have given little consideration to foundational, underlying elements of a market-oriented culture (Homburg and Pflesser 2000). This observation also seems to be true for the MKTOR scale. MKTOR has been used in the development of some other market orientation scales (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deng and Dart 1994; Deshpandé and Farley 1996; Gray et al. 1998). It has also been used by a large number of studies as a measurement instrument (e.g., Deshpandé and Farley 1999; Greenley 1995c; Han, Kim, and Srivastava 1998; Maignan, Ferrell, and Hult 1999; Menguc 1996; Siguaw, Brown, and Widing 1994; Slater and Narver 1994a).

Jaworski and Kohli (1993) empirically tested and validated a theoretical framework of a market orientation which they suggested in their 1990 study. The primary objective of this study was to investigate the antecedents and consequences of a market orientation. They utilized a complex sampling method involving two separate samples. The first sample was drawn from the member companies of the *Marketing Science Institute* (MSI) and the top 1000 companies (in sales revenues) included in the *Dun and Bradstreet Million Dollar Directory*. In order to cross-validate the findings from the first sample, data were obtained from a second sample. They used the *American Marketing Association* membership roster as the sampling frame for the second sample. As a result, the authors developed a 32-item and four-dimension market orientation scale with good reliability scores. Jaworski and Kohli (1993) with this study developed a clear

definition of a market orientation, identified the domain of the market orientation construct, and designed a widely-used measurement scale of a market orientation. This measure of market orientation is based on the behavioral perspective of market orientation. It is the origin of the MARKOR scale. This scale has been utilized in the construction of a number of market orientation scales (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deshpandé and Farley 1996; Gray et al. 1998; Kohli, Jaworski, and Kumar 1993; Matsuno and Mentzer 2000). Based on the high value of the coefficient alpha for each dimension, this scale can be regarded as a reliable instrument to evaluate the level of market orientation. The inclusion of diverse businesses in the sample and the use of a multiple-informant (marketing executive versus nonmarketing executive) approach in data collection are some of the positive properties of this study that add value to the associated scale. Additionally, the comprehensive nature of the sampling procedure used in this study contributes to the overall reliability of the scale. This scale allows the measurement of market orientation at the business unit level. In this regard, it is as appropriate as the MKTOR scale. However, this scale is longer than the MKTOR scale. The length of this scale may be somewhat cumbersome for researchers and even for practitioners. Given the observation that the current trend in research is apparently towards developing more parsimonious measures of market orientation, the length of the scale might make it less favorable among researchers despite its advantages.

Kohli, Jaworski, and Kumar (1993) aimed to develop a valid and reliable measure of market orientation. Based on the four domains of market orientation suggested by Kohli and Jaworski (1990), and Jaworski and Kohli (1993), the authors proposed a 20-item market orientation scale, which is also known as MARKOR, and

assessed the psychometric properties of this measure. The distinguishing feature of their study is the implementation of a strict systematic procedure for the scale development. This measure possesses some important characteristics (Kohli, Jaworski, and Kumar 1993). First, it has a focus on all market forces including customers and the forces that drive customer needs and preferences and competitive actions. Second, it includes activity-based items rather than business philosophy. Third, it is a combination of a general market orientation factors and related component factors. Finally, MARKOR has managerial significance since the suggested scale is assessed and developed at the SBU level. It enables an organization to assess their progress toward market orientedness at a SBU level and for all of its SBUs. It helps an organization accomplish target market orientation levels which are feasible for the organization (Kohli, Jaworski, and Kumar 1993) and identify problem areas in each component of market orientation. According to Kohli, Jaworski, and Kumar (1993), the proposed measurement scale is closely associated with Dickson's (1992) view of competitive rationality. This study can be viewed as a comprehensive extension of the scale work done by Kohli and Jaworski (1993). The MARKOR scale was used by Homburg and Pflesser (2000), Matsuno and Mentzer (2000), and Siguaw, Simpson, and Baker (1998, 1999).

However, in the present study, the MKTOR scale will be utilized instead of the MARKOR scale to measure market orientation. The MKTOR scale was selected for two main reasons. First, the model suggested in this study is based on the cultural view of a market orientation. The MKTOR scale is more consistent with this perspective of a market orientation than the MARKOR scale suggested by Kohli, Jaworski, and Kumar (1993). Second, Narver and Slater's (1990) conceptualization of a market orientation

(i.e., customer orientation, competitor orientation and inter-functional coordination) in the MKTOR scale allows the establishment of the links between market orientation and the other variables of the model at the component-level. In other words, it is relatively easier to justify the hypotheses of the model using Narver and Slater's (1990) conceptualization and scale.

Some other researchers have also attempted to develop market orientation scales. But, these scales are relatively less known (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deng and Dart 1994; Deshpandé and Farley 1996; Gray et al. 1998; Lado, Maydeu-Olivares, and Rivera 1998; Matsuno and Mentzer 2000; Ruekert 1992). Most of the market orientation scales developed over the last decade (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deng and Dart 1994; Deshpandé and Farley 1996; Matsuno and Mentzer 2000) have been based on or originated from the three widely used scales discussed above.

2.5.1.2. Comparison/Criticism of Major Market Orientation Scales

The number of comparison/criticism studies of the market orientation scales has been limited to date. These studies either criticized or made comparisons of various measures of the market orientation construct (e.g., Oczkowski and Farrell 1998). These studies have mostly compared or criticized the two major market orientation scales developed by Narver and Slater (1990) and Kohli, Jaworski, and Kumar (1993). Unfortunately, other than the insights provided by these studies, there is not much guiding information for researchers on how to select the best possible scale (with acceptable psychometric properties) among multiple scales of the same construct (Oczkowski and Farrell 1998). Even though the number of the market orientation scales

has increased considerably in recent years, there is little research on how to discriminate between the various scales of market orientation.

Pelham (1993) questioned the theoretical background of the MARKOR scale, and viewed the MKTOR scale as superior to the MARKOR scale in terms of reliability and the generation of a simple structure (also see Oczkowski and Farrell 1998). Kohli, Jaworski, and Kumar (1993) recognized MKTOR as being the most comprehensive one to date, with many positive characteristics. However, they criticized it in terms of its theoretical foundation. According to them, the MKTOR scale has three shortcomings. First, it follows a focused view of markets by focusing on customers and competitors and by ignoring the additional factors (e.g., technology, regulation etc.) that influence customer needs and preferences. Second, it fails to explain the speed with which market intelligence is generated and disseminated within the organization. Finally, it does not cover specific activities and behaviors representing a market orientation in an organization (Kohli, Jaworski, and Kumar 1993).

On the other hand, the MARKOR scale is criticized for focusing too much on intelligence generation and dissemination, and giving a very narrow conceptualization of a market orientation. Also, this conceptualization of a market orientation does not comprehend necessary measures that best reflect the basics of generating value to customers (Pelham 1993; Oczkowski and Farrell 1998, p.362).

These conflicting views on the reliability and validity of the two widely-used scales have created the need for further empirical research. The study by Oczkowski and Farrell (1998) was aimed at fulfilling this important need and void in the literature. The authors tried to develop a methodology that discriminates among alternative measures of

the market orientation construct, including MKTOR and MARKOR. They assessed these scales in terms of their ability to predict a dependent variable (i.e., business performance). In other words, they used criterion or concurrent validity as a guide in the selection of the measures (Oczkowski and Farrell 1998). Business performance was measured with customer retention, new product success, sales growth, return on investment, and overall performance. The independent variables utilized included market orientation, relative size, relative cost, ease of entry, supplier power, buyer power, market growth, competitive intensity, market turbulence, and technological turbulence. For the analysis, two sampling frames were utilized. One sample consists of 861 publicly-traded companies from the *Dun and Bradstreet*. The other contained 1164 privately-owned companies from the *Dun and Bradstreet* in Australia. The survey was conducted at the corporation level. The key informant was the CEO/General Manager. Response rates of 29.2% for publicly-listed and 17.1% for privately-owned companies were reached (Oczkowski and Farrell 1998). The study results showed that the MKTOR scale outperformed the MARKOR scale. MKTOR was found to be superior in explaining variations in measures of business performance (Oczkowski and Farrell 1998). MKTOR with the Cronbach's alphas of 0.921 and 0.905 has a greater reliability than MARKOR with the Cronbach's alphas of 0.868 and 0.884. This means that MKTOR provides more consistent or similar market orientation scores than MARKOR across different samples. But, there was a possibility that the continuous use of non-nested tests with OLS regression and summated scales may have distorted or masked the true performance of measurement scales (Oczkowski and Farrell 1998). Thus, the performance scores might be misleading. For OLS regressions, MARKOR is preferred

over MKTOR. If non-nested tests are used with 2SLS (two-stage least squires) regressions and scaling variables, MKTOR is preferred over MARKOR. The suggested procedure to discriminate between different measurement scales of market orientation requires the estimation of OLS and 2SLS regressions (Oczkowski and Farrell 1998). The results of this study should be interpreted with caution, since the results come from only one empirical study. More empirical testings are necessary to confidently conclude that MKTOR is better than MARKOR.

There are several measurement issues that should be addressed by future research: First, most market orientation scales developed to date have involved the tactical level, therefore, there is a need to better define and measure this construct as a culture and a strategy (Deshpandé 1999, p.6). Indeed, a market orientation can be viewed at three levels (Deshpandé 1999, p.6): a *culture* (the shared set of values and beliefs regarding putting customers first), a *strategy* (creating continuously superior value for a firm's customers), and a series of *tactics* (the set of cross-functional processes and activities directed as creating and satisfying customers). Future studies involving market orientation should define and measure market orientation as a culture and/or as a strategy using appropriate measures. Second, current market orientation scales are not, in general, managerially useful (Gray et al. 1998). Certainly, there is a need for developing more parsimonious and generalizable scales that can be used by marketing executives in assessing their companies' degree of market orientation and identifying problematic areas in the application of market orientation (Gray et al. 1998). Future research should focus on developing more parsimonious scales that have potential for global and inter-industry applications. Finally, it has not been made clear yet

whether any one measurement scale is superior than others (Oczkowski and Farrell 1998; Raju, Lonial and Gupta 1995). The existent scales of market orientation should be contrasted in terms of their superiority in predicting a dependent variable and in terms of their applicability to various business and nonbusiness contexts. Table 2.2 provides a short review of main studies pertinent to measurement issues on market orientation:

Table 2.2

A Review of Main Studies Pertinent to Measurement Issues on Market Orientation

Author	Primary Purpose	Sample Characteristics	Dimension(s)	Scale Characteristics
Kotler (1977)	To develop marketing effectiveness audit or scale that can be used by managers in assessing how well their organization understands and implements marketing.	---	Customer Philosophy, Integrated Marketing Organization, Adequate Marketing Information, Strategic Orientation, and Operational Efficiency.	*Marketing Effectiveness Audit.* 15-item (each item was designed in the form of a question). 3-point scale (each scale was given a score of 0, 1, and 2, respectively). Total score represented the level of marketing effectiveness.
Narver and Slater (1990)	To explore the relationship between market orientation and business profitability.	440 respondents in 140 forest product divisions or SBUs of a major Western corporation. Response rate: 84%.	Customer Orientation, Competitor Orientation, Interfunctional Coordination, and Two Decision Criteria (Long-term Focus and Profitability).	*MKTOR* 15-item scale, 7-place response format. Overall Reliability : .88 *Customer Orientation* (.8547, .8675) *Competitor Orientation* (.7164,.7271) *Interfunctional Coordination* (.7112,.7348) Used by many studies in developing a new scale (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deng and Dart 1994; Deshpandé and Farley 1996; Gray et al. 1998) or testing a model (e.g., Deshpandé and Farley 1999; Greenley 1995b; Han, Kim, and Srivastava 1998; Maignan, Ferrell, and Hult 1999; Menguc 1996; Siguaw, Brown, and Widing 1994; Slater and Narver 1994a).
Ruekert (1992)	To examine the level of variation in market orientation among SBUs of the same corporation and the effect of market orientation on the corporation's processes and systems, employees' job attitudes, and firm performance.	5016 respondents from 5 SBUs of a large, *Fortune 500,* high technology company based in the U.S. Overall response rate: 70% *Sample I*: 400 responses. *Sample II*: 400 responses. Managerial/Operational Level.	The Use of Customer Information, the Development of a Market-oriented Strategy, and the Implementation of a Market-oriented Strategy.	A 23-item market orientation scale. Overall Reliability: .89 *The Use of Customer Information (.81)* *The Development of a Market Oriented Strategy (.72)* *The Implementation of a Market Oriented Strategy (.81).* This scale was used by Atuahene-Gima (1995).
Jaworski and Kohli (1993)	To investigate the antecedents and consequences of a market orientation.	*Sample I*: 27 SBUs. Response rate: 88.9% for marketing, 77.8% for nonmarketing and 229 SBUs. Response rate: 79.6% for marketing, 70% for nonmarketing. *Sample II*: 487 respondents. Response rate: 47.2% Multiple respondents. Managerial Level (executives).	Intelligence Generation, Intelligence Dissemination, Response Design, and Response Implementation.	A 32-item, 5-point market orientation scale. *Intelligence Generation (.71)* *Intelligence Dissemination (.82)* *Response Design (.78)* *Response Implementation(.82)* This scale has been utilized in the construction of a number of market orientation scales (e.g., Cadogan, Diamantopoulos, and Mortanges 1999; Deshpandé and Farley 1996; Gray et al. 1998; Kohli, Jaworski, and Kumar 1993; Matsuno and Mentzer 2000).
Kohli, Jaworski, and Kumar (1993)	To develop a valid and reliable measure of market orientation based on the four domains of market orientation suggested by Kohli	*Preliminary Work*: 27 marketing and non-marketing executives, 7 academicians, and 7 managers. *Survey I*: 500 marketing executives derived from *AMA* membership roster.	Intelligence Generation, Intelligence Dissemination, and Responsiveness.	*MARKOR* A 20-item scale, 5-place response format. Overall Reliability: .51 (reported by Deshpandé and Farley 1996). A strict systematic procedure for the scale development was used.

	and Jaworski (1990), and Jaworski and Kohli (1993).	Response rate: 47.2 %. *Survey II* : A sample of marketing and non-marketing executives from *MSI* member firms. Response rate: 88.9% for marketing, 77.8% for non-marketing executives. *Survey III*: 500 CEOs from the *D&B* top 1000 U.S. firms. Response rate: 79.6% for marketing, 70.0% for non-marketing executives.		This scale has been used by a number of studies (e.g., Homburg and Pflesser 2000; Matsuno and Mentzer 2000; Siguaw, Simpson, and Baker 1998, 1999).
Deshpandé, Farley, and Webster (1993)	To test the impact of corporate culture, innovation, and market orientation on company performance.	A sample of 138 Japanese executives.	Customer Orientation.	*Customer Orientation* Scale A 9-item scale, 5-place Likert-type agreement response format. Overall Reliability: .71. This scale has been used by a number of studies (e.g., Baker, Simpson, and Siguaw 1999; Deshpandé and Farley 1999; Steinman, Deshpandé, and Farley 2000).
Deng and Dart (1994)	To develop a reliable and valid measurement scale of market orientation that is applicable to a wide range of business firms.	*Preliminary Work*: a panel of professors and graduate students of marketing. Senior managers of local firms. *Survey*: a sample of 248 Canadian companies. Response rate: 49.6% General/Marketing Manager Level.	Customer Orientation, Competitor Orientation, Interfunctional Coordination, and Profit Orientation.	A 5-point interval rating scale. *Customer Orientation* (.78) *Competitor Orientation* (.73) *Interfunctional Coordination* (.77) *Profit Emphasis* (.75) A procedural approach for the development of the scale was followed. This scale was utilized by Gray et al. (1998) in developing a new scale.
Pelham and Wilson (1995)	To explore the relationship between market orientation and firm performance.	Longitudinal data for 1992-1993 from a sample of 68 small Michigan firms from a variety of industries. The data obtained from a university's database. Top Management Level.	Customer Understanding Orientation, Customer Satisfaction Orientation, and Competitor Orientation.	A 9-item scale. Overall Reliability: .92. Originally developed by Pelham (1993), based on the measures suggested by Narver and Slater (1990), and Jaworski and Kohli (1993).
Pelham (1997)	To investigate the mediating effects on the relationship between market orientation and profitability.	A sample of 160 industrial firms.	—	A 9-item scale. Overall Reliability: .96. *Customer Understanding Orientation* (.88) *Customer Satisfaction Orientation* (.95) *Competitive Orientation* (.94).
Deshpandé and Farley (1996)	To synthesize the three existing market orientation scales to develop a more parsimonious and predictive measurement scale.	A conveniently-derived multinational sample of 82 marketing executives from 27 firms that are members of the *MSI*.. Average three respondents from each SBU. Every firm was represented by just one SBU.	—	10-item, 5-point summary scale. Overall Reliability: .89. More parsimonious and managerially-oriented. The scales by Narver and Slater (1990), Kohli, Jaworski, and Kumar (1993), and Deshpandé, Farley, and Webster (1993) were compared and refined. This scale was used by Baker, Simpson, and Siguaw (1999).
Gray et al. (1998)	To extend the research done by Jaworski and Kohli (1993), Narver and Slater (1990), and Slater and Narver (1994a) by developing a managerially practical and parsimonious	A sample of 1099 senior executives from multiple industries in New Zealand. Response rate: 45%. Senior Manager Level.	Customer Orientation, Competitor Orientation, Interfunctional Coordination, Profit Orientation, Intelligence Generation, Intelligence Dissemination,	A 20-item market orientation scale. *Customer Orientation* (.74) *Competitor Orientation* (.79) *Interfunctional Co-ordination* (.77) *Responsiveness* (.66) *Profit Emphasis* (.83) The final scale covers three constructs from Narver and Slater (1990), one construct from Jaworski and Kohli (1993), and one

	market orientation scale.		Response Design, and Response Implementation.	construct from Deng and Dart (1994).
Lado et al. (1998)	To propose a precise, theory-based definition of market orientation, to develop a market orientation scale that is based on this definition and to validate this scale in a two-country context.	*Preliminary Work*: 4 marketing professors and 6 insurance sector managers in Belgium. 2 professors and 6 insurance experts in Spain. *Samples*: 76 private Belgian insurance companies. Response rate: 34/76. 104 private Spanish insurance companies. Response rate: 32/104. Non-marketing manager (54%). Marketing manager (46%).	---	A 36-item, 11-point scale. Overall Reliability: .88 for Belgium, and .87 for Spain. *Analysis of the Final Client* *Analysis of the Distributor* *Analysis of the Competitors* *Analysis of the Environment* *Interfunctional Co-ordination* *Strategic Actions on Final Customers* *Strategic Actions on Intermediary Customers (Distributors)* *Strategic Actions on Competitors* *Strategic Actions on the Macro-Environment.*
Oczkowski and Farrell (1998)	To develop a methodology that discriminates between alternative measures of market orientation. To assess the two measures of market orientation in terms of their ability to predict on a dependent variable.	*Sample I*: 861 publicly-traded companies from the *D&B*. Response rate: 29.2 %. *Sample II*: 1164 privately-owned companies from the *D&B* in Australia. Response rate: 17.1%. Corporate/Top Management Level (CEO/General Manager).	---	MKTOR outperforms MARKOR: MKTOR is more superior in explaining variations in measures of performance. MKTOR with the Cronbach's alphas of .921 and .905 has a greater reliability than MARKOR with the Cronbach's alphas of .868 and .884.
Cadogan, Diamantopoulos, and Mortanges (1999)	To develop and validate a measure of *export market orientation.*	*Sample I:* 1327 UK exporters. Response rate: 15%. *Sample II*: 231 Dutch exporters Response rate: 46%.	Export Intelligence Generation, Export Intelligence Dissemination, Export Intelligence Responsiveness (Behavioral Components), and Coordinating Mechanisms (an Integrative Component).	*Export Market Orientation.* Based on the integration of the conceptualizations of market orientation suggested by Narver and Slater (1990), and Kohli and Jaworski (1990). Some of the measurement items were based on the scales developed by Jaworski and Kohli (1993), and Narver, Jacobson, and Slater (1993).
Matsuno and Mentzer (2000)	To develop a richer measurement instrument on the basis of the market orientation scale suggested by Jaworski and Kohli (1993).	300 marketing executives of manufacturing companies in the U.S.	---	A 22-item market orientation scale. Overall Reliability: .84. *Intelligence Generation (IG)* (.66) *Intelligence Dissemination (ID)* (.78) *Responsiveness (RESP)* (.74).
Homburg and Pflesser (2000)	To develop and validate a measurement model of the market-oriented organizational culture.	*Preliminary Work*: A content analysis of 50 published reports, and field interviews with 10 managers. *Pretest*: 9 managers and 2 academicians. *Survey*: 1100 managers in 1100 SBUs from five industries in Germany. Response rate: 15.7% Managerial Level (General managers, marketing managers, and managers from other functional units).	Layers of Market-Oriented Organizational Culture: *Shared Basic Values* Supporting Market Orientation, *Norms* for Market Orientation, *Artifacts* of Market Orientation, and Market-oriented *Behaviors.*	*A market-oriented organizational culture scale.* A 78-item scale. *Market-oriented Values (.71)* *Market-oriented Norms (.72)* *Artifacts That Indicate a High Level of Market Orientation (.51)* *Artifacts That Indicate a Low Level of Market Orientation (.58)* *Market-oriented Behaviors (.59).*

2.5.2. Adoption, Implementation and Patterns of Market Orientation in Practice

Few studies have focused on the implementation of the marketing concept or the adoption of a market orientation (e.g., Barksdale and Darden 1971; Hise 1965; McNamara 1972). General Electric set a new trend for other firms by adopting and implementing the marketing concept. According to Barksdale and Darden (1971), the marketing concept appeared to be widely accepted and implemented by other companies with some modifications. In this section, the findings of the studies that focused on the implementation of the marketing concept (e.g., Barksdale and Darden 1971; Hise 1965; McNamara 1972) will be presented along with those of the studies that have investigated the adoption and pattern of market orientation in practice (e.g., Liu 1996; Ruekert 1992). The reason for the inclusion of the marketing concept is the fact that the marketing concept is an underlying philosophy of market orientation, and market orientation is often regarded as the implementation of the marketing concept (Kohli and Jaworski 1990).

2.5.2.1. Adoption and Implementation of the Marketing Concept

Hise (1965) investigated whether American manufacturing firms adopted the marketing concept using a sample of 273 manufacturing companies. The survey results revealed that both large- and medium-sized manufacturing firms adopted the marketing concept to a great extent. Large companies appeared to be more committed to the marketing concept than medium-sized companies. Barksdale and Darden (1971) investigated the attitudes of company executives along with marketing academics toward the marketing concept, the success of its execution, and its benefits to both businesses

and customers. The business sample consisted 404 largest firms while the academic sample was made of 198 educators. The survey results revealed that the marketing concept was viewed as a "powerful" and "viable" idea by the majority of respondents (Barksdale and Darden 1971). Most respondents agreed that they were able to organize and manage marketing activities better under the marketing concept (Barksdale and Darden 1971). Based on the results of their study, Barksdale and Darden (1971) concluded that very few organizations were able to implement the marketing concept effectively. McNamara (1972) examined to what extent American business firms accepted and implemented the marketing concept. The sample included 1,492 American firms from 21 manufacturing industries. The study results indicated that consumer goods companies were more likely to adopt and implement the marketing concept to a greater extent than industrial goods companies (McNamara 1972, p.57). Also, the findings indicated that large companies were more likely to adopt and implement the marketing concept to a greater extent than small and medium-sized companies. This finding supports Hise's (1965) conclusion that large companies seemed to be more committed to the marketing concept than medium-sized companies.

The findings of the studies by Barksdale and Darden (1971), Hise (1965) and McNamara (1972) may not be directly comparable since they used quite different measures to assess the adoption and implementation of the marketing concept. Both Hise (1965) and McNamara (1972) found that large organizations were more likely and more committed to adopting and implementing the marketing concept. Furthermore, McNamara (1972) found that consumer goods companies were more likely to adopt and

implement the marketing concept to a greater extent than industrial goods companies. The response rates in the studies by Barksdale and Darden (1971), Hise (1965), and McNamara (1972) were high. Also, in all three studies, the surveys were conducted at the top management level. These increase the credibility of their findings. However, the one common shortcoming of these studies is that their authors did not clarify whether or not companies included in the samples were corporations or SBUs. This clarification is of critical importance. The recent evidence suggests that different SBUs of the same organization are likely to be market-oriented to different degrees (Kohli and Jaworski 1990; Ruekert 1992). It is often recommended to use the strategic business unit as a unit of analysis in the surveys (Kohli and Jaworski 1990). From this point of view, it is important to investigate the adoption and especially the implementation of the marketing concept at the SBU level. In these studies, the type of the companies surveyed (corporation vs. SBU) is unclear.

2.5.2.2. Patterns/Forms of Market Orientation in Practice

According to Greenley (1995a), empirical studies have primarily addressed the degree of market orientation rather than its nature or form in firms. The extent or degree of market orientation in an organization is measured by an overall average of these dimensions (Greenley 1995a). However, there may be possible variations in the application of each dimension of market orientation that are exhibited by companies. There has been a clear lack of research on this issue. The study by Greenley (1995a) is an attempt to fill this void in the literature. The study by Greenley (1995a) attempted to uncover the differences in the forms of market orientation in a sample of UK companies.

Greenley (1995a) utilized the measure of market orientation developed by Narver and Slater (1990) in collecting the data since this measure is more comprehensive and produced valid and reliable results. Company performance was measured by return on investment (ROI), new product success, and sales growth compared to those of their competitors. A sample of managing directors/ CEOs of 1000 UK companies obtained from the *Dun and Bradstreet* database participated in the survey. 240 usable questionnaires were returned. Greenley (1995a) obtained a five-cluster solution. Each cluster solution represented a different form of market orientation in UK companies. The clusters included the *customer focus orientation* group, the *undeveloped market orientation*, the *fragmented orientation*, the *comprehensive market orientation*, and the *competitive focus orientation* (Greenley 1995a). A large portion of the sample displayed either a comprehensive market orientation (36%), or a competitive focus orientation (30%). Also, he found that the different forms of market orientation are not associated with different market environments. Another interesting finding was that there were no significant differences in all three measures of performance — return on investment, new product success, and sales growth — across clusters. The comprehensive market orientation group was not superior to the others in terms of performance.

Greenley (1995a) explored the form of market orientation instead of the degree of it. His study indicates that the comprehensive market orientation group is marginally better than all groups in terms of new product success. This suggests a possibility of a positive link between market orientation and new product success. However, due to the lack of validation against external data or previous studies, the generalizability of the

results in this study to wider populations should be done with caution. Furthermore, in this study, Greenley (1995a) measured the market orientation of UK firms at the corporate level using MKTOR which had been developed at the SBU level. The evidence suggests that market orientation should be evaluated at the SBU level since different SBUs of the same corporation are likely to have different levels of market orientation (Kohli and Jaworski 1990; Ruekert 1992). Moreover, most of marketing processes/activities are performed at the SBU or divisional level (Workman, Homburg, and Gruner 1998). Therefore, corporate-level management may not be well aware of market-oriented activities of each SBU unless the firm itself is a single company. Evaluating a market orientation at the corporate level may reveal an unrealistic portrait of adoption patterns of market orientation by UK firms.

Liu (1996) examined the patterns of the implementation of market orientation in UK manufacturing firms. A total of 550 questionnaires were sent to managing directors or chief executives and marketing directors. The overall response rate was 46% resulted. The study results revealed that most of the companies in the sample developed corporate policies which reflected a market orientation (about 83% of the sample). However, in reality, the percentage of companies that realistically developed a market orientation was low (36%). The lower level of market orientation in UK companies was not seen as a result of the lack of awareness about market orientation. Rather, it was seen as a result of the implementation-related obstacles (Liu 1996). Overall, the degree of market orientation in small and medium-sized firms seems to be lower than that of large and extra-large firms. Large and extra-large firms are more involved with the market-oriented

activities such as marketing research, marketing planning, coordination of business activities, and market segmentation. This result is consonant with the findings in the US context by Hise (1965) and McNamara (1972). Even though UK firms acknowledge the importance of new product development activity for the survival of a firm, the rate of new product development (i.e., turnover/number of new products/total products) appears to be low in them. This result might be a direct outcome of a low level of market orientation in UK firms. This study is one of the few studies that explored the adoption of market orientation in the UK context. The study results clearly reveal the problematic areas associated with the successful adoption of a market orientation. Some of the results confirm the findings of US studies (e.g., Hise 1965; McNamara 1972). Liu (1996) measured market orientation directly (via the business orientation of the firm) and indirectly (via the marketing-related activities of the firm) in this study. This approach should produce a more reliable assessment of the level of market orientation within the organization. This study was not based on a theoretical model or framework. It simply reported the findings of the survey.

Lado and Rivera (1998) explored whether cultural differences inherited in different domestic environments influence how companies perceive and execute a market orientation. The authors explored the influence of the country context on the meaning of a market orientation, the average level of a market orientation in companies, and the use of the components of a market orientation (Lado and Rivera 1998). They used two samples of insurance companies from Spain and Belgium. These countries have different political-economic conditions and cultural heritage. The final sample included 113 usable

responses (61 from Belgium with a response rate of 45% and 52 from Spain with a response rate of 35%) from top managing directors of the responding companies. The study results revealed that the perception or comprehension of a market orientation by managers is not different significantly across countries. Managers found market orientation crucial when developing strategies for global competitive markets/environments. The sample firms differed in terms of their degrees of market orientation, but there was no difference in terms of their use of the market orientation dimensions (Lado and Rivera 1998). The small sample size and the simplistic nature of the study cast some serious doubts on the reliability and validity of the findings. However, this study points out an important research issue: That the investigation of differences in the perception and implementation of a market orientation by companies across different national cultures is worth studying. Indeed, this study is one of the few studies (e.g., Deshpandé and Webster 1989) to investigate the effects of a macro environment (country context) on a market orientation.

Ruekert (1992) examined whether there is a difference in the degree of market orientation among SBUs of the same corporation in a study of 5016 respondents from five SBUs of a *Fortune 500* high technology company based in the U.S. An overall response rate of 70% was achieved. From the total respondent group, 400 were randomly selected for use in the study. A second sample of 400 respondents was identified to test the reliability of the results. The author then developed a new 23-item market orientation scale which consists of three dimensions — the use of customer information, the development of a market-oriented strategy, and the implementation of a market-oriented

strategy (Ruekert 1992). The study results suggested that the level of market orientation varied by business unit or division within the same corporation (Ruekert 1992). These differences among the five SBUs were observed in terms of all three dimensions as well as overall market orientation.

This study provides important insights into the development of a market orientation within the organization as well as potential benefits of market orientation to the organization. This study is one of the few studies that have investigated the variations in the levels of market orientation in different divisions of the same corporation. This study had several drawbacks, as noted by the author. First, the study findings are based on information collected from one single corporation. This significantly limits the applicability of the findings to a large number of businesses. Second, information with respect to market orientation was derived from self-reports provided by individual managers. Such data can be biased and/or based on wrong information or insufficient information. Thus, this may cast doubt on the reliability and validity of the study findings.

2.5.3. Major Studies of Market Orientation — Business Performance Relationship

It has been widely acknowledged that as a company increases its market orientation, its market performance will improve. This view has been shared by both marketing academicians and marketing practitioners for many years (e.g., Kotler 1984; Kotler and Andreasen 1987; Levitt 1960; Narver and Slater 1990; Webster 1988). However, this postulated positive relationship between market orientation and company performance has not been thoroughly investigated until recently. Over the last decade, the notion that a market-oriented corporate culture is a key element of a company's superior

performance has started to receive a close, intense scholarly attention (Han, Kim, and Srivastava 1998).

A growing body of research on market orientation explores the relationship between market orientation and business performance in a single or a multi-industry context in the U.S. as well as in international settings (e.g., Deshpandé, Farley and Webster 1993; Narver, Jacobson, and Slater 1993; Slater and Narver 1994a; Greenley 1995c; Pelham and Wilson 1995; Han, Kim, and Srivastava 1998). The number of studies that aim to develop theoretical models/frameworks that explain the nature, the process, the antecedents, and the consequences of a market orientation in an organization has begun to grow (e.g., Han, Kim, and Srivastava 1998; Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990). Most of these suggested models/frameworks investigate the relationship between market orientation and business performance (e.g., Han, Kim, and Srivastava 1998; Jaworski and Kohli 1993; Narver and Slater 1990). In these performance studies, the mediating and/or moderating effects of internal/external forces or various organizational variables on the relationship between market orientation and company performance have been examined.

The prior research on the market orientation and company performance relationship revealed some mixed or inconsistent findings as well (e.g., Greenley 1995c; Hart and Diamantopoulos 1993; Jaworski and Kohli 1993; Han, Kim, and Srivastava 1998). Some studies found a positive significant relationship between market orientation and business performance (e.g., Jaworski and Kohli 1993), while others found a negative significant or no relationship at all between the two constructs (e.g., Greenley 1995c). In

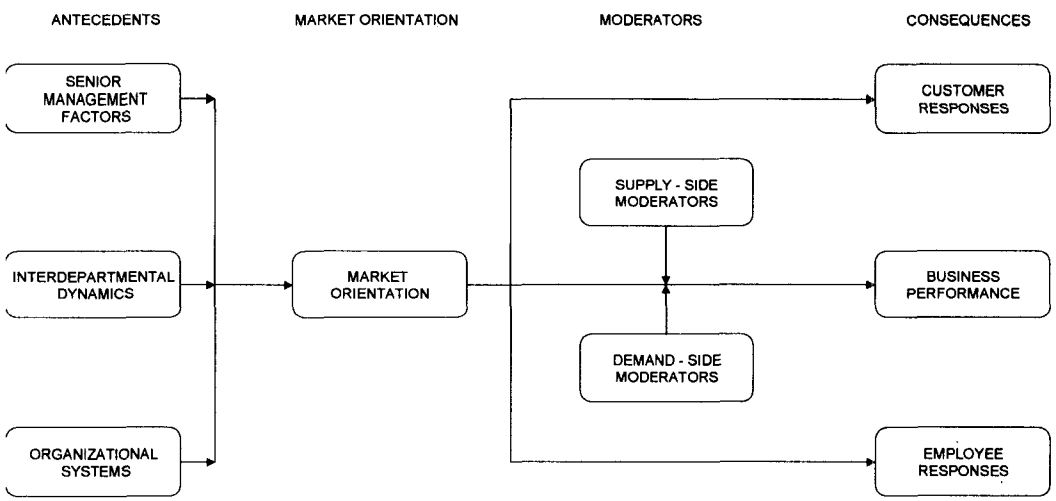
the following section, major studies of the market orientation-performance relationship are reviewed. Most of these studies were based on theoretical models or frameworks.

2.5.3.1. Kohli and Jaworski's (1990) Comprehensive Model

Kohli and Jaworski (1990) attempted to develop a theoretical framework explaining antecedents and consequences of a market orientation (see Figure 2.1). Their study can be characterized as a synthesis of existing knowledge on the marketing concept and market orientation. The model propositions were developed after making a comprehensive review of the literature, getting valuable insights from in-depth interviews with 62 managers in four U.S. cities from diverse positions (marketing vs. nonmarketing managers), companies (small to large), and industries (industrial, consumer, and service), and having interviews with 10 academicians at two large U.S. universities. Kohli and Jaworski (1990), in their work, adopted a view that "a market-oriented organization is one in which the three pillars of the marketing concept (customer focus, coordinated marketing, profitability) are operationally manifest" (p.3). Based on the results of their field study, the meaning of the market orientation construct was made more precise and clear. And it was based upon an operational view of the first two pillars of the marketing concept: customer focus and coordination (Kohli and Jaworski 1990). Their framework included four sets of variables: (1) antecedent conditions fostering or discouraging a market orientation, (2) the market orientation construct, (3) consequences of a market orientation, and (4) moderator variables strengthening or weakening the relationship between market orientation and business performance. They categorized organizational factors that are antecedents to a market orientation hierarchically as individual,

intergroup, and organization-wide factors. Then, they labeled them as *senior management factors*, *interdepartmental dynamics*, and *organizational systems*. They suggested a number of propositions pertinent to these factors to be tested in future studies. This study is acknowledged as one of the profoundly important studies of market orientation. Kohli and Jaworski (1990) clearly defined and conceptualized a market orientation in their study. Their conceptualization is representative of a behavioral or process-based perspective of a market orientation. An entire line of research has been based on this perspective (e.g., Matsuno and Mentzer 2000; Siguaw, Simpson, and Baker 1998, 1999). Moreover, Kohli and Jaworski (1990) constructed a comprehensive model of a market orientation and suggested 19 propositions that served as a basis for a theory of market orientation (Kohli and Jaworski 1990). Their model was developed on the basis of a comprehensive review of the relevant literature, in-depth interviews with marketing or nonmarketing managers and interviews with academicians. Their model was therefore established upon insights and feedback coming from both business and academe. Thus, the suggested model captures and successfully integrates different perspectives on market orientation into a comprehensive model.

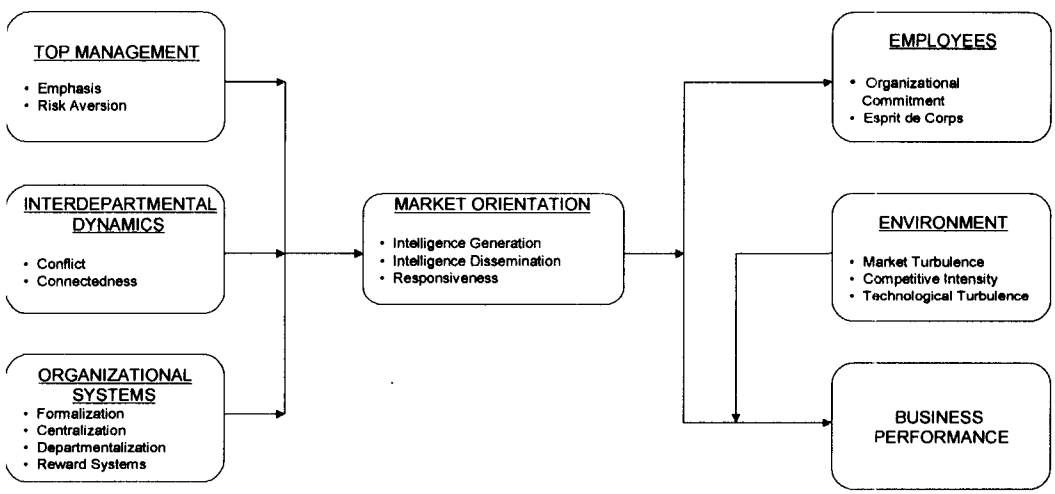
Figure 2.1 Kohli and Jaworski's (1990) Model of Antecedents and Consequences of a Market Orientation (p.7).



Jaworski and Kohli (1993) empirically tested and validated a modified version of the theoretical framework of a market orientation which they suggested in their 1990 study. Jaworski and Kohli (1993) empirically tested most of the propositions suggested in their 1990 study. The model that is tested in this study is displayed in Figure 2.2. This conceptual model tested was not much different from the model that was developed by Kohli and Jaworski (1990). The earlier model was a little more comprehensive than the tested model. They utilized a complex sampling which consists of two separate samples. The first sample was drawn from the member companies of the *Marketing Science Institute* and the top 1000 companies (in sales revenues) included in the *Dun and Bradstreet Million Dollar Directory*. In this sample, a multiple-informant design was utilized. The names of a senior marketing and a senior nonmarketing executive in each of

twenty-seven SBUs of the thirteen companies which are members of the *Marketing Science Institute* were obtained. The response rates were 88.9% for the marketing executives and 77.8% for the nonmarketing executives. The other part of the first sample consisted of 500 companies which were chosen among the top 1000 companies listed in the *Dun and Bradstreet Million Dollar Directory*. A total of 102 companies agreed to participate and 229 SBU names were obtained. The response rates were 79.6% for the marketing executives and 70% for the nonmarketing executives. In order to cross-validate the findings from the first sample, data were obtained from a second sample. They used the *American Marketing Association* membership roster as the sampling frame. 487 correspondents were sent questionnaires, a response rate of 47.2% was obtained. They used a regression analysis to test the hypotheses.

Figure 2.2 Jaworski and Kohli's (1993) Model of Antecedents and Consequences of a Market Orientation.



The overall findings from this study suggested that a market orientation is related to a top management emphasis on the orientation, risk aversion of top managers, interdepartmental conflict and connectedness, centralization, and reward system orientation. More specifically, it was found that the amount of emphasis top managers place on a market orientation appears to affect the generation of market intelligence, its dissemination and responsiveness to it in a positive way for both samples. This finding gives strong empirical support to the argument that top management has a very crucial role in the development of a market orientation. However, top managers' risk aversion does not appear to influence intelligence generation or dissemination, but it seems to have a negative effect on the responsiveness of the organization for both samples. Interdepartmental conflict seems to inhibit intelligence dissemination and the responsiveness of an organization for the two samples. Connectedness among departments promotes a market orientation for both samples. However, while for the second sample, connectedness was found to facilitate intelligence dissemination, for the first sample, connectedness did not appear to be related to intelligence dissemination. As it was hypothesized, a market orientation was found to be strongly related to the orientation of the reward systems in an organization.

The results revealed that, for both samples, centralization of decision-making inhibits a market orientation. As opposed to the prior hypotheses, formalization does not seem to be related to a market orientation. This result was consistent with the results reported by Narver and Slater (1991), who suggested that programmatic approaches to improving market orientation may not be effective. Also, the results suggested that there

is no relationship between departmentalization and a market orientation.

In terms of consequences of market orientation, the study found that a market orientation is related to overall (judgmental) business performance (but not market share), employees' organizational commitment, and esprit de corps. The results provided strong support for the hypothesized positive effects of a market orientation on employees' organizational commitment. A market orientation also appears to be significantly related to business performance when overall performance is assessed using judgmental measures. If market share is used as a measure of performance, market orientation does not seem to be related to performance. The authors suggested several reasons to explain this conflicting effect on performance. First, it is unclear whether market share is a particularly appropriate indicator of performance because sometimes companies with low market share outperform companies with high market share. Second, it is possible that there is a time lag in the effect of market orientation on market share. A market orientation may increase market share substantively over a relatively long period of time.

Furthermore, the study results did not support the hypothesized moderating effects of market turbulence, competitive intensity, and technological turbulence on the linkage between market orientation and performance. In general, the findings suggested that the market orientation of an organization is an important determinant of its business performance, regardless of the market turbulence, the competitive intensity, or the technological turbulence of the environment in which it operates.

Jaworski and Kohli's (1993) study has fundamental significance for the marketing discipline. The authors tested and validated one of the first and most comprehensive

theoretical models of market orientation. Also, the authors identified the domain of the market orientation construct, and designed a widely-used measurement scale. A multi-step and multi-respondent sampling approach obviously enhances the credibility of the study findings. The results clearly suggest that organizational structure may not be an important determinant of the level of a market orientation in organizations. Formalization and departmentalization do not appear to have any significant effects on the degree of market orientation. However, centralization may have adverse effects on intelligence generation, dissemination, and responsiveness. The finding that environmental factors do not have any moderating effects on the relationship between market orientation and company performance is somewhat surprising and counter-intuitive. The multi-industry nature of the selected samples might have contaminated the study results. Too much noise in the samples and data might have masked the true effects of the environmental variables on the market orientation-performance relationship. Industry-specific studies may produce different results on the impacts of environmental variables. The study findings provide valuable insights and implications for practitioners.

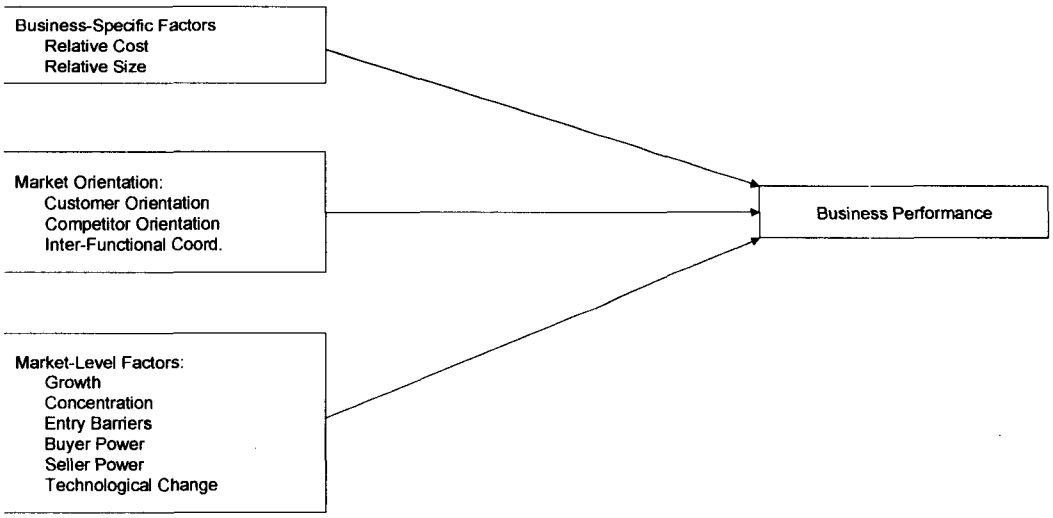
2.5.3.2. Narver and Slater's (1990) Independent Effects Model

Narver and Slater (1990) conducted an exploratory study in which they developed a valid measure of market orientation and investigated its effect on business profitability. The authors examined the observed relationships between business profitability and market orientation and the other eight independent variables. Narver and Slater's (1990) perspective on market orientation has been seen as an alternative to the behavioral or process-based perspective of a market orientation introduced by Kohli and Jaworski

(1990). This competing viewpoint was labeled as a cultural perspective of a market orientation. Narver and Slater (1990) viewed market orientation as an organization culture that produces the necessary behaviors to create superior value for customers and pursues sustainable competitive advantage and superior performance. They hypothesized market orientation as a one-dimension construct with three behavioral components (i.e., customer orientation, competitor orientation and interfunctional coordination) and two decision criteria (i.e., long-term focus and profitability).

Their model, which is called the *Independent Effects Model*, is displayed in Figure 2.3. The model connects business performance as a dependent variable to the three groups of independent variables. These groups are *business-specific factors*, *market orientation*, and *market-level factors*. Business-specific factors and market-level factors include eight situational variables and they serve as control variables. These variables were controlled in analyzing the effect of a market orientation on business's profitability since they might also affect a business's profitability. These business-specific factors include relative cost, and relative size. Market-level factors include market growth, seller concentration, entry barriers, buyer power, seller (supplier) power, and technological change.

Figure 2.3 Narver and Slater's (1990) Independent Effects Model (p.29).



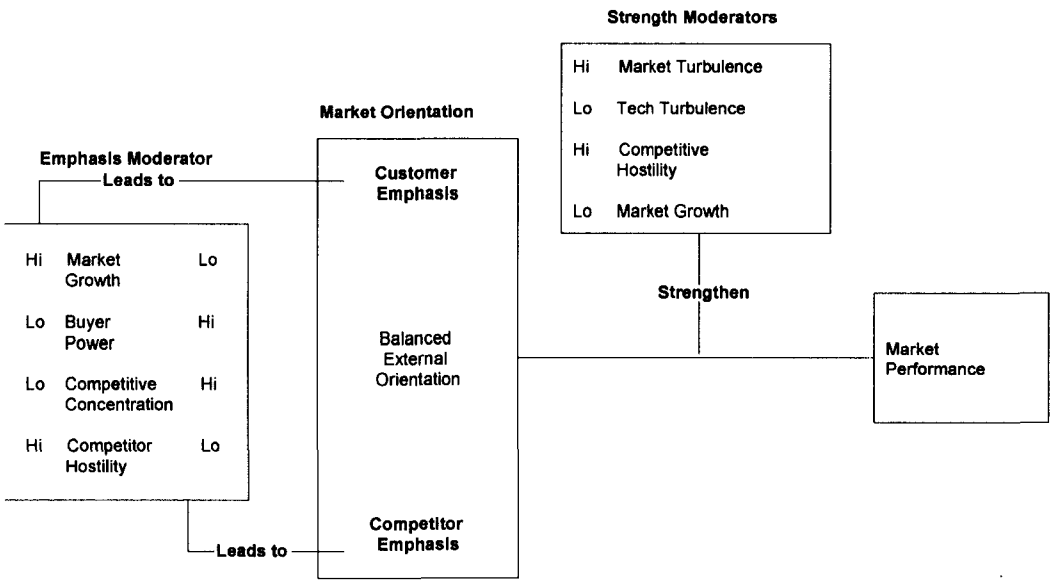
440 respondents in 140 forest product divisions or SBUs of a major Western corporation were surveyed to test the model. A response rate of 84% was achieved. The sample covered a variety of businesses including commodity, specialty products distribution, and export businesses. A judgmental (subjective) measure of business profitability was utilized. In order to analyze the relationship between market orientation and firm profitability, ordinary least squares regression analysis was used. The data from the sample of 110 business units was utilized in the regression analysis. Narver and Slater (1990) have found a substantial positive effect of market orientation on profitability of both commodity products and noncommodity businesses by using a sample of 140 business units. Their study has been considered as a significant contribution to the market orientation research for several reasons. First, a clear, precise definition of market orientation was presented. Second, the conceptualization and operationalization of the

market orientation construct were provided. This study represents a cultural view of a market orientation. Finally, this study is one of the first studies that investigated the effect of market orientation on business profitability.

2.5.3.3. Slater and Narver (1994a)

The studies by Jaworski and Kohli (1993) and Narver and Slater (1990) revealed a positive relationship between market orientation and performance. However, it has been suggested that a competitive environment could affect this positive relationship. Slater and Narver (1994a) explored the potential moderating effect of competitive environment on this relationship from two different perspectives (see Figure 2.4): (1) the effect on the strength of the relationship (Kohli and Jaworski 1990), and (2) the effect on the focus of the intelligence generation activity (i.e., a stronger focus on customer analysis compared to competitor analysis, or vice versa — Day and Wensley 1988) if the degree of market orientation is assumed to be given (Slater and Narver 1994a). The sample consisted of 81 SBUs of a forest products company and 36 SBUs of a diversified manufacturing corporation, which are both listed among the *Fortune 500* largest industrial firms. Multiple respondents from each SBU were surveyed. Response rates were 84% for the forest products corporation and 74% for the diversified manufacturing corporation. Market orientation was assessed using MKTOR. Market performance was measured by the respondent's assessment of the SBU's return on assets (ROA), sales growth, and new product success relative to all other competitors in the SBU's principal served market over the past year.

Figure 2.4 Slater and Narver's (1994a) Model of the Moderating Influence of Competitive Environment on the Market Orientation- Performance Relationship (p.47).



This study showed that market orientation is positively associated with sales growth and new product success. As opposed to Kohli and Jaworski's (1990) and Day and Wensley's (1988) theories, the authors did not find strong support for the moderating role of a competitive environment on the strength of the market orientation-performance linkage as well as on the effectiveness of different relative emphases within a market orientation (Slater and Narver 1994a, p.54). The authors concluded that given the large amount of cost and time involved and the complexity of the activities involved in increasing and sustaining a desired level of a market orientation, it would not be wise for a firm to adjust the degree of its market orientation according to the environmental conditions which are extremely volatile and dynamic. The level of market orientation is not easily changeable. First of all, such a practice would not be cost-effective for the firm.

Second of all, as the authors noted, a market-oriented firm with its "external focus" and "commitment to innovation" is expected to be determined to achieve and sustain competitive advantage under *any* environmental conditions; therefore, it does not need to adjust its market orientation according to environmental moderators (Slater and Narver 1994a, p.53).

The findings of this study are consistent with those of Jaworski and Kohli (1993) who found little support for their proposition that a competitive environment moderates the strength and nature of the market orientation-performance linkage (Slater and Narver 1994a). The use of multiple respondents from each SBU might have offset the biases of individual respondents, and thus, diminished measurement error. As the authors mentioned, the major limitation of this study is that it was based on cross-sectional data. Therefore, the study findings are not reflective of the effects of the possible alterations in the magnitudes of the study variables over time. This effect can only be captured through a longitudinal study.

2.5.3.4. Greenley (1995c)

Greenley (1995b) investigated the suggested link between market orientation and company performance within the UK context. His model was similar to that of Narver and Slater (1990). Therefore, this study can be considered as an extension of the work by Narver and Slater (1990) into an international context. He adopted Narver and Slater's (1990) research approach since this approach involved a large variety of control and moderating variables, three performance measures, and a comprehensive, reliable market orientation scale. Market orientation was measured using the MKTOR scale. Company

performance was measured by means of return on investment, new product success rate, and sales growth.

The survey involved a sample of 1000 companies listed in the *Dun and Bradstreet* database of UK companies having more than 5000 employees. The target respondents were the managing directors or CEOs of these companies. Greenley (1995c) conducted his study at the corporate level since he believed that top management of a corporation is more knowledgeable about overall market orientation and has a more powerful and relevant role in developing and maintaining it. Narver and Slater's (1990) study was conducted at the SBU level. The number of usable responses totaled to 240. Data were analyzed by means of a multiple regression analysis (Greenley 1995c).

The study results indicated that the relationship between market orientation and firm performance is moderated by environmental factors. This result is in conflict with that of Jaworski and Kohli (1993) and that of Slater and Narver (1994a). These conflicting findings indicate that the effect of market orientation on firm performance may not be direct in all national business contexts. In some national environments, this impact may be contingent upon the environment, as it is in the UK. Based on the study results, the author concluded that maintaining a market orientation may not be beneficial under the circumstances of high market turbulence, weak customer power, and high technological turbulence. Thus, having a strong market orientation in certain market conditions may not be advantageous. However, according to Narver and Slater (1990), Slater and Narver (1994a), and Jaworski and Kohli (1993), market orientation is relevant in all market conditions. The contradictory results of this study suggest that the notion

that market orientation is beneficial and applicable in all national contexts and in all market conditions is questionable.

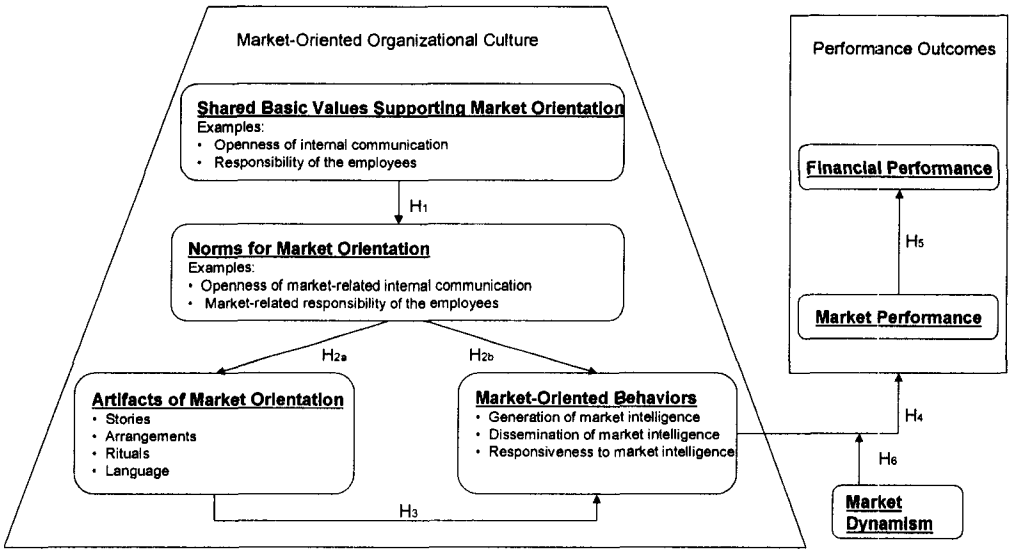
This study can be considered as an important contribution to the empirical research focusing on the market orientation-performance relationship. Until this study, empirical evidence available on this relationship was mainly based on U.S. studies (e.g., Kohli and Jaworski 1990; Narver and Slater 1990; Ruekert 1992; Slater and Narver 1994a). This study tested the postulated relationship between market orientation and performance in another national business context. Thus, the study provided more insights about the universal relevancy and applicability of a market orientation and its suggested effect on firm performance. There is a slight possibility that the sample might not be truly representative of British industry (Greenley 1995c), and due to its cross-sectional nature, this study may not reflect any potential lagged effects between market orientation and performance. Additionally, since the data were collected during a recession in the UK, the author urges that, some of the links in the model might have been perverted. Under more normal circumstances, the views/opinions expressed by participating informants might have been significantly different from those provided by the same informants during a recession (Greenley 1995c). Therefore, the results of this study should be interpreted cautiously.

2.5.3.5. A Multiple-Layer Model of Market-Oriented Organizational Culture

A market orientation can be evaluated at three levels (Deshpandé 1999, p.6): as a *culture,* as a *strategy*, and as a series of *tactics*. Most of the existing market orientation scales have been at the tactical level (Deshpandé 1999). There is a need to better define

and measure a market orientation as a culture and a strategy (Deshpandé 1999). Homburg and Pflesser (2000) pinpointed the fact that the earlier studies adopting a cultural perspective of market orientation have generally utilized behavioral measurement instruments to assess market orientation. Past studies have not given much consideration to foundational, underlying elements of a market-oriented culture (Homburg and Pflesser 2000). According to Homburg and Pflesser (2000), "the cultural perspective has had a stronger impact on the definition than on the conceptualization and the development of measures of market orientation" (p.449). Thus, Homburg and Pflesser (2000) constructed and validated a multiple-layer model of market-oriented organizational culture to fill this gap in the literature (see Figure 2.5). The suggested model consists of three groups of variables: market-oriented organizational culture with the four layers, a moderator variable (i.e., market dynamism), and performance outcomes (i.e., financial performance and market performance). Homburg and Pflesser (2000) suggested a number of propositions about the interrelations among different layers of an organizational culture and about the effect of a market-oriented culture on performance outcomes.

Figure 2.5 Homburg and Pflesser's (2000) Multiple-Layer Model of Market-Oriented Organizational Culture (p.451).



After a careful review of the literature in the areas of marketing and organizational theory, the authors suggested that a market-oriented organizational culture is embodied by four distinct layers (i.e., values, norms, artifacts, and behaviors). These layers are (1) *shared basic values* supporting market orientation, (2) *norms* for market orientation, (3) *artifacts* of market orientation (i.e., stories, arrangements, rituals, and language), and (4) market-oriented *behaviors*. The market-oriented behaviors were measured using the MARKOR scale. The authors developed and validated a measurement scale for each of the three layers of the market-oriented culture through qualitative research and a survey. Prior to the survey research, the authors conducted two-stage qualitative research which consisted of a content analysis and field interviews. A total of 1100 managers in 1100 SBUs operating in five different industries in Germany were sent questionnaires. The target informants were general managers, marketing managers, and managers from other

functional units. An overall response rate of 15.7% was attained with 173 responses. Of this total, 160 responses were usable.

The results showed that artifacts (positive or negative) have a significant direct impact on market-oriented behaviors. However, values and norms have indirect effects on market-oriented behaviors. In order to develop market-oriented behaviors, market-oriented norms should be supported by proper artifacts. Additionally, it was shown that the positive relationship between market-oriented behaviors and market performance is moderated by market dynamism. In other words, the effect of market-oriented behaviors on market performance is stronger in case of high market dynamism. Market-oriented behaviors directly affect market performance which, in turn, impacts financial performance. Values, norms, and artifacts are not expected to have a direct effect on market performance.

The study by Homburg and Pflesser (2000) has several limitations. First, the results of the study are representative of German business practices and therefore, they are probably more applicable to German business cultures. The suggested model should be tested and validated in some other international business contexts as well. Second, the suggested measurement scale for the market-oriented organizational culture seems to be quite comprehensive and lengthy (Homburg and Pflesser 2000). It includes a total of 78 items. Therefore, the suggested scale is more appropriate to be used for business applications than for academic applications. Third, the data used in this study is based on the participation of a single respondent from each SBU. As a result of this, the study results might be distracted or contaminated by some level of informant bias (Homburg

and Pflesser 2000). Jaworski and Kohli (1993) and Kohli, Jaworski, and Kumar (1993) used a multiple-informant approach in the development of their market orientation scales. Finally, the reliabilities for artifacts that indicate a low and high level of market orientation, and for market-oriented behaviors are lower than the level suggested by Nunnally (1978).

In their study, Homburg and Pflesser (2000) not only developed a comprehensive measurement tool that is capable of assessing the extent of market orientation within an entire organizational culture, but also tested the relationship between market orientation and performance taking into account the moderating effect of market dynamism. Thus, this study contributed to two important streams of research (i.e., measurement issues and market orientation-performance issues) within the market orientation research. This study certainly broadens and deepens the cultural perspective of market orientation, and definitely provides a better understanding of the close ties between market orientation and organizational culture. More specifically, this study provides a better appreciation of the possible cultural roots of market-oriented behaviors. Moreover, this study successfully integrates both cultural and behavioral perspectives of a market orientation.

2.5.3.6. Matsuno and Mentzer (2000)

Matsuno and Mentzer (2000) pointed out that even though the positive relationship between market orientation and some performance measures has been widely examined and generally supported to date, the validity of this relationship across different business strategies has not yet been sufficiently probed (Greenley 1995c). The authors believed that the studies investigating the effect of market orientation on performance

have mainly indicated a positive performance effect. But, they admitted that there is some equivocality in the findings and believed that possible moderating factors of this relationship should be examined more closely (Matsuno and Mentzer 2000). Thus, Matsuno and Mentzer (2000) investigated the moderating effect of business strategy type on the relationship between market orientation and business performance. This study is also a significant attempt to develop a better market orientation measurement instrument on the basis of the scales suggested by Jaworski and Kohli (1993) and Kohli, Jaworski, and Kumar (1993). They used Miles and Snow's (1978) typology of strategic orientations of firms. There are four types: *defenders*, *prospectors*, *analyzers*, and *reactors* (Matsuno and Mentzer 2000, p.2-3; Miles and Snow 1978, p.29). Defenders and prospectors were considered as being "two opposite ends of a continuum" of organizational strategies (Matsuno and Mentzer 2000, p.3). The remaining strategies take place somewhere between them (Matsuno and Mentzer 2000). It was proposed that the type of strategy moderates the relationship between market orientation and economic performance. Economic performance was measured by ROI, market share growth, relative sales growth, and percentage of new product sales to total sales. A preliminary sample of 3300 U.S. manufacturing companies was randomly derived from a total of nearly 600,000 manufacturing businesses. The target respondent was a marketing executive (at the either vice president or director level) from each company. A final random sample of 1000 firms was sent a questionnaire. A response rate of 38.76% with 364 usable responses was obtained.

The study results supported the existence of the moderating effects of business strategy type on the strength of the link between market orientation and firm performance. It was found that analyzers are likely to have little or no performance improvement in any performance dimension when the level of market orientation is increased. Relative to prospectors and analyzers, defenders gain the highest performance benefit in ROI when the degree of market orientation is increased. However, these companies are likely to experience lower levels of market share, sales growth, and the percentage of new product sales when the level of market orientation is increased, compared to the other strategy types. Prospectors seem to have the greatest additional gains in market share, sales growth, and the percentage of new product sales compared to analyzers and defenders when the level of market orientation is increased. In terms of the mean scores, prospectors perform best in every performance dimension.

Based on the literature review and as suggested by the authors, this study appears to be the first one that investigates the moderating effect of the strategy type on the market orientation-performance relationship. The investigation of the moderating impact of the strategy type provides a richer understanding of the relationship between market orientation and economic performance (Matsuno and Mentzer 2000).

There are other important studies that have focused on the market orientation-performance connection (e.g., Deshpandé and Farley 1999; Deshpandé, Farley, and Webster 1993; Ruekert 1992). Ruekert (1992) examined the effect of market orientation on firm performance in a study of 5016 respondents from five SBUs of a *Fortune 500* high technology company located in the U.S. They found a positive connection between

the level of market orientation and the degree of long-term financial performance (Ruekert 1992). Deshpandé, Farley, and Webster (1993) investigated the empirical links among culture, customer orientation, innovativeness, and business performance in a supplier-buyer context. The authors used an innovative sampling method which is called a "quadrad design" for data collection. They used a *matched set* of buyer-seller dyads or pairs as a sampling unit. Two corporate level marketing executives from each of 50 Japanese supplier firms and two purchasing executives from the customer firm selected were interviewed. They found no significant link between the marketer's self-reported customer orientation and business performance. However, there was a positive relationship between the marketer's customer orientation reported by customers and business performance. Also, these two different evaluations of customer orientation were not related. A similar study was conducted by Deshpandé and Farley (1999) in a two-country setting. Deshpandé and Farley (1999) developed a "universal high performance model" which was based on such variables as market orientation, organizational innovativeness, organizational climate and organizational culture (p.112). They used data obtained from two Asian countries, Japan and India, to test their model. They also used "quadrad" sampling. They conducted 224 interviews involving 56 quadrads in Japan and 116 interviews with 29 quadrads in India (Deshpandé and Farley 1999). The results indicated that market orientation and organizational culture are main predictors of organizational success (Deshpandé and Farley 1999). The authors said that the impact of market orientation on performance might be more effective in India than in Japan or other industrial countries. The clear variations in Indian and Japanese firms were explained by

the differences in national cultures and economic histories (Deshpandé and Farley 1999). Indeed, this study is similar to Deshpandé, Farley, and Webster's (1993) study in terms of the variables used, sampling and data collection, and the way in which market orientation was assessed. Differently, Deshpandé, Farley, and Webster's (1993) study was conducted in a Japanese setting and used a different typology of organizational culture. With regard to the relationship between market orientation and performance, the results of these studies are generally consistent. Deshpandé and Farley (1999) showed that market orientation is one of the main predictors of organizational success. Deshpandé, Farley, and Webster (1993) found no significant link between the marketer's self-reported customer orientation and business performance. However, they observed a positive relationship between the marketer's customer orientation reported by customers and business performance.

2.5.4. Context-Specific Studies of Market Orientation — Performance Relationship

Several studies have focused on the investigation of the relationship between market orientation and firm performance in different industry settings. This kind of study is expected to capture inter-industry variations. This stream of research has focused on a variety of industries including the hotel industry (e.g., Au and Tse 1995; Sargeant and Mohamad 1999), the hospital/healthcare industry (e.g., Kumar and Subramanian 2000; Raju, Lonial, and Gupta 1995), the property/real estate industry (Tse 1998), universities and the public sector (e.g., Caruana, Ramaseshan and Ewing 1998), the export market (e.g., Cadogan, Diamantopoulos, and Mortanges 1999), and the non-profit professional theater industry (e.g., Voss and Voss 2000), etc. Here, these studies are divided into two

groups: *profit sector* studies, and *non-profit sector* studies. These studies will be briefly reviewed in the following sections.

2.5.4.1. Profit Sector Studies

These studies focus on various industries like the hotel industry, the property/real estate industry, and exporters. Au and Tse (1995) explored the relationship between market orientation and company performance in the hotel industry over a sample of general managers of 69 Hong Kong hotels and 250 New Zealand hotels and motor lodges. The research results indicated that there was no significant relationship between market orientation and hotel performance for both samples. The authors believed that potential moderators had important roles to play in this unexpected result. In this study, the small sample sizes may be problematic. In a similar study, Sargeant and Mohamad (1999) examined the relationship between market orientation and business performance in the hotel industry in the UK over a sample of 200 hotel groups. The findings indicated that UK hotels have a moderate level of market orientation. While 65 percent of UK hotels are characterized as being market-oriented, 35 percent of them still have a sales orientation. The results showed that market orientation does not have a direct effect on business performance in this sector. Firms adopting a market orientation did not appear to gain benefits from it.

As a result, both Au and Tse (1995) and Sargeant and Mohamad (1999) found that there is no significant relationship between market orientation and hotel performance. Each study presented different reasons or made different explanations for this surprising common result. According to Au and Tse (1995), several potential moderators, which

were excluded from the study, have affected or confounded the results. These possible confounding moderators were size, price, market turbulence, technological turbulence, competitive intensity, and the general economy. The authors thought that the inclusion of large hotels in their samples was especially likely to affect their overall results. Such large hotels can be less market-oriented, but they can still exhibit high performance levels. Sargeant and Mohamad (1999) presented an entirely different set of reasons for this unexpected finding. According to these authors, possible confounding factors included the use of managers' or executives' assessments of market orientation, the employment of short-term performance measures to assess long-term investments (i.e. market orientation) with long-term benefits, and the ignorance of a possible lagged effect between market orientation and performance. Obviously, all explanations seem to have some merits. Therefore, they should be taken into account in future studies in the hotel industry.

Tse (1998) studied the market orientation-performance relationship for large property companies in Hong Kong. Personal interviews with 26 large property developers or managers were conducted. The study results indicated that there is no significant correlational relationship between market orientation and company performance for large property companies. The author concluded that the results supported the practitioner's belief that a property developer does not need to be market-oriented to be successful in the Hong Kong business environment.

Cadogan, Diamantopoulos, and Mortanges (1999) developed a four-dimension measure of export market orientation and examined the relationship between export

market orientation and export performance using UK and Dutch firms. The UK sample consisted of 1327 exporters. The *raw* response rate was 15% with 198 usable questionnaires. The Dutch sample was used to cross-validate the results of the first sample. 231 Dutch exporters were sampled. A response rate of 46% was achieved with 103 usable responses. The results indicated that each of the four elements of export market orientation is positively and significantly associated with each dimension of export performance for both UK and Dutch samples with only one exception. The relationship between coordinating mechanism and export sales per employee was positive but insignificant for the Dutch sample. To the author's best knowledge, this is the first study exploring this relationship in an export context. The authors also developed a valid and reliable measure of export market performance.

2.5.4.2. Non-Profit Sector Studies

A few studies have attempted to investigate the relationship between market orientation and performance for not-for-profit or nonprofit organizations. It has long been acknowledged that a market orientation is relevant not only for profit making organizations but also for nonprofit organizations (Caruana, Ramaseshan and Ewing 1998; Kotler 1972). Unfortunately, the amount of empirical research devoted to exploring a link between market orientation and performance in the non-profit sector has been limited (e.g., Caruana, Ramaseshan and Ewing 1998; Kumar and Subramanian 2000; Raju, Lonial, and Gupta 1995; Voss and Voss 2000).

Raju, Lonial, and Gupta (1995) explored the relationship between market orientation and company performance in the hospital industry over a sample of 740

hospitals in five states. A multiple respondent format was used. The response rate was 24%. The results indicated that market orientation has a significant influence on each of the performance dimensions (i.e., financial performance, market/product development, and internal quality). Particularly, the responsiveness (especially responsiveness to competition) aspect of market orientation was found to be the one that is the most closely related to the financial performance of hospitals. Responsiveness to competition appeared to have a significant impact on all three hospital performance dimensions. This study is one of few studies that investigated the market orientation-performance link in the healthcare industry. Kumar and Subramanian (2000) examined the adoption of market orientation by U.S. hospitals and its effect on hospital performance. More specifically, the authors investigated which emphasis (customer orientation versus competitor orientation) of market orientation was adopted by U.S. hospitals and whether there were differences between the performances of hospitals in terms of the type of emphasis (Kumar and Subramanian 2000). For this study, 600 hospitals were surveyed. A total of 171 responses were obtained, resulting in a response rate of 28.5%. The study results indicated that approximately 48% of the hospitals placed the primary emphasis on competitor orientation. This indicated that a large number of U.S. hospitals have adopted a competitor-focused strategy as a response to increasingly turbulent markets. Approximately 23% of U.S. hospitals did not have any significant level of market orientation. The authors found that overall market orientation improves hospital performance. Hospitals with a competitor-focused market orientation showed superior performance (e.g., high return on capital).

The number of studies investigating the relationship between market orientation and performance in the health care context is limited. For this reason, both studies are important contributions to the market orientation literature. These studies focused on the relationship between market orientation and hospital performance. However, the both studies failed to investigate the potential moderators and mediators of this relationship. The latter did not empirically examine the factors that affect the hospital's choice of one emphasis over another.

Caruana, Ramaseshan and Ewing (1998) investigated the generalizability of the market orientation-company performance relationship for two major sectors in the nonprofit category. These sectors were universities and the public sector in an Australian context. A sample of 502 heads from public organizations was surveyed. A response rate of 35.5% was obtained. 184 questionnaires were sent to four heads of departments at all Australian and New Zealand universities. A response rate of 46.2% was attained. The research results supported the postulation that there is a positive relationship between market orientation and company performance for both the public sector and universities. Particularly, it was found that the responsiveness dimension of a market orientation seemed to be exerting a greater influence on firm performance in both type of organizations. Therefore, it would appear to be wise to devote resources to enhancing the level of responsiveness. In the literature, the role of market orientation in nonprofit organizations has not received much research attention yet. Therefore, this study is an important contribution to that line of research. However, it has some limitations that are mentioned by the authors. First, there is a possibility that Kohli, Jaworski and Kumar's

(1993) conceptualization and operationalization of market orientation might be somewhat limited and, therefore, may not reflect all of the specific characteristics of the non-profit organizations used in the study. Second, given the fact that it is complicated to develop appropriate measures of performance for non-profit organizations, the performance measures developed and used in this study might pose some problems. For example, in the case of universities, a single-item performance measure was employed. Such a measure might not sufficiently capture the domain of the construct under consideration.

Hirschman (1983), in her conceptual work, argued that the principles of the marketing concept are "not applicable to two broad classes of producers because of the personal values and social norms that characterize the production process" (p.45). These two classes of producers are artists and ideologists. She defined artists as producers "who create primarily to express their subjective conceptions of beauty, emotion or some other aesthetic ideal" (Hirschman 1983, p.45). Due to the subjectivity involved in the production process of artistic work, the marketing concept that is primarily based on identifying and satisfying customer needs and wants seems to be irrelevant in an artistic work environment. This argument was empirically investigated by Voss and Voss (2000). Voss and Voss (2000) examined the relationship between customer orientation and business performance in the non-profit professional theater industry. A sample of 128 non-profit professional theaters was used to investigate the relationship between strategic orientation and firm performance. The theaters included in the sample were all *producing* theaters, not *presenting* ones. A response rate of 79% was achieved with 101 usable responses.

Overall, the study results showed that, in the theater industry, to produce shows that reflect customer wants and preferences does not improve theater performance, and it is not a wise approach to follow. The results indicated that customer orientation is *negatively* associated with subjective and objective measures of subscriber performance. This finding is clearly inconsistent with the argument that a customer orientation help develop and maintain strong long-term customer relationships. Theater subscribers prefer to see really innovative, "thought-provoking", rewarding new products, and they are the early adopters, innovators, and opinion leaders in the theater industry (Voss and Voss 2000, p.77). Theater subscribers are more likely to respond positively to a strategy aiming to lead and educate customers. They are expected to react adversely to a strategy aiming to be led by customers (Hamel and Prahalad 1991; also see Voss and Voss 2000). The results showed that a customer orientation has neither positive nor negative influence on single-ticket buyers. Since this group of customers seems to be less demanding, and go to the theater for entertainment, relaxation, and fun, less creative and more commercialized productions are expected to appeal to single-ticket buyers. The results indicated that interfunctional coordination is directly and positively associated with the all objective performance measures. Moreover, interfunctional coordination has a moderating effect on the relationship between strategic orientation and net surplus/deficit. Future research can extend this study by investigating the customer orientation-performance linkage in other similar contexts such as performing and fine arts, design and fashion industries, academic research, religion, and politics/ideology (Voss and Voss 2000).

All these studies in diverse industries have given some useful insights regarding whether or not the assumed positive relationship between market orientation and performance is supported in different industry settings. The results are somewhat inconclusive. The results showed that there is no significant relationship between market orientation and performance in the hotel industry (e.g., Au and Tse 1995; Sargeant and Mohamad 1999) as well as in the property/real estate industry (e.g., Tse 1998). Also, it was found that there is a negative or no relationship between customer orientation and theater performance depending on the type of ticket buyers (e.g., Voss and Voss 2000). It appears that in various industries, including the export market, the hospital/healthcare industry, the public sector, and universities, the relationship between market orientation and performance is significant and positive. To be able to reach a credible conclusion about the effect of market orientation on performance, more replications should be conducted with larger samples in corresponding industries. With one or two studies in each industry/sector, it is hard to draw conclusions and make generalizations about the impact of market orientation on performance.

Unexpected, insignificant relationship between market orientation and company performance have been found in some studies (e.g., Au and Tse 1995; Tse 1998; Sargeant and Mohamad 1999). These findings might have resulted from methodological difficulties along with the potential impact of industry-specific moderators or conditions. In the studies that are conducted in different industry settings, it is often a requirement to modify or customize the market orientation scales according to the special business characteristics/conditions of these industries. In this case, whether or not the researcher(s)

is capable of converting the original measurement scale to the modified/customized version precisely will significantly affect the outcomes of the study. If this conversion is done in a non-US setting, additional measurement issues related to measurement equivalence might arise and influence the study results further.

2.5.5. The Size-Effect Studies of Market Orientation — Performance Link

With respect to the relevancy and importance of market orientation in the small-firm context, various conflicting views were presented by several researchers. Pelham and Wilson (1995) argued that market orientation is less important for small firms than for large firms. The rationale is that small firms have fewer customers, a more 'cohesive' organizational culture and less complicated organizational structures; therefore, they can easily adjust their organizational activities and processes to changes in the marketplace (Pelham and Wilson 1995, p.5). Thus, they do not need to specifically focus on developing a market orientation in their organizations. However, Appiah-Adu (1997) presented an opposing view regarding the importance of a market orientation in a small-firm context. Appiah-Adu (1997) contended that market orientation appears to be a critical element for success in small businesses. The rationale behind this argument is that small firms usually do not have the necessary resources to pursue other means of better performance including competitive advantage, low-cost leadership, and having employees with sophisticated skills (Appiah-Adu 1997; also see Pelham and Wilson 1996). However, a large organization has more advantages and is more competitive compared to a small organization (Gatignon and Xuereb 1997). A large organization has access to a greater array of resources. Thus, it can invest in more radical and less costly innovations

with greater relative advantage (Gatignon and Xuereb 1997). A large supply of resources enables an organization to gain considerable market and competitive power over its rivals (Gatignon and Xuereb 1997). Another supporting argument for the importance of a market orientation for small firms involves strong culture theory (Appiah-Adu 1997; Dennison 1984; Weick 1985). It is claimed that a strong culture benefits firms by providing more cohesiveness and focus in their business activities and plans. It is acknowledged that small firms generally do not have formal coordinating mechanisms (Appiah-Adu 1997). Therefore, a strong market-oriented culture can help small firms to be more focused and disciplined in the execution of their business activities and plans (Appiah-Adu 1997).

This controversy on the importance of a market orientation for small firms has created a limited research attention among scholars. Several authors have empirically tested the market orientation-firm performance relationship exclusively in the small-firm context (e.g., Appiah-Adu 1997; Horng and Chen 1998; Pelham and Wilson 1995). In the remainder of this section, these studies and their findings will be reviewed and discussed. Previously, Barksdale and Darden's (1971) findings mainly supported the views presented by Appiah-Adu (1997). According to Barksdale and Darden's (1971) study, almost all executives and educators agreed upon the statement that "the marketing concept is equally valid for large and small firms" (p.31). Some respondents claimed that since small firms emphasized short-term strategies, the marketing concept which is long-term in nature was not a good way to cope with the issues of immediate survival. Other survey participants said that the marketing concept was actually more vital for small

organizations than for larger organizations (Barksdale and Darden 1971). Narver and Slater's (1990) finding indicated how important it is for a small firm to have a strong market orientation if it is competing with larger firms. They found that large SBUs with a low degree of market orientation outperformed smaller SBUs with a medium degree of market orientation in the same corporation. However, they could not outperform those small SBUs with a high level of market orientation.

Pelham and Wilson (1995) explored the relationship between market orientation and firm performance in a theoretical model over a sample of 68 small Michigan firms operating in a variety of industries. Market orientation was found to be the only internal variable that directly affected profitability. A strong market orientation helped small firms improve and maintain their strength in innovation, flexibility, and superior customer value. In this way, they could overcome the adverse effects of the cost advantages maintained by large competitors (Pelham and Wilson 1995). Appiah-Adu (1997) investigated whether the findings associated with large firms hold for a small-firm context using a sample of 500 small manufacturing and service firms in the U.K. The response rate was 22%. The results indicated that market orientation had a positive impact on new product success. Largely, this relationship appeared to hold for large firms (e.g., Atuahene-Gima 1995; Slater and Narver 1994a) as well as for small firms (e.g., Appiah-Adu 1997; Pelham and Wilson 1995, 1996). The results revealed that market orientation has a significant and positive effect on sales growth and profitability levels as well. Market orientation is likely to exert greater influence on profitability (ROI) when market turbulence is low; on sales growth when the market growth rate is high; and on

new product success when the business environment is highly competitive. Horng and Chen (1998) investigated the antecedents and consequences of a market orientation in a sample of 500 Taiwanese small- and medium-sized manufacturing enterprises (SMEs). The response rate for this study was 15.2%. The research results indicated that market orientation is a significant determinant of overall business performance, employees' organizational commitment, and esprit de corps. These results seem to be consistent with those of Jaworski and Kohli (1993) for large U.S. firms. This study tested the applicability of the theoretical framework developed by Jaworski and Kohli (1993) in an Asian context. Therefore, its contribution to the literature is important in spite of apparent weaknesses in the study such as small sample size, and lower response rates.

The review of the studies on the market orientation-firm performance relationship in a small-firm context indicates that a suggested positive relationship between market orientation and various measures of firm performance is held for small firms as well (e.g., Appiah-Adu 1997; Horng and Chen 1998; Pelham 1997; Pelham and Wilson 1995, 1996). Overall, the results indicated that market orientation positively affects marketing or firm effectiveness (e.g., Pelham 1997; Pelham and Wilson 1995), market/growth share, and profitability (e.g., Pelham and Wilson 1995) in the U.S. context. Likewise, the findings by Appiah-Adu (1997) reveal that market orientation positively influences new product success, sales growth, and profitability in the UK. In the Taiwanese business context, market orientation was found to increase overall business performance, employee's organizational commitment and esprit de corps (e.g., Horng and Chen 1998).

2.5.6. The Market Orientation — Organizational Learning Link

The number of research studies probing the possible connection between market orientation and organizational learning has been limited to date (e.g., Baker and Sinkula 1999; Hurley and Hult 1998; Sinkula 1994; Sinkula, Baker, and Noordewier 1997; Slater and Narver 1995, 1998). Sinkula (1994) tried to enhance the understanding of the market information processing and knowledge creation mechanisms utilized by organizations in a conceptual study. The author posited that the concept of organizational learning is closely associated with information processing and knowledge creation mechanisms in organizations. Therefore, he thought that the best understanding of these mechanisms can be accomplished by focusing on the principles of organizational learning derived from organizational learning models. The author carefully reviewed the extant research on organizational learning. He developed a set of research propositions to be tested in the future research. His major purpose in this work was to identify and describe the relationship between market information processing and organizational learning. This study has served as a reliable basis for future investigation that focuses on the association between market orientation and organizational learning or learning orientation (e.g., Baker and Sinkula 1999; Hurley and Hult 1998; Slater and Narver 1995).

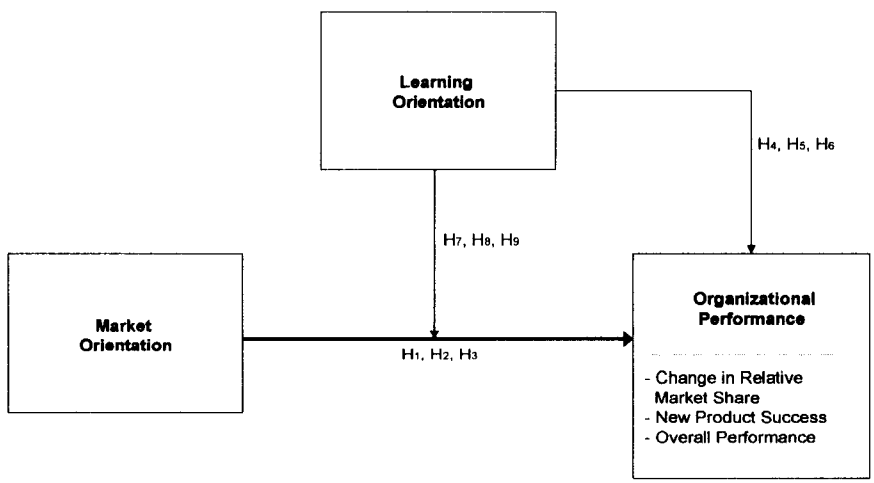
Slater and Narver (1995) pointed out that there is a lack of theory development effort regarding what characteristics best describe the culture and climate of a learning organization. In their work, the authors tried to fill this gap in the literature by developing a theory of a learning organization that provides broader perspective on our understanding of the advantages of a market orientation. A market orientation alone leads

to adaptive learning in organizations. But, when it is coupled with entrepreneurial values, it may facilitate the development of a learning organization. Learning organizations are able "to act swiftly and decisively to exploit opportunities and defuse problems. Learning organizations are exceptional in their ability to anticipate and act on opportunities in turbulent and fragmenting markets" (Slater and Narver 1995, p.71). Being able to learn fast has been considered a source of competitive advantage (e.g., Slater and Narver 1995). In the meantime, they aimed to motivate scholars to conduct more research regarding the learning organization. According to Slater and Narver (1995), when an organization aims to magnify its learning capability, developing a market orientation is merely the first step in the process of developing a learning organization. But, a market-oriented organizational culture is likely to provide a more effective ground for the cultivation of the learning organization only if it is supplemented by an entrepreneurial spirit and a proper organizational climate (Slater and Narver 1995; also see Deshpandé and Webster 1989). In other words, there is no doubt that a market orientation provides organizations with necessary values and norms for learning from various markets. Yet, this alone may not be adequate for developing a learning organization that facilitates higher-order learning (named as *double-loop learning* by Argyris [1977] and *generative learning* by Senge [1990]) (Slater and Narver 1995).

One of the earliest empirical studies that linked market orientation to learning orientation was conducted by Baker and Sinkula (1999). The authors examined the synergistic and independent effects of market orientation and learning orientation on organizational performance through a theoretical framework (refer to Figure 2.6). Baker

and Sinkula (1999) contended that market orientation and learning orientation have independent and frequently synergistic impacts on organizational performance. In this important study, a market orientation was assessed using the MARKOR scale. Organizational performance was measured by new product success (Narver and Slater 1990; Slater and Narver 1994), overall performance (Jaworski and Kohli 1993), and change in market share relative to the firm's largest competitor. A total of 2000 surveys were sent to a list of business executives. The minimum rank for participating executives was the vice presidency level. Half of the questionnaires were sent to marketers while the other half were mailed to nonmarketers. Executives came from a broad range of industries. A total of 441 usable responses were received with an overall response rate of 21% (a response rate of 60% for marketers and 40% for nonmarketers). Confirmatory factor analysis and regression analysis were used.

Figure 2.6 Baker and Sinkula's (1999) Conceptual Framework of Market Orientation, Learning Orientation, and Organizational Performance (p.415).



The results indicated that there was a positive relationship between market orientation and overall performance. This result supports the findings of Jaworski and Kohli (1993). There was a significant and positive relationship between market orientation and new product success, as was hypothesized. Their finding is consistent with that of Slater and Narver (1994a) as well. The results showed that there is a positive and significant link between market orientation and change in relative market share. However, Jaworski and Kohli (1993) did not find any significant relationship between market orientation and market share (Baker and Sinkula 1999). In terms of interaction effects of learning orientation, the strength of the relationship between market orientation and change in relative market share appears to be moderated by a learning orientation. The relationship was positive and significant, and it was stronger when the degree of learning orientation was high within the organization. At low levels of learning orientation, this relationship was found to be insignificant. The results indicated that a learning orientation moderates the relationship between market orientation and new product success (Baker and Sinkula 1999). The strength of the relationship between market orientation and new product success lessens as the degree of learning orientation increases. The relationship between market orientation and new product success was found to be positive and significant at both low and high levels of learning orientation. This relationship was stronger at low levels of learning orientation. The results did not support the proposition that the strength of the relationship between market orientation and overall performance increases as learning orientation increases. In other words, based on the results, learning orientation does not appear to have a moderating effect on the link

between market orientation and overall performance. Based on their results, Baker and Sinkula (1999) addressed possible effects of various levels of market and learning orientations on organizational processes and performance. These effects are summarized in Table 2.3.

Table 2.3.
Expected outcomes of market and learning orientations.

		Market Orientation	
		Weak	Strong
Learning Orientation	Weak	A relative lack of either the ability to effectively adapt or innovate. Long-term survival is threatened.	Strong adaptive learning processes. Capability to achieve stable long-term performance through adaptive learning. Little possibility for significant gains relative to main competitors though.
	Strong	Lack of relative strong market-oriented processes. Strong capability to engage in highly innovative behaviors with high risk. Capability to create competitive advantage. But, the sustainability of this advantage is less probable.	A balance of adaptive and generative learning processes. Capability to create and sustain competitive advantage.

Source: The informational content was borrowed from Baker and Sinkula (1999, p.423).

The research studies that examine the internal moderators of the market orientation and performance have been quite scarce to date (Baker and Sinkula 1999). The extant research has mainly concentrated on external environmental moderators of the market orientation and organizational performance relationship. The study by Baker and Sinkula (1999) attempted to close this gap in the literature by examining the moderator role of a learning orientation as an internal variable in the market orientation-performance

relationship. In this study, Baker and Sinkula (1999) utilized cross-sectional data. This type of data does not allow researchers to observe changes in the suggested relationships over time. The sample included data from predominantly large corporations. Therefore, the generalization of study findings to smaller firms should be done with caution (Baker and Sinkula 1999).

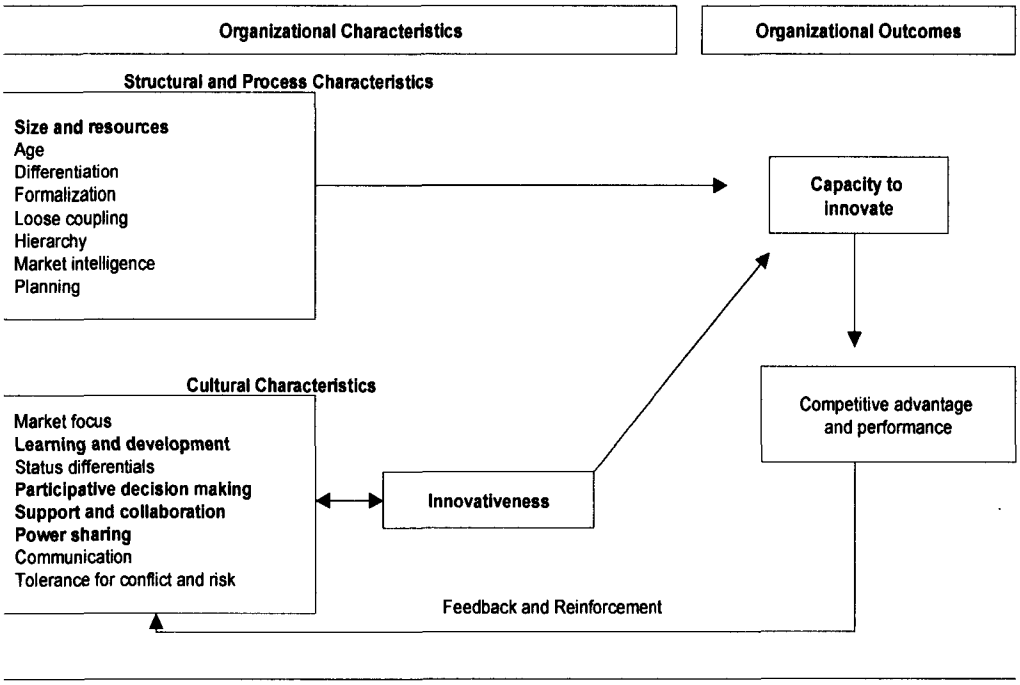
2.5.7. The Market Orientation — Innovation Link

The previous research has given innovation and the innovation-related constructs different roles within the models of market orientation. Hurley and Hult (1998) viewed organizational innovativeness as a consequence of a market orientation. Han, Kim, and Srivastava (1998) treated organizational innovativeness as a mediating variable of the market orientation-corporate performance relationship in their framework. Lukas and Ferrell (2000) connected market orientation to product innovation at the component level. Each study unveils the significance of the innovation concept within the framework of a market orientation.

Hurley and Hult (1998) constructed a theoretical framework that explains the potential relationships among innovation constructs (i.e., innovativeness and capacity to innovate) and competitive advantage/performance (see Figure 2.7). According to Hurley and Hult (1998), when the innovativeness of the firm's culture joins with various structural and process characteristics (i.e., age, differentiation, formalization, loose coupling, hierarchy, market intelligence, and planning), there will be a greater capacity to innovate. Consequently, a firm with a greater capacity to innovate is capable of developing a competitive advantage and increasing its performance level. The authors

suggested that there are other cultural characteristics within the firm that affect innovativeness or innovation orientation. These characteristics are closely associated with

Figure 2.7 Hurley and Hult's (1998) Model of Organization and Market Driven Innovation (p.45).



Note: The variables in bold are used in the empirical portion of the article to test critical relationships in this conceptual model. The remaining variables appear in order of comprehensiveness of the conceptual part of the article.

market and learning orientation. These are market focus, learning and development, status differentials, participative decision making, support and collaboration, power sharing, communication, and tolerance for conflict and risk (Hurley and Hult 1998). Since, in this conceptualization, learning orientation and market orientation are seen as parts of the firm's culture and are characterized as antecedents to innovation orientation, the effects of these orientations on competitive advantage and firm performance are not direct. The authors used a sample of 20,088 employees from 56 groups or divisions of a large research and development agency of the U.S. federal government. A response rate of 48%

was achieved with a total of 9648 responses. Factor and regression analyses were used in the data analysis.

The results indicated that, after controlling for group size, the innovativeness of the group's culture positively and significantly affects innovative capacity of the group. Also, the results indicated that participative decision making and learning and development have a significant positive impact on the innovativeness of the group's culture. This study made several important contributions to the literature as mentioned by the authors. First, it is one of the few studies that incorporate the innovation construct into the market and learning orientations research. This provides a better understanding of the relationships between organizational innovativeness and market/learning orientations. Second, in the study, the authors conceptualized the innovation construct as two separate sub-constructs, innovativeness and capacity to innovate following Zaltman, Duncan, and Holbek's (1973) staging of the innovation process. The authors successfully defined and differentiated between these constructs. Future research focusing on the link between market orientation and innovation can benefit from this conceptualization of innovation. Finally, this study investigated learning orientation in a new context, nonprofit U.S. government agencies, by using a very large sample.

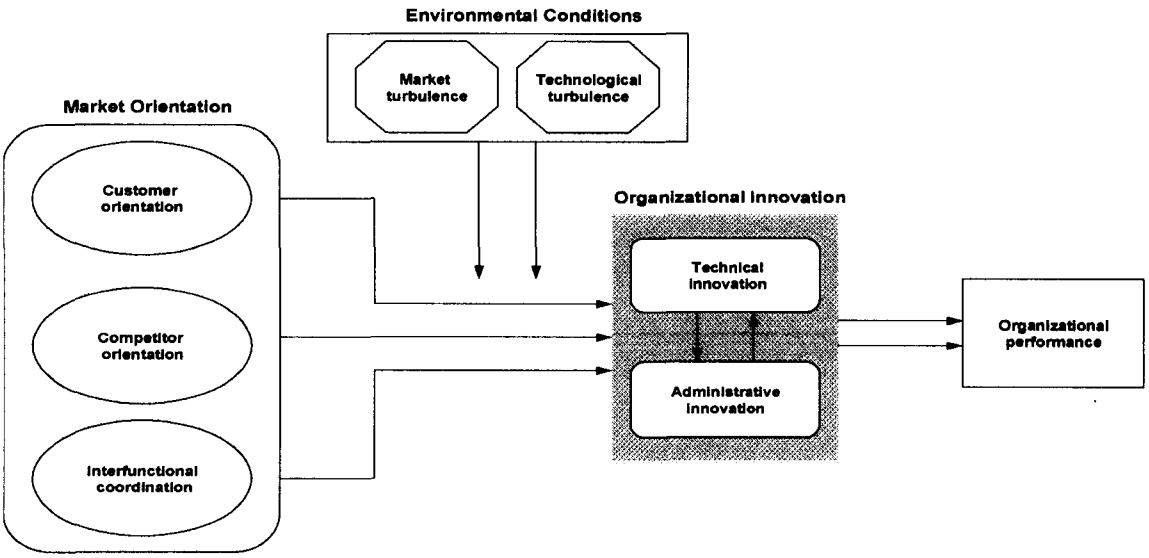
Hurley and Hult's (1998) study has several shortcomings. First, even though the authors included market orientation as a cultural antecedent to organizational innovativeness in their theoretical framework, they did not empirically investigate it due to the limitations the sponsor had placed on the variables. In the study, only the effects of four cultural variables (i.e., participative decision making, power sharing, support and

collaboration, and learning and development) on the firm's innovativeness were examined. As a result, the empirical part of this study represents only a partial test of the entire model. Therefore, this study did not produce any empirical results related to market orientation. This exclusion of market orientation from the analysis represents a major limitation of the study since the effect of market orientation on innovation is a very important aspect of the study. Second, all respondents and groups included in the sample are from the same governmental agency. This significantly restricts the generalizability of the study results to other populations.

Han, Kim, and Srivastava (1998) examined the mediating effect of organizational innovativeness on the market orientation-corporate performance relationship in a systematic framework (refer to Figure 2.8). In exploring this significant relationship, they used a component-wise approach by utilizing both market orientation and organizational innovativeness on a component level. The authors assessed the impact of each market orientation component on the innovation components and the impact of each innovation component on organizational performance. MKTOR was utilized to measure market orientation. Innovation is defined as new product-related breakthroughs. The two dichotomies of innovation included technology- and administration-related innovations. Thus, organizational innovativeness was assessed on the two components: *technical* and *administrative* innovation. Performance was measured by growth and profitability. The framework also takes into account the moderating effect of environmental variables on the market orientation-business performance relationship. To test the postulated

framework, a sample of 225 banks from a Midwestern state was surveyed with a response rate of 59.5 percent.

Figure 2.8 Han, Kim, and Srivastava's (1998) Model of Hypothesized Mediator Role of Innovation on the Market Orientation - Performance Relationship (p.32).



According to the results, the direct relationship between market orientation and performance was positive but insignificant. However, when the mediating effect of organizational innovativeness was taken in account, there was a positive relationship between customer orientation and organizational innovativeness. This relationship was moderated by technical turbulence but not by market turbulence. In terms of a competitor orientation, the relationship between competitor orientation and organizational innovativeness was found insignificant for both technical and administrative innovations. The postulated positive relationship between interfunctional coordination and

organizational innovativeness was not supported for both innovations. Finally, it was found that both technical and administrative innovations have positive direct impacts on performance.

The existence of a positive and direct relationship between innovation and performance has been well-known by researchers (Han, Kim, and Srivastava 1998). The extant literature has yet to investigate how market orientation and innovation together affect organizational performance and whether market orientation strengthens innovativeness in an organization. This study has filled the void in the literature. The study has a profound value for the scholarship on market orientation since it successfully incorporates the concept of innovation as a mediator variable to the models of market orientation. The study findings suggested a positive connection between organizational innovativeness (technical and administrative innovations) and company performance. This finding is consonant with the earlier findings in the innovation research (Han, Kim, and Srivastava 1998). However, the result that there is a positive but insignificant link between market orientation and performance is not consistent with earlier findings (Jaworski and Kohli 1993). This result may be specific to the banking sector. The results supported the view that organizational innovativeness serves as a mediator between market orientation and performance. Overall, the findings imply that market orientation might have an indirect effect on performance through its influence on organizational innovativeness. The research results suggest that when organizations intend to develop a strong market orientation, they should also try to enhance their innovativeness both at technical and administrative levels. Innovativeness establishes a bridge between market

orientation and better company performance. The major limitation of this study is that the interpretation of the results are exclusively limited to the banking industry, the service sector. They may not be readily applicable to the manufacturing sector.

While Hurley and Hult (1998) and Han, Kim, and Srivastava (1998) both focused on the market orientation-innovation linkage at the organizational level, Lukas and Ferrell (2000) aimed to examine the same link at the product/project level. Lukas and Ferrell (2000) investigated the relationship between market orientation and product innovation. More specifically, they explored the relationships between the three components of market orientation (i.e., customer orientation, competitor orientation, and interfunctional coordination) and the three taxonomies of product innovation (i.e., line extensions, me-too products, and new-to-the-world products) by employing a "component-wise" approach similar to that used by Han, Kim, and Srivastava (1998). MKTOR was used to measure market orientation. The authors used a sample of 800 U.S. manufacturing companies randomly selected from *Dun's Market Identifiers File.* Each company executive was contacted by phone and asked to identify the key respondent in the company's core SBU if they wanted to participate in the survey. Representatives from 561 SBUs were willing to participate in the survey. A return rate of 34.6% was achieved through 194 usable responses.

The study results indicated that there is a relationship between market orientation and product innovation. Customer orientation is likely to increase the introductions of new-to-the-world products and to decrease the number of me-too products launched. Competitor orientation seems to increase the introduction of me-too products and to

decrease the launching of line extensions and new-to-the-world products. This finding supports the view that competitor orientation leads to product imitation (e.g., Bennett and Cooper 1981; Hayes and Abernathy 1980; Zahra, Nash, and Brickford 1995) (Lukas and Ferrell 2000). Interfunctional coordination is likely to increase the introductions of line extensions and to decrease the launching of me-too products. Overall, the results demonstrated that the type(s) of product innovation is contingent upon customer orientation, competitor orientation and interfunctional coordination. The authors suggested that if a firm desires to develop more breakthrough innovations, it needs to emphasize customer orientation more.

This study suggests that companies must be very careful in selecting one aspect of a market orientation that they want to focus on over another. The authors concluded that favoring one aspect over another can result in one type of product innovation and might restrict the development of others. Therefore, the possible trade-offs between the alternative emphases should be carefully assessed when developing a market-focused organization (Lukas and Ferrell 2000). Since this study examined the market orientation-product innovation relationship at the component level, it provided clear and detailed strategy guidelines for manufacturing companies. However, this study failed to investigate the potential moderating effects of various environmental factors (e.g., market and technological turbulence) on the relationship among the three components of a market orientation and the type(s) of product innovation.

2.5.8. The Market Orientation — New Product Performance Link

2.5.8.1. Early Perspectives

The possible positive link between an emphasis on customer input and new product success has long been recognized by marketing scholars (e.g., Meadows 1969; Peplow 1960; Utterback 1971). It has long been claimed that new products that are based on market-derived ideas are clearly more successful while most new product successes are market-derived (e.g., Marquis 1969; Myers and Marquis 1969). Peplow (1960) observed that 30 of 48 successfully implemented projects undertaken by an R&D group that involved plant process, equipment, and technique innovations during a six-year period were initiated by following direct customer requests. The success rate was 62 % (cf. von Hippel 1978). Meadows (1969) reported that 9 of 17 commercially successful product ideas developed in the lab of a chemical company during a two-year period came from customers. This resulted in a 53 % success rate (cf., von Hippel 1978). Utterback (1971) examined all scientific instrument innovations and other instruments produced by Massachusetts firms. The total sample size was 32. It was found that 75% of these instruments were developed in response to a need input. If the need input originated outside the manufacturer (57%), the source of the input was most often the customer (cf. von Hippel 1978). It can be concluded that the source of the design for most of functional and innovative new industrial products has been customers in a variety of business areas (von Hippel 1976, 1977b, 1978).

A strong market orientation has been regarded as a critical success factor (Cooper 1979a, 1979b, 1988; Maidique and Zirger 1984; Rothwell 1974; Rothwell et al. 1974) in

the success/failure studies. It is a widely-shared notion that increasing quality and frequency of communications with customers (Maidique and Zirger 1984), identifying their needs and preferences (Von Hippel 1977a, 1978), and establishing long-lasting relationships with them (Maidique and Hayes 1985) influence the success of new product development activity (Bentley 1990). It has been shown empirically that a thorough knowledge of user needs is a very important element for the success of product innovation (e.g., Baker, Siegman, and Rubinstein 1967; Kulvik 1977; Myers and Marquis 1969; Robertson 1973; Rothwell et al. 1974).

Opposed to the preceding viewpoints, Lawton and Parasuraman (1980) found that the adoption of the marketing concept did not have any significant effect on the sources of new product ideas, the use of marketing research in new product ideas and new product planning, and the innovativeness of new product offerings. However, the authors urged that the results could be biased since the instrument that was used was not tested for its validity (Tse 1998). Cooper (1979b) showed that the source of the new product idea, whether it is market-derived or not, was not a predictor of new product success or failure.

Evidently, the findings of the earlier studies have predominantly supported the viewpoint that placing a strong emphasis on customer and customer input, building close, long-term relationships with customers, and developing close, continuous interfunctional interaction and communication across functional units are likely to positively affect new product performance. Even though the market orientation construct had not been officially defined, conceptualized, and operationalized at that time, the possible impacts

of two components of a market orientation (i.e., customer orientation and interfunctional coordination) on new product performance had been considered and discussed by a number of scholars. These components were two major dimensions of the marketing concept as well.

2.5.8.2. Recent Perspectives

The last decade has witnessed the surge of both conceptual and empirical studies on the relationship between market orientation and company performance. Some of these studies have included new product success as a sub-component of organizational performance. The number of studies that explicitly or implicitly suggest the presence of a possible positive connection between market orientation and new product performance has grown considerably over the previous decade (e.g., Kohli, Jaworski, and Kumar 1993; Slater and Narver 1994b). However, as mentioned earlier in Chapter 1, a few empirical studies have particularly focused on the relationship between market orientation and new product performance. Slater and Narver (1994b) reported that "A developing stream of empirical research has found a strong relationship between market orientation and several measures of business performance, including profitability, customer retention, sales growth and new product success" (p.22). Recently, scholars have started to address possible positive links between each of the three components (i.e., customer orientation, competitor orientation, and interfunctional coordination) of market orientation and new product success (e.g., Cahill, Thach, and Warshawsky 1994; Clark and Wheelwright 1993; Olson, Walker, and Ruekert 1995; Smith 1995). Businesses can reduce incidences of new product failure by developing a better understanding of their target markets (Day

1994; Day and Wensley 1988; Lukas and Ferrel 2000; Song and Parry 1997). Song and Parry 's (1997) argument supports the notion that companies with a greater emphasis on customer and competitive intelligence are likely to develop products which have the potential for success. Song and Parry (1997, p.67) argued that "firms with good market and competitive intelligence are less likely to develop products with poor potential. Moreover, these same firms are more likely to detect shifts in the market or competitive environment. As a result, firms with good market and competitive intelligence are more likely to kill products on the basis of changed assessments of product potential." Thus, a new product project that is unlikely to succeed in the market place might be killed before making into the market. It has been suggested that the dissemination of information, the exchange of new ideas, and the establishment of continuous coordination and communication across functional units may enhance the firm's ability to develop and introduce successful new products (Olson, Walker, and Ruekert 1995). When information freely flows from one functional department to another, the organization's ability to make rapid decisions and execute them effectively increases (Slater and Narver 1995). All of these processes can be achieved by a strong interfunctional coordination that is an important part of a market orientation.

2.5.8.3. Empirical Work

The number of studies that empirically explored the relationship between market orientation and new product performance has been limited to date (e.g. Atuahene-Gima 1995; Gatignon and Xuereb 1997; Li and Calantone 1998). The empirical studies by both Gatignon and Xuereb (1997) and Li and Calantone (1998) are either indirectly or partially

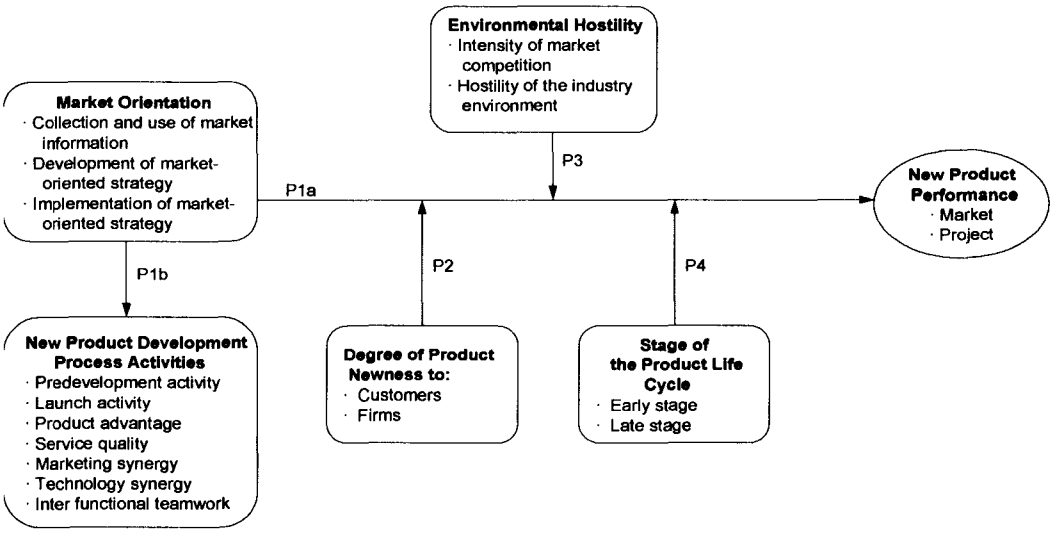
relevant to market orientation research. These studies investigated the effects of variables which are conceptually similar to market orientation. These variables are *strategic orientation* (Gatignon and Xuereb 1997) and *market knowledge competence* (Li and Calantone 1998). For the measurement of these variables, the authors used items derived from well-known market orientation scales such as MKTOR and MARKOR. These two studies were discussed in the introduction section of this study. The study by Atuahene-Gima (1995) is directly relevant to the research on market orientation. Market orientation and its links to the other new product-related variables including new product performance was the main focus of the study by Atuahene-Gima (1995).

Atuahene-Gima (1995) investigated the relationship between market orientation and new product development activities and performance. More specifically, the moderating effects of *environmental hostility* (i.e., intensity of market competition and hostility of the industry environment), *degree of product newness* to customers and firms, and *stage of the product life cycle* (i.e., early stage and late stage) on the market orientation-new product performance relationship were examined. New product activities included proficiencies of development and launch activities, product advantage, service quality, marketing synergy, technology synergy, and interfunctional teamwork. The suggested conceptual framework depicting these relationships is displayed in Figure 2.9. In this study, the unit of analysis was a specific new product project undertaken by the firm. In other words, the relationship between market orientation and new product performance was examined at the project level. New product performance was measured along with two major dimensions: *market* performance and *project* performance. Market

orientation was measured by the 23-item scale developed by Ruekert (1992). This scale consisted of three dimensions including collection and use of market information, development of market-oriented strategy, and implementation of market-oriented strategy. A sample of 600 Australian firms from services and manufacturing industries was surveyed. An effective response rate of 47.7% was achieved through 275 usable responses. Regression and split group analysis were conducted to analyze the data. The results showed that a market orientation has a significant positive relationship with new product development activities and performance. Actually, the results indicated that market orientation is more closely associated with project performance than with market performance. The results also revealed that the environment and the type of new products (radical versus incremental) involved actually moderate the relationship between market orientation and new product performance. More specifically, when the new product is viewed as radical by both the firm and market/customers, market orientation is likely to exert less effect on new product performance. This means that radical products are likely to be successful even with a lower level of market orientation. On the contrary, when the new product is more familiar (incremental) to both the firm and market/customers, market orientation seems to be more strongly associated with new product performance (Atuahene-Gima 1995). Since firms with less innovative products experience more competitive pressure than firms with radical products, a higher degree of market orientation should be maintained to be successful (Atuahene-Gima 1995). Additionally, it was found that institutions in which the perceived levels of intensity of market competition and industry hostility were high, and the new product was at an early stage of

the product life cycle, market orientation was likely to have a greater effect on new product success (Atuahene-Gima 1995).

Figure 2.9 Atuahene-Gima's (1995) Conceptual Framework of the Impact of Market Orientation on New Product Performance (p.277).



This study is one of the first studies which specifically explored the market orientation and new product performance relationship. The study integrated the market orientation and new product performance literatures, and it was conducted in a non-US context. The study results were considered generalizable since a broad range of industries (i.e., service and manufacturing industries) were covered in the sample. However, there were several limitations associated with the study. First, it is based on the cross-sectional data. With such data, the possible causal linkages between market orientation and new product performance are difficult to explore. Second, the respondents were asked to identify one new product that their firm introduced in the last 5 years. This product was then used as the basis for the new product development process. Therefore, it is possible

that performance measures may be influenced by self-selection bias since respondents are more likely to choose successful new products.

2.5.9. Market Orientation — Channel Relationships

Few studies have examined the potential impact of market orientation on channel relationships. The extant studies have explored the extent of a possible disagreement between suppliers and customers regarding the appropriate level of a supplier's market orientation (e.g., Steinman, Deshpandé, and Farley 2000) and the impact of a channel partner's (i.e., supplier) perception of the other partner's (i.e., reseller or distributor) market orientation on indicators of a long-term channel relationship (e.g., Baker, Simpson, and Siguaw 1999; Siguaw, Simpson, and Baker 1998, 1999).

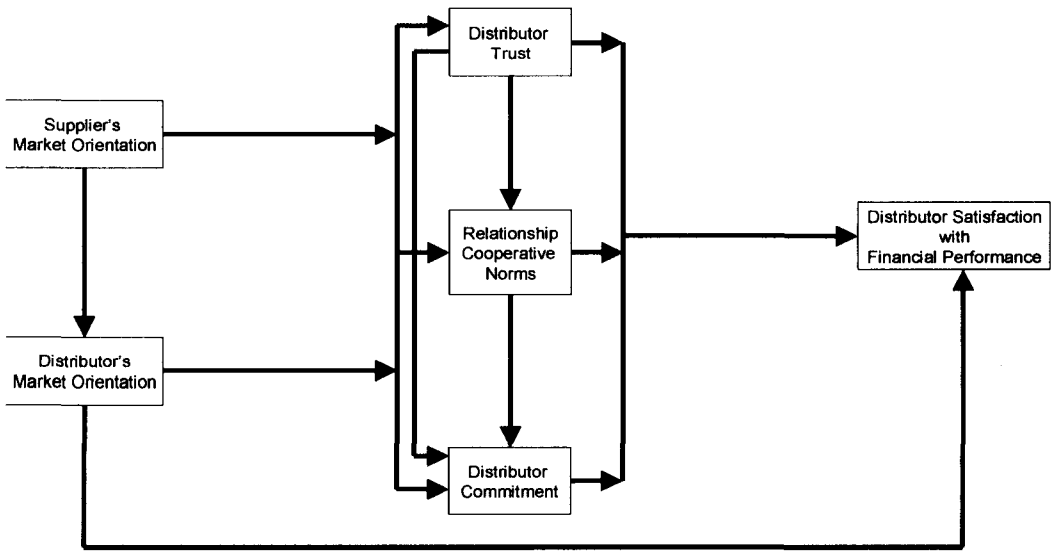
Baker, Simpson, and Siguaw (1999) probed whether a supplier's perceptions of a reseller's market orientation (PMO) positively influenced the supplier's perceptions of various indicators (e.g., trust, cooperative norms, commitment, and satisfaction) of a long-term channel relationship. The data were gathered from 380 suppliers via a mail survey. A response rate of 33.7% was realized. The study results suggested the existence of a significant strong association between the supplier's perception of the reseller's market orientation and the perceptions of important relationship marketing constructs (i.e., trust, cooperative norms, commitment, and satisfaction). When the supplier perceives the reseller to be highly market-oriented, the supplier's belief that the reseller is highly credible as well as benevolent (i.e., trustworthy) is strengthened (Baker, Simpson, and Siguaw 1999). The results suggested that the supplier's perception of the reseller's market orientation is positively related to the supplier's belief that cooperative norms are

present in the relationship. If suppliers perceive their resellers as being market-oriented, they become more committed to and satisfied with the existing relationship with their resellers (Baker, Simpson, and Siguaw 1999). The study implies that, by improving its market orientation, a reseller can strengthen its channel relationships with its suppliers, increase its value in their eyes, gain more power in the channel, and even obtain special concessions from its suppliers (Baker, Simpson, and Siguaw 1999). This study is one of the first research studies that explicitly investigated the effect of market orientation in a channel context. The major limitation involves the fact that it explored a channel relationship from the perspective of only one channel relationship partner — the supplier — while a relationship is really established through at least two parties. Another limitation is that the results can be attributable to common method variance between PMO and the four relationship marketing constructs (Baker, Simpson, and Siguaw 1999).

Siguaw, Simpson, and Baker (1998, 1999) overcame these limitations by analyzing the interrelationships of a market orientation and other channel relationship variables on the dyad of a supplier and distributor. The proposed model, displayed in Figure 2.10, demonstrates the possible effects of a supplier's market orientation on the distributor's market orientation as well as its perception of various channel relationship elements. These elements included trust, cooperative norms, commitment, and satisfaction with performance. The authors gathered their data from a sample of 179 supplier-distributor dyads from various industries. The response rate was 36.96 percent. The study findings suggested that a supplier's market orientation influenced its distributor's market orientation and its commitment to the relationship (Siguaw, Simpson,

and Baker 1998, 1999). By developing its market orientation, a supplier can influence its relationship — the trust, cooperative norms, commitment, and satisfaction with performance factors — with its channel partner(s) both directly and indirectly.

Figure 2.10 Siguaw, Simpson, and Baker's (1998) Hypothesized Model of Effects of Supplier Market Orientation on Distributor Market Orientation and the Channel Relationship (p.101).



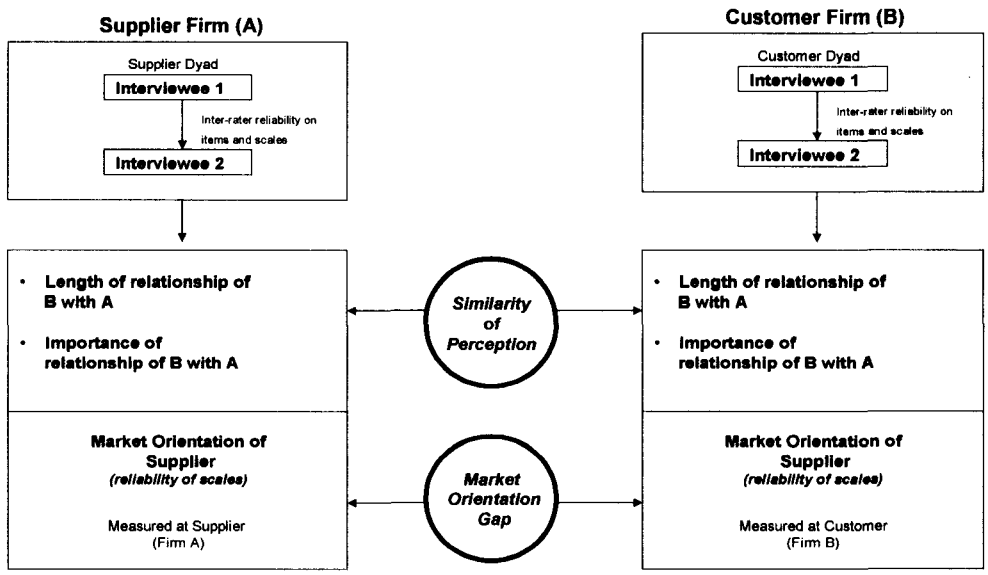
Their study contributed to the channel relationship research in two ways, as suggested by the authors. First, the study findings strongly supported the previous findings and extended the earlier understanding of the interrelationships of trust, cooperation, and commitment. Second, the study results clearly indicate that market orientation has a crucial, influential effect on channel relationships (Siguaw, Simpson, and Baker 1998, 1999). The study findings support the prior contention that the adoption of market-oriented behaviors may salvage deteriorating channel relationships. Moreover,

while Baker, Simpson, and Siguaw (1999) examined the effect of a market orientation in a channel context from a supplier's perspective, Siguaw, Simpson, and Baker (1998, 1999) investigated the supplier and distributor dyad. In other words, this study extended Baker, Simpson, and Siguaw's (1999) study. The major shortcoming of the study was that since the data used was cross-sectional, the study results do not reflect the dynamics of change and connectedness between the parties in a channel relationship (Siguaw, Simpson, and Baker 1998, 1999). These aspects can only be captured through a longitudinal study (Siguaw, Simpson, and Baker 1998, 1999).

Steinman, Deshpandé, and Farley (2000) extended the research done by Deshpandé, Farley, and Webster (1993). The 1993 study unveiled that there is a discrepancy between the marketer's (supplier's) self-reported customer orientation and the marketer's (supplier's) customer orientation as reported by customers. Steinman, Deshpandé, and Farley's (2000) study attempted to investigate the extent of a possible disagreement between suppliers and customers about the appropriate level of a supplier's market orientation in terms of its possible consequences and its impact on the customer-supplier relationships in a two-country context — the U.S. and Japan — (see Figure 2.11). The gap was viewed in two ways: an *actual gap* (the existing situation of a supplier) and a *normative gap* (what the supplier and customer desire the situation to be). Samples of U.S. and Japanese firms from a variety of manufacturing and service industries were used for data collection. The sampling unit was a quadrad consisting of the combination of two buyer-seller dyads. According to the study results, the market orientation gap exists, in general, with suppliers tending to view themselves as more

market-oriented than customers think they are in the actual as well as normative measures. The results indicated that as the length and importance of the relationship increases, the normative market orientation gap gets smaller (Steinman, Deshpandé, and Farley 2000). In a cultural comparison, it was found that in a collectivist culture (Japan), both the actual and normative market orientation gaps were smaller than those in the individualist culture (Steinman, Deshpandé, and Farley 2000). This study is one of the few studies (e.g., Baker, Simpson, and Siguaw 1999; Deshpandé, Farley, and Webster 1993; Siguaw, Simpson, and Baker 1998) focusing on the role of market orientation in inter-organizational relationships. It successfully integrated the market orientation and relationship marketing research. The use of the quadrad sampling method added more reliability to the findings of the study. The use of the two-country sampling allowed the researchers to make a comparison between the findings of a collectivist and an individualist culture. The major limitation of this study involved the sample sizes (Steinman, Deshpandé, and Farley 2000), which were relatively small. The other important limitation involved the use of cross-sectional data which gives only the current picture of the relationships among the variables and does not reflect the changes occurring on these variables over time.

Figure 2.11 Steinman, Deshpandé, and Farley's (2000) Model (p.112).



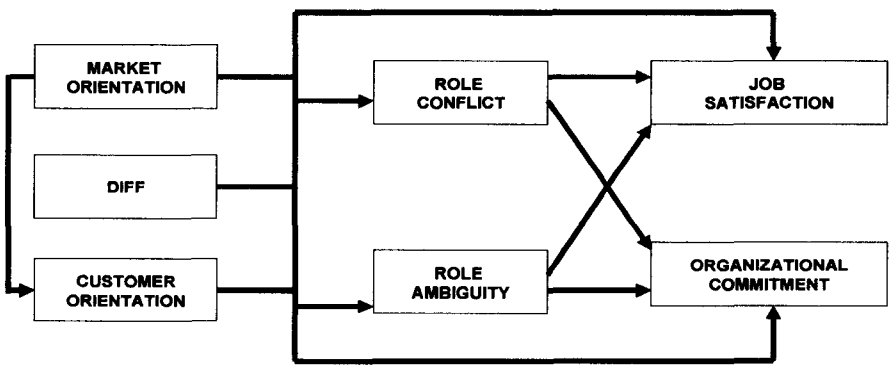
Overall, the number of studies that explore the impact of a market orientation in a channel context has been scant. To the author's knowledge, the studies by Baker, Simpson, and Siguaw (1999) and by Siguaw, Simpson, and Baker (1998, 1999) are the first. Therefore, they have made important contributions to the market orientation research. However, this area of research would benefit from further research that explores the impact of market orientation on the relationship among channel partners in a variety of industry contexts.

2.5.10. Market Orientation and Sales Force Behavior and Attitudes

Siguaw, Brown, and Widing (1994) explored the effect of the selected firm orientation (market orientation) on a salesperson's customer orientation and job attitudes. Job attitudes consisted of the four constructs: role ambiguity, role conflict, job

satisfaction, and organizational commitment. Additionally, they examined whether the orientation of the salesperson (a selling or customer orientation) and differences in the firm's and salesperson's orientations influenced the job-related attitudes of the salesperson (refer to Figure 2.12). Market orientation was measured using the scale developed by Narver and Slater (1990). Customer orientation was measured using the selling orientation-customer orientation (SOCO) scale developed by Saxe and Weitz (1982). The sample consisted of 585 randomly selected salespeople of 241 U.S. firms listed in the *Association for Information and Image Management* membership roster. Additionally, questionnaires were distributed to 353 sales/marketing managers representing 245 companies in the same industry and they were asked to distribute questionnaires to three of their salespeople. 278 usable questionnaires out of a total of 1644 questionnaires were returned. The response rate was 16.9 percent.

Figure 2.12 Siguaw, Brown, and Widing's (1994) Hypothesized Model of the Effects of Orientations and Differences in Orientations on Job Attitudes (p107).



The results indicated that the firm with a high market orientation has a sales force with a greater customer orientation, less role stress (conflict and ambiguity), and greater job satisfaction and organizational commitment. However, customer orientation of the salesperson was not found to be related to job attitudes. The difference between the orientations marginally influences role conflict in the direction hypothesized. The research results indicate that, from the salesperson's point of view, a high market orientation is a preferred organizational orientation since it increases job satisfaction and salesperson commitment. It also promotes more positive job attitudes and more customer-oriented selling. The study possesses several limitations. First, since the research was conducted over one industry, the results might not be readily applicable to other selling environments. The study surveyed industrial salespeople who are known to be customer-oriented from past research. Therefore, the study findings are limited to exploring the hypothesized effects on/of customer-oriented salespeople. Second, using the same respondent to evaluate customer orientation and market orientation may result in common method variance possibly leading to misleading results. Third, there might be dynamic constructs in the model. Since the study is based on cross-sectional data, potential lagging effects among these constructs may not be adequately captured. Overall, however, the study is a significant contribution to the literature. This study investigated the effects of market orientation at the individual level rather than at the organizational level. Furthermore, the study shows that market orientation can be viewed as a viable tool for a firm in the achievement of internal marketing objectives. The main purpose of internal marketing is to change employee attitudes and behavior within the organization and make

them more productive and customer-oriented (Ballantyne 1991; Varey 1995, p.45). The study findings clearly demonstrate the central role of market orientation in influencing the behaviors and attitudes of employees in a positive way.

Menguc (1996) replicated and extended the study by Siguaw, Brown, and Widing (1994) by testing the proposed model with a Turkish sample. The final sample in Menguc's (1996) study consisted of 1119 sales and/or sales-related management personnel from 174 industrial companies. Overall, the study results provided support for the hypotheses developed by Siguaw, Brown, and Widing (1994). Consistent with the original findings, the study findings suggest that if the firm's perceived market orientation is high, the sales force displays a greater customer orientation, less role stress (conflict and ambiguity), greater job satisfaction and organizational commitment. Inconsistent with the results of the original study, the study findings supported the hypotheses pertinent to the effects of customer orientation and the difference between firm's and salesperson's orientations on job attitudes. With this study, the generalization of the original results to other selling contexts and selling forces was made possible, and the proposed model was tested and validated with a different sample.

Overall, the number of studies investigating the effect of market orientation on sales force behavior and attitudes is limited. It would be beneficial to probe the impact of market orientation on salesforce behaviors and attitudes in specific selling contexts such as banking, healthcare, retailing, and so on. The suggested link between market orientation and employee behavior and attitudes should be investigated in combination with the concept of internal marketing. Future research should integrate the market

orientation and internal marketing literatures. Both literatures seem to have some similar aspects to share and incorporate in future studies.

CHAPTER THREE

MODEL DEVELOPMENT AND RESEARCH HYPOTHESES

In Chapter 3, the proposed model and the associated research hypotheses will be discussed in greater detail. In the first section of this chapter, the reasoning behind the suggested framework and related supporting conceptual and empirical evidence will be documented. The second section introduces each variable of the model in terms of meaning, scope, associated studies, and measurement, along with the associated research hypotheses and supporting conceptual and empirical evidence.

3.1. Theoretical Considerations

The suggested model is predicated on the notion that market orientation is an integral part of the firm's organizational culture. In other words, the cultural perspective of market orientation (Narver and Slater 1990) is adopted in the construction of the proposed model. There is a growing number of researchers that view a market orientation in this way (e.g., Homburg and Pflesser 2000; Narver and Slater 1990, 1998). Narver and Slater (1998) stressed the existence and significance of the interrelation between the firm's culture and a market orientation. They stated that "if a market orientation were simply a set of activities completely disassociated from the underlying belief system of an organization, then whatever an organization's culture, a market orientation could easily be implanted by the organization at any time. But such is not what one observes" (Homburg and Pflesser 2000, p.449; Narver and Slater 1998, p.235).

As suggested by the precedent statement, market orientation is closely entwined with the culture of the firm. It is very difficult, if not impossible, to assess a firm's market

orientation apart from its culture. Narver and Slater (1998) further stated that "we hold that both logic and scholarly research strongly support the idea that a market orientation is nothing less than an organization's culture" (p.233). According to Homburg and Pflesser (2000, p.450), organizational culture is made of four "distinguishable but interrelated components." These are listed as shared basic values, behavioral norms, different types of artifacts, and behaviors (Homburg and Pflesser 2000, p.450). On the basis of these components, a market-oriented organizational culture is conceptualized by the following four dimensions (Homburg and Pflesser 2000): (1) organization-wide shared basic values supporting a market orientation, (2) organization-wide norms for a market orientation, (3) perceptible artifacts of a market orientation, and (4) market-oriented behaviors. This conceptualization of a market-oriented organizational culture clearly suggests the presence of a close connection between organizational culture and market orientation.

The suggested theoretical framework is established on the premise that a market-oriented organizational culture has the ability to develop a set of strategic capabilities whose independent effects and interactions with each other lead to better organizational performance, and in the present model, to better new product performance. There has been a growing body of anecdotal and empirical evidence that supports this presumption. It has often been suggested that a market orientation may help the firm develop a number of strategic capabilities that are critically significant for the firm (Deshpandé 1999; Narver and Slater 1990; Slater and Narver 1994b). A *capability* is defined as "a knowledge system composed of complementary behaviors and abilities, expressed through organizational processes, that enable a business to anticipate changing market

conditions and respond to market requirements" (Leonard-Barton 1992; Rumelt, Schendel, and Teece 1991; Lukas and Ferrell 2000, p.240). From a slightly different viewpoint, Day (1994) defines capabilities as "complex bundles of skills and collective learning, exercised through organizational processes, that ensure superior coordination of functional activities" (p.38). In his work, Day (1994) argues that "capabilities and organizational processes are closely entwined, because it is the capability that enables the activities in a business process to be carried out" (Day 1994, p.38). This means an organization with a set of strong strategic capabilities may perform its business activities/processes better than those rivals without these specific capabilities. Accordingly, the organization is able to attain better organizational performance as a result.

Each organization may have many capabilities that help it accomplish both financial and managerial goals and objectives (Day 1994). If the organization aims to develop and sustain a competitive market position, it should have a set of capabilities that are superior to those of competitors. Such capabilities are called *distinctive* capabilities (Day 1994). These capabilities are characterized as: (1) scant, (2) relatively immovable, and (3) hard to understand and imitate (Day 1994; Reed and De Fillippi 1990). Distinctive capabilities lead to sustainable competitive advantage and superior profitability (Day 1994). Some authors either implicitly or explicitly suggest that market-oriented organizations are identified with special organizational capabilities (e.g., Day 1994; Deshpandé 1999; Narver and Slater 1990; Slater and Narver 1994b) which lead to better performance. On this issue, Day (1994) noted that "organizations can become more

market oriented by identifying and building the special capabilities that set market-driven organizations apart" (Day 1994, p.38). Further, Narver and Slater (1990) argued that market orientation is the organizational culture that encourages certain behaviors which are essential for the creation of superior customer value which in turn leads to superior business performance. Analogously, Slater and Narver (1994b) noted that the market-oriented culture builds and maintains the core capabilities that continuously generate superior value for customers. Core capabilities of a firm include customer service, quality, and innovation or new product development (Slater and Narver 1994b). If a firm exploits its core capabilities successfully, the firm can develop a competitive advantage that is based on high customer loyalty, high market share and high new product performance (Slater and Narver 1994b). From these arguments, it may be concluded that the "certain behaviors" mentioned by Narver and Slater (1990) are equivalent to "core capabilities" as addressed by Slater and Narver (1994b). Deshpandé (1999) openly suggested that market orientation is positively linked to some strategic capabilities such as becoming a learning organization. Deshpandé (1999) maintained that since a market orientation facilitates "the translation of market knowledge into strategic capabilities (competence) that become disseminated organizationwide" (p.4), it serves as a means for developing a learning organization as a strategic competence or capability (Deshpandé 1999). This statement implies that learning or organizational learning is a strategic competence or capability that is an outcome of a market orientation. Likewise, the "complex bundles of skills and collective learning" are seen as capabilities of the organization by Day (1994, p.38). Both market orientation and product innovation are

considered as core strategic capabilities of market-driven organizations (cf. Day 1994; Lukas and Ferrell 2000). The term 'market-driven' was equated to the term 'market-oriented' by scholars (e.g., Deshpandé 1999; Deshpandé and Webster 1989; Shapiro 1988; Slater and Narver 1995). Day (1994, 1998) used the term "market-driven" to define an organization with a strong market orientation. Thus, being market-driven can be considered either the same as a market orientation or an integral part of a market orientation. Therefore, the arguments presented about market-driven organizations may be valid for market-oriented organizations as well. According to Han, Kim, and Srivastava (1998), innovation is regarded as "one of the 'core value-creating capabilities'" (p.31, quotation marks were converted to apostrophes). Further, market-driven firms are expected to have excellent outside-in capabilities such as market sensing, customer linking, and channel bonding (Day 1994). According to Day (1994), two capabilities in particular (i.e., market sensing and customer linking) are unique to a market-driven organization. Market sensing capability is facilitated via open-minded inquiry, synergistic information distribution, mutually informed interpretations, and accessible memories (Day 1994, p.44). These facilitators are closely associated with organizational innovativeness (vs. open-minded inquiry), organizational learning and learning orientation (vs. synergistic information distribution and mutually informed interpretations), and organizational memory (vs. accessible memories).

In the current study, it is posited that market orientation, as an integrated part or form of organizational culture, creates certain capabilities, skills, and behaviors (Narver and Slater 1990; Slater and Narver 1994b) that lead in turn to better organizational

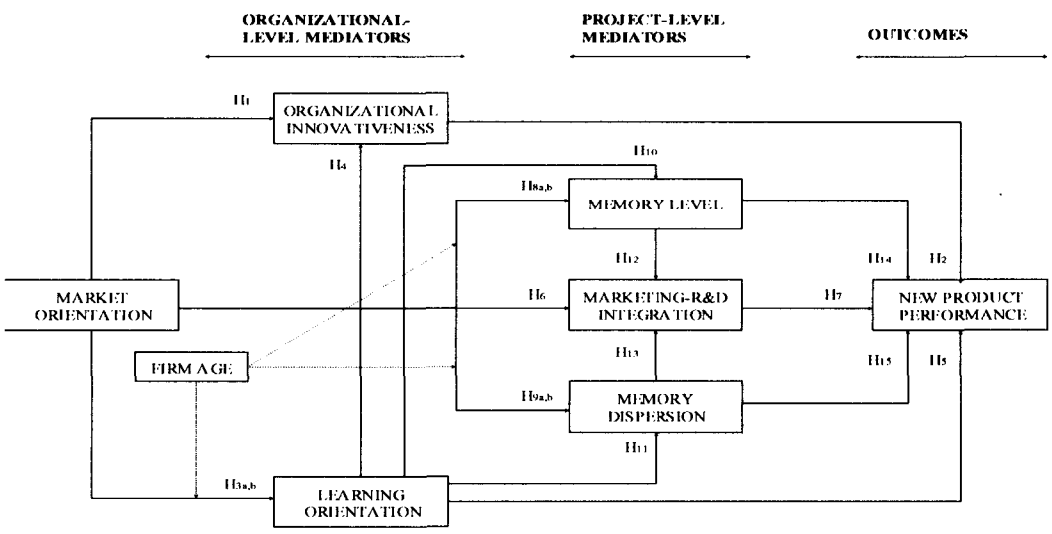
performance or, more specifically, better new product performance. The current study focuses on learning orientation, organizational innovativeness, the R&D-marketing interface, memory level and memory dispersion as either strategic- or operational-level organizational capabilities that are likely to be developed and reinforced by a strong market orientation. More plainly, these capabilities can be considered as the outcomes of being market-oriented. The current model presupposes that market orientation is positively linked to new product performance, and this possible positive link is facilitated by these strategic- and operational-level organizational capabilities that act as mediators. A substantial body of conceptual and empirical research supports the existence of a positive connection between market orientation and new product performance (e.g., Appiah-Adu 1997; Atuahene-Gima 1995; Narver and Slater 1990; Pelham and Wilson 1995; Pelham 1997; Ruekert 1992; Slater and Narver 1994a). The findings of a positive relationship between market orientation and new product success/performance in a small-firm context (e.g., Appiah-Adu 1997; Pelham and Wilson 1996) are consistent with the findings in a large-firm context (e.g., Atuahene-Gima 1995; Narver and Slater 1990; Slater and Narver 1994a; Ruekert 1992). According to Slater and Narver (1994b), being market-oriented is a necessity for the success of the new product development activity.

3.2. The Proposed Model

In the proposed model that is depicted in Figure 3.1, it is assumed that the relationship between market orientation and new product performance is indirect and is facilitated by a set of mediators that are comprised of organizational- and project-level capabilities. The model consists of four parts: (1) market orientation, (2) organizational-

level capabilities, (3) project-level capabilities, and (4) new product outcomes. In the second part of the model, learning orientation and organizational innovativeness are evaluated at the firm level and called as the "organizational-level capabilities". The second part of the model is based on the argument that a strong market orientation fosters an organizational culture that is learning-oriented (Deshpandé 1999) and innovative (Day 1994; Lukas and Ferrell 2000). A market-oriented culture is characterized by a strong commitment to learning and innovativeness. But, the effect of market orientation on learning orientation may be moderated by the age of the organization. Learning orientation also influences organizational innovativeness in an organization.

Figure 3.1. The Model of the Market Orientation-New Product Performance Link.



The third part of the suggested model consists of three variables: memory level, memory dispersion, and the marketing-R&D integration or interface. These variables are assessed at the project level, and therefore, they are labeled as "project-level capabilities". A market-oriented organization is likely to possess strong organizational memories

depending on the age of the organization. Market orientation is also likely to affect the level of integration or interface between marketing and R&D in new product development. The degree of the integration between marketing and R&D in new product development is also influenced by memory level and memory dispersion.

The fourth and final part of the suggested model includes new product performance as an outcome measure of the suggested empirical links in the model. The firm's age has a moderating role in the model. It moderates the links between (1) market orientation and learning orientation, (2) market orientation and memory level, and (3) market orientation and memory dispersion. A total of 15 research hypotheses that represent the empirical links among the model variables are presented. Obviously, it can be argued that internal and external environments of the organization affect these suggested empirical links in the model. Yet, for the sake of research clarity, these potential external and internal forces will be disregarded in this study.

In the subsequent sections, each variable of the model will be discussed with respect to its meaning, scope, associated major studies, and measurement. Then, research hypotheses pertinent to each variable will be presented.

3.3. Organizational Innovativeness

Innovation is a complicated phenomenon which has a context-sensitive nature. It is hard to understand the whole concept (Wolfe 1994). In order to have a better understanding of the innovation concept, according to Wolfe (1994), close attention should be given to contextual elements (i.e., individual, organizational, technological, and environmental factors) that are likely to affect innovation (Wolfe 1994). Hurley and Hult

(1998) considered innovation as "a mechanism for organizations to adapt in dynamic environments" (p.51). This is a relatively broad definition of innovation. From a more specific perspective, Davis, Morris and Allen (1991) defined innovativeness as "the seeking of creative, unusual, or novel solutions to problems and needs. This includes the development of new products and services, as well as new processes and technologies for performing organizational functions (e.g., production, packaging, delivery, sales, promotion, administration)" (p.44). This definition embraces both product and process innovativeness (Manu and Sriram 1996). Innovation within an organization can be achieved in three areas: product (what is produced), process (how it is produced), and organizational forms (where it is produced) (Chandrashekaran, Mehta, Chandrashekaran, and Grewal 1999, p.95). The scope of innovation may involve "the creation of new businesses within the existing business or the renewal of ongoing businesses that have become stagnant or in need of transformation" (Slater 1997, p.165). Innovation can be achieved in different organizational facets. These include the development of new products or modification of existing products, the creation of new production methods and technologies or distribution channels, and the development of new management or competitive strategies (Slater and Narver 1995; Slater 1997). Clearly, innovation is multi-faceted.

Wolfe (1994) stated that "despite broad interest and a vast literature, understanding of innovative behavior in organizations remains relatively undeveloped" (p. 405). Wolfe (1994) tried to explain possible reasons for the "inconsistent" and "inconclusive" state and results of the innovation research (p.405). Wolfe (1994)

reviewed innovation literature and identified three major research streams within the literature: (1) *diffusion of innovation* (DI) research (e.g., Fisher and Carroll 1986; Teece 1980; Tolbert and Zucker 1983), (2) *process theory* (PT) research (e.g., Dean 1987; Dyer and Page 1988; Ettlie 1983; Pelz 1983), and (3) *organizational innovativeness* (OI) research (e.g., Ettlie 1983; Meyer and Goes 1988; Moch and Morse 1977). These research streams are interrelated and often confuse researchers. Each stream attempts to respond to a different research question and has a different research focus and approach (see Wolfe 1994, p.413 for more information on the characteristics of DI, OI, and PT research). The purpose of *organizational innovativeness* research is to identify determinants of organizational innovativeness or "an organization's propensity to innovate" (Wolfe 1994, p.408). In other words, it tries to find an answer to the question of "What determines organizational innovativeness?" (Wolfe 1994, p.407). This research stream may engage in the adoption or implementation stages of innovation. The unit of analysis in this stream is the organization. Organizational innovativeness is often regarded as a dependent variable (Deshpandé, Farley, and Webster 1993; Wolfe 1994). The OI research has emphasized individual, organizational, and environmental factors as potential determinants of organizational innovativeness (Wolfe 1994). However, the main focus has been on the effects of organizational structural variables on organizational innovativeness (Wolfe 1994). Much of the literature has treated innovativeness as a dependent variable (Deshpandé, Farley, and Webster 1993). In the current study, organizational innovativeness is treated as an outcome of market and learning orientations and as a mediator between market orientation and new product performance.

According to Chandrashekaran *et* al. (1999), the current literature on the drivers of innovation has been marked by two main perspectives. The first perspective examined the effects of product market variables including competition and demand as incentives to innovate (Chandrashekaran *et* al. 1999). The external factors that are likely to increase the degree of innovation generation within the organization were labeled as *market motives* (Chandrashekaran *et* al. 1999). Davis, Morris and Allen (1991) found that, in turbulent environments, firms become more innovative, more proactive, and more risk-taking than they do in stable environments (in a study of 93 industrial firms from different industries). Past research findings do not provide clear evidence as to final conclusions on the role of product market variables on increasing innovation. Past findings are inconclusive (Chandrashekaran *et* al. 1999).

The second perspective has focused on examining the role of factor market variables, or supply-side factors including firm size, resources, and organizational structure on fostering innovation (Chandrashekaran *et* al. 1999). Parallel to this perspective, Bharadwaj and Menon (2000) suggested that innovation is a result of individual efforts and organizational systems directed towards generating creativity. They classified creativity mechanisms into two groups: (1) *individual* and (2) *organizational* (Bharadwaj and Menon 2000). Mascitelli (2000) suggested that every individual possesses creative energy associated with tacit knowledge that he/she acquires via life experience, individual learning, and experimentation. This creative potential residing within each individual team member should be activated to increase the innovative capability of the entire team (Mascitelli 2000). *System* or *organizational structure* (i.e.,

social and communication structures) is likely to affect diffusion of innovation. Centralization, formalization and complexity have an important role in the innovation process (Gupta and Rogers 1991). In an organization, "Low centralization, high complexity, and low formalization facilitate the initiation of the innovation process, but these same structural characteristics make it difficult for an organization to implement an innovation" (Gupta and Rogers 1991, p.11). Firm size might have a key role in innovation (Brown and Duguid 1996; Chandy and Tellis 1998; Schumpeter 1942; Scherer 1992). The Schumpeterian hypothesis suggested by Schumpeter (1942) claims that "large firms innovate more 'intensively' than small firms do" (Chandy and Tellis 1998, p.475; Scherer 1992 p.1422; quotation marks were converted to apostrophes). Many research efforts directed toward the Schumpeterian hypothesis suggest that firm size is an important predictor of radical product innovation (Chandy and Tellis 1998). There has been no consensus among scholars about the role of firm size. The study results have been inconclusive (Chandy and Tellis 1998).

The measurement of organizational innovativeness is a difficult task since it is an extremely complicated, multi-faceted construct. The single-item conceptualizations cannot fully capture the domain of the construct (Manu and Sriram 1996). Past research has utilized single-item measures of innovation orientation including the timing of market entry (Ansoff and Stewart 1967), R&D expenditures and the number of scientists and engineers as a percent of the workforce (Freeman 1974), the rate of change of products/services (Miles and Snow 1978) or new product introductions (Manu and Sriram 1996). Apparently, the innovation construct consists of different elements which are

interrelated (Manu and Sriram 1996). A composite scale of these items can reflect the extent of innovation orientation in organizations better than a single-item measure (Manu and Sriram 1996). Organizational innovativeness is usually measured by a composite score which is based on the number of innovations generated by the firm or of the speed of adoptions by the firm (Wolfe 1994). Hurley and Hult (1998) assessed the firm's innovative capacity by "the number of innovations an organization is able to adopt or implement successfully" (p.44). Han, Kim, and Srivastava (1998) assessed organizational innovativeness on the basis of two components: technical and administrative innovation. Innovation was described as new product-related breakthroughs by the authors.

3.3.1. The Effect of Market Orientation on Organizational Innovativeness

According to Wolfe (1994), a number of contextual elements such as individual, organizational, technological, and environmental factors are likely to influence innovation, as addressed earlier. Paying close attention to these contextual elements provides a richer understanding of the innovation concept (Wolfe 1994). Market orientation can be considered as one of the contextual factors that are likely to affect innovation within the organization. In spite of the ongoing debate on the effect of the marketing concept/market orientation on innovation, the notion that innovativeness is closely associated with a market orientation has not been investigated sufficiently to date. However, a significant number of scholars have realized the importance of the potential link between market orientation and innovativeness and have stressed the need for additional research on this issue (e.g., Deshpandé 1999; Hurley and Hult 1998; Jaworski and Kohli 1996; Lukas and Ferrell 2000). For example, Jaworski and Kohli (1996) noted

that "there is little in the literature on the effects of a market orientation on metrics related to innovation such as percent of revenues derived from new products/services, innovativeness of products/services, creativity in delivering value to customers, and so forth" (p.129-130). One of the themes that were suggested at MSI conferences in 1987 and in 1990 to be investigated was "A need for thinking of market orientation as a basis of, rather than a substitute for, innovation in a company" (Deshpandé 1999, p.5). Deshpandé (1999) posited that since organizational innovativeness might have an important effect on business profitability, the linkage between a market orientation and a firm's innovative capability should be investigated (p.5-6). Lukas and Ferrell (2000, p.240) suggested that investigating the relationship between market orientation and product innovation can facilitate "a finer grained understanding" of the links between these strategic organizational capabilities. Hurley and Hult (1998) suggested that future research should deeply explore the relationships among organizational innovativeness, market and learning orientations in the cultural context. And they added that "research on market orientation and performance may benefit from reframing existing models to incorporate innovation more directly" (p.51). The current study partially aims to respond to these recent calls by investigating the possible effect of market orientation on organizational innovativeness.

Two opposite perspectives on the effect of market orientation on innovation have been prevalent in the literature. One perspective suggests that keeping a close focus on both customers and competitors impedes breakthrough innovations (e.g., Bennet and Cooper 1981; Kaldor 1971; Tauber 1974). The earlier literature on the market

orientation-innovativeness relationship generally criticized the marketing concept for impeding product/organizational innovativeness in an organization (Bennet and Cooper 1979; McGee and Spiro 1988) since the marketing concept does not take into account the firm's inherent strengths and distinctive competencies (McGee and Spiro 1988). Bennet and Cooper (1979) viewed the marketing concept as detrimental to product innovation. To them, the marketing concept relied on identifying customer needs and wants to generate innovative products. Whereas, in reality, customers' new product definitions are based on old familiar products and customers only encourage very slight changes in existing products which are less risky to companies and damaging to society in the long-term. Bennet and Cooper (1979) addressed the superiority of technology or production orientation over the marketing concept in terms of product innovation. According to the authors, product innovations are mostly scientific discoveries and realized through the superiority of technology or production orientation. Innovative product ideas do not totally come from customers, since, in reality, customers are not always aware of, and able to verbalize their needs. Their new product definitions are based on what is familiar (Lukas and Ferrell 2000), and they do not want radical changes in those existing products (Bennet and Cooper 1979).

Two of the three dimensions of a market orientation (i.e., customer orientation, and competitor orientation) have received significant criticism in the literature. The heaviest criticism has been focused, however, on customer orientation. It has been argued that listening to customers too closely might actually diminish the firm's ability to develop radically innovative, breakthrough new products. Companies with a heavy

reliance on customer input are more likely to develop and launch products that resemble their already existing product lines (Bennet and Cooper 1979, 1981; Christensen and Bower 1996; Leonard-Barton and Doyle 1996; Lukas and Ferrell 2000; Tauber 1974). These scholars argued that consumers are likely to express needs that are related to familiar products or services. In other words, their frame of reference on their needs and wants is based on the familiar rather than the unfamiliar (Lukas and Ferrell 2000). Additionally, their views and knowledge of the latest technologies and trends in the marketplace may be very narrow. Therefore, it may be very hard for them to foresee and express different possibilities that new technologies and/or new market trends might be offering (Lukas and Ferrell 2000).

Competitor orientation has been criticized by scholars as well. A number of scholars have argued that placing too much emphasis on competitors is likely to seriously restrict a firm's ability to develop breakthrough new products (Bennet and Cooper 1981; Hayes and Abernathy 1980; Lukas and Ferrell 2000; Zahra, Nash, and Brickford 1995). Firms with a special emphasis on competition are likely to develop and introduce new products that are similar to their competitors' products (Lukas and Ferrell 2000). These firms monitor competitive capabilities, moves, and offerings very closely. At some point, competitor-focused firms might find it more convenient and cost-efficient to imitate their competitors' technologies and products rather than to develop their own radically new technologies and products (Lukas and Ferrell 2000). Lukas and Ferrell (2000) observed that competitor orientation increases the introduction of me-too products while reducing the number of line extensions and new-to-the-world products. This finding is consistent

with the view that competitor orientation leads to product imitation (e.g., Bennett and Cooper 1981; Hayes and Abernathy 1980; Zahra, Nash, and Brickford 1995) (Lukas and Ferrell 2000). This finding also gives support to the argument that "competitor-oriented businesses, when provided with the opportunity, are likely to adopt competitor ideas and technology rather than pursue development of their own" (Lukas and Ferrell 2000, p.244).

From an opposing point of view, it has been argued that focusing closely on changing markets actually enhances the firm's ability to generate innovative ideas and solutions to customer needs, wants, and preferences (e.g., Hurley and Hult 1998; Jaworski and Kohli 1993,1996). Cohen and Levinthal (1990) pointed out that "outside sources of knowledge are often critical to the innovation process, whatever the organizational level at which the innovating unit is defined" (p.128). In other words, market orientation drives innovation. Innovation is considered an outcome of market orientation (e.g., Hurley and Hult 1998; Jaworski and Kohli 1996). A significant amount of anecdotal evidence supports this potential link between market orientation and innovativeness. Before discussing the evidence, however, the distinctive characteristics of an innovative organization will be identified with respect to organizational elements (i.e., organizational culture, work environment, the organization's management, etc.). Subsequently, the similarities between a market-oriented organization and an innovative organization will be addressed.

Some scholars believe that a certain type of organizations or organizational cultures is likely to foster organizational innovativeness (e.g., Koch, Steinhauser, McCrackin, and Hart 1984; Maidique and Hayes 1985). Therefore, they have tried to

identify mutual cultural and organizational characteristics of an innovative organization, which would be characterized by its focus on innovation and risk-taking behavior (Koch et al. 1984), high tolerance for failure, and emphasis on communication and integration (Maidique and Hayes 1985). According to Bentley (1990), "this organization would be characterized by integrative mechanisms, good communication systems, individuals who can take broad perspectives, solve problems and cope with risk and flat or decentralized systems of control" (p.20). Based on a careful examination of the stages of the innovation process, Hurley and Hult (1998) suggested that organizational culture can influence innovation and performance. Hurley and Hult (1998) argued that "when an organization has both a culture that values innovation and the necessary resources (e.g., size), it will have a greater capacity to innovate" (p.52). If a work environment encourages the creation, exchange, criticisms, and refinement of innovative ideas and analytical perspectives across functional units in a democratic manner with a minimum financial and social risk (Olson, Walker, and Ruekert 1995), "the odds of producing innovative products that successfully address market desires as well as technical and operational requirements are increased" (Olson, Walker, and Ruekert 1995, p.51). Organizational management has been regarded as a crucial factor in increasing innovativeness (e.g., Drucker 1993; Menon, Jaworski, and Kohli 1997). Drucker (1993) argued that "an organization's ability to innovate is a function of management rather than industry, size, or age of the organization . . . the innovative organization institutionalizes the innovative spirit and creates a habit of innovation" (p.787). In an innovative organization, innovation is a requirement or norm, not an exception or preference. Innovation is viewed as an

opportunity rather than a threat. Top management has a critical role in developing and maintaining an innovative organization that is capable of resolution and acceptance of change (Drucker 1993). Top management in the innovative organization serves as a major driver of innovation. It encourages organization-wide innovative thinking and creative ideas. Later, it uses these ideas to stimulate its own vision. It also tries to make those ideas a concern or focus for the whole organization (Drucker 1993). In such an organization, communication and the exchange of ideas between top management (senior executives) and personnel at different levels of the entire organization through scheduled sessions is relatively more intensive (Drucker 1993).

It is apparent from the preceding arguments that the characteristics of a work environment (Olson, Walker, and Ruekert 1995), and/or an organizational culture (Hurley and Hult 1998), and/or the firm's management (Drucker 1993; Menon, Jaworski, and Kohli 1997) are likely to affect the level of innovativeness within the organization. Clearly, firm management, work environment, and organizational culture are not mutually exclusive concepts. On the contrary, they are closely interrelated and continuously interact with each other. With regard to these concepts, the previous discussion reveals some distinguishing characteristics of an innovative organization. Some of these characteristics include the focus on innovation (Hurley and Hult 1998; Koch, Steinhauser, McCrackin, and Hart 1984) and on calculated risk-taking behavior (Koch et al. 1984; Menon, Jaworski, and Kohli 1997), high tolerance for failure (Maidique and Hayes 1985; Menon, Jaworski, and Kohli 1997; Olson, Walker, and Ruekert 1995), emphasis on communication and integration (Drucker 1993; Maidique

and Hayes 1985; Olson, Walker, and Ruekert 1995), the encouragement of creation, exchange, criticisms, and refinement of innovative ideas/analytical perspectives across functional units (Olson, Walker, and Ruekert 1995), and having the capability of resolution and acceptance of change (Drucker 1993). Seemingly, most of these properties of an innovative organization are shared by a market-oriented organization as well. Here, it is not suggested that an innovative organization is also a market-oriented organization, but it is posited that a market-oriented organization has a greater capability to innovate since it has some common characteristics with an innovative organization.

The conceptual and empirical evidence that suggests the presence of a positive effect of market orientation on organizational innovativeness has accumulated recently. Some scholars have more openly addressed the existence of this relationship (e.g., Gupta, Raj, and Wilemon 1986; Han, Kim, and Srivastava 1998; Hunt and Morgan 1995; Hurley and Hult 1998; Jaworski and Kohli 1993; Kohli and Jaworski 1990; Lukas and Ferrell 2000; Slater 1997; Slater and Narver 1998). Gupta, Raj, and Wilemon (1986) see environmental information gathering and processing as a main function of each organization that aims to be innovative in new product development. Slater (1997) acknowledges that "successful innovation is the product of a market-oriented culture coupled with entrepreneurial values. In practical terms, this means a willingness to take risks and learn from mistakes" (p.165). A market orientation involves being responsive to market intelligence, being innovative and risk-taking in terms of satisfying the evolving needs of the market by introducing new innovative or modified products and services at some risk (Kohli and Jaworski 1990). A market-oriented firm always searches for

different ways to create products and services with superior customer value (Deng and Dart 1994). Hunt and Morgan (1995) explicitly argued that market orientation which responds to intelligence gathered about consumer and competitors enhances firm performance and improves innovativeness (also see Hurley and Hult 1998). Hurley and Hult (1998) viewed a market orientation as a cultural antecedent of innovativeness. Hurley and Hult (1998) argued that since "market orientation is a source of new ideas and motivation to respond to the environment . . . market orientation promotes a receptivity to innovation (innovativeness) in a group's culture" (p.52). Han, Kim, and Srivastava (1998) suggested that "a market-oriented business culture facilitates organizational innovativeness" (p.35). Lukas and Ferrell (2000, p.240) claimed that "what separates innovative businesses from less innovative ones is their market orientation emphasis." The amount of evidence that establishes a direct connection between market orientation and innovativeness is voluminous. The link between these two concepts has been documented at the component level as well (i.e., customer orientation and interfunctional coordination).

Customer orientation as a sub-component of a market orientation affects innovativeness. Lukas and Ferrell (2000) empirically demonstrated that a strong customer orientation results in an increase in the introductions of new-to-the-world products and a decrease in the number of me-too products launched. According to Slater and Narver (1998), market-oriented organizations have "a long-term commitment to understanding customer needs, both expressed and latent, and to developing innovative solutions that produce superior customer value" (p.1002). Lukas and Ferrell (2000) argued that

"customer-oriented businesses are becoming more proficient in uncovering latent customer needs and stimulating customers to suggest new products beyond their usual frame of mind as well as what they believe to be technologically possible" (p.244). Customer-oriented organizations can accomplish these by employing more advanced research techniques in addition to conventional ones. Slater and Narver (1998) suggested that organizations can actually increase their capability to innovate by effectively integrating conventional market research tools such as focus groups and market surveys with more advanced techniques (see Lukas and Ferrell 2000).

Interfunctional coordination as a component of a market orientation is closely linked to innovativeness as well. Cooper (1983) suggested that successful innovations are generated by internal communication and coordination between internal groups in a market-oriented environment in case of industrial products. Atuahene-Gima (1996) observed that cross-functional coordination of activities generates a more efficient innovation process in Australian companies (see Martin, Martin and Grbac 1998). Interfunctional coordination is a critical source of breakthrough innovation (Griffin and Hauser 1994; Lukas and Ferrell 2000; Wheelwright and Clark 1992). Brown and Duguid (1996) explained the possible relationship between interfunctional coordination/communication and innovation from the organizational "communities" perspective. An organization is perceived as a "collective of communities", and not of individuals (Brown and Duguid 1996, p.77). In an organization, different communities exchange their experiences, knowledge, ideas, and perspectives among themselves. "Out of this friction of competing ideas can come the sort of improvisational sparks necessary

for igniting organizational innovation" (Brown and Duguid 1996, p.77-78). To generate more learning and innovation, knowledge or information acquired via experiments or other ways should circulate within the organization — through e-mail, bulletin boards, telephone, and other communicational devices (Brown and Duguid 1996). As a result, inter-community interactions or coordination is an important predictor of organizational innovation/innovativeness.

Ostensibly, the amount of evidence that supports the view that market orientation drives innovation within the organization is very convincing and significant. As a result, the following hypothesis is presented.

H_1: *A higher level of market orientation in an organization will result in a higher level of organizational innovativeness.*

3.3.2. The Effect of Organizational Innovativeness on New Product Performance

The presence of a positive and direct link between innovation and performance has been well understood by researchers (Han, Kim, and Srivastava 1998). Organizational innovativeness has been linked to organizational performance (e.g., Deshpandé, Farley, and Webster 1993; Han, Kim, and Srivastava 1998), but clearly more research is needed (Capon, Farley, and Hoenig 1990; Deshpandé, Farley, and Webster 1993).

Past research indicates that innovation is central to organizational competitiveness and effectiveness (Deshpandé, Farley, and Webster 1993; Hurley and Hult 1998; Wolfe 1994). Firms with greater capacity to innovate are more likely to establish a competitive advantage and to attain higher levels of firm performance (Hurley and Hult 1998). In other words, increasing innovative capacity leads to a competitive advantage and superior

performance (Hurley and Hult 1998). The long-term profitability of a firm is closely tied to its ability to provide a continuous stream of innovations that keep pace with changes in consumer demand, technological possibilities, and competitive and environmental pressures (Chandrashekaran *et* al. 1999). Therefore, organizations should emphasize innovativeness to gain competitive advantage in order to survive and grow (Hunt and Morgan 1995). Deshpandé, Farley, and Webster (1993) reported that Japanese companies experienced a higher level of performance when the company's culture focused on market competitiveness and innovation (Also see Martin, Martin, and Grbac 1998). Their results revealed a strong relationship between innovativeness and company performance (Deshpandé, Farley, and Webster 1993). Furthermore, Deshpandé and Farley (1999) observed that high-performance companies have four common characteristics: (1) a high degree of market orientation, (2) innovativeness, (3) organizational climate of openness and trust, and (4) an externally oriented organizational culture (p.111). It was argued that organizational climates encouraging innovativeness, communication, participation, decentralization, friendliness, and trust are linked to higher organizational performance (Capon, Farley, and Hoenig 1997; Capon, Farley, Hulbert, and Lei 1991; Also see Deshpandé and Farley 1999).

New product performance is considered a significant component of company performance (Greenley 1995b; Slater and Narver 1994a). Therefore, the suggested positive and direct effect of innovativeness or innovation on company performance may also be valid for the innovativeness-new product performance relationship. It has been argued that organizational characteristics such as innovative climate and culture may

significantly contribute to product success (Cooper 1998). Bharadwaj and Menon (2000) found that the coexistence of both individual and organizational creativity mechanisms within the organization results in the greatest degree of new product performance. Based on their findings, Bharadwaj and Menon (2000) noted that "high levels of organizational creativity mechanisms (even in the presence of low levels of individual creativity) led to significantly superior innovation performance than low levels of organizational and individual creativity mechanisms" (p.424). As a result, the authors suggested that firms should try to establish both individual and organizational creativity mechanisms at the same time. Actually, doing either is likely to improve innovation performance. Yet, doing both will result in higher innovation performance levels (Bharadwaj and Menon 2000). From all the findings mentioned above, it can be concluded that a high level of innovativeness in an organization is likely to increase new product performance. The following hypothesis is therefore offered:

H_2: *The higher the degree of innovativeness exhibited by an organization, the higher the performance of a new product developed by this organization.*

3.4. Learning Orientation

Chris Argyris has been identified as the first person who coined the term "organizational learning" (Fulmer and Keys 1998). Cyert and March (1963) described organizational learning as "a process by which organizations as collectives learn through interaction with their environments" (Sinkula 1994, p.35). The environment has a key role in the occurrence of organizational learning (Cyert and March 1963; Sinkula 1994). Slater and Narver (1995) defined organizational learning as "the development of new knowledge or insights that have the potential to influence behavior" (p.63; also see Fiol

and Lyles 1985; Huber 1991, 1996; Simon 1969; Sinkula 1994). As a matter of fact, there is little agreement among scholars on the meaning of organizational learning and on what basis it should be evaluated (Huber 1991, 1996).

Chris Argyris focused on human behavior which inhibits organizational learning and advised companies on the development of learning facilitation for their personnel (Fulmer and Keys 1998). The volume of scholarly work on organizational learning has been substantial (e.g., Argyris 1977; Fulmer and Keys 1998; Garvin 1993; Huber 1996; Levitt and March 1988, 1996; March 1991, 1996; McGill, Slocum, and Lei 1992; Senge 1990; Simon 1991, 1996; Sparrow 1998). Previous research focused on the ways in which information is acquired, stored, and transmitted throughout organizations (e.g., Levitt and March 1996; Simon 1991, 1996), on the meaning, forms, and development of knowledge in organizations (e.g., Sparrow 1998), on experiential learning through direct experience (Levitt and March 1988, 1996), and on the effects of exploitation and exploration on organizational learning (March 1991, 1996). A group of authors have discussed the 'learning organization' in their studies (e.g., Garvin 1993; McGill, Slocum, and Lei 1992; Senge 1990). However, there is still a lack of a widely-accepted theory that explains the conditions and climate necessary for a learning organization (Slater and Narver 1995). According to Huber (1991, 1996), organizational learning needs to be investigated in a more systematic manner, and he agreed with Slater and Narver (1995) that there is an immediate need in the literature for theory development on the subject.

The number of studies linking the concept of organizational learning to marketing has been limited (e.g., Baker and Sinkula 1999; Hurley and Hult 1998; Sinkula 1994;

Sinkula, Baker, and Noordewier 1997; Slater and Narver 1995). Recently, MSI placed a call inviting scholars to work on the issue of organizational learning and marketing (Sinkula 1994). The vitality of integration of the organizational learning concept to marketing has been addressed by few scholars as well (e.g., Hurley and Hult 1998; Sinkula 1994; Slater and Narver 1995; Sujan, Weitz, and Kumar 1994). Undoubtedly, such an incorporation has constituted a crucial step in this line of research (Hurley and Hult 1998). Hult (1998) investigated the role of organizational learning in the strategic sourcing activities of a globally-operated Fortune 500 corporation. Sinkula (1994) focused on the relationship between market information processing and organizational learning in his conceptual study. Sujan, Weitz, and Kumar (1994) studied the effects of learning and performance goal orientations on working smart and hard in the context of salespeople. Slater and Narver (1995) discussed the critical roles of market orientation, entrepreneurship, and organizational climate in the development of the learning organization. Sinkula, Baker, and Noordewier (1997) tried to identify leading facilitators (i.e., organizational values or learning orientation, and market information-processing behaviors) of organizational learning.

Learning orientation is an organizational characteristic (Baker and Sinkula 1999) that is closely associated with organizational learning. In general terms, learning orientation can be defined as the emphasis or "value" that an organization puts on learning (Hult 1998, p.197), or "the degree to which learning and development are encouraged in the organization" (Hurley and Hult 1998, p.47). In more specific terms, a learning orientation is defined as "an organizational characteristic that reflects the value

that a firm places not only on adroitly responding to changes in the environment but on constantly challenging the assumptions that frame the organization's relationship with the environment" (Baker and Sinkula 1999, p.412). To the author's best knowledge, however, the incorporation of learning orientation into marketing has been limited to date (e.g., Baker and Sinkula 1999; Hult 1998; Hurley and Hult 1998).

Learning orientation is "an organizational characteristic that affects a firm's propensity to value generative and double-loop learning" (Baker and Sinkula 1999, p.413). Learning orientation is represented by a group of "*knowledge-questioning values*" (Sinkula, Baker, and Noordewier 1997; Baker and Sinkula 1999, p.413). It is believed that a learning orientation "has a direct bearing on the degree to which higher order learning occurs" (Baker and Sinkula 1999, p.413; Slater and Narver 1995). This statement means that the higher the degree of learning orientation within an organization, the greater the level of organizational learning occurring within the organization. Furthermore, Baker and Sinkula (1999, p.413) stated that "If an organization places little value on learning, little learning is likely to occur" (Sackmann 1991). Clearly, these statements imply a positive direct relationship between learning orientation and organizational learning. Therefore, factors which are likely to affect the level of organizational learning may also be likely to influence the level of a learning orientation within the organization.

Few scholars have attempted to conceptualize and measure a learning orientation (e.g., Baker and Sinkula 1999; Hult 1998; Hurley and Hult 1998; Sinkula, Baker, and Noordewier 1997). Hult (1998) conceptualized a learning orientation as a sub-dimension

of the organizational learning construct that was operationalized by four unique but related orientations which are team orientation, systems orientation, learning orientation, and memory orientation. Learning orientation was assessed by a four-item sub-scale. Hurley and Hult (1998) labeled learning orientation as *learning and development* in their study in which this construct was operationalized by using four items. These items included (1) providing opportunities for individual development other than formal training, (2) encouraging managers to attend formal developmental activities such as training, professional seminars, symposia, etc., (3) having people who provide guidance and counsel regarding one's career, and (4) having career management as a shared responsibility of both employee and the manager (Hurley and Hult 1998). Sinkula, Baker, and Noordewier (1997) conceptualized and operationalized a learning orientation as well, and in their conceptualization, a learning orientation was represented by three sub-constructs: (1) *commitment to learning*, (2) *shared vision*, and (3) *open-mindedness* (see Baker and Sinkula 1999). Baker and Sinkula (1999) used this measurement instrument in their study as well. This scale will also be adopted and used in the current study to assess the level of a learning orientation within the organization.

3.4.1. The Effect of Market Orientation on Learning Orientation

There has been relatively little scholarly research on organizational learning/learning orientation in a marketing context (Sinkula 1994). Both learning orientation and market orientation are regarded as organizational characteristics (Baker and Sinkula 1999). While market orientation influences "knowledge-producing behaviors," learning orientation influences "knowledge-questioning values" within the

organization (Baker and Sinkula 1999, p.422). With regard to the relationship between market orientation and organizational learning/learning orientation, two different viewpoints have been suggested in the literature. The proponents of the first viewpoint believe that organizational learning/learning orientation is a determinant or an antecedent of a market orientation (e.g., Deshpandé 1999; Jaworski and Kohli 1996). A strong learning orientation within the organization has been seen as the best possible ground for a market orientation to cultivate. A market orientation can be best developed in a work environment in which continuous learning and improvement are priorities and encouraged by management, and in which risk taking and innovation are emphasized (Deshpandé 1999, p.4). Jaworski and Kohli (1996) noted that "principles of organizational learning can help foster market-oriented thought and behavior in an organization" (p.125).

The advocates of the second viewpoint see learning orientation/organizational learning as a consequence of a market orientation (e.g., Deshpandé 1999; Sinkula 1994; Slater and Narver 1995, 2000). Developing a market orientation in an organization is a first step in maximizing the organization's ability to learn from its markets (Slater and Narver 1995). Deshpandé (1999) argues that a market orientation acts as a means of building a learning organization as a strategic competence or capability since it facilitates the process in which market information and/or knowledge is translated into strategic capabilities that are disseminated organizationwide (p.4). A market orientation serves as a preeminent cultural ground for the learning organization (Slater and Narver 1995). Slater and Narver (1995) stated that "market orientation, as an overall organizational value

system, provides strong norms for sharing of information and reaching a consensus on its meaning" (Day 1994; Kohli and Jaworski 1990; Sinkula 1994; Slater and Narver 1995, p.67). The interpretation of market information is central to organizational learning (Sinkula 1994). A market orientation requires information sharing among organizational members across functions. Continuous information sharing leads to shared interpretations within the organization which are crucial for organizational learning to occur. Slater and Narver (2000) suggest that "organizational learning occurs only when intelligence is widely shared in the organization. It is essential to create opportunities and forums for this sharing to occur" (p.126). A market orientation prepares a right cultural medium for information sharing to occur. To create more learning and innovation, knowledge or information acquired via experiments or other means should circulate within the organization — through e-mail, bulletin boards, telephone, and other communicational devices (Brown and Duguid 1996). An organization with a strong market orientation is expected to increase its level of information dissemination, interfunctional coordination and communication. High levels of both information dissemination and interfunctional coordination may ensure the continuous and effective circulation of knowledge or information acquired. A variety of organizational communication tools are utilized in the learning process. Consequently, it is possible to say that the level of market orientation positively affects the degree of learning orientation, or organizational learning in the organization (Hurley and Hult 1998).

This study adopts the second view. It is acknowledged that an organization learns if the range of its potential behaviors is changed through its processing of information

(Huber 1991, 1996). Information processing involves acquisition, distribution, or interpretation of information. All these steps of information processing are closely related to each dimension of a market orientation (i.e., customer orientation, competitor orientation, and interfunctional coordination). Huber (1996) addresses four assumptions about organizational learning. The first assumption states that "*an organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization*" (p.126). This suggests that any market information or knowledge that is perceived as useful and acquired by one unit of the organization constitutes to the occurrence of organizational learning. The second assumption is based on the idea that "*more organizational learning occurs when more of the organization's components obtain this knowledge and recognize it as potentially useful*" (p.126). The market information or knowledge considered as useful and acquired by one organizational unit should be distributed to other units of the organization, and they should also perceive this information or knowledge useful to the organization. The third assumption recognizes that "*more organizational learning occurs when more and more varied interpretations are developed*" (p.126). Market information or knowledge should not only be acquired by more organizational units but also be interpreted in numerous ways. The last assumption suggests that "*more organizational learning occurs when more organizational units develop uniform comprehensions of the various interpretations*" (p.127). In this step of the process of organizational learning, more organizational units should share the same understanding of these different interpretations. An organization with a strong market orientation emphasizes information acquisition (through customer and competitor

orientation) and information sharing and its interpretation by organizational units (through interfunctional coordination). Market orientation is likely to promote a learning orientation that increases the level of organizational learning within the organization. Drawing upon these assertions, it can be concluded that the level of a market orientation in an organization positively affects the degree of organizational learning orientation, or organizational learning (Hurley and Hult 1998). Here, organizational learning is considered as being parallel to a learning orientation.

The occurrence of organizational learning is contingent upon the realization of two conditions: (1) the organization should receive an adequate supply of market information and (2) the equivocality of market information should significantly be reduced (Sinkula 1994). If these two conditions are met, the organization will be able to make sense of its marketplace, and thus, enhance its organizational learning along with its organizational memory (Sinkula 1994). A strong market orientation can ensure an adequate supply of market information to the organization. Also, the supply of information is expected to rise over time. As time passes, more external and internal market information sources are utilized. Additionally, as the organization grows and ages, it gets more decentralized (Sinkula 1994). In such an organization the market research function becomes decentralized as well. Thus, the organization may have multiple divisional market research groups that facilitate the proliferation of market information (Sinkula 1994). However, the possible positive relationship between market orientation and organizational learning may be modified by some factors such as the age of the organization. Organizational learning depends on age and experience (Dixon 1992;

Simon 1991; Sinkula 1994). It is argued that young organizations are likely to utilize more information, to have a high level of learning activity and as a result, a high level of organizational memory (Sinkula 1994). Young organizations are more likely to have a strong learning orientation in order to generate a high level of organizational learning. Sinkula (1994) proposed that "in young organizations, increasing the supply of market information will result in increased information distribution, interpretation, storage, and organizational learning" (p.41). But, this proposition was not tested in his study. On the other hand, Sinkula (1994) posited that "in old organizations, increasing the supply of market information will have little effect on information distribution, interpretation, storage, and organizational learning" (p.41). The author did not test this hypothesis in his study either. As organizations grow older, they establish more selective search routines. By these routines, they aim to generate and use "higher levels of knowledge" (Sinkula 1994, p.36). The quality and relevance of market information become critical concerns for these aged organizations. Likewise, "the developing organizational memory will demand more unique and meaningful information in its quest to make sense of its markets" (Sinkula 1994, p.36). A strong organizational memory will filter market information. The organization will use only relevant and/or quality market information. As a result, old organizations are likely to have moderate or low levels of learning orientation. Consequently, less organizational learning occurs in old organizations compared to that in young organizations.

Adopting the second view that learning orientation/organizational learning is a consequence of market orientation (e.g., Deshpandé 1999; Sinkula 1994; Slater and

Narver 1995, 2000), and taking into account the moderating effect of the organization's age (Sinkula 1994) on the relationship between market orientation and learning orientation, it is hypothesized that:

H3a: *Market orientation will have a positive effect upon organizational learning orientation.*

H3b: *The effect of market orientation on organizational learning orientation will be greater for younger organizations than for older organizations.*

3.4.2. The Effect of Learning Orientation on Organizational Innovativeness

There is a significant amount of evidence suggesting the possible presence of a link between learning and innovation (e.g., Brown and Duguid 1996; Drucker 1993; Huber 1996; Hunt and Morgan 1995; Hurley and Hult 1998). A group of researchers have suggested that this potential link is of great importance and has crucial implications for organizations (Huber 1996; Hurley and Hult 1998). Therefore, it should be investigated closely in future research studies. According to Hurley and Hult (1998), future research should examine probable links among organizational innovativeness, market and learning orientations within the cultural context. Hurley and Hult (1998) maintained that "taking a process approach and examining how firms innovate and develop new capabilities to compete, along with the role of learning and market orientation in the process, should enhance our understanding of how firms learn, change, and perform" (p.52-53). Along a similar line, Huber (1996, p.153) suggested that "organizational adaptation and innovation, both critical in a rapidly changing world, could undoubtedly be improved if organizational designers and administrators knew more about how organizations learn and about how organizations might be guided to learn more effectively." These

statements underscore the relevance of any possible links between learning and innovation from the organization's point of view.

Simon (1996) argued that the main focus in organizational learning is "an understanding of the mechanisms that can be used to enable an organization to deviate from the culture in which it is embedded" (p.180). An organization's deviation from its traditional culture can be achieved through organizational and behavioral changes. Change is imposed by innovation in work practice and learning (Brown and Duguid 1996). Brown and Duguid (1996) argued that working, learning, and innovating are all closely connected human activities within the context of an organization. Traditionally, they were thought to be in conflict with each other, but it appears that they are "interrelated", "compatible", and even potentially "complementary" activities (Brown and Duguid 1996, p.59). Learning serves as a bridge between working and innovating (Brown and Duguid 1996). Continuous individual and organizational commitment to learning is a prerequisite for an innovative organization. When defining the characteristics of an innovative organization, Drucker (1993) highlighted this important point. He said that "The innovative organization requires a learning atmosphere throughout the entire business. It creates and maintains continuous learning. No one is allowed to consider himself 'finished' at any time. Learning is a continuous process for all members of the organization" (p.799).

A strong learning orientation has been explicitly linked to innovativeness (e.g., Baker and Sinkula 1999; Hunt and Morgan 1995; Hurley and Hult 1998). A learning orientation is considered to be a predictor of innovativeness (e.g., Hunt and Morgan 1995;

Hurley and Hult 1998). Both learning orientation and organizational innovativeness are conceptualized as integral parts of firm culture by Hurley and Hult (1998). They viewed a learning orientation as a cultural antecedent of organizational innovativeness or innovation orientation. They also argued that organizational learning functions as an antecedent to innovative culture. Going further, Hurley and Hult (1998) suggested that "organizational learning, when viewed from a behavior change or implementation perspective, is equivalent to innovation" (Hurley and Hult 1998, p.47). Hunt and Morgan (1995) claimed that both learning and market orientations responding to intelligence about consumer and competitors not only increase organizational performance but also enhance organizational innovativeness (see also Hurley and Hult 1998). Hurley and Hult (1998) contended that "a market- and learning-oriented culture, along with other factors, promotes a receptivity to new ideas and innovation as part of an organization's culture (innovativeness)" (p.45). Based on their results, Hurley and Hult (1998) suggested that learning and development have a significant positive influence on the innovativeness of the group's culture.

Baker and Sinkula (1999) argued that "learning orientation affects the degree to which organizational members are encouraged, or even required, to 'think outside the box'" (p.413). A learning orientation by directly encouraging firm employees to challenge and question long-held beliefs, operating assumptions, norms, and practices of the organization enhances the organization ability to generate discontinuous innovation which is "innovation that creates new paradigms" (Baker and Sinkula 1999, p.412; Senge 1990; Slater and Narver 1995). An organization with a strong learning orientation is

likely to be capable of generating and utilizing every type of knowledge including market-derived knowledge. Learning-oriented organizations tend to lead the market by acting in a proactive manner. These organizations try to anticipate the future needs/wants of their customers in addition to the current needs/wants of their customers. This kind of behavior of a learning-oriented organization leads to more innovations. An organization with a strong learning orientation is likely to be a generative learner (Baker and Sinkula 1999; Sinkula, Baker, and Noordewier 1997). Generative learning is considered to be a key to innovation (Senge 1990; Slater and Narver 1998). However, a learning orientation should be accompanied by a strong market orientation that provides the foundation for success (Baker and Sinkula 1999). Drawing upon their findings, Baker and Sinkula (1999) concluded that "the coupling of a strong market orientation with a strong learning orientation can offer lower risk innovation and the promise of ongoing modifying behaviors that are responsive to market needs after successful innovations are introduced" (p.422).

Drawing upon the convincing arguments presented above, the following hypothesis regarding the relationship between learning orientation and organizational innovativeness is suggested:

H4: *The degree of learning orientation is positively linked to the degree of organizational innovativeness exhibited by the organization.*

3.4.3. The Effect of Learning Orientation on New Product Performance

New product development has been envisioned by some scholars as a process of organizational learning comprehending the acquisition, dissemination, and utilization of information (Day 1994; Moorman 1995; Moorman and Miner 1997). New product

development is based on discovery and creation processes, or generative learning (Moorman and Miner 1997) which is an outcome of a learning orientation (Baker and Sinkula 1999). A learning-oriented organization highly values open-mindedness among its employees. Managers encourage their employees to think creatively and generate original ideas (Sinkula, Baker, and Noordewier 1997).

An organization with a strong learning orientation emphasizes information dissemination and sharing (Huber 1991, 1996) and interfunctional coordination or interaction (Slater and Narver 1995). These aspects of organizational learning orientation are also critical in the success of new product development. When information freely flows from one functional department to another, the organization's ability to make rapid decisions and execute them effectively increases (Slater and Narver 1995). Information sharing in the product development process is greatly encouraged by sending people from various departments on customer visits. In this way, not only the quality of the information collected increases, but also real-time (Slater and Narver 1995) information sharing is achieved. In order to carry new products from concept to launch more quickly and with minimal mistakes, all functional interfaces among organizational units are of great importance in the product development process (Gupta, Raj, and Wilemon 1986). Effective interfacing is accomplished by conducting "multifunctional activities . . . multifunctional discussions and information exchange" (Cooper and Kleinschmidt 1991, p.140). In brief, a learning orientation ensures continuous, organization-wide information sharing and information interpretation which in turn enhance new product performance.

Furthermore, an emphasis on constant innovation is regarded as a part of a learning-oriented corporate culture (Sinkula, Baker, and Noordewier 1997).

Organizational learning concentrates on understanding customer needs/wants and successfully fulfilling them via new product and service offerings, and different ways of conducting business (Day 1994; Dickson 1992; Sinkula 1994; Slater and Narver 1995). This is expected to directly lead to superior outcomes such as greater new product success, superior customer retention, higher customer-defined quality, and lastly, superior growth and/or profitability (Slater and Narver 1995). Cravens, Greenley, Piercy, and Slater (1998) suggested that "companies achieving a superior performance through robust market-based strategies display characteristics of constant learning and innovation that continually refine market sensing and the vision of the future" (Cravens *et* al. 1998, p.33). Market-driven learning is considered to be the major facilitator of superior customer value (Slater and Narver 1994b). Empirically, it was showed that learning orientation is significantly related to new product success, change in relative market share, and overall performance (Baker and Sinkula 1999). On the basis of these arguments, the following hypothesis is offered:

H5: *The higher the level of learning orientation exhibited by the organization, the higher the degree of the new product's performance introduced by the organization.*

3.5. Marketing-R&D Integration

Interfunctional integration has been increasingly emphasized by scholars as a critical component or contributor to firm success (e.g., Gupta and Rogers 1991; Millman 1982). In order to be competitive in today's global markets, companies need to adopt 'integrated' instead of 'segmented' functional structures (Gupta and Rogers 1991). As organizations become more aware of the benefits of cross-functional interaction, they

start to form *ad hoc* multi- or inter-disciplinary teams that encourage such interaction (Millman 1982). When different specialists work on the same problem, interaction increases considerably (Millman 1982). Also, the utilization of specialists' knowledge and skills via multidisciplinary teams creates synergistic effects that lead to more desirable solutions (Millman 1982). Face-to-face interactions among team members during the innovation process can activate the creative potential or energy of the tacit knowledge possessed by team members (Mascitelli 2000). The multidisciplinary approach reduces social barriers and encourages creative idea generation and new product synergy (Millman 1982).

Clark and Wheelwright (1993) explored the nature of cross-functional integration in general. According to the authors, real cross-functional integration occurs at the working level. The pattern of communication among functional units (upstream and downstream groups) plays an important role in shaping the nature of cross-functional integration. The *quality* and *effectiveness* of the communication pattern are determined jointly by four dimensions of the communication pattern: *richness*, *frequency*, *direction*, and *timing*. The authors identified four forms or modes of interaction between two functional units or groups based on these four dimensions of the communication pattern in the new product development process. These modes are *serial* or *batch mode, early start in the dark*, *early involvement*, and *integrated problem solving* (Clark and Wheelwright 1993). The investigation of potential relationships between each of the interaction modes and market orientation as well as new product performance is beyond the scope of this study. In the current study, it is assumed that the interaction mode used between marketing and R&D in the new product development process varies from "no

interaction at all" to the *integrated problem solving* mode. All other modes of interaction are located somewhere between these polar extremes.

Possible antecedents and consequences of the integration/ interaction/ communication/ interface between marketing and R&D/ engineering have received a significant amount of research attention from a large group of researchers (e.g., Fisher, Maltz, and Jaworski 1997; Griffin and Hauser 1996; Li and Calantone 1998; Maltz and Kohli 1996; Workman 1993). Ayers, Dahlstrom, and Skinner (1997) defined integration as the degree to which R&D and marketing units interact with each other while participating in the new product development process (Also see Galbraith 1973; Moenaert and Souder 1990). Li and Calantone (1998) define the marketing-R&D interface as "the process in which marketing and R&D functions communicate and cooperate with each other" (p.14). The inclusion of this construct in the model is important since the marketing-R&D interface has an undeniably crucial role in market knowledge integration into the new product development process (Li and Calantone 1998). In other words, the marketing-R&D interface facilitates the integration of market knowledge with technological knowledge (Li and Calantone 1998). Consequently, this interface leads to more effective use of market knowledge (Li and Calantone 1998).The higher the disintegration between marketing and R&D functions, the higher the mismatch between what is needed in the market and what is actually developed (Li and Calantone 1998).

The R&D-marketing integration is a critical aspect of new product development (Ayers, Dahlstrom, and Skinner 1997). Gupta, Raj, and Wilemon (1986, p.15) identified three stages of the new product development process during which R&D-marketing

interaction and information exchange are realized. The *planning phase* (i.e., providing inputs in budget allocations, and establishing priorities, goals, and schedules), the *product development process* (idea generation, idea screening, concept development, concept testing, final product development, and commercialization), and *post-commercialization* (joint discussions and reviews about the evaluation, appraisal, and refinement of the new product). A higher level of integration or interface between these functions can strengthen the likelihood of new product acceptance in the marketplace (Li and Calantone 1998). R&D and marketing need to interact with each other when it comes to creating new ideas, establishing product schedules, assessing customer needs and preferences, and evaluating competitive moves (Ayers, Dahlstrom, and Skinner 1997). The involvement and information sharing between R&D and marketing will lead to a mutual understanding of the constraints faced by both units and the development of satisfying and effective working relationships (Ayers, Dahlstrom, and Skinner 1997). Integration between R&D/engineering and marketing plays a crucial role over a variety of organizational outcomes such as product cycle time reduction, new product success, customer service improvement, and increasing perceptions of customer value (Fisher, Maltz, and Jaworski 1997; Kotler and Armstrong 1994; Meyer 1993). A large portion of business failures have been explained by the lack of successful integration between R&D and marketing (Fisher, Maltz, and Jaworski 1997).

3.5.1. The Effect of Market Orientation on Marketing/R&D Integration

A strong interfunctional communication or coordination is an important aspect of a market-oriented organization (Narver and Slater 1990). All functional units are encouraged to interact with each other. These units operate in an integrated fashion to

produce products/services that best satisfy customer needs and wants (Kohli and Jaworski 1990; Narver and Slater 1990). A number of authors argued that market orientation enhances the degree of integration among functional units by systematically promoting inter-functional communication or exchange of ideas/information (e.g., Jaworski and Kohli 1993; Kohli and Jaworski 1990; Millman 1982; Narver and Slater 1990; Workman, Homburg, and Gruner 1998). A firm with a strong market orientation encourages a great degree of coordination, communication, and integration across functional units within the organization (Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990). Both an effective market orientation approach and well developed channels of communication within an organization are crucial determinants of the R&D-marketing integration (Millman 1982). According to Workman, Homburg, and Gruner (1998), market orientation is likely to increase the cross-functional dispersion of marketing activities. It emphasizes the dissemination of market information across functional units. Workman, Homburg, and Gruner (1998) argued that "as information on customer- and market-related issues is disseminated across functional boundaries, other functions will be involved to a greater extent in the resulting activities" (p.33). Thus, a market orientation increases teamwork among employees (Kohli and Jaworski 1990; Baker, Simpson, and Siguaw 1999).

Some researchers have emphasized the possible crucial impact of market orientation on the R&D-marketing integration (e.g., Gupta and Rogers 1991; Pelham 1997) in the new product development context. Gupta and Rogers (1991) argued that "acquiring a market orientation is a necessity. Without this cultural change toward realizing the importance of marketing's role in the product development process, it is

difficult to diffuse the need for R&D/marketing integration. People generally conform to system norms, and if these norms do not value integration, there will be little integration" (p.13-14). The authors strongly advocate the notion that technology orientation should be supplemented with a market orientation (Gupta and Rogers 1991). In a market-oriented firm, shared cross-functional understanding of customer needs and shared customer-oriented beliefs and behaviors lead to sales/marketing-engineering/R&D integration to develop better solutions to customer problems (Pelham 1997). The nature of the strategy being followed by the organization serves to direct inter-functional interaction. Organizations pursuing a strong market orientation are expected to emphasize interfunctional interaction, especially the integration between R&D and marketing (Millman 1982).

A market-oriented organization is likely to continuously generate customer and competitor intelligence (Narver and Slater 1990). This intelligence is mainly utilized in the development of superior new products that have superior customer value and, therefore, the potential to better satisfy customer needs (Narver and Slater 1990; Slater and Narver 1994b). The successful installation of customer requirements in the new product design can only be achieved through an adequate and proper integration/interaction between marketing and R&D during the new product development process (Clark and Wheelwright 1993). Marketing personnel often play a coordinating role, linking demands from outside the organization with the functional departments inside the firm that are capable of satisfying those demands (Gupta and Rogers 1991; Ruekert and Walker 1987b) and serves as an internal supplier providing information on customer needs and requirements (Hauser, Simester, and Wernerfelt 1996). The

relationship between marketing and R&D can be characterized as a reversible internal supplier-customer relationship. In case of new product development, R&D provides technological knowledge to marketing (Hauser, Simester, and Wernerfelt 1996) while marketing provides market knowledge to R&D (Li and Calantone 1998).

When it comes to new product development, it is reasonable to assume that the level of integration between marketing and R&D is likely to be greater in a market-oriented organization than in an organization without a market orientation. Based on the anecdotal evidence in the literature, the following hypothesis on the relationship between market orientation and the marketing/R&D integration can be suggested:

H6: *The higher the level of market orientation within an organization, the higher the level of integration between the marketing and R&D/engineering functions in the new product development process/project undertaken by the organization.*

3.5.2. The Effect of Marketing-R&D Integration on New Product Performance

The three organizational functions (i.e., engineering, marketing, and manufacturing) have been particularly recognized for having a prominent role in new product development (Clark and Wheelwright 1993). Indeed, all functions and functional interfaces are important in the new product development process. However, marketing-R&D integration is one of the most critical interfaces. Research on marketing's interaction with other departments is limited to particular areas, such as production and R&D (Gupta, Raj, and Wilemon 1986; Ruekert and Walker 1987b). Most of the literature has been written from a normative perspective and there have been few attempts to develop more predictive theoretical frameworks (Ruekert and Walker 1987b).

The systematic integration between marketing and R&D is necessary and critical for innovation success (Gupta, Raj, and Wilemon 1986). Many business failures have been attributed to the lack of the integration between these two functional departments, and the lack of such integration has been regarded as one of the most significant causes of new product failure (Gupta and Rogers 1991; Millman 1982). Some companies have capitalized on this integration by stimulating interfunctional communication flows (Fisher, Maltz and Jaworski 1997; Millman 1982). However, the idea of integrating marketing and R&D for successful new product development is very new for many firms (Gupta and Rogers 1991).

The importance of the marketing-R&D integration for successful innovations is well documented (e.g., Gupta and Rogers 1991; Gupta, Raj, and Wilemon 1986).The integration between marketing and R&D/engineering leads to a variety of new product outcomes such as cycle time reduction, new product success (Gupta, Raj, and Wilemon 1986; Song, Neeley, and Zhao 1996), better perceptions of customer value, and better customer service (Fisher, Maltz and Jaworski 1997). Marketing's integration with R&D in the new product development process is essential for the generation of "profitable" and "timely" new products/services (Olson, Walker and Ruekert 1995, p.48). Ayers, Dahlstrom, and Skinner (1997) said that "Each party (R&D and marketing) possesses critical skills and information that must be joined to develop successful new products. The greater the interaction between these parties, the more likely that the necessary exchange and blending of skills and information will occur. The result should be higher levels of product success" (p.110).

Ayers, Dahlstrom, and Skinner (1997) maintained that "interaction and information sharing between R&D and marketing enable the product development group to provide technologically sophisticated products that meet customer needs" (p.107). To attain success in new product development, R&D and marketing personnel need to work together for the mutual goal of creating successful products (Ayers, Dahlstrom, and Skinner 1997). From an empirical perspective, Ayers, Dahlstrom, and Skinner (1997), in a study of 19 NPD projects by a U.S. computer manufacturer, found that integration between marketing and R&D increases new product success and perceived effectiveness. A series of empirical studies involving Japanese companies conducted by Song and Parry indicated that an effective integration between R&D/engineering and marketing increases new product success considerably (e.g., Norton, Parry, and Song 1994; Parry and Song 1993; Song and Parry 1992, 1993, 1997). Following these arguments, it would be appropriate to hypothesize that:

H_7: *The higher the level of integration between the marketing and R&D/engineering functions in the new product development process/project undertaken by the organization, the higher the new product performance will be.*

3.6. Organizational Memory Level and Dispersion

Some studies have examined organizational memory in relation to organizational learning or as an important part of the concept of organizational learning (e.g., Huber 1996; Levitt and March 1996; Simon 1996). Despite its centrality, this concept has often been overlooked in the management literature (Huber 1996; Walsh and Ungson 1991). According to Walsh and Ungson (1991), the up-to-date conceptual representations of organizational memory have been "fragmented" and "underdeveloped" (p.57). Even

though organizational memory is central to information-processing theories and issues, the understanding of it has been quite limited (Walsh and Ungson 1991). The conceptual research on organizational memory has focused on definition or content, theory, structure, processes, and use of organizational memory (Walsh and Ungson 1991).

The number of empirical studies on organizational memory has been limited (e.g., Hult 1998; Moorman and Miner 1997, 1998b). A few studies have attempted to incorporate the concept of organizational memory into marketing-related contexts (e.g., Hult 1998; Moorman and Miner 1997; Sinkula 1994). The past empirical work has examined the relationship between organizational memory and new product performance (Moorman and Miner 1997) and the connection between memory orientation and international strategic sourcing outcomes (Hult 1998). Moorman and Miner (1998a) aimed to investigate the moderating effect of organizational memory, procedural and declarative, on the relationship between organizational improvision and organizational outcomes. Moorman and Miner (1998b) investigated the conditions that are likely to affect the occurrence and effectiveness of improvision in new product development activities. They tested the main and moderating effects of organizational memory on the incidence of improvision. Sinkula (1994) suggested a set of research propositions that connect market information processing and knowledge creation to organizational learning/memory in organizations.

Organizational memory is the major outcome of organizational learning. Organizational memory is representative of "learned ways of thinking and behaving" (Moorman and Miner 1998b, p.7). It is viewed as a market information filter (Sinkula 1994). Moorman and Miner (1997) define "*organizational memory* as collective beliefs,

behavioral routines, or physical artifacts that vary in their content, level, dispersion, and accessibility" (p.93). Walsh and Ungson (1991) define organizational memory as "stored information from an organization's history that can be brought to bear on present decisions. This information is stored as a consequence of implementing decisions to which they refer, by individual recollections, and through shared interpretations" (p.61). Memory can be described by its *content*, which refers to "the 'what' of organizational memory" (Moorman and Miner 1998a, p.708; Walsh 1995; Walsh and Ungson 1991). Memory may also be defined by its *level* that constitutes "the amount of stored knowledge and experience" (Cohen and Levinthal 1990; Moorman and Miner 1997; Moorman and Miner 1998a, p.708; Walsh and Ungson 1991) in a specific domain and/or in the organization as a whole.

The measurement of memory is a complicated task (Moorman and Miner 1998a). A number of scholars have discussed measurement issues associated with organizational memory (e.g., Cohen and Bacdayan 1994; Cohen and Levinthal 1990, 1994; Epple, Argote, and Devadas 1991; Hult 1998; Moorman and Miner 1997, 1998a; Walsh 1995; Walsh and Ungson 1991). Walsh and Ungson (1991) conceptualized that the organizational memory construct include four dimensions: the structure of its retention facility, the information contained in it, the processes of information acquisition and retrieval, and its consequential effects. Yet, they did not operationalize their conceptualization. Moorman and Miner (1997) not only conceptualized but also operationalized organizational memory through *memory level* and *memory dispersion.* They investigated the impact of memory level and memory dispersion on new product short-term financial performance and creativity using data from 92 new product

development projects. Moorman and Miner (1998a) provided very important insights regarding how to conceptualize and measure *declarative* and *procedural* memories, however, they did not develop any measurement scales related to them. Clearly, there has been no consensus on how to conceptualize and measure organizational memory. The proliferation of empirical research on organizational memory and its relation to other organizational concepts, such as market orientation and organizational learning, required the development of a reliable, valid organizational memory measurement scale.

In the current study, Moorman and Miner's (1997) conceptualization of organizational memory will be utilized. Organizational memory is conceptualized with two main dimensions: organizational memory level and organizational memory dispersion. Moorman and Miner (1997) defined *organizational memory level* as "the amount of stored information an organization has about a particular phenomenon" (p.93) and *organizational memory dispersion* as "the extent to which organizational members share an understanding of organizational beliefs, behavioral routines, and physical artifacts" (p.95). These conceptualizations and operationalizations were chosen for two reasons. First, this conceptualization and the associated measurement scales seem to be more parsimonious and, therefore, easier to use. Second, both organizational memory level and dispersion were assessed at the project level in the original study. Therefore, this conceptualization and the related measurement instruments appear to be more appropriate to the nature of the current research study. In the following section, the potential impacts of market orientation on both organizational memory level and dispersion will be discussed.

3.6.1. The Effect of Market Orientation on Organizational Memory

An organization with a strong market orientation can be expected to have a strong organizational memory. Market orientation which is based on information acquisition and information sharing is likely to enhance both organizational memory level and dispersion within an organization. Market-oriented organizations constantly interact with their environment (Deng and Dart 1994; Kohli and Jaworski 1990). These organizations collect market data and act upon it (Day 1994; Deng and Dart 1994). They regularly monitor competitors' activities, strategies, plans, and marketing programs (Deng and Dart 1994). Customer satisfaction is monitored as well (Deshpandé and Farley 1996). Information regarding customers, competitors, marketing success and failures is disseminated at all levels of the organization on a regular basis (Deshpandé and Farley 1996) and freely communicated across all business functions within the organization (Pelham 1993; Pelham and Wilson 1995). Stories of successful and unsuccessful customer experiences are liberally communicated across all functional units (Deshpandé and Farley 1996). All functional units are required to participate in the preparation of strategic plans (Deng and Dart 1994). The activities of different units are successfully integrated and coordinated (Deng and Dart 1994). In market-oriented organizations, information acquisition and information sharing are routines rather than exceptions. They are norms rather than preferences. Information acquisition and information sharing have an important role in the formation of organizational memory (Argyris and Schön 1978; Levitt and March 1988, 1996; Sinkula 1994). As organizations interact with the environment, they learn (Cyert and March 1963; Sinkula 1994). Information acquired through the interaction with the environment is shared by individuals within the

organization (Sinkula 1994). "Members of the organization share information, creating organizational memory in the form of shared beliefs, assumptions, and norms" (Argyris and Schön 1978; Sinkula 1994, p.35). A market-oriented organization with a high level of information acquisition and sharing is likely to develop a strong organizational memory. According to Huber (1996), one way of increasing the ongoing effectiveness of organizational memory is to facilitate information distribution and organizational interpretation of information. Likewise, Levitt and March (1988, 1996) argued that the diffusion or sharing of routines throughout the organization increases the level of experience from which an organization draws. Information sharing appears to have an important role in building and enhancing the level and dispersion of organizational memory in general and/or in a specific domain.

These arguments suggest the existence of a positive linear relationship between market orientation and organizational memory level and dispersion. However, these possible relationships between market orientation and memory level and dispersion might be modified by the age and/or size of the organization (Sinkula 1994). In other words, organizational memory is connected to the age and growth of the organization. In organizations, organizational memory functions as "a market information filter" (Sinkula 1994, p.42). The age and size of an organization actually influence the level of its market information filtering (Sinkula 1994).

Young organizations tend to gather, process, and use market information more than older ones (Sinkula 1994). Sinkula's (1992) study revealed that young and small organizations are more likely to emphasize and use market information compared to their older and larger counterparts (Sinkula 1994). Sinkula (1994) implied the presence of a

direct, positive, strong relationship between market orientation and organizational level and dispersion in young organizations in his following statement (p.36):

> "The supply of market information likely will be viewed as inadequate. What little information there is will be treated as precious and will be distributed widely to organizational members. Proportionally more individuals may be involved in interpreting the information to make meaning of it. More information is likely to be stored in organizational memory because there is so much to learn. Inculcated in this memory are the unspoken rules and norms that will influence the subsequent processing of market information, the subsequent evolution of organizational memory, and so on."

However, in case of old and large organizations, the situation is significantly different. As organizations grow and age, their organizational memories get stronger. If a company operates in a specific industry for a long time, it is more likely to have higher levels of declarative and procedural memories (Moorman and Miner 1998a) since the stored knowledge is accumulated over time (March 1996). As organizational memory becomes more powerful, the level of market information filtering within the organization increases as well (Sinkula 1994). Thus, the organization with a strong memory tends to gather and use the most relevant market information while ignoring or filtering out irrelevant market information. Sinkula (1994) hypothesized that "market information processing is a function of organizational memory. As organizational memory develops, organizations will distribute, interpret, and store less of their newly acquired market information" (p.42). This statement suggests that organizations with strong organizational memories may be more selective in the collection and use of market information. Additionally, he proposed that "as organizational memory develops, market information becomes less equivocal. As equivocality is reduced, organizations will distribute, interpret, and store less of their newly acquired market information" (Sinkula 1994, p.42).

He did not test these propositions in his study. Sinkula (1994) addressed his point clearly in his following passage:

> "It is reasonable to assume that these older, larger organizations have more well-developed memories and report using their market information less because they have become more proficient at separating relevant from irrelevant information. In addition, older, larger organizations increasingly can experience situations in which particular types of market information are perceived to be less equivocal than they were when organizational memory was less developed. Thus, ignoring certain market information might be viewed as one of the more positive outcomes of organizational memory" (Sinkula 1994, p.42).

In the light of the preceding arguments, it can be proposed that, in the case of young organizations, the links between market orientation and organizational memory level and dispersion are strong and positive. However, it is reasonable to argue that the relationships between market orientation and organizational memory level and dispersion may still be positive but not as strong for older organizations due to the modifying effects of the age. Based on the preceding discussions, the following hypotheses are suggested:

H_{8a}: *Market orientation will have a positive effect on organizational memory level pertinent to the new product's domain.*

H_{8b}: *The effect of market orientation on organizational memory level will be greater for younger organizations than for older organizations.*

H_{9a}: *Market orientation will have a positive effect on organizational memory dispersion pertinent to the new product's domain.*

H_{9b}: *The effect of market orientation on organizational memory dispersion will be greater for younger organizations than for older organizations.*

In this study, only the moderating effects of the organization's age on the relationships between market orientation and organizational memory level and dispersion will be considered and examined.

3.6.2. The Effect of Learning Orientation on Organizational Memory

A learning-oriented organization is expected to have a strong commitment to learning (Baker and Sinkula 1999) both at the individual and organizational level. It emphasizes learning as the key to a sustainable competitive advantage and continuous improvement within the organization (Baker and Sinkula 1999). Learning at both individual and organizational levels is seen as a form of investment in a learning-oriented organization (Baker and Sinkula 1999). Learning is encouraged and valued at every level.

An organization with a strong learning orientation is likely to be capable of generating and utilizing every type of knowledge, including market-derived knowledge (Baker and Sinkula 1999; Sinkula, Baker, and Noordewier 1997), and facilitating information sharing within the organization. Continuous information sharing leads to shared interpretations within the organization which are crucial for organizational learning to occur. Slater and Narver (2000) suggested that "organizational learning occurs only when intelligence is widely shared in the organization. It is essential to create opportunities and forums for this sharing to occur" (p.126). Information acquisition and information sharing have an important role in the formation of organizational memory (Argyris and Schön 1978; Sinkula 1994). An organizational culture that embraces learning provides a perfect medium for organizational memory to flourish.

Organizational memory can be viewed as a major outcome of organizational learning. Organizational memory represents "learned ways of thinking and behaving" (Moorman and Miner (1998b, p.7). According to Moorman and Miner (1997), organizational memory can be found in three basic forms in organizations: Memory can

be found in (1) organizational *beliefs*, knowledge, frames of reference, models, values, and norms and in (2) formal and informal *behavioral routines*, procedures, and scripts resulting from learning from experience particular ways of doing things, and in (3) an organization's *physical artifacts* resulting from prior learning (p.92-93). Clearly, all of these memory forms are associated with learning. A number of authors have tried to explain the meaning and formation of organizational memory within an organization (e.g., Levitt and March 1996). Levitt and March (1996) argued that "routine-based conceptions of learning presume that the lessons of experience are maintained and accumulated within routines despite the turnover of personnel and the passage of time. Rules, procedures, technologies, beliefs, and cultures are conserved through systems of socialization and control" (p.524). According to Berthon, Pitt and Ewing (2001), memory development is based on the firm's capacity "to encode experience and accumulate learning" (p.138). Learning is central to building a strong memory at every level. Based on the above arguments, the following two hypotheses were suggested regarding the effects of learning orientation on organizational memory level and memory dispersion pertinent to the new product's domain:

H_{10}: Learning *orientation will have a positive effect on organizational memory level pertinent to the new product's domain.*

H_{11}: Learning *orientation will have a positive effect on organizational memory dispersion pertinent to the new product's domain.*

3.6.3. The Effect of Organizational Memory on Marketing-R&D Integration

Organizations gather, process, utilize, and store information. Moorman and Miner (1997) contended that organizational memory, the *stored* knowledge, or prior learning, has a very important and complex role in new product development activities and it

affects key new product development processes. A review of the relevant literature suggests that organizational memory has an important role in new product development and new product outcomes (Cohen and Levinthal 1990; Garud and Nayyar 1994; Day 1994; Moorman and Miner 1997). However, more empirical testing, in addition to Moorman and Miner's (1997) study, is needed for the verification of organizational memory's role in new product development. The one aspect of this potential role is the possible effect of organizational memory on the marketing-R&D integration in new product development. According to the author's best knowledge, the number of studies that explicitly suggest the existence of such a relationship between these variables has been limited thus far (e.g., Gupta, Raj and Wilemon 1986; Olson, Walker and Ruekert 1995). In the current study, the possible connections between the marketing/R&D integration and organizational memory level and dispersion will be examined.

Past research suggests that organizational memory is likely to influence the level of the integration between marketing and R&D (e.g., Gupta, Raj and Wilemon 1986; Olson, Walker and Ruekert 1995). The magnitude of both organizational memory level and memory dispersion pertaining to a new product project may affect the level of the marketing-R&D integration in the new product development process. If the firm has low levels of organizational memory or dispersion related to a new product project, a high level of integration between marketing and R&D may be needed in the development process and vice versa. Strong anecdotal evidence supports this argument. Several scholars suggested that when a firm develops a new product which is new and unfamiliar to the firm, the firm will have less stored knowledge or prior learning of this product in its memory. In case of a new product that is new and unfamiliar to the firm, it is logical to

assume that the firm is more likely to encourage the integration between marketing and R&D (Gupta, Raj, and Wilemon 1986; Olson, Walker and Ruekert 1995). Olson, Walker and Ruekert (1995) used the resource dependency framework to explain interaction among functional units in the new product development process. They argued that "because employees have less relevant experience to draw on when developing relatively new and innovative product concepts, they typically see their task as more challenging and they depend more heavily on other functional specialists for the expertise, information and other resources needed to arrive at a creative and successful solution" (p.52). In other words, as the new product concept gets more complex and more difficult to develop due to its unfamiliarity to the firm, the need for functional specialists increases. This results in greater functional interdependence, more cross-functional information exchange, and more inter-functional interaction and integration (Olson, Walker and Ruekert 1995). Likewise, Gupta, Raj, and Wilemon (1986) argued that "a firm that ventures into totally new and unfamiliar products, markets, and technologies is likely to have greater need for information about the market and technology to reduce the risk of new product failure. Obtaining this new knowledge is likely to necessitate a highly integrated effort between marketing and R&D" (p.9). For example, radical innovations, which are new and unfamiliar to both the firm and the market, require more learning and behavioral change by the firm and customers than incremental innovations (Atuahene-Gima 1995). The development and introduction of radical products necessitates more research, more new information, more technical and organizational arrangements (Atuahene-Gima 1995). Therefore, for the development of this type of product, more integration is necessary between marketing and R&D.

Yet, if new products are line extensions or product modifications, increasing interfunctional interaction and communication do not seem to be beneficial (Olson, Walker, and Ruekert 1995). In this case, it means that the level and dispersion of prior learning or the stored knowledge about these products are higher. There is little need for the interaction between marketing and R&D. Moorman and Miner (1998b) suggested that:

> "a high level of organizational memory would be present when a project or action phase represents familiar territory, a new product requires only a modest change in an old project, the technological or customer basis for the new product is part of the firm's long-standing repertoire, there are well-established team routines because the duration of the team members' service is high, or a particular action phase (e.g., prototype development) is an established firm-level competency" (Moorman and Miner 1997; Moorman and Miner 1998b, p.6-7).

In general, in new product development and launch activities, organizations are likely to use well-established routines and processes (Moorman 1995; Moorman and Miner 1997, 1998b) rather than adopting or inventing new ones (Moorman and Miner 1998b). Therefore, in this case, a high level of integration between marketing and R&D may not be required since the level and dispersion of organizational memory (in the forms of well-established routines and processes) related to the new product project are relatively high.

These arguments explicitly suggest that when the level and dispersion of organizational memory or relevant experience related to the new product concept are less, more cross-functional integration is needed in the new product development project. In general, the higher (lower) the organizational memory level and dispersion regarding the new product, the lower (higher) the degree of the R&D-marketing integration in the new product development process. Based on the arguments made by Gupta, Raj, and Wilemon

(1986), and Olson, Walker and Ruekert (1995), the following hypotheses pertinent to the relationships between organizational memory level/dispersion and the marketing-R&D integration are presented:

H_{12}: *The higher the level of organizational memory associated with the new product, the lower the level of integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization.*

H_{13}: *The higher the dispersion of organizational memory associated with the new product, the lower the level of integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization.*

3.6.4. The Effect of Organizational Memory on New Product Performance

Organizational memory has an important role in new product development and outcomes (Cohen and Levinthal 1990; Garud and Nayyar 1994; Day 1994; Moorman and Miner 1997). Moorman and Miner (1997) argued that *stored* knowledge or information has a very significant and complex role in new product development activities. It may influence key new product development processes (Moorman and Miner 1997). Since organizational memory plays an important role in developing better new product development processes, this area of research deserves further, closer attention by scholars (Moorman and Miner 1997). However, given the centrality of the issue, the amount of the current work on this issue has been quite limited. More empirical testing is needed for the verification of this possible role.

Recent studies have investigated whether stored information (or memory) influences new product development (e.g., Moorman and Miner 1997). Cross and Baird (2000) said that "in today's knowledge-based economy, managers can improve

performance by deliberately developing organizational memory and using the growing stores of knowledge to guide organizational activities and decision making" (p.70). Garud and Nayyar (1994) argued that organizations need to reactivate previously acquired knowledge in new product development (Moorman and Miner 1997). Cohen and Levinthal (1990) suggested that the higher the levels of previous learning, then the higher the absorptive capacity of the firm and the more effective its use of extramural knowledge (Moorman and Miner 1997). Day (1994) considered new product development as a main firm capability that involves a complex set of skills and accumulated knowledge (Moorman and Miner 1997). These contentions about the role of stored knowledge in new product development were also cited by Moorman and Miner (1997). Moreover, Roberts and Berry (1983) proposed that project familiarity to the firm on two major dimensions (i.e., markets and technology) is related to both new product strategy selection and success (also see Cooper and Kleinschmidt 1995). Familiarity has been determined as a success factor (e.g., Cooper and Kleinschmidt 1993; Montoya-Weiss and Calantone 1994). When there is a large amount of the stored information about the new product that is under development, this means that the level of product familiarity is high. A high level of product or project familiarity may result in better new product outcomes (Cooper and Kleinschmidt 1993, 1995; Montoya-Weiss and Calantone 1994; Roberts and Berry 1983). Hult (1998) suggests that a memory orientation emphasizes the notion "that by repeatedly performing a set of activities, employees develop a knowledge base of those activities and a means for performing better the next time" (Hult 1998, p.198). Thus, it can be concluded that when the level of stored knowledge about the new product is higher, the product will have a better chance to succeed in the marketplace. Stored

knowledge or memory is likely to prevent the firm from repeating its past costly mistakes. In the meantime, it enhances the firm's ability to succeed by presenting a number of successful past practices, new product routines and processes as guidelines. Furthermore, by the use of organizational routines or standard operating procedures, organizations can significantly reduce their transactional costs with respect to search and experimentation. Thus, organizations operate more efficiently (Walsh and Ungson 1991). More specifically, firms tend to use well-established routines and processes in the new product development and introduction processes (Day 1994; Moorman 1995; Moorman and Miner 1997; Moorman and Miner 1998b). These standard routines and processes are part of organizational memory (Moorman and Miner 1997; Moorman and Miner 1998b). Apparently, organizational memory has a significant role in the new product development process.

However, some researchers have urged that organizational memory may have adverse effects on organizations as well (Dickson 1992; Levitt and March 1996; Sinkula 1994; Slater and Narver 1995, 1999). Slater and Narver (1999) noted that "these memories may constrain generative learning or even encourage ineffective learning if they focus the organization inappropriately" (p.243). This might lead to the situation which is called the "competency trap" (Levitt and March 1996; Slater and Narver 1995, 1999). A core capability can become a trap for the organization. The competency trap occurs "when new procedures or capabilities may be more effective than old ones but the organization is unwilling to or unable to reject the capability it has invested so heavily" (Slater and Narver 1999, p.243). The competency trap is a potentially dangerous situation for an organization since it puts the organization's long-term survival in jeopardy.

Organizational memory may actually encourage organizations to focus on and stick with their traditional routines rather than adopting new ones with superior outcomes (Sinkula 1994). Sinkula (1994) maintained that "letting the interpretation of market information become too historically driven can lead to the selective attention to information which confirms past historical patterns" (p.42). This kind of bias in market information use may lead to potentially wrong decisions and may produce negative consequences for the organization.

Seemingly, the potential impacts of organizational memory on the new product development process/ outcomes has been acknowledged by a number of scholars. But, this acceptance has not been without controversy. While some researchers believe that this impact is likely to be primarily positive (e.g., Cohen and Levinthal 1990; Cooper and Kleinschmidt 1993, 1995; Montoya-Weiss and Calantone 1994; Moorman and Miner 1997, 1998b; Roberts and Berry 1983), some others address the possible adverse effects of memory on organizations (e.g., Dickson 1992; Levitt and March 1996; Sinkula 1994; Slater and Narver 1995, 1999). Given the importance of the possible link between memory and new product outcomes for the firm, this proposed relationship needs to be investigated more closely. In the current research study, the link between organizational memory and new product performance will be elaborated. In the subsequent sections, possible effects of memory level and memory dispersion on new product performance will be discussed.

3.6.4.1. Organizational Memory Level — New Product Performance

Organizational memory level might influence different measures of new product performance such as new product creativity and new product short-term financial

performance (Moorman and Miner 1997). New product creativity was defined as "the degree to which a new product is novel and has generative capacity (i.e., the potential to change thinking and practice)" (Moorman and Miner 1997, p.94). New product creativity was measured by the extent to which the new product (1) challenged existing ideas for this category, (2) offered new ideas for this category, (3) was creative, and (4) spawned ideas for other products (Moorman and Miner 1997). Organizational memory affects new product creativity positively (Cohen and Levinthal 1990; Moorman and Miner 1997). Cohen and Levinthal (1990) contended that organizational memory can enhance an organization's ability to evaluate and import new outside information, and this action could increase creativity. However, there is empirical evidence suggesting that the effect of organizational memory on creativity in new product development can be negative as well (Moorman and Miner 1997). The stored or existing knowledge sometimes tends to serve as an impediment to the all types of innovation by limiting the extent of the options (Moorman and Miner 1998b). Moorman and Miner (1998b) noted that "the tendency for existing knowledge to restrict the range of options is a common challenge for innovation of all types" (p.7). Memory might limit creativity.

Moreover, it was argued that there is a positive connection between organizational memory and a new product's short-term financial performance (e.g., Moorman and Miner 1997). Moorman and Miner (1997) noted that high organizational memory level may enhance the short-term financial performance of new products by increasing efficiencies and the possibility that earlier successes will be repeated, and by decreasing the likelihood of costly errors (Also see Cooper and Kleinschmit 1986). In a supporting argument, Day (1994) stated that "Market-driven inquiry, distribution, and interpretation will not have a

lasting effect unless what is learned is lodged in the collective memory. Organizations without practical mechanisms to remember what has worked and why will have to repeat their failures and rediscover their success formulas over and over again" (p.44). Furthermore, Moorman and Miner (1997) empirically showed that organizational memory level actually positively affects short-term (one-year) financial performance, but not new product creativity.

In brief, past research suggests that organizational memory level may have both positive and negative effects on new product creativity (Cohen and Levinthal 1990; Moorman and Miner 1997, 1998b). However, it indicates that the relationship between organizational memory level and short-term financial performance is expected to be positive (Cooper and Kleinschmit 1986; Moorman and Miner 1997). Drawing upon the conceptual and empirical findings of past research, it is concluded that the level of organizational memory associated with the new product is positively linked to overall new product performance. Accordingly, the following hypothesis is suggested to be tested:

H_{14}: *Higher levels of organizational memory pertaining to the new product project will improve overall new product performance in the absence of environmental moderators.*

3.6.4.2. Organizational Memory Dispersion — New Product Performance

One stream of research suggests that dispersing information across organizational functions (through greater interfunctional communication links such as between R&D and marketing) has a critical role in the success of new product innovations (Gupta, Raj, and Wilemon 1986; Moorman and Miner 1997). Memory dispersion enhances cross-functional understanding, cooperation, and cross-fertilization (Moorman and Miner 1997;

Souder 1987). When the assumptions about the market are disseminated and shared across the organization, firms can respond to information in a more "timely" and "coherent manner" (Day 1994, p.44). Thus, memory dispersion leads to better new product outcomes. Yet, another stream of research suggests that the lack of memory dispersion or heterogeneity in organizations should have a positive effect on innovation and creativity (Moorman and Miner 1997). Since high memory dispersion reduces heterogeneity in organizations, it could inhibit creativity (Moorman and Miner 1997).

Moorman and Miner (1997) integrated these conflicting views about the effect of memory dispersion on new product outcomes suggesting the existence of a curvilinear relationship between memory dispersion and new product creativity. According to a curvilinear relationship, moderate levels of memory dispersion (having elements of heterogeneity and homogeneity) promote the highest levels of new product creativity while high and low levels of dispersion result in lower levels of new product creativity. Moorman and Miner (1997) found that organizational memory dispersion affects the creativity of new products positively. Under conditions of high technological turbulence, high levels of memory dispersion indeed detract from creativity (Moorman and Miner 1997). According to their results, dispersion had a linear effect on creativity (Moorman and Miner 1997).

Since high levels of memory dispersion increase the effectiveness and efficiency of decision making and implementation, through enhancing cross-functional understanding, cooperation and efficiencies, it is expected to improve financial performance of new products as well (Moorman and Miner 1997). Moorman and Miner (1997) found a positive relationship between organizational memory dispersion and

short-term financial performance. Only market turbulence appears to moderate the effect of memory dispersion on financial performance (Moorman and Miner 1997).

In the current study, any possible moderating or independent effects of environmental variables (i.e., market turbulence, technological turbulence, and competitive intensity) on the model variables and/or model relationships are ignored for the sake of research clarity. Therefore, here, any potential effects of market and technological turbulence on the relationship between organizational memory dispersion and new product performance will be ignored. Following the findings of past research (e.g., Moorman and Miner 1997), the following hypothesis is posited:

H_{15}: *Higher levels of organizational memory dispersion pertaining to the new product project will result in better overall new product performance in the absence of environmental moderators.*

CHAPTER FOUR

RESEARCH METHODOLOGY AND DATA ANALYSIS

4.1. Sample Selection and Description

The sample to be used for this study utilized a variety of manufacturing industries for two purposes: (1) to increase the generalizability of the study findings (Baker and Sinkula 1999; Gatignon and Xuereb 1997; Olson, Walker, and Ruekert 1995) to a variety of industrial settings, and (2) to reduce industry-specific biases (Olson, Walker, and Ruekert 1995). Of course, the use of a heterogeneous sample from multiple industries poses the risk of noise (Gatignon and Xuereb 1997) in the analysis due to possible cross-industrial differences. To avoid excessive noise in the sample, the range of industries included in the sample was limited to a selected set of manufacturing industries. Taking the advice of Matsuno and Mentzer (2000) who stated that "providing more and consistent reference points is a useful contribution at the current stage of market orientation research" (p.11), the research survey for this study was conducted over a random sample of American manufacturing companies as was done in many past studies.

4.1.1. Selection of Businesses/ Business Lines

The sample covers two broad sets of manufacturing businesses: (1) low-tech businesses, and (2) high-tech businesses. There were many manufacturing businesses in the database that were not relevant to the subject and purpose of this research. Those manufacturing businesses were not represented in the sampling frame. The representation of these businesses within the sampling frame was likely to lower the response rate further and create a lot of noise in the analysis due to significant industrial differences. Therefore, only a carefully-selected set of manufacturing businesses was represented in

the sampling frame. These businesses were judgmentally selected from a large pool of all manufacturing businesses. Four selection criteria were used to determine an appropriate set of low-tech and high-tech manufacturing businesses for inclusion: (1) businesses should not produce bulk products that are not likely to require much customer input, (2) businesses should not be prone to any monopoly power, (3) businesses should have both marketing and R&D/engineering departments, and (4) businesses should regularly engage in new product development processes or activities. The businesses that met any of the first two criteria and/or did not meet any of the last two criteria were not selected. The ultimate purpose was to increase the response rate and to improve the quality of responses to the survey.

The Standard Industrial Classification Codes (SICC or SIC Code) were used in the selection of those qualifying manufacturing businesses that are represented in the final sample. The SIC system initially classifies all economic activity into 10 major classes. These classes include Agriculture, Forestry, and Fishing (01-09), Mining (10-14), Construction (15-17), Manufacturing (20-39), Transport, Communications, Utilities (40-49), Wholesale Trade (50-51), Retail Trade (52-59), Finance, Insurance, Real Estate (60-67), Services (70-89), and Public Administration (91-97) (*D&B Million Dollar Directory* 2001, p.X). The manufacturing (20-39) category includes 20 different general business activities (*D&B Million Dollar Directory* 2001). Each business activity has a number of lines of businesses or specific activities. Under the SIC system, each line of business is located under one of these 10 categories and assigned an appropriate four-digit code (*D&B Million Dollar Directory* 2001). The first two digits of this number represent the overall nature of the business activity. The last two digits of the four-digit SIC code

indicate the specific activity. Some companies may have more than one line of business, and accordingly, they may have a number of SIC codes. The line of business that is associated with the largest percentage of sales is called the *Primary* SIC, the other lines of business are called *Secondary* SICs (*D&B Million Dollar Directory* 2001). The SIC codes of a business are listed from the highest to the lowest according to their respective sales percentages in the database. In this study, the sample companies were selected according to their primary SIC. The sampling frame in the current study will not accommodate all business activities or lines of businesses included in the manufacturing category. Appendix B.1 displays the selected sets of manufacturing businesses that are represented in the sampling frame. They were determined through the use of the preceding four selection criteria and the SIC codes.

4.1.2. Sample Selection

D&B Million Dollar Database Premier was used as a company data source for this study. This database was selected as a source for four reasons: First, this database is regarded as one of the most current and accurate databases in the world. It is based on first-hand information that is collected via face-to-face and telephone interviews by business analysts throughout the U.S. Second, this database is believed to be one of the most comprehensive databases available. It gives the profiles of 160,000 U.S. companies and covers a broad range of industries. It includes companies with sales greater than $1 million or with total employees exceeding 20 and includes both public and private companies. Third, it provides comprehensive information on each company such as primary and secondary lines of business (up to six for each company), total employee

size, sales volume, founded/ownership date, address/telephone of the company, and names/ titles of key decision makers (company officers and directors), including CEO, marketing vice presidents and/or marketing/product managers. Fourth, it is one of the most well-known and frequently-used information sources in today's business community. The current web-based version of *D&B Million Dollar Database Premier* was available in the *Science Industry Business Library* (SIBL), which is a part of *The New York Public Library* system.

The sampling frame on which a systematic random sampling was performed had been identified through six database search criteria: First, the sampling frame was represented by those businesses displayed in Appendix B.1. Second, the companies in the sampling frame were identified on the basis of their primary SIC. Third, the sampling frame included only those companies which were *branches* of corporations or had a *single* location. *Headquarters* of corporations were not included in the sampling frame since this study is intended to be conducted at the SBU level. Fourth, annual sales was used as a *primary* sorting criterion and total employees was used as a *secondary* sorting criterion. In other words, the companies were sorted first on the basis of their annual sales, then they were sorted further on the basis of their employee size from the highest to the lowest. Thus, it was ensured that the sample includes companies in every size in terms of annual sales and employee size. Fifth, the companies in the sampling frame had sales greater than $3 million or total employees greater than 20. Finally, the key words "marketing manager," "marketing executive," and "marketing director" were used to identify those companies that display contact information related to their marketing managers/ directors/ executives in their company record in the database. Some companies

do not specify their key officers' departmental affiliations (i.e., marketing or finance) in the database.

Finally, two groups of companies were derived from the database using the six search criteria mentioned above. These groups were low-tech and high-tech groups. A systematic random sampling was performed on each group to select those companies that were included in the initial sample. The initial sample included 1,000 companies representing low-tech manufacturing businesses and 1,000 companies representing high-tech manufacturing businesses. Thus, the initial sample included a total of 2,000 manufacturing companies. Next, available information related to the selected companies was reviewed. The companies with suspicious or incomplete names and addresses or without R&D or engineering department/personnel were eliminated. Machine shops, distributional units, and bottling units of beverage companies were also eliminated. Thus, a total of 196 companies was eliminated from the sample. The final sample consisted of 1,804 companies.

4.2. Units of Analysis

At the *macro* level, the appropriate unit of analysis for this study was the SBU. The target respondent in each SBU was the marketing manager or executive. Target respondents were asked to focus only on their strategic business unit's activities if there were two or more SBUs within their corporation. They were instructed to concentrate on the overall firm's or corporation's activities as the unit of analysis if the firm does not have any SBUs. Since different SBUs of an organization are likely to be market-oriented to different degrees (Ruekert 1992), the use of the SBU as a unit of analysis seemed to be more appropriate than the firm in general (Kohli and Jaworski 1990). Ruekert (1992), in

his study of market orientation, empirically supported the view that "business units can vary significantly in their degree of market orientation in the strategic planning process, even within the same organization" (p.237). Also, Workman, Homburg, and Gruner (1998) noted that "most marketing activities are performed at the strategic business unit (SBU) or divisional level" (p.26). Given the fact that this study mainly aims to investigate marketing practices of businesses, the SBU as a unit of analysis appeared to be a proper choice.

At the *micro* level, the unit of analysis was a particular new product development project undertaken by the firm within the last five years. Each respondent was asked to identify the most recent new product development project which satisfies several conditions. The use of a new product as a referent is consistent with the relevant literature. For example, Atuahene-Gima (1995) asked informants to select one new product introduced by their firms in the last five years. Then, this product was used as a referent to all of the questions related to the firm's new product development processes and activities. Li and Calantone (1998), in a study of the relationship between market knowledge competence and new product advantage, asked the respondents to select a new product that was introduced into the American market for a minimum of 12 months and a maximum of 5 years. Then, the respondents were asked to answer all survey questions using the selected product as a referent.

However, the choice of a single new product development project as a unit of analysis is not without any problems. When new product performance is measured at the project level, it is possible that the new product project selected by the informant may not effectively represent the entire set of new products developed by the firm (Atuahene-

Gima 1995). Respondents without any guidance are likely to choose only successful new product projects. Indeed, to let the respondents identify the new product project that will be used as a referent causes self-selection bias by affecting new product performance measures (Atuahene-Gima 1995; Olson, Walker, and Ruekert 1995). In this case, the study results would not reflect the actual situation. In order to derive a sample that contains both successful and unsuccessful NPD projects in acceptable proportions, the respondents were asked to select the most recent NPD project in which they were involved. It was hoped that this condition would create adequate diversity in the sample in terms of the product's market performance and the level of newness to the firm and market. In order to reduce the likelihood of self-selection bias, similar precautionary steps have been taken by other scholars as well (e.g., Gatignon and Xuereb 1997; Li and Atuahene-Gima 1999).

The current research was conducted both at the organizational (SBU) level and at the project level. More specifically, some constructs included in the suggested model were measured at the firm level (i.e., market orientation) while the remainder were assessed at the project level (i.e., new product performance). The two-level approach in the measurement of the model constructs appears to be very useful from a statistical standpoint. In the study, all of the organizational- and project-level constructs were evaluated by the same respondents. This situation runs the risk of common methods bias. Gatignon and Xuereb (1997) argued that the risk of common methods bias can be reduced when different aggregation levels are used in the measurement of the variables. As a matter of fact, this is the case in this study. Gatignon and Xuereb (1997) maintained that this approach is new in traditional new product research which generally uses the same

aggregation levels for the measurement of variables. In this respect, the two-level approach used in this study is very beneficial and can be considered as an important contribution to new product research.

Moreover, measuring new product performance at the project level seems to be a necessity rather than a preference for researchers. For example, Atuahene-Gima (1995) strongly defends the notion that new product performance should be measured at the project level in any studies of market orientation. Atuahene-Gima (1995) argued that "there are considerable variations in the nature and performances of new product projects undertaken by a firm" (p.277). As a result, market orientation of a firm is not likely to affect all new product projects undertaken by the firm in the same way. For this reason, "measuring performance at the firm level by aggregating the performances of all new products of the firm would confound the influence of market orientation" (Atuahene-Gima 1995, p.277). Thus, measuring new product performance at the project level is beneficial.

In past research, different time frames have been used to distinguish new products from old products. The products that were developed and commercialized within the past five years (Atuahene-Gima 1995; Cooper 1984), or four years (Song and Parry 1997), or three years (Olson, Walker, and Ruekert 1995) have all been considered as new products. Li and Calantone (1998) asked respondents to identify a new product introduced by their firm into the U.S. market for a minimum of twelve months and a maximum of five years as a referent. Similarly, in this research study, a minimum of a one-year and the maximum of a five-year time frame was utilized to identify new products. This time

period seemed to be reasonable for a new product project to be effectively commercialized.

4.3. Key Respondents

The questionnaire was constructed to measure a firm's business practices primarily on the basis of market orientation and a number of organizational- and project-level variables. In the present study, marketing managers/executives of each business were chosen as key or target respondents. Individuals in these positions are expected to be sufficiently knowledgeable about their firm's business practices associated with market orientation and other organizational- and project-level processes/capabilities. Building upon the findings of previous research, Gatignon and Xuereb (1997) argued that marketing executives are "knowledgeable key informants about information concerning new product development" (p.81). Deng and Dart (1994) noted that general or marketing managers of a company are likely to be more knowledgeable regarding a company's business philosophy and marketing strategies and practices. Consequently, the selection of the marketing executive/manager of an SBU as a key respondent is consistent with and supported by previous research.

4.4. Questionnaire Design

The survey was entitled "A Business Practices Survey" for two reasons: First, this title is general enough to capture and indicate both organizational- and project-level activities of the organization. Second, this title does not mislead or precondition the survey participant to consider only a specific set of activities (i.e., marketing activities) when responding to the questionnaire. The survey questionnaire and its outline are displayed in Appendix B.2 and Appendix B.3.

In the beginning of the questionnaire, each respondent was asked to identify the most recent new product development project which satisfies all of the following three conditions: (1) the respondent should have been actively involved in the development of this new product, (2) this new product should have been introduced into the U.S. market by the respondent's business unit, and (3) this new product should have been in the market for a minimum of one year and a maximum of five years. Then, the respondents were asked to respond to a range of survey questions using the selected new product as a point of reference.

The questionnaire contains the following sets of variables: (a) *project-level variables* (type of new product, marketing-R&D interface/integration, organizational memory level, organizational memory dispersion, product competitive advantage, and new product performance[product/project level]), (b) *organizational-level variables* (market orientation, learning orientation, and organizational innovativeness), (c) *environmental variables* (competitive intensity, market turbulence, and technological turbulence), (d) *performance variables* (overall business performance, and new product performance [firm level]) and (e) *demographic information* (industry type, business type, product type, the age of business unit, the size of business unit, the respondent's current job title, the respondent's experience in the current position, and the respondent's experience in the current business unit). The questionnaire covered all of the variables included in the suggested model along with a number of additional variables that are intended to be used in future studies. Additional variables include type of new product, product competitive advantage, competitive intensity, market turbulence, technological turbulence, overall business performance, and firm-level new product performance. The

questionnaire was 5 pages in length. The estimated completion time for the questionnaire was approximately 15 minutes.

4.5. Description of Measurement Instruments

In this study, new product performance, organizational memory level, organizational memory dispersion, and marketing-R&D interface/integration were measured at the project level while market orientation, learning orientation, and organizational innovativeness were assessed at the organizational level. All measures employed in this study were borrowed from the extant literature. Appendix A.1 displays the measurement scales that were used to assess the model constructs.

A 7-point Likert scale was used for most of the measurement scales. Caruana, Ramaseshan and Ewing (1998) noted that while increasing the number of scale points generally improves scale reliability (Churchill and Peter 1984), it does not influence its psychometric properties (Nunnally 1978). In other words, using a 7-point Likert scale instead of a 5-point Likert scale might increase reliability of the associated measurement scale without sacrificing its psychometric properties.

Market orientation was measured by using MKTOR designed by Narver and Slater (1990). This scale was borrowed from Maignan, Ferrell and Hult (1999). The 17-item scale consists of the following three sub-constructs: customer orientation, competitor orientation, and interfunctional coordination. Originally, a 5-point Likert scale was used to measure market orientation. In the current study, a 7-point Likert scale, where 7 indicates *strongly agree* and 1 indicates *strongly disagree,* was used. This scale was preferred over the MARKOR scale for several reasons; First, both Pelham (1993) and Oczkowski and Farrell (1998, p.362) believed that MARKOR represents a very narrow

conceptualization of the market orientation construct because it does not comprehend some important measures that reflect the essences of creating value for customers. Second, the model suggested in this study is based on the cultural view of a market orientation. MKTOR is more consistent with this perspective of a market orientation. Lastly, MKTOR has been widely acknowledged and frequently used by scholars in market orientation studies (e.g., Gatignon and Xuereb 1997; Han, Kim, and Srivastava 1998; Lukas and Ferrell 2000; Siguaw, Brown, and Widing 1994).

Organizational innovativeness was evaluated using the scale utilized by Hurley and Hult (1998) which was originally developed by Burke (1989). Innovativeness was defined as "the notion of openness to new ideas as an aspect of a firm's culture" (Hurley and Hult 1998, p.44). The authors considered innovativeness as an important characteristic of firm culture. A five-point scale, with anchors of 1= *not descriptive* and 5= *very descriptive*, was used by Hurley and Hult (1998). In this study, a 7-point Likert scale with anchors of 1= *strongly disagree* and 7= *strongly agree*, was employed to measure organizational innovativeness.

Learning orientation was measured by the scale borrowed from Baker and Sinkula (1999, p.425) who originally adapted it from Sinkula, Baker, and Noordewier (1997). Originally, a 5-point scale, with anchors of 5= *strongly agree* and 1= *strongly disagree,* was used to assess learning orientation. In the current study, a 7-point Likert scale where 7 indicates the state of *strongly agree* and 1 indicates the state of *strongly disagree* was utilized. The scale consisted of 18 items and three sub-constructs which are commitment to learning, shared vision, and open-mindedness.

Marketing-R&D Interface/Integration was measured using the scale adapted from Li and Calantone (1998). Marketing-R&D interface/integration was evaluated on a 7-point semantic differential scale ($\propto$=.95) that consists of 8 items. The scale evaluated the degrees of communication, information sharing about customers and competitors, and cooperation between marketing and R&D in various aspects of new product development. Furthermore, it assessed the extent to which marketing and R&D was represented in new product development teams and technological and market knowledge was integrated in new product development.

Organizational memory level was assessed by the scale developed by Moorman and Miner (1997). Organizational memory level was measured by "the amount of knowledge, experience, and familiarity an organization has in a product category" (Moorman and Miner 1997, p.97). In other words, this scale assessed the extent to which an SBU or a single company possessed knowledge, experience, familiarity, and R&D investment in this product category before the selected new product project was undertaken. A 7-point Likert scale where 7 indicates *strongly agree* and 1 indicates *strongly disagree* was used. It consists of four measurement items.

Organizational memory dispersion was adapted from Moorman and Miner (1997). Organizational memory dispersion was measured by "the degree of consensus or shared knowledge among new product participants" (Moorman and Miner 1997, p.97). Moorman and Miner (1997) assumed that the higher the level of organizational memory dispersion, the more similar the group members' beliefs become on a certain subject. More specifically, the organizational memory dispersion scale measures the degree of consensus among the people working on the project for the new product areas of product

design, brand name, packaging, promotional content, and product quality level. A 7-point scale where 7 is *high* and 1 is *low* was used to measure organizational memory dispersion of an SBU or a single organization in the selected product category. The scale consists of five measurement items.

New product performance was assessed by mostly judgmental measures. In this study, judgmental performance measures were preferred over objective performance measures for several reasons. First, market orientation and other mediating variables might have a lagged effect on objective performance measures. This effect might not be captured through cross-sectional studies. Therefore, judgmental measures of performance are more appropriate than objective performance measures for cross-sectional research (Moorman and Rust 1999; Raju, Lonial and Gupta 1995). Second, subjective measures such as a manager's assessment of results as above or below expectations give the researcher an opportunity to easily compare the results across a variety of industries and situations. On the other hand, objective measures are likely to be influenced by industry-specific characteristics. A direct comparison of absolute measures across a variety of industries regardless of industry-specific conditions would be misleading (Appiah-Adu 1997). Third, it would not be realistic to expect respondents to release actual or objective performance information, which is usually private and confidential, about their company (Moorman and Rust 1999). It would also not be so wise to assume that the respondents would have adequate time and access to collect such information for the sake of research. Therefore, the managers' subjective perceptions of performance were used to measure new product performance. Finally, past research has shown that there is a strong correlation between subjective performance measures and their objective counterparts

(e.g., Dess and Robinson 1984).

Since market orientation can have different impacts on different aspects of new product performance (Atuahene-Gima 1995), a combination of different performance measures was used in the current study to measure new product performance. Atuahene-Gima (1995, p.287) argued that the use of "highly aggregated new product performance measures . . . may mask the finer details of the influence of market orientation and hinder the emergence of critical managerial insights." Therefore, in this study, a significant amount of effort was directed to including more specific measures of new product performance. Appendix A.2 presents a comprehensive review of new product performance measures used by past studies.

This study measured new product performance at the individual project level. The employment of the project-level measures appears to be more convenient and appropriate. Griffin and Page (1993) reported that while academic researchers tend to measure new product development success/failure at the firm level, practitioners are most likely to evaluate new product development success/failure at the individual project level. Practitioners do not appear to be interested in evaluating their new product development performance at an aggregate or organizational level because possible inter-functional rivalry may make organizational performance information less accessible and less available for evaluation (Griffin and Page 1993). The study by Griffin and Page (1993) revealed that only 2 percent of those firms surveyed measured success/failure at the firm-level. Moreover, marketing managers/executives who are the target respondents are expected to be more familiar with and more knowledgeable about project-level new product performance measures. Therefore, it would probably be difficult for marketing

managers/executives to evaluate new product performance from an overall perspective with satisfactory accuracy.

Demographic variables include industry type, business type, product type, the age of the business unit, the size of the business unit (the number of employees and the amount of annual sales), the respondent's current job title, the respondent's experience in the current position, and the respondent's experience in the current business unit. In terms of new product type, a typology suggested by Booz, Allen, and Hamilton (1982) was utilized. This typology identifies four types of new products which are (1) *new-to-the-world products* that are both new to the firm and new to the market, (2) *me-too products* that are new to the firm but not new to the market, (3) *line extensions* that are new to the market but not very new to the firm, and (4) *product modifications* that involve only slight incremental changes in already existing products and are familiar both to the firm and to the market. The classifications of companies in terms of employee size and annual sales volume were borrowed from Matsuno and Mentzer (2000, p.13).

4.6. Data Collection

A mail survey method was utilized as a data collection tool in the current study. This method was selected for several reasons; First, mail surveys generate research data more rapidly, more generously, and more inexpensively (Greer and Lohtia 1994; Kanuk and Berenson 1975). They are geographically flexible. Second, a mail survey allows informants to form their responses more leisurely and thoughtfully at their convenience without any time pressure. Therefore, it was expected to generate more reliable and valid data (Greer and Lohtia 1994). However, it has some disadvantages such as low response rate (Greer and Lohtia 1994; Kanuk and Berenson 1975), response and nonresponse

biases (Kanuk and Berenson 1975).

4.7. Preliminary Field Research

In preliminary fieldwork, a series of in-depth interviews over a sample of marketing managers/executives was conducted to gather a wide range of opinions, experiences, and perspectives on the relationship between market orientation and new product performance. The objectives of the preliminary fieldwork were three-fold: The first objective was to explore whether market orientation and other associated constructs included in the suggested model are applicable in practice, and whether there are new, potentially relevant constructs that have previously been unnoticed by the literature. The goal was to verify the framework of the suggested model developed on the basis of the comprehensive literature review (Homburg and Pflesser 2000). The second objective was to investigate the suitability of the existing measurement scales to the context of interest and refine them if it was necessary. Also, the purpose was to have a better understanding of the domains of the suggested organizational constructs and to improve the existing scales of the constructs in the suggested model. The last objective was to evaluate the preliminary form of the survey questionnaire and make adjustments if necessary.

In-depth interviews with 6 marketing managers/executives from 6 manufacturing companies operating in New York, New Jersey, and Connecticut were conducted mostly over the phone. In a study of the market-oriented organizational culture, Homburg and Pflesser (2000) used a sample of 10 managers from five different industries to conduct field interviews. A sample of 6 marketing managers/executives was reasonably large. In these in-depth interviews, a standard interview format was used to promote the consistency and completeness of responses across different interviews. Appendix B.4.

presents the general format of each interview. In each interview, first, a brief description of the research study was presented. Then, each interviewee was asked a number of questions related to the subject of the study. In addition to the standard questions, some follow-up questions were asked to elicit examples and illustrations, and to obtain important detailed information, clarification, or other insights (Kohli and Jaworski 1990). Each interview lasted approximately somewhere between 45 to 60 minutes. The questionnaire and the cover letter were faxed to each interviewee to be completed after the interview. Each interviewee was requested to fax back the questionnaire and the cover letter upon completion along with their comments/suggestions. Based on the findings of the fieldwork, necessary modifications in the measurement scales and/or the questionnaire were done. Some scale items were reworded, and some were added.

4.8. Pretesting

A pilot test of the questionnaire was conducted over a representative sample of 40 marketing managers/executives from 40 manufacturing companies. A systematic random sampling method was used to select those companies included in the pretest sample. The pretest sample covered 20 low-tech and 20 high-tech companies. For example, in their study of the market-oriented organizational culture, Homburg and Pflesser (2000) conducted a pretest over a sample of 9 managers and 2 academics. The objectives of the pretest were two-fold in this study: First, to refine the content (i.e., instructions, questions, etc.) and format (i.e., the order of questions, writing style, spacing, etc.) of the questionnaire. Second, to refine the scale items of each construct in the suggested model and assess the validity of each measure (Gatignon and Xuereb 1997). A total of 5 companies responded. Based on the results of the pilot survey, few changes were made in

the questionnaire.

4.9. Conducting the Survey

The mail survey method was utilized as a data collection tool. Survey packages were sent to a final sample of 1,804 marketing managers / executives. Thus, all of the target respondents were given an opportunity to examine the survey package and decide whether or not to participate in the survey. This method seemed to be more appropriate since the subject matter of the survey was very specific. Only those respondents who were interested in the subject and the content of the survey and satisfied all of the three survey requirements mentioned previously chose to participate in the survey. Each survey package included a cover letter, a questionnaire booklet, and a postage-paid return envelope. Each survey package was forwarded to the target respondent as a first-class mail (Song, Neeley, and Zhao 1996). The cover letter (see Appendix B.5) briefly explained the general purpose of the research along with appeals for cooperation and assurances of anonymity (Ayers, Dahlstrom, and Skinner 1997). In the cover letter, it was indicated that the purpose of the current research survey was to examine product development activities within American manufacturing companies. Market orientation or the other constructs of the model were not mentioned. The respondents were also assured that "individual responses would not be divulged and only aggregated data would be reported" (Sujan, Weitz, and Kumar 1994, p.41). In the cover letter, the participants were offered to receive a summary report of the research findings as a reward for their completed questionnaires or responses (e.g., Maignan, Ferrell, and Hult 1999). Following Homburg and Pflesser (2000) and Chandy and Tellis (1998), organizations that did not respond within the time frame of three weeks after the initial mailing were automatically

sent a second survey package with a reminder cover letter.

4.9.1. Response Rates

A number of experimental studies have explored the determinants of response rate, speed, completeness, bias or error, and quality (e.g., Childers, Pride, and Ferrell 1980; Greer and Lohtia 1994; Houston and Nevin 1977; Jones and Lang 1980; McDaniel and Rao 1980). *Follow-ups* or *reminders* seem to be universally successful in increasing response rates (Kanuk and Berenson 1975). *Preliminary* (*advance*) *notification*, especially via phone, has proved to be very effective in increasing response rate and speed. A *return envelope* increases response rate. The research showed that *monetary incentives* are effective in increasing response rate (e.g., McDaniel and Rao 1980). The sparse research on *survey sponsorship* showed that official or "respected" sponsorship such as *academic honor society* and especially *university*, is likely to increase the response rate (Kanuk and Berenson 1975; See, for example, Houston and Nevin 1977, and Jones and Lang 1980).

A greater response rate to a mail survey results in more accurately estimated parameters that are representative of the main population sampled (Kanuk and Berenson 1975). In the current research study, a variety of methods was used in combination to increase response rate, speed, and quality. These methods are as follows: (1) a postage-paid envelope with a return address-typed label, (2) a cover letter printed on Old Dominion University's Marketing Department letterhead, (3) highlighting Old Dominion University's association with the research study by using the university's stationary (e.g., letterhead) along with a professional-looking questionnaire booklet with a blue cover page, (4) donating a certain amount of money to a charity for each participant, (5)

offering a monetary incentive (i.e., lottery), (6) offering a brief summary of research findings for each complete and usable questionnaire, (7) a two-wave mailing of the survey package, and (8) providing detailed contact information to respondents.

A total of 292 questionnaires were not delivered to the target person for various reasons (e.g., incorrect or insufficient addresses, the person moved and left no address, forwarding order expired, and so on). A total of 27 respondents wrote back or sent an e-mail message or directly phoned to inform me that their business units did not involve new product development activities. A total of 129 questionnaires were returned entirely or partially completed. Only 111 of these questionnaires were usable. The first mailing of the surveys resulted in 75 responses. The second mailing of the surveys produced an additional 54 responses. Thus, the resulting overall response rate was approximately 8.7 percent. The overall response rate was calculated by dividing the number of responses that were received by the number of surveys that were submitted minus the number of surveys that were not delivered minus the number of respondents that were unable to participate in the survey.

Given the fact that the subject matter and content of this survey was very specific and that the target respondents had to meet certain criteria to be able to respond to this survey, the overall response rate of 8.7 percent is reasonable and acceptable. The sample size (n =111) of this study is comparable to that of Moorman and Miner's (1997) study in which the suggested hypotheses were tested over a sample of only 92 firms.

4.9.2. Assessment of Nonresponse Bias

Extrapolation methods were used in evaluating nonresponse bias. These methods

are established on the premise that "subjects who respond less readily are more like nonrespondents" (Armstrong and Overton 1977, p.2; Pace 1939). According to Armstrong and Overton (1977), 'less readily' means "answering later" or "requiring more prodding to answer" (p.2). There are three types of extrapolation: *successive waves*, *time trends*, and *concurrent waves*. The method of *successive waves*, which is the most popular (e.g., Moorman and Miner 1997), was employed. Successive waves of a questionnaire were taken into account to assess nonresponse bias. In this method, "persons who respond in later waves are assumed to have responded because of the increased stimulus (e.g., a follow-up postcard or letter) and are expected to be similar to nonrespondents" (Armstrong and Overton 1977, p.2, the parentheses and their content were added).

In the present study, a two-wave mailing approach was utilized. The usable responses obtained from the first mailing (n=66) and the usable responses obtained from the second mailing (n=45) were compared. The second mailing was three weeks apart from the first mailing. Some of the critical demographic variables were used in order to obtain the profiles of the early and late respondents. These variables were the company's age (AGE), the number of its employees (EMPSIZE), the amount of its annual sales (ANSALES), the amount of the respondent's experience in his current position (EXPPOSI), and the amount of the respondent's experience in his current business unit or company (EXPCOMP). Then, the independent-samples t-test (the two-sample t-test) was used to test the equality of the means for each variable for each respondent group. The results of the t-tests indicated that, in terms of the mean values of the selected

demographic variables, there were no statistically significant differences between the early respondents and the late respondents (see Appendix C.1) since none of t-values for the preceding variables are statistically significant. In other words, the nonrespondents are no different than the respondents (Armstrong and Overton 1977). Thus, it is appropriate to conclude that non-response bias does not seem to be a problem in this research study (Armstrong and Overton 1977).

4.10. Analyzing the Data

In this section, the results of the statistical analyses are discussed. First, the major characteristics of the sample are examined in greater detail. Second, the unidimensionality/multidimensionality, reliability, and validity assessments of the model constructs are done. Third, the hypothesized model is fitted to the sample data via post hoc analyses, and then the proposed hypotheses are tested and discussed. Finally, a multiple-group analysis is conducted to investigate the moderating effect of the organization's age on various model links, and then the related hypotheses are tested and discussed.

4.10.1. Characteristics of the Sample

The size of the sample is 111. The sample reflects the diversity of manufacturing businesses quite well. Overall, the sample encompasses a diverse set of manufacturing businesses from acrylic whirlpool / bath manufacturing to wireless communication and from toy manufacturing to aviation-avionics (see Table 4.1).

Appendix C.2 exhibits descriptive statistics and frequency tables related to demographic characteristics of the sample. The characteristics of the sample were

analyzed from three perspectives: (1) product/project characteristics, (2) company characteristics, and (3) respondents' characteristics. Below, the characteristics of the sample are examined in greater detail (see Table 4.2).

Product/Project Characteristics

The sample includes four new product categories in comparable proportions. It includes 25 product modifications (22.5 % of the sample), 22 line extensions (19.8 % of the sample), 24 me-too products (21.6% of the sample), and 40 radical innovations (36% of the sample). Radical innovations accounted for the largest part of the sample with 36 percent.

Company Characteristics

43 companies in the sample view themselves as high-tech businesses while the remaining 68 companies define themselves as non-high-tech businesses. In other words, 38.7 percent of the sample represents high-tech businesses while 61.3 percent of the sample involves non-high-tech businesses. The sample seems to be biased toward non-high-tech businesses.

The largest percentage (82.9%) of the companies included in the sample manufacture some types of industrial products. This group is followed by the companies that produce consumer products with 28.8 percent, industrial services with 15.3 percent, and consumer services with 6.3 percent. Although the sample appears to be biased toward companies that manufacture industrial products, the companies that produce consumer

Table 4.1
A List of Manufacturing Businesses Represented in the Final Sample

Acrylic Whirlpool / Bath Manufacturing
Additive Injectors & Specialty Vehicles O.D.V. (Omni Directional Vehicle)
Aerospace Safety / Mechanical, Electrical Safety Devices
Aerospace-Support/R&D
Agriculture Equipment, Turf Maintenance Equipment
Analytical Chemistry
Analyzers, Safety Equipment
Apparel, Decorative Apparel, Graphic Arts/Signs
Assembly, Test & Inspection
Audio Electronics
Auto, Automotive-OE
Automotive After Market
Automotive After Market Chemicals
Automotive Components
Aviation-Avionics
Biotechnology, Drug Discovery
Beverages-Nonalcoholic
Building Products
Casual Furniture
Chain Link Fence Industry
Chemical/Eqilipmovt Manufacturing
Chemical Mining
Coated Films & Paper
Commercial Maintenance
Computer Certification
Construction
Construction Equipment
Construction Equipment (Underground)
Custom Metal Parts / Job Shop
Cutting Tools
Defense
Electrical Products
Electronics
Electronics Assembly
Entertainment Lighting
Equipment/Services for Citrus Industry
Fastener / Tool
Firearms / Laser Sights
Food / Feed
Food SVC Technology
Forest Products
Furniture
Gift Industry
Hi-Tech Communications: Media & Entertainment
Healthcare
Heating, Ventilating and Air Conditioning
Heavy-Duty Hybrid-Electric Drive System
Industrial Belting

Industrial Equipment Manufacturing
Industrial Instrumentation
Inflatables
Instruments
Laboratory Products
Laundry SVCS
Lawn & Garden
Lock & Hardware
Locks and Security
Machinery-Capital Equipment
Machine Tool-Work Molding
Mail-Order Catalog
Manufacturing Display Systems for Supermarkets
Manufacturing Lighting
Manufacturing Storage Equipment
Medical Disposable Devices
Military Electronics
Military Life Support Devices
Mobile Construction Equipment
Moisture Testing
Network Encryption
Office Equipment (Not Computers)
Off Road
PlasticCard Personalization
Plastic Molding
Plastics
Plastics (Nylon)
Plumbing
Pool and Spa Industry
Power Tools Servicing- Transportation Industry
Pressure Instrumentation
Production Mailing & Finishing Systems
Professional Beauty Products, Mass Cosmetics
Pultruded Fiber Reinforced Polymers
Retail Automation
Rubber Products
Safety Personal Protection
Security
Semiconductor-Memory
Sensing Systems for Manufacturing
Sporting Goods Manufacturing
Steel Dorm Furniture
Stress, Force & Weight Measurement
Telecommunications
Telecommunication Services
Telescopes, Sport Optics
Toys
Utility
Video Gaming
Water Purification
Wireless Communication

Table 4.2

Characteristics of the Sample

n= 111

	Frequency	Percentage
Type of New Product		
Product Modification	25	22.5
Line Extension	22	19.8
Me-Too Product	24	21.6
Radical Innovation	40	36
Business Type		
High-Tech	43	38.7
Non-High-Tech	68	61.3
Product Type		
Consumer Products	32	28.8*
Industrial Products	92	82.9*
Consumer Services	7	6.3*
Industrial Services	17	15.3*
Number of Employees		
1-19	10	9
20-49	28	25.2
50-99	29	26.1
100-249	31	27.9
250-499	5	4.5
500-999	3	2.7
1000-4999	5	4.5
5000-9999	--	--
10000+	--	--
Amount of Annual Sales		
< $5 million	13	11.7
≥ $5 million - < 10 million	32	28.8
≥ $10 million - < 20 million	20	18
≥ $20 million - < 50 million	22	19.8
≥ $50 million - < 100 million	11	9.9
≥ $100 million - < 500 million	6	5.4
≥ $500 million - < 1 billion	1	0.9
≥ $1 billion	1	0.9
Unknown	5	4.5
Respondent's Job Title		
CEO/ President/General Manager	13	11.7
VP-Marketing/Sales	11	9.9
VP-Sales	5	4.5
Director-Marketing/Sales	24	21.6
Director-Sales	3	2.7
Manager-Marketing/Sales	33	29.7
Manager-Sales	5	4.5
Others (Engineering, etc.)	16	14.4
Unknown	1	0.9

	Mean	Mode	Median	St. Dev.	Range
Age of Business Unit (yrs.)	32.95	20	26	24.16	112
Years in Current Position	5.77	5	5	4.57	23.17
Years in the Business Unit	9.28	5	6	8.07	34.17

(*) These four percentages add to more than 100% because some firms had multiple product types.

products are also well- represented by the sample. A small percentage of the manufacturing companies in the sample generate consumer and/or industrial services as well. However, businesses that solely produce services were not included in the sample since the study focuses on manufacturing businesses only.

The companies in the sample vary in terms of their size. In terms of the number of employees, most of the companies in the sample have employees anywhere between 20 and 249. This group represents 79.2 percent of the sample. Few companies have less than 20 employees (9 percent of the sample) or more than 250 employees (11.7 percent of the sample). However, none of the participating companies has more than 5,000 employees.

In terms of the amount of annual sales, 28.8 percent of the sample companies generate annual sales that equal or exceed $5 million but are less than $10 million. This is the largest group in the sample. This group is followed by the 19.8-percent group whose sales equal or exceed $20 million but are less than $50 million in annual sales, and the 18-percent group that earns equal to or more than $10 million but less than $20 million in annual sales.11.7 percent of the companies in the sample generate less than $5 million in annual sales. Only, 17.1 percent of the sample companies have annual sales that equal or exceed $50 million. 5 companies, 4.5 percent of the sample, chose not to disclose their annual sales level due to their confidentiality concerns. In conclusion, the sample seems to be biased toward small- and medium-sized companies. 78.3 percent of the companies in the sample have an annual sales figure that is less than $50 million. This is not a surprising finding since this study focuses on marketing activities of single companies and SBUs of larger corporations. This study was conducted at the SBU level.

The mean age of the sample companies is approximately 33 years. The age range of the companies in the sample is 112 years. 20 years of age is the most cited age in the sample. The median age is 26 years.

Respondents' Characteristics

The characteristics of the survey participants were evaluated on the basis of the following three criteria: (1) current job title, (2) amount of experience in the current position, and (3) amount of experience in the current business unit or company.

Most of the respondents in the sample were marketing/sales managers (29.7 percent). This was followed by marketing/sales directors with 21.6 percent, nonmarketing executives or managers with 14.4 percent, CEOs/presidents/general managers with 11.7 percent, and marketing/sales vice presidents with 9.9 percent. The percentages of vice presidents, directors and managers of sales (respectively, 4.5 percent, 2.7 percent, and 4.5 percent) were relatively low. Only one respondent did not disclose his/her job title. Nonmarketing executives/managers in the 'others' group include new product development managers, production/project managers, directors of new business, business development managers, engineering or engineering project managers, directors of human resources, R&D directors, directors of technology development, and plant managers.

The respondents, on average, had approximately 6 years of experience in their current position and 9 years of experience in their current business unit or company. The respondents most frequently cited having 5 years of experience both in the current position and in the current business unit or company. While the range of the

respondents' experience in the current position is about 23 years, the range of experience in the current business unit or company is about 34 years.

4.10.2. Unidimensionality, Reliability and Validity Assessments

Before proceeding with model fitting and hypothesis testing, the statistical properties of the model constructs including unidimensionality / multidimensionality, reliability, and discriminant validity were investigated. Prior to the assessment of the reliabilities of the model constructs, the unidimensionality / multidimensionality of all constructs were analyzed (Gerbing and Anderson 1988). In order to assess the unidimensionality / multidimensionality of the model constructs, each construct of the model was subjected to a principle component analysis (PCA) to verify a single or multiple factor structure. In the principle component analysis, varimax rotation and an Eigenvalue of 1 were utilized. For each construct or dimension, only a single factor structure was obtained with the exception of market orientation and learning orientation for which a three-factor structure was extracted. In fact, for the market orientation and learning orientation constructs, four factors were extracted. But, the Eigenvalues of the fourth factors extracted were very small (respectively 1.070 and 1.107). Since these factors explained only a small portion of total variance (respectively, 6.293% and 6.151%), they were considered to be ignorable. Two items (i.e., int4n and int8n) of the marketing-R&D/engineering scale were eliminated since some respondents had difficulty in rating these items. Table 4.3 presents the summary results of factor analysis of the scale items. In this table, the name of each construct, the number of items in the scale, the number of factors extracted, and the percentage of variance extracted during factor

analysis are displayed. The detailed results of factor analyses are presented in Appendix C.3.

As the next step, the reliabilities of the model constructs were evaluated. Reliability for each construct was assessed using the coefficient alpha which was obtained using a reliability analysis in the SPSS package. Appendix C.4 presents the detailed results of reliability analyses. The coefficient alpha of each construct was compared to the cutoff value of 0.70 suggested by Nunnally (1978). Table 4.4 displays the reliability estimates (Cronbach alphas) of the model constructs along with their standardized item alphas. For comparison purposes, the Cronbach alphas of past studies for some constructs are provided as well. As can be seen from Table 4.4, most of the coefficient alphas are greater than 0.70 (Nunnally 1978). Even though the coefficient alphas for organizational memory dispersion are smaller than 0.70, they are still acceptable. As demonstrated in Table 4.4, the Cronbach alphas of this study are consistent and comparable with those of past research.

After verifying unidimensionality and reliability of the model constructs, the summated scales approach was used to generate a single measure for each construct per case. In this approach, the item scores for each construct were summated to obtain a single score for every construct of the model. Then, the bivariate correlations between the observed variables were calculated after the item scores for each construct were summed. Appendix C.5 exhibits a correlation matrix with the calculated bivariate correlations between the observed variables. As can be seen from the table, none of the confidence intervals of the construct correlations include 1. This provides evidence of discriminant

Table 4.3
Summary Results of Principle Component Analysis of Scale Items

Construct	Number of Items	Number of Factors Extracted	% of Variance Extracted
Marketing-R&D Interface/Integration	6*	1	60.10
Organizational Memory Level	4	1	68.16
Organizational Memory Dispersion	5	1	42.77
New Product Performance	5	1	69.12
Market Orientation	17	3	58.26
Customer Orientation	6	1	57.64
Competitor Orientation	6	1	47.73
Interfunctional Coordination	5	1	61.98
Learning Orientation	18	3	66.38
Commitment to Learning	6	1	68.32
Shared Vision	6	1	65.38
Open-Mindedness	6	1	60.86
Organizational Innovativeness	5	1	63.37

(*) This is the number of the items remaining in the scale after the elimination of two items (i.e., int4n and int8n) from the original scale.

Variable Notation

Construct	Item Notation	Latent Variables	Observed Variables
Marketing-R&D Interface/integration	int 2-9	MRDINT	MRI
Organizational Memory Level	ml 10-13	MLEVEL	ML
Organizational Memory Dispersion	md 14-18	MDISPER	MD
New Product Performance	pp 24-28	NPP	
Market Share	pp 24		MS
Sales	pp 25		SLS
Return on Assets	pp 26		ROA
Profit Margin	pp 27		PM
Return on Investment	pp 28		ROI
Market Orientation		MKTOR	
Customer Orientation	co 38-43		CO
Competitor Orientation	cmo 44-49		CMO
Interfunctional Coordination	ic 50-54		IC
Learning Orientation		LEARNOR	
Commitment to Learning	cl 55-60		CL
Shared Vision	sv 61-66		SV
Open-Mindedness	om 67-72		OM
Organizational Innovativeness	oi 73-77	ORGINNO	OI

Table 4.4
Reliability Estimates of Model Constructs

Construct	Cronbach Alpha	Standardized Item Alpha	Cronbach Alphas of Past Studies
Marketing-R&D Interface/Integration	.85*	.86*	.95 (Li & Calantone 1998)
Organizational Memory Level	.83	.83	unknown
Organizational Memory Dispersion	.66	.65	unknown
New Product Performance	.89	.89	.95 (Moorman 1995)
Market Orientation	.90	.90	.88 (Narver and Slater 1990) .90 (Deshpandé & Farley 1996)
Customer Orientation	.84	.85	.85, .87 (Narver & Slater 1990)
Competitor Orientation	.78	.78	.72, .73 (Narver & Slater 1990)
Interfunctional Coordination	.84	.85	.71, .73 (Narver & Slater 1990)
Learning Orientation	.94	--	.94 (Baker & Sinkula 1999)
Commitment to Learning	.90	.91	unknown
Shared Vision	.88	.89	unknown
Open-mindedness	.86	.87	unknown
Organizational Innovativeness	.85	.85	.82 (Hurley & Hult 1998)

* The two items (i.e., int4n and int8n) were eliminated from the original scale.

validity for the model constructs. The evidence of discriminant validity also serves as evidence of construct validity for all the model constructs (Churchill 2001). "... Discriminant validity requires that a measure not correlate too highly with measures from which it is supposed to differ. Correlations that are too high suggest that the measure is not actually capturing a distinct or isolated trait" (Churchill 2001, p.373). In this study, evidence of discriminant validity needs to be established for the 'interfunctional coordination' dimension of the market orientation construct and the R&D-marketing integration construct. According to Appendix C.5, the two constructs have correlation of 0.31 (St. Deviation =0.05) which is not too high. Moreover, the confidence interval of their correlation ranges from 0.21 to 0.41 [+ or -2*(St. Deviation)]. It does not include 1, thus providing strong evidence of their distinct identities.

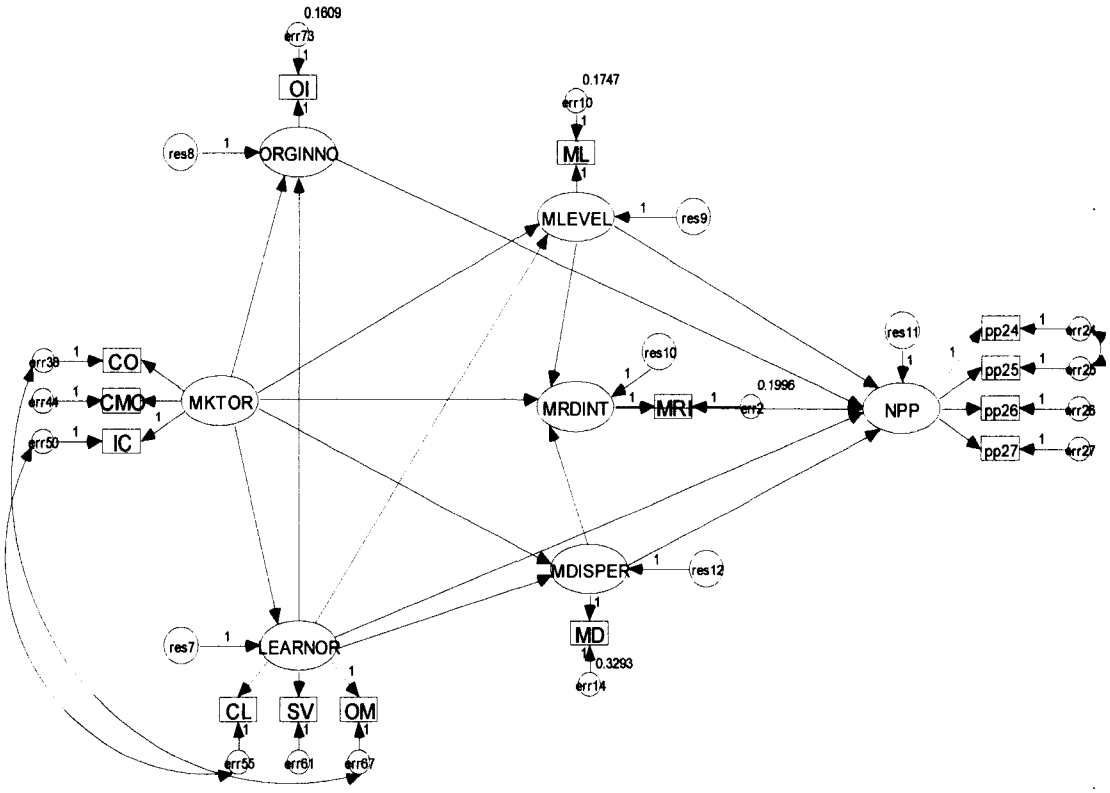
4.10.3. Model Fit

The hypothesized full SEM consists of a measurement component and a structural component (see Figure 4.1). In the model, there are 14 observed (measured) variables or indicators of latent variables, and 7 latent constructs or factors. There is only one independent latent variable which is the market orientation construct. All the other variables are dependent. This is an overidentified model with degrees of freedom of 63.

The fit of the hypothesized full structural equation model was evaluated using AMOS 4 (Arbuckle 1999). First-order confirmatory factor analyses (CFAs) were run on each unidimensional (e.g., MRDINT, MLEVEL, MDISPER, ORGINNO and NPP) and multidimensional construct (e.g., MKTOR and LEARNOR) of the model separately to test the validity of the indicator variables (items) of the construct. If the model fit is good,

Figure 4.1
Final Model of the Market Orientation - New Product Performance Relationship

The Hypothesized Model of the Market Orientation - New Product Performance Linkage.



no changes were made. In order to obtain a better fit for each construct, either some items were deleted from the scales (e.g., marketing-R&D integration [int3], memory dispersion [md18], and innovativeness [oi76n]) or some error terms were correlated (e.g., new product performance [err24 and err25 were correlated]) on the basis of modification indices of CFAs on each model construct. The specification of an error covariance between the error terms err24 and err25 can be justified and interpreted substantively by

the following argument: The error term err24 is associated with the item pp24 (market share relative to its stated objective) while the error term err25 is associated with the item pp25 (sales relative to its stated objective). Etzel, Walker, and Stanton (2004, p.165) defined market share as "... the proportion of total sales of a product during a stated period in a specific market that is captured by a single firm." In other words, market share is the company's sales divided by total sales in a given market. Both actual market share and estimated (the stated objective) market share of a new product are calculated using respectively actual sales and estimated (the stated objective) sales of that new product. The deviation of actual market share from estimated market share will be similar to the deviation of actual sales from estimated sales for each company in the sample if actual total sales does not deviate from estimated total sales substantively. Therefore, the error terms of these two items are likely to be correlated. Thus, the specification of an error covariance between these two performance items is substantiated.

After the model fitting process, the item scores related to the remaining items of each construct were summated to obtain a single score per case, with the exception of NPP whose item scores were not summated. Some constructs including memory level, competitor orientation, and interfunctional coordination represented a perfect fit. The four error variances associated with organizational innovativeness, memory level, memory dispersion, and marketing-R&D integration were assigned to fixed values (respectively, 0.1609, 0.1747, 0.3293, and 0.1996). The error variance for each construct was calculated by subtracting the reliability (alpha) of each construct from 1 (DeVellis 1991, p.26).

The full SEM was next evaluated (Model 1). The model fit was found to be not good (χ^2=117.33, d.f.= 65; GFI=0.874; IFI=0.930; TLI=0.898; CFI=0.927; RMSEA=0.086). The value of ECVI was 1.794. Post hoc analyses were conducted to obtain a better fitting model. In order to identify possible areas of model misfit, the standardized residuals and modification indices were examined. The residual covariance matrix shows any discrepancy between the restricted covariance matrix, implied by the hypothesized model, and the sample covariance matrix (Byrne 2001). The magnitudes of none of the standardized residuals in the residual covariance matrix were larger than the cutoff value of 2.58 (Byrne 2001). None of the standardized residuals or discrepancies in the residual covariance matrix was statistically significant. Thus, examination of the standardized residuals did not provide much help. The hypothesized model was modified on the basis of modification indices which were larger than 10. In the modified model (Model 2), the error terms err50 and err55 were correlated. The error term err50 is associated with the concept of interfunctional coordination (IC) while the error term err55 is associated with the concept of commitment to learning (CL). The correlation between these error terms can be justified and interpreted substantively by the following rationale: Interfunctional coordination requires constant communication, cooperation and integration across all functional units about various aspects of business. It is believed that everyone can contribute to the creation of customer value (Maignan, Ferrell and Hult 1999; Narver and Slater 1990). Commitment to learning is based on giving a priority to learning. The firm's ability to learn is seen as the key to its competitive advantage. Learning is the key to improvement and guarantees organizational survival and future.

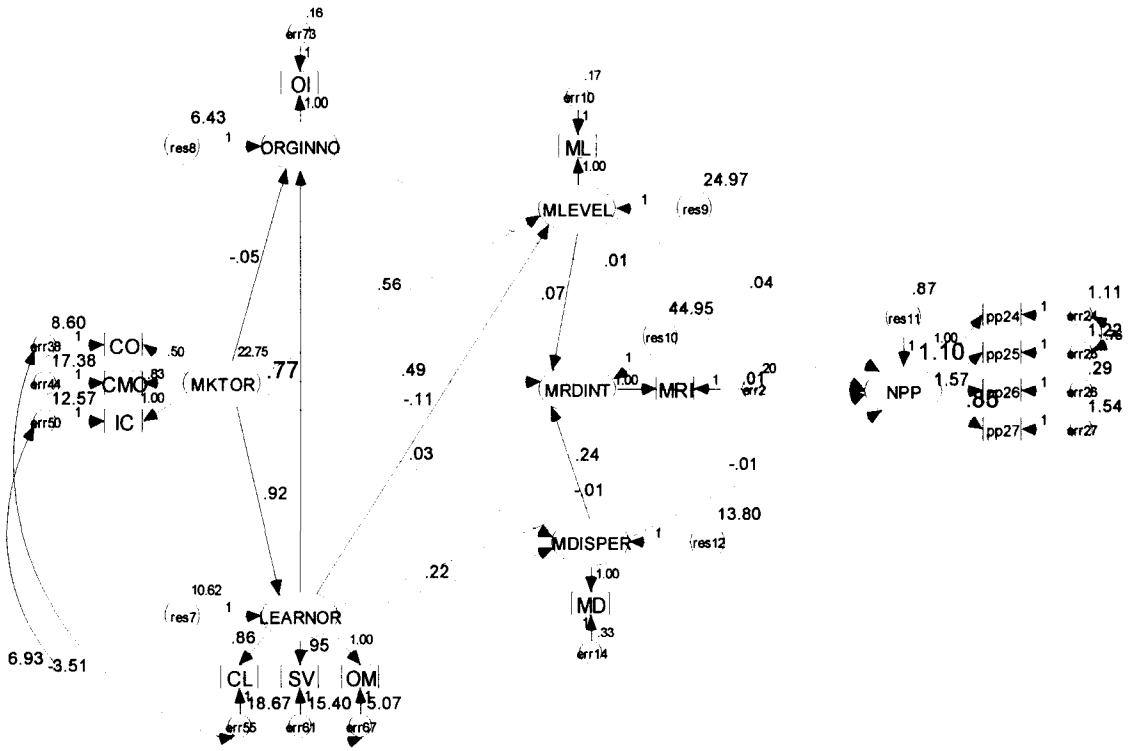
Employee learning is given a top priority and viewed as an investment (Baker and Sinkula 1999). Interfunctional coordination requires information sharing among organizational members across functional units. Continuous information sharing leads to shared interpretations within the organization which are crucial for organizational learning to occur (Slater and Narver 2000). An organization with a strong commitment to learning uses interfunctional coordination as a tool to accomplish its learning objectives. Both interfunctional coordination and commitment to learning might coexist in an organization. These two concepts possess some crucial mutual elements such as valuing employees and organization-wide sharing of knowledge. It is not surprising to see the error terms of these two indicator variables to be correlated since both variables represent similar organizational philosophies. Thus, the above argument substantiates the specification of an error correlation between these indicator variables. The goodness-of-fit indexes related to the estimation of Model 2 were not good (χ^2=103.098, d.f.=64; GFI=0.888; IFI=0.948; TLI=0.923; CFI=0.946; RMSEA=0.075). The value of ECVI was 1.683.

Next, Model 2 was modified on the basis of modification indices. In the resulting model (Model 3), the error terms err38 and err67 were also correlated. The error term err38 is associated with the concept of customer orientation (CO) while the error term err67 is associated with the concept of open-mindedness (OM). The correlation between these error terms can be justified and interpreted substantively by the following argument: Customer orientation is based on being curious about and sensitive to customers and their wants and needs, understanding customers better, finding new ways to satisfy them,

creating greater value for them, and frequently and systematically measuring customer satisfaction (Maignan, Ferrell and Hult 1999; Narver and Slater 1990). Open-mindedness can be considered as an organizational approach that is based on encouraging employees to question/criticize the shared assumptions and managers' view of the world, and highly valuing open-mindedness, innovative thinking, original ideas, and constant innovation (Baker and Sinkula 1999). Clearly, the concepts of customer orientation and open-mindedness share some common characteristics such as valuing creativity, searching for better ways and the creation of knowledge. Since both concepts are reflective of the same organizational thinking, it is not unusual to have the error terms of these two indicator variables be correlated. Thus, the above argument substantiates the specification of an error covariance between these indicator variables. The estimation of this model resulted in a discrepancy value of 88.949 with degrees of freedom of 63. The fit between the model and the sample data was found to be very good (GFI= 0.902 > 0.90; IFI=0.965 > 0.90; TLI=0.948 > 0.90; CFI=0.964 > 0.90; RMSEA=0.061<0.08; P-close fit= 0.257>0.05). The value of ECVI (1.572) improved and is less than the ECVI values (respectively, 1.909 and 7.643) of the alternative models (saturated and independence models). This model was accepted as a final model. The output of the goodness-of-fit statistics for the best fitting model is presented in Appendix C.6. Figure 4.2 displays the output path diagram of the best-fitting final model.

Figure 4.2
Final Model with Parameter Estimates

The Hypothesized Model of the Market Orientation - New Product Performance Linkage.



4.10.4. Hypothesis Testing

When the best fitting model was determined, hypothesis testing was performed. This was done by assessing the statistical significance of each estimated model parameter using its critical ratios (t-values) at the different significance levels (Sharma 1996). Table 4.5 exhibits the parameter estimates of the suggested links in the model and the (t-values) of these parameter estimates. In this section, the suggested hypotheses are presented, and the results of hypothesis testing are discussed. The critical t-values that were used for

Table 4.5
Parameter Estimates for Hypothesized Relationships of Proposed Model

Sign / Hypothesized Relationship	Hypothesis	Parameter Estimate	t-value
(+) Market Orientation - Organizational Innovativeness	**(H1)**	-0.046	-0.321
(+) Organizational Innovativeness - New Product Performance	**(H2)**	0.014	0.332
(+) Market Orientation - Learning Orientation	**(H3a)**	0.922	8.034*
(+) Learning Orientation - Organizational Innovativeness	**(H4)**	0.768	6.081*
(+) Learning Orientation - New Product Performance	**(H5)**	-0.013	-0.341
(+) Market Orientation - Marketing/R&D Interface	**(H6)**	0.492	2.766*
(+) Marketing/R&D Interface - New Product Performance	**(H7)**	0.008	0.464
(+) Market Orientation - Organizational Memory Level	**(H8a)**	0.559	2.103**
(+) Market Orientation - Organizational Memory Dispersion	**(H9a)**	0.026	0.145
(+) Learning Orientation - Organizational Memory Level	**(H10)**	-0.111	-0.523
(+) Learning Orientation - Organizational Memory Dispersion	**(H11)**	0.220	1.501***
(-) Organizational Memory Level - Marketing/R&D Interface	**(H12)**	0.074	0.548
(-) Organizational Memory Dispersion - Marketing/R&D Interface	**(H13)**	0.242	1.371***
(+) Organizational Memory Level - New Product Performance	**(H14)**	0.044	2.158**
(+) Organizational Memory Dispersion - New Product Performance	**(H15)**	-0.008	-0.282

(*) Significant at the 0.01 level ($t_{critical}$ = 2.358)

(**) Significant at the 0.05 level ($t_{critical}$ = 1.658)

(***) Significant at the 0.10 level ($t_{critical}$ = 1.289)

hypothesis testing are 2.358, 1.658, and 1.289 at the 0.01, 0.05, and 0.10 significance levels respectively.

Hypothesis 1 states that a higher level of market orientation in an organization will result in a higher level of organizational innovativeness. The parameter estimate for this link is negative (-0.046) and statistically insignificant at the significance level of 0.10 (C.R.=-0.321; P=0.748). Thus, H1 is not supported by the survey data. Hypothesis 2 suggests that the higher the degree of innovativeness exhibited by an organization, the higher the performance of a new product developed by this organization. This hypothesis establishes a positive link between innovativeness and new product performance. The estimated coefficient for the proposed link is 0.014 which is not statistically significant at the significance level of 0.10 (C.R.=0.332; P=0.740). This suggests that there is no relationship between innovativeness and new product performance.

Hypothesis 3a states that market orientation will have a positive effect upon organizational learning orientation. The parameter estimate for this relationship is positive (0.922) and statistically significant at the 0.01 level (C.R.=8.034; P= 0.000). H3a is supported by the survey data. It can be concluded that there is a strong relationship between market orientation and organizational learning orientation.

Hypotheses 4 and 5 are pertaining to the effects of learning orientation on organizational innovativeness and new product performance. Hypothesis 4 indicates that the degree of learning orientation is positively linked to the degree of organizational innovativeness exhibited by the organization. The coefficient for this link is positive (0.768) and statistically significant at the 0.01 significance level (C.R.=6.081; P=0.000).

Thus, it can be concluded that H4 is supported by the sample data and there is a strong relationship between learning orientation and organizational innovativeness. Hypothesis 5 states that the higher the level of learning orientation exhibited by the organization, the higher the degree of new product's performance introduced by the organization. The parameter estimate for this linkage is negative (-0.013) and statistically insignificant at the 0.10 level (C.R.= -0.341; P= 0.733). Thus, H5 is not supported.

Hypotheses 6 and 7 are pertinent to the relations of marketing/R&D integration to market orientation and new product performance. Hypothesis 6 states that the higher the level of market orientation within an organization, the higher the level of integration between the marketing and R&D/engineering functions in the new product development process/project undertaken by the organization. The parameter estimate for this link is positive (0.492) as suggested in the hypothesis and also statistically significant at the 0.01 significance level (C.R.=2.766; P=0.006). Thus, H6 is supported. According to Hypothesis 7, the higher the level of integration between the marketing and R&D/engineering functions in the new product development process/project undertaken by the organization, the higher the new product performance will be. The coefficient estimate for this link is positive (0.008) as proposed but not statistically significant at the 0.10 significance level (C.R.=0.464; P=0.642). Therefore, H7 is not supported.

Hypotheses 8a and 9a are related to the effect of market orientation on organizational memory. Hypotheses 8b and 9b are associated with the moderating effect of the firm's age on the links suggested in H8a and H9a. Hypothesis 8a suggests that market orientation will have a positive effect on organizational memory level pertinent to

the new product's domain. The parameter estimate for the suggested link is positive (0.559) as expected and statistically significant at the 0.05 significance level (C.R.=2.103; P=0.035). H8a is supported by the data. Hypothesis 9a suggests that market orientation will have a positive effect on organizational memory dispersion pertinent to the new product's domain. The parameter estimate for this relationship is positive (0.026) as suggested, but not significant at the 0.10 significance level (C.R.=0.145; P=0.885). H9a is not supported.

Hypotheses 10 and 11 are related to the effect of learning orientation on organizational memory. Hypothesis 10 states that learning orientation will have a positive effect on organizational memory level pertinent to the new product's domain. The parameter estimate for this suggested link is negative (-0.111) as opposed to the expected sign, but not statistically significant (C.R.=-0.523; P=0.601). Hypothesis 11 indicates that learning orientation will have a positive effect on organizational memory dispersion pertinent to the new product's domain. The coefficient estimate for the proposed link is positive (0.220) as suggested, and it is statistically significant (C.R.=1.501; P=0.133). H11 is supported.

Hypotheses 12 and 13 are about the effect of organizational memory on marketing-R&D integration. Hypothesis 12 states that the higher the level of organizational memory associated with the new product, the lower the level of integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization. The coefficient estimate for this suggested link is positive (0.074) as opposed to the suggested sign in the hypothesis, but

this link is not statistically significant (C.R.=0.548; P=0.584). Hypothesis 12 is not supported by the data. Hypothesis 13 suggests that the higher the dispersion of organizational memory associated with the new product, the lower the level of integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization. Actually, the study results suggest the opposite. The parameter estimate for this proposed link is positive (0.242) and statistically significant (C.R.=1.371; P=0.170).

Finally, Hypotheses 14 and 15 are related to the effect of organizational memory on new product performance. Hypothesis 14 states that higher levels of organizational memory pertaining to the new product project will improve overall new product performance in the absence of environmental moderators. The study results support this hypothesis. The coefficient estimate for the proposed relationship is positive (0.044) as suggested and statistically significant at the 0.05 significance level (C.R.=2.158; P= 0.031). Thus, H14 is supported by the survey data. Hypothesis 15 suggests that higher levels of organizational memory dispersion pertaining to the new product project will result in better overall new product performance in the absence of environmental moderators. This hypothesis is not supported since the parameter estimate for the suggested link is negative (-0.008) but statistically insignificant (C.R.=-0.282; P=0.778).

4.10.5. Multiple-Group Analyses: Assessment of Moderating Effects of the Firm's Age

Multiple-group or multigroup structural equation modeling (MSEM) in AMOS was utilized to test the moderating effects of the firm's age on the relationships between

(1) market orientation and learning orientation, (2) market orientation and organizational memory level, and (3) market orientation and organizational memory dispersion. The purpose was to see whether or not the parameter estimates of the hypothesized model differed significantly between young and old organizations (Matsuno and Mentzer 2000; Sharma 1996). For a multiple-group analysis, the sample was divided into two subsamples based on the age of the firms (i.e., young firms versus old firms). The median value for the age variable was used to group the companies in the sample as young or old. The descriptive statistics and a histogram associated with the age variable are presented in Appendix C.7. The median age of the sample companies was 26 years. The median age corresponded to the 56th case and this age was used to divide the sample into two subgroups. The younger group (n=56) represented those firms which were 26 years old or younger. The older group (n=55) consisted of firms which were older than 26 years of age.

Testing for invariance of the parameter estimates or structural paths between market orientation and the three other constructs (i.e., learning orientation, memory level, and memory dispersion) across young and old firms was the focus of the multiple-group analysis. First, the hypothesized model was fitted to the data from each group separately using post hoc model-fitting procedures. Separate models for each subgroup were estimated (Sharma 1996). Thus, a baseline model for each subgroup was obtained (Byrne 2001). Second, for the market orientation-learning orientation link, the parameters were estimated for both subgroups simultaneously by using these baseline models. The fit of this simultaneously estimated model provided the baseline value against which all

subsequently specified models were compared (Byrne 2001). This multiple-group analysis yielded only one set of fit statistics for overall model fit. This model was a free model in which the effect of market orientation on learning orientation (when the market orientation-learning orientation link was considered) was allowed to be different. The key indexes in a multigroup analysis are the Chi-square statistics, the CFI and RMSEA values (Byrne 2001). Third, in SEM, testing for the invariance of parameters across groups is achieved by placing constraints on particular parameters. These parameters are specified as being invariant (i.e., equivalent) across groups (Byrne 2001). Accordingly, an equality constraint model in which the effect of market orientation on learning orientation was constrained to be equal across the subgroups was estimated simultaneously for both subgroups. Finally, the Chi-square test was used to determine if these estimated parameters of the two subgroups for the market orientation-learning orientation link were significantly different from each other. The pairwise comparison was based on the Chi-square difference between the two models, in which one model constrained the two parameters to be equal (i.e., an equality constraint model) and the other model left the two parameters free to differ (i.e., a free model) (Matsuno and Mentzer 2000, p.8). The difference between the Chi-square statistics of these two models was used as a test statistic for the equal parameters, that is, whether the equality constraint model, in which the parameters are equal, generated as good a fit as the free model, in which the parameters are not constrained to be equal (Matsuno and Mentzer 2000, p.8). This procedure was repeated for testing of invariance of the structural paths between market orientation and memory level, and market orientation and memory dispersion across the

subgroups.

The results of these analyses are presented in Table 4.6. This table exhibits summary goodness-of-fit statistics associated with the restricted and unrestricted (free) models, the Chi-square differences between the unrestricted model and restricted models, and parameter estimates of the unrestricted model. According to the statistical results, for the hypothesized unrestricted (free) model, the Chi-square value (χ^2=149.343 ; d.f.=116) represented the baseline value against which all subsequent tests for invariance were compared. CFI (0.955) and RMSEA(0.051) indicated a well-fitting model across the two subgroups. After the establishment of good fit of the model, the invariance of the suggested three structural paths across the two subgroups was tested one at a time by placing an equality constraint on the associated parameters. Then, the Chi-square value of each restricted model was compared with that for the free model in which no equality constraints were imposed. All of the three restricted models represented a good fit to the data based on their CFI and RMSEA values.

Table 4.6
Summary Goodness-of-Fit Statistics for Tests of Invariant Structural Paths Across Young and Old Firms and Parameter Estimates of Free Model

Sign / Hypothesized Relationship	Equality Constraint Model	Free Model	Chi-Square Difference	Parameter Estimates of Free Model (Critical Ratios)
(+) Market Orientation – Learning Orient. younger > older **(H3b)**	χ^2=150.175 (d.f.= 117) CFI=.955 RMSEA=.051	χ^2=149.343 (d.f.=116) CFI=.955 RMSEA= .051	$\Delta\chi^2$= 0.832 (Δd.f.=1)	YG: 1.011 (6.238)* OG: 0.793 (4.518)*
(+) Market Orientation – Org. Mem. Level younger > older **(H8b)**	χ^2=149.377 (d.f.=117) CFI=.956 RMSEA=.050	χ^2=149.343 (d.f.= 116) CFI=.955 RMSEA= .051	$\Delta\chi^2$=0.034 (Δd.f.=1)	YG: 0.453 (0.981) OG: 0.356 (1.286)
(+) Market Orientation – Org. Mem. Disp. younger > older **(H9b)**	χ^2=152.397 (d.f.=117) CFI=.952 RMSEA=.053	χ^2=149.343 (d.f.=116) CFI=.955 RMSEA= .051	$\Delta\chi^2$=3.054 (Δd.f.=1)	YG: 0.320 (1.053) OG: -0.349 (-1.660)**

YG : Young Group (n=56) , OG : Old Group (n=55).
(*) Significant at the 0.01 level.
(**) Significant at the 0.10 level.

4.10.6. Hypothesis Testing for Moderating Effects of the Firm's Age

Based on the results of the multigroup analysis in AMOS 4, the three hypotheses related to the moderating effect of the firm's age on the links of market orientation with learning orientation (H3b), organizational memory level (H8b), and memory dispersion (H9b) were tested (see Table 4.6). Hypothesis 3b suggests that the effect of market orientation on organizational learning orientation will be greater for younger organizations than for older organizations. According to the study results, the effect of market orientation on learning orientation is positive and statistically significant at the 0.01 significance level for both young and old organizations. Even though the effect of market orientation on learning orientation for younger organizations (1.011; C.R.= 6.238; P=0.000) is greater than that for older organizations (0.793; C.R.= 4.518; P=0.000) as hypothesized, these effects are not significantly different across the two subgroups ($\Delta\ \chi^2 = 0.832$; Δd.f.=1). Therefore, H3b is not supported by the survey data.

Hypothesis 8b states that the effect of market orientation on organizational memory level will be greater for younger organizations than for older organizations. The study results revealed that the effect of market orientation on organizational memory level is positive, but not statistically significant for both young (0.453; C.R.= 0.981; P= 0.327) and old (0.356; C.R.= 1.286; P= 0.199) organizations. Yet, this effect is positive and statistically significant for the overall sample. Since these positive effects are not statistically significant and are not significantly different between groups ($\Delta\ \chi^2 = 0.034$; Δd.f.= 1), it can be concluded that H8b is not supported by the data even though this effect for the younger group is higher than that for the older group as hypothesized.

Finally, Hypothesis 9b indicates that the effect of market orientation on organizational memory dispersion will be greater for younger organizations than for older organizations. The study results indicated that the effect of market orientation on organizational memory dispersion is positive and statistically insignificant for younger firms (0.320; C.R.= 1.053; P= 0.292) while it is negative and statistically significant for older firms at the 0.10 significance level (-0.349; C.R.= -1.660; P= 0.097). These effects are significantly different between subgroups at the 0.10 significance level ($\Delta\ \chi^2$=3.054; Δd.f.=1). However, the effect of market orientation on organizational memory dispersion is insignificant for younger firms. Therefore, this effect for younger firms cannot be compared to that for older firms which was statistically significant. Thus, based on the results, it can be concluded that the data does not support H9b.

CHAPTER FIVE

CONCLUSIONS AND IMPLICATIONS

In this chapter, the main results of the study are first discussed along with their managerial implications. These will then be followed by the contributions and major limitations of the study along with future research suggestions.

5.1. Discussion of Study Results and Managerial Implications

The main objective of this study was to investigate the link between market orientation and new product performance by taking into account the mediating effects of a number of organizational- and project-level variables. Also, the possible moderating effects of the organization's age on the various links of the suggested model were investigated. This study has important practical implications that should be considered by practitioners. In the following sections, the results related to each model variable will be discussed in order. The discussion of the results begins with organizational innovativeness and is followed in turn by learning orientation, the marketing-R&D integration, organizational memory level and dispersion.

5.1.1. Organizational Innovativeness

5.1.1.1. Market Orientation and Organizational Innovativeness

The results of the study revealed that the relationship between market orientation and organizational innovativeness is not statistically significant. Thus, this result is not consistent with those of past studies. In fact, two opposing views on the effect of market orientation on innovation have been suggested by past research. One view suggests that keeping a close eye on both customers and competitors may adversely affect the

development of breakthrough innovations (e.g., Bennet and Cooper 1981; Kaldor 1971; McGee and Spiro 1988; Tauber 1974). On the other hand, it has been suggested that focusing closely on changing markets actually positively affects innovativeness by enhancing the firm's ability to generate innovative ideas and solutions to customer needs, wants, and preferences (e.g., Hurley and Hult 1998; Jaworski and Kohli 1993,1996). Past research has revealed inconsistent results on the direction of the relationship between the marketing concept and innovation so far. The findings from this study are not consistent with any of these suggested views. Overall, this research study contributes to the ongoing debate on whether or not the marketing concept or customer orientation drives organizational innovativeness (e.g., Hurley and Hult 1998; Jaworski and Kohli 1993, 1996) or impedes it (e.g., Bennet and Cooper 1979; McGee and Spiro 1988) by revealing the possibility of no significant relationship between market orientation and organizational innovativeness.

This finding might be a result of different impacts of the components of a market orientation on innovativeness. In other words, the different components of a market orientation might have different effects on the level of organizational innovativeness. For example, while the customer orientation component of a market orientation might have a positive effect on organizational innovativeness (Lukas and Ferrell 2000), the competitor orientation component of a market orientation might have a negative effect on it (Lukas and Ferrell 2000). Thus, the combined effects of these components on organizational innovativeness can be equal to zero. Therefore, a component-wise approach to the examination of the link between market orientation and innovativeness might generate

more meaningful results.

5.1.1.2. Organizational Innovativeness and New Product Performance

In terms of the organizational innovativeness-new product performance relationship, the results showed that there is no statistically significant link between organizational innovativeness and new product performance. This finding is not consistent with the results of earlier studies (e.g., Bharadwaj and Menon 2000). This insignificant link between innovativeness and new product performance suggests that organizational innovativeness which is an organizational characteristic may not directly affect performance outcomes of an individual new product project. For example, organizational competitiveness/effectiveness (Deshpandé, Farley, and Webster 1993; Hurley and Hult 1998) or competitive advantage (Hurley and Hult 1998) or product competitive advantage may facilitate this link between innovativeness and new product performance by acting as mediators. Future studies should investigate the possible mediating effects of these and other possible variables on this relationship. Furthermore, using a different set of new product performance measures (i.e., product-based measures such as product innovativeness and uniqueness) in the examination of the link between organizational innovativeness and new product performance might produce significant results. Finally, this finding may also be a result of the small sample size in this study.

5.1.2. Learning Orientation

5.1.2.1. Market Orientation and Learning Orientation

It has been suggested that the environment has a key role in the occurrence of organizational learning (e.g., Cyert and March 1963; Sinkula 1994). This study showed

that the internal environment of an organization may affect the degree to which the organization is learning-oriented. According to this study's results, there is a strong positive relationship between market orientation and learning orientation, which are both organizational characteristics (Baker and Sinkula 1999). A market-oriented organizational culture is more likely to promote learning orientation within the organization. Such a culture emphasizes "the development of new knowledge or insights that have the potential to influence behavior" (Slater and Narver 1995, p.63). The findings of this study support the viewpoint that learning orientation / organizational learning is a consequence of a market orientation (e.g., Deshpandé 1999; Sinkula 1994; Slater and Narver 1995, 2000).

This finding suggests a number of relevant practical managerial implications. Company managers need to pay a close attention to the following issues:

- **They need to develop a strong market orientation within their organization.** The importance of pursuing a strong market orientation is again supported by this study. A strong market orientation provides multiple benefits. As this study has shown, market orientation has a crucial role in maximizing the firm's capability to learn from its markets (Slater and Narver 1995). Moreover, it increases overall (judgmental) business performance (but not market share), employee's organizational commitment, and esprit de corps (Jaworski and Kohli 1993). However, developing a strong market orientation is not an easy task. The whole development effort should be considered as a long-term investment with long-term outcomes (Appiah-Adu 1997; Payne 1988). Building a market-oriented organization requires the rigorous and concerted effort of top management and employees at every level (Day 1998). Top management's strong commitment and active involvement are essential. Jaworski and Kohli (1993) found that the level of emphasis top managers place on a market orientation affects the generation of market intelligence, its dissemination and responsiveness to it positively. This finding supports the argument that top management has a very critical role in the development of a market orientation. Furthermore, a great deal of employee training and heavy investments in capital-intensive processes and activities are also required (Appiah-Adu 1997; Slater and Narver

1994a). Developing a market orientation involves transforming an entire organizational culture into one which is market-oriented (Pelham and Wilson 1995; Slater and Narver 1994a).

- **There is a need to build an organizational infrastructure that sustains a strong market orientation.** First, establishing effective organizational norms and controls that can ensure a continuous flow of market information to the firm and continuous information sharing among functional units would be beneficial. Second, Jaworski and Kohli (1993) found that interdepartmental conflict inhibits intelligence dissemination and the responsiveness of an organization while connectedness among departments promotes a market orientation. In order to reduce interdepartmental conflicts and increase connectedness, effective conflict resolution methods should be adopted and used. Thus, interfunctional coordination is achieved through constant communication, cooperation and integration across all functional units about various aspects of business (Maignan, Ferrell and Hult 1999; Narver and Slater 1990). Third, customer satisfaction must be a priority for all employees of the firm. Organizations should develop/adopt research methods and techniques that will help them better understand customers' wants and needs, create greater value for them, systematically measure customer satisfaction, and monitor competitors' moves and activities (Maignan, Ferrell and Hult 1999; Narver and Slater 1990). Fourth, the establishment of reward systems and less centralized decision-making in the organization can be helpful in the development of a market orientation (Jaworski and Kohli 1993). Finally, the marketing function can play an important role in the development of a market orientation. It can help cultivate market-oriented thinking and behavior (e.g., Moorman and Rust 1999). It is the main supplier of market information (i.e., customer and competitor intelligence) to the firm. Even in organizations with strong engineering cultures, the marketing function should be given a more active and powerful role in the development process.

The moderating effect of the organization's age on the link between market orientation and learning orientation was also tested in this study. The results showed that market orientation significantly affects learning orientation of both young and old organizations. However, there was no significant difference in the strength of these effects across the two groups. In other words, the effect of market orientation on organizational learning orientation was not significantly greater for younger organizations

than for older organizations. Therefore, it was concluded that the possible positive relationship between market orientation and organizational learning orientation may not be modified by the age of the organization.

This finding might be a result of possible moderating effects of environmental factors such as market turbulence, technological turbulence, and competitive intensity on the market orientation – learning orientation link especially for older organizations. It appears that most of the sample companies were businesses that are characterized by high market turbulence, and/or high technological turbulence, and/or high competitive intensity (See Table 4.1). Under a mixture of these environmental conditions, especially older organizations would feel more compelled to increase their level of learning orientation without changing their level of market orientation. They would become as learning-oriented as their younger counterparts by destabilizing their information filtering mechanisms and by no longer paying attention to the quality and relevance of market information that are distributed and utilized within the organization. Based on this study's results, older organizations seem to be as learning-oriented as younger organizations regardless of their age and experience. As a matter of fact, in today's mostly competitive domestic markets, both younger and older organizations need to be more learning-oriented to survive regardless of their age and experience. Therefore, the issue of whether or not environmental conditions have moderating effects on the market orientation–learning orientation relationship for both younger and older organizations should be investigated in future research studies.

5.1.2.2. Learning Orientation and Organizational Innovativeness

Traditionally, innovation has been viewed by scholars as a complicated, multi-

faceted concept that is hard to grasp (e.g., Wolfe 1994). In spite of great scholarly interest and a large number of studies involving innovation, innovative behavior in organizations has not been well-understood by researchers (Wolfe 1994). According to the results of this study, there is a strong positive relationship between a learning orientation and organizational innovativeness. This finding is consistent with a significant amount of evidence suggesting the possible presence of a link between learning and innovation (e.g., Brown and Duguid 1996; Drucker 1993; Huber 1996; Hunt and Morgan 1995; Hurley and Hult 1998). The argument that learning and innovating are interlinked and compatible activities (Brown and Duguid 1996) is supported. Learning orientation may be considered as one of the key elements that contribute to the mechanisms that may "enable an organization to deviate from the culture in which it is embedded" (Simon 1996, p.180). It can be argued that learning orientation which is associated with a set of "*knowledge-questioning values*" (Baker and Sinkula 1999, p.413) may boost innovative thinking within the organization. Based on the study results, it can be argued that continuous commitment to learning at both an individual and organizational level is vital for an innovative organization (Drucker 1993). The presence of a strong positive relationship between learning orientation and innovativeness supports these arguments (Huber 1996; Hurley and Hult 1998).

- **A concerted effort is needed to transform a market-oriented organization into a learning- oriented one.** A strong market orientation provides an appropriate foundation for a learning orientation to flourish, as this study revealed. Market orientation provides a continuous supply of market information and encourages information sharing among organizational members across all functional units (Slater and Narver 1995). Continuous information sharing, in turn, results in shared interpretations or a consensus on the meaning of information among organizational members. In this way, market orientation promotes a

learning orientation that accommodates the creation of organizational learning within the organization. Market orientation creates an appropriate cultural ground for this process to take place. Yet, a learning orientation may not be developed without top management's commitment and significant effort. First of all, top management needs to strongly emphasize and encourage learning at every level. The firm's ability to learn should be seen as the key to its competitive advantage, improvement, survival and future (Baker and Sinkula 1999). Top management needs to give a top priority to employee learning and to view it as an investment (Baker and Sinkula 1999). Second, managers should encourage open-mindedness, innovative thinking, original ideas, and continuous innovation at every level (Baker and Sinkula 1999). Employees should be able to question and/or criticize the shared assumptions, traditions, values and norms of the organization, and managers' view of the world (Baker and Sinkula 1999). To encourage these behaviors, perceived power distance between employees and managers should be reduced by bringing them together regularly in formal /informal social events.

- **Organizations should emphasize on establishing a strong learning orientation to increase the chances of becoming generative learners** (Baker and Sinkula 1999; Sinkula, Baker, and Noordewier 1997). A strong learning orientation can create generative learning in organizations that, in turn, leads to innovation (Senge 1990; Slater and Narver 1998) or discontinuous innovation which is associated with creating new paradigms (Baker and Sinkula 1999; Senge 1990; Slater and Narver 1995). Learning orientation encourages proactive organizational behavior which can be considered one of the keys to being a market leader (Baker and Sinkula 1999). However, a learning orientation should be supported by a strong market orientation to increase the chances of success (Baker and Sinkula 1999). The finding of this study implies that a market orientation positively impacts a learning orientation, but this is indirect with organizational innovativeness as a mediator of learning orientation which in turn has a direct positive effect on organizational innovativeness.

- **Top management needs to pay closer attention to a commitment to learning and an open-mindedness to promote organizational innovativeness.** According to this study, there is a strong positive link between learning orientation and organizational innovativeness. Top management can simply ensure and strengthen this potential link by encouraging learning and open-mindedness within the organization. They should be more tolerant of failures and reward employees for their innovative ideas/thoughts. Innovation within an organization can be accomplished in three areas: product (what is produced), process (how it is produced), and organizational forms (where it is produced) (Chandrashekaran, Mehta, Chandrashekaran, and Grewal 1999, p.95).

> Innovations in all three areas should be encouraged, valued and rewarded by managers. Calculated risk-taking behavior should be encouraged. Management and employees at every level should be able to accept change or innovation easily.

5.1.2.3. Learning Orientation and New Product Performance

The study demonstrated that there is no significant relationship between learning orientation and new product performance. The results do not support the argument that a strong learning orientation improves new product performance by promoting continuous organization-wide information dissemination and sharing (Huber 1991, 1996) and interfunctional coordination or interaction which may lead to rapid decision making and effective execution (Slater and Narver 1995). The study results are inconsistent with the findings of Baker and Sinkula (1999) who empirically showed that learning orientation is positively related to new product success, change in relative market share, and overall performance. Baker and Sinkula (1999) measured new product success and change in relative market share at the organizational level. In other words, their performance measures were not project-specific. In this study, the new product performance measures utilized were not only project-specific, but they were also purely financial and subjective. For a respondent it is much easier to assess new product performance at the organizational rather than at the project level. Company managers should already have a general idea about how their company has performed recently. Yet, it may be quite difficult for a respondent to recall and assess all the financial performance information related to a specific NPD project accurately. This may have been the situation in this study. It may not be possible to relate an organizational-level variable (i.e., learning orientation) to a project-level variable (i.e., new product performance) given the fact that

there were some problems with the measurement of one of these variables, which may have constituted to the inconsistent results found in this study.

5.1.3. Marketing/R&D Integration

5.1.3.1. Market Orientation and Marketing/R&D Integration

In this study, a higher level of market orientation within an organization resulted in a higher level of integration between the marketing and R&D/engineering functions in the NPD process/project. Market orientation encourages a strong interfunctional communication or coordination within an organization to develop products/services that best satisfy customer needs and wants (Narver and Slater 1990). A market orientation promotes teamwork among organizational members (Kohli and Jaworski 1990; Baker, Simpson, and Siguaw 1999). A market-oriented organizational culture becomes more appreciative of marketing's role in the NPD process. Thus, this type of culture diffuses the need for the integration between marketing and R&D more effectively among employees. It supplies strong systems norms that require organizational members to value integration more (Gupta and Rogers 1991). Technology orientation should be accompanied by a strong market orientation (Gupta and Rogers 1991).

Integration between R&D and marketing leads to multiple benefits such as: product cycle time reduction, new product success, customer service improvement, and increasing perceptions of customer value (Fisher, Maltz, and Jaworski 1997; Kotler and Armstrong 1994). Therefore, the presence of a positive link between market orientation and the marketing-R&D integration in the NPD process/project has important implications for company managers:

- **Top management needs to better manage the aspects of a market orientation that are likely to affect marketing-R&D integration.** First of all, a positive link between market orientation and the marketing-R&D integration in the NPD process/project suggests that the cultural environment of an organization can affect individual product-level activities. Managers at the top have power to positively influence the outcomes of product-level or operational-level activities by manipulating different aspects of a market orientation. Especially, this can be accomplished by improving interfunctional coordination across functional units. Management can facilitate effective marketing-R&D integration in the NPD process/project. For example, removal of potential barriers (i.e., departmental frictions, rivalry, and favorism) to effective communication, cooperation, and exchange of ideas/experiences/information between these two functional units may lead to a better integration in the NPD process.

- **The marketing function should be given the same level of importance and power as the R&D/engineering function in the NPD process.** This is especially important for firms with dominant engineering cultures. This can reduce current or potential departmental friction or conflicts and ensure better communication and integration. As a main supplier of market information within the firm, the marketing function can easily communicate and pass relevant market information to the R&D/engineering function in the NPD process. Such an integration or interface between marketing and R&D functions facilitates the incorporation of market knowledge into the NPD process (Li and Calantone 1998). It significantly enhances the chances of creating a better match between what is needed in the marketplace and what is actually developed (Li and Calantone 1998).

5.1.3.2. Marketing/R&D Integration and New Product Performance

According to the results of this study, there is no significant relationship between the level of integration between the marketing and R&D/engineering functions in the NPD process/project undertaken by the organization and new product performance. These results are not consistent with those of past studies that found that an effective integration between marketing and R&D increases new product success considerably (e.g., Ayers, Dahlstrom, and Skinner 1997; Norton, Parry, and Song 1994; Parry and Song 1993; Song and Parry 1992, 1993, 1997). Even though the significance of the marketing-R&D

integration for successful new products is well-documented (e.g., Ayers, Dahlstrom, and Skinner 1997; Fisher, Maltz and Jaworski 1997; Gupta and Rogers 1991; Gupta, Raj, and Wilemon 1986; Olson, Walker and Ruekert 1995; Song, Neeley, and Zhao 1996), these results do not conform to the past results. This may be due to the fact that new product performance measures that had been used in this study were purely financial and subjective. It may have been difficult for the respondent to assess some measures as accurately as desired. It may also be that the relatively small sample size may be to blame here for inconsistent research results.

5.1.4. Organizational Memory Level

5.1.4.1. Market Orientation and Organizational Memory Level

The results of this study showed that market orientation has a significant positive effect on organizational memory level pertinent to the new product's domain. Organizational memory level involves "the amount of stored information an organization has about a particular phenomenon" (Moorman and Miner 1997, p.93). Market orientation which is based on market information acquisition and market information sharing is likely to influence organizational memory level within an organization. Constant interaction with its environment is a defining feature of a market-oriented organization. It regularly monitors its environment and gathers market information. It liberally communicates this information collected across all functional units (Deshpandé and Farley 1996). Constant information acquisition and information sharing facilitate the formation of organizational memory (Argyris and Schön 1978; Levitt and March 1988, 1996; Sinkula 1994). As Levitt and March (1988, 1996) argued, the diffusion or sharing of routines throughout the organization increases the level of experience from which an

organization draws. The results of this study strongly support these arguments.

A high organizational memory level can be beneficial to the firm. A high organizational memory level increases efficiencies and the possibility that previous successes will be repeated, and diminishes the probability of costly errors or mistakes (Moorman and Miner 1997). A high organizational memory level can have a vital role in the success of a new product development activity. Since new product development is a somewhat routine process, the organization's stored lessons of successful or unsuccessful practices or experiences in new product development will help the new product team improve every phase of the NPD process. Thus, they can develop better products with a greater likelihood of success. Given the many benefits of a high organizational memory level, the finding that market orientation has a significant positive effect on organizational memory level pertinent to the new product's domain has an important implication for practitioners:

- **Top management needs to strengthen organizational memory level by facilitating a constant flow of market information to the firm through customer and competitor orientations and by communicating this information to all functional units through interfunctional coordination.** A strong market orientation should be adopted if the firm desires to develop a high level of organizational memory in general and/or in a specific domain. Incoming market information should be well-communicated to all functional units (Deshpandé and Farley 1996). Constant, effective information acquisition and information sharing will facilitate the formation of organizational memory (Levitt and March 1988, 1996; Sinkula 1994). Knowledge should be stored in secure and dependable memory storage facilities such as company computers, databases and databanks, company reports/memos, and so on. Organizational memory pertinent to the new product's domain should be easily retrievable and usable by the NPD team when it is needed. Successful/unsuccessful NPD experiences should be recorded in detail and stored for future use by next NPD teams or others.

The possible moderating effect of the organization's age on the relationship between market orientation and organizational memory level was also examined. The study results revealed that the effect of market orientation on organizational memory level for young organizations was greater than that for old organizations. This effect was positive but not significant for both groups. Also, these effects did not significantly differ across the groups. In other words, the organization's age did not have a moderating effect on the market orientation-organizational memory level link. An insignificant positive link between market orientation and organizational memory level for both young and old organizations may be a product of small subsample sizes (56 versus 55), given the fact that this positive link was significant for the entire sample which included 111 respondents.

5.1.4.2. Learning Orientation and Organizational Memory Level

According to the study results, learning orientation and organizational memory level are not significantly related. Originally, it was proposed that learning orientation positively affects organizational memory level. It was argued that a learning-oriented organization can generate and utilize every type of knowledge including market-derived knowledge (Baker and Sinkula 1999; Sinkula, Baker, and Noordewier 1997). Information acquisition and information sharing have a crucial impact on the formation of organizational memory (Argyris and Schön 1978; Sinkula 1994). Therefore, it was expected that a strong learning orientation would result in a high level of organizational memory associated with a new product's domain. However, the study results did not support these arguments. In fact, it may be that various internal factors may influence this suggested link. For example, the passage of time and the turnover of personnel (Levitt

and March 1996) may adversely affect the potential link between learning orientation and memory level. Moreover, the lessons of the past may not be successfully captured and stored by the organization within routines due to potential departmental conflicts/friction and/or weak organizational controls, even though the firm is learning-oriented.

5.1.4.3. Organizational Memory Level and Marketing/R&D Integration

According to the research results, there is no significant relationship between organizational memory level associated with the new product and the integration between marketing and R&D/engineering functions in the new product development process / project undertaken by the organization. The anecdotal evidence on which the original hypothesis was based suggested a negative link between these variables. However, it is reasonable to suggest that this relationship between these variables can be positive. When the level of memory associated with a new product's domain is high, marketing and R&D departments may be inclined to communicate more often during the NPD process. Since marketing and R&D departments are familiar with this product category and have experience with it, they will have more information to share and more need to exchange ideas. Especially, for those firms in which marketing and R&D/engineering departments have equal level of power and importance, when a new product category is familiar, marketing and R&D/engineering departments can be more willing to cooperate during the NPD process. On the contrary, for firms in which R&D/engineering departments are more dominant and powerful, these two departments may be less willing to cooperate in a NPD project representing a familiar new product category. According to the author's best knowledge, this link has not been empirically examined until this study. This link is important and should be investigated in future studies.

5.1.4.4. Organizational Memory Level and New Product Performance

It has been argued that stored knowledge or information has a very significant and complex role in NPD activities and key development processes (e.g., Moorman and Miner 1997). It was found in this study that higher levels of organizational memory pertaining to the new product project result in better overall new product performance in the absence of environmental moderators. This finding is consistent with that of Moorman and Miner (1997). They empirically showed that organizational memory level actually positively affects new product short-term (one-year) financial performance. This finding supports Moorman and Miner's (1997) argument that high organizational memory level increases efficiencies and the possibility that earlier successes will be repeated, and decreases the likelihood of costly errors (Also see Cooper and Kleinschmit 1986). The study finding is in agreement with the notion that when organizational memory is deliberately developed and used in guiding organizational activities and decision making, managers will be able to improve company performance (Cross and Baird 2000). It also indicates that new products that are developed on the basis of current or stored market information have more potential to succeed in the market (Moorman and Miner 1997). This finding has two important implications for practitioners:

- **Top management may be able to influence new product performance at the project level by just manipulating different aspects of the cultural environment of the firm.** According to the study results, organizational memory level serves as a mediator between market orientation and new product performance. A firm with a high level of market orientation is likely to have a high level of the stored knowledge or information pertinent to the new product which, in turn, leads to better new product performance. This study found that market orientation may have project-level consequences. As discussed previously, a well-established market orientation strengthens organizational memory with the

constant influx of market information through customer and competitor orientations. Collected market information is shared by all functional units. One of the important responsibilities of the firm is to make information acquisition and sharing as smooth as possible and to store acquired knowledge in accessible and secure retention facilities.

- **Organizations can improve performance of their new products by enhancing organizational memory level pertinent to the new product/project.** As discussed earlier, organizations can improve their organizational memory level by building a strong market orientation. They can try to reduce the personnel turnover rate, if it is high. When what is learned is stored only in the minds of employees, the high personnel turnover rate will reduce organizational memory level. Knowledge should be stored in secured facilities and must be easily retrievable by employees participating in the NPD process when and if it is needed. Memory must contain successful previous plans and their executions and new product development routines and processes as practical guidelines. Good and bad experiences associated with past NPD activities should be stored in retention facilities for future use. A high level of organizational memory or stored knowledge of such experiences prevents the organization from repeating its past failures. The use of organizational routines or standard operating procedures may decrease transactional costs associated with search and experimentation. As a result, more organizational efficiency is achieved (Walsh and Ungson 1991).

5.1.5. Organizational Memory Dispersion

5.1.5.1. Market Orientation and Organizational Memory Dispersion

Another finding from this study is that market orientation does not have a significant effect on organizational memory dispersion pertinent to the new product's domain. In particular, the interfunctional coordination component of market orientation was expected to significantly increase the level of organizational memory dispersion for market-oriented firms since it encourages more information sharing among employees at every level within the organization. Information sharing has an important role in building and strengthening the level and dispersion of organizational memory in general and/or in a specific domain. The effectiveness of information sharing may be adversely affected by

some organizational factors. For example, the rivalry among functional units or departmental conflicts may hamper the information sharing process. In some organizations, engineering culture may be a dominant force and have a greater role in new product development. R&D or engineering departments may be unwilling to share information related to the new product development projects with other units or may be reluctant to receive market information from the marketing department. In these organizations, market information may be collected but not adequately and effectively shared, dispersed, and interpreted. The sample for this study contains high-tech organizations which are likely to have dominant engineering cultures. This argument may explain the insignificant results related to the relationship between market orientation and organizational memory dispersion.

The moderating effect of the organization's age on the relationship between market orientation and organizational memory level was also investigated. The study results revealed that market orientation did not significantly affect memory dispersion for younger organizations. However, it was found to negatively influence memory dispersion for older organizations. Thus, the effect of market orientation on organizational memory dispersion significantly differed across the two subgroups, but not in a way that it was originally hypothesized. The presence of a negative link between market orientation and organizational memory dispersion pertinent to a new product's domain in the NPD process can be explained by the following arguments made by Sinkula (1994). According to Sinkula (1994), market information processing can be considered as a function of organizational memory. Older organizations have stronger, well-developed memories that

act as market information filtering mechanisms. They effectively separate relevant from irrelevant information. As organizational memory builds, market information becomes less equivocal. Therefore, the company will utilize market information less. As organizational memory develops and the degree of equivocality is reduced, "organizations will distribute, interpret, and store less of their newly acquired market information" (Sinkula 1994, p.42). Based on these arguments, it seems to be reasonable to expect a negative relationship between market orientation and organizational memory dispersion.

In a brief note, the small subsample sizes might be problematic in this study and might distort the true nature of the results. Therefore, the interpretation of the results should be done with caution.

5.1.5.2. Learning Orientation and Organizational Memory Dispersion

For this study, learning orientation was found to have a significant effect on organizational memory dispersion pertinent to the new product's domain. An organization with a strong learning orientation is likely to be capable of generating and utilizing every type of knowledge including market-derived knowledge (Baker and Sinkula 1999; Sinkula, Baker, and Noordewier 1997) and facilitating information sharing. Information acquisition and information sharing have an important role in the formation of organizational memory (Argyris and Schön 1978; Sinkula 1994). Learning-oriented organizations are expected to be good at dispersing and sharing information or knowledge generated or gathered. The study results support these notions. As a result, the following practical/managerial implications for businesses are provided:

- **The level of organizational memory dispersion pertinent to a new product's domain can be increased by manipulating the level of learning orientation within the firm.** Especially, the commitment to learning and shared vision components of a learning orientation are likely to positively influence the level of organizational memory dispersion. Employees in an organizational culture with a strong commitment to learning are more likely to share what they learned with each other. Managers should make sure that this type of knowledge sharing takes place constantly and at every level within the organization. Communication lines should always be kept open for employees and functional units to interact. Various types of communication modes should be accessible by managers and employees. Formal and informal meetings, business memos, and e-mails can be helpful in the sharing of knowledge. A learning-oriented firm shares its vision and goals with all levels, functions and divisions within the firm (Baker and Sinkula 1999). Therefore, members of this type of culture are expected to be less secretive about knowledge that will be beneficial to the entire firm when shared. As a result, managers need to make sure that all employees have a clear understanding of the company's vision, goals, principles, what is important and what is not.

- **Managers can have a chance to influence product/project-level outcomes in the NPD process by building and maintaining a strong learning orientation.** In a way, a learning orientation, like a market orientation, can be viewed as an organizational control tool that can be manipulated to achieve desired outcomes even at the product/project level. For instance, the level of organizational memory dispersion pertinent to the new product's domain can be changed when the different components of a learning orientation are manipulated. Widely-dispersed stored knowledge may be beneficial in the NPD process. It reduces the number of costly mistakes and the potential repeat of past mistakes. It is helpful in developing sophisticated products that meet customer needs. Thus, the new product can have a better chance of success in the market. Being able to influence even an individual new product success can give top management control over the entire firm.

5.1.5.3. Organizational Memory Dispersion and Marketing/R&D Integration

Organizational memory dispersion associated with the new product has a significant positive effect on the integration between marketing and R&D/engineering functions in the new product development process/project undertaken by the organization.

Originally, the relationship between these two variables was hypothesized to be negative. The original hypothesis was based on anecdotal evidence. Based on the author's best knowledge, this link has not been previously empirically investigated. Therefore, there are no other research results to compare with. As a matter of fact, one explanation can be offered for this unexpected finding: Regardless of the type of new product (i.e., line extension, product modification, me-too product, and radical innovation) that is under development, the integration between marketing and R&D/engineering is crucial for the success of new product development. Benefits of the integration between marketing and R&D/engineering in the NPD process are well-documented through a variety of studies (e.g., Ayers, Dahlstrom, and Skinner 1997; Fisher, Maltz and Jaworski 1997; Gupta, Raj, and Wilemon 1986; Gupta and Rogers 1991; Millman 1982; Olson, Walker and Ruekert 1995; Song, Neeley, and Zhao 1996). It would be logical to assume that the benefits of such an integration (e.g., cycle time reduction, new product success, better perceptions of customer value, better customer service, sophisticated products meeting customer needs, and so on) have already been known by managers and encouraged by the organization. This may be the case for the surveyed companies in this study. Furthermore, when marketing and R&D/engineering units share more of the same knowledge about a new product category that is under development, they may be more inclined to communicate with each other. The shared knowledge about the new product provides a common ground for a constructive and creative dialogue to start between these units. They will have more cross-functional understanding and the need for more information sharing across the units. This finding has some practical implications for company managers:

- **NPD teams can effectively be composed of marketing and R&D employees with the highest levels of organizational memory dispersion associated with the new product under development.** This selection method would ensure a better integration between marketing and R&D functions. This type of arrangement would be even more beneficial since a large volume of the shared knowledge associated with the new product is utilized in the NPD process. The shared knowledge might be more accurate and relevant. Furthermore, the interaction between marketing and R&D people would be smoother and more effective since they would have a mutual knowledge base to start with.

- **Management may designate certain skilled marketing and R&D personnel to participate in the NPD process and these individuals can be systematically and periodically exposed to a similar type of market and product information.** Thus, these individuals would be likely to have the highest levels of organizational memory dispersion associated with a new product under development. As a result, the integration between marketing and R&D people can be expected to be more successful.

5.1.5.4. Organizational Memory Dispersion and New Product Performance

According to the research results, there was no significant relationship between organizational memory dispersion pertaining to the new product project and new product performance in the absence of environmental moderators. This finding is inconsistent with that of Moorman and Miner (1997) who showed that greater organizational memory dispersion increases short-term financial performance. However, they also found that under conditions of high environmental turbulence, high memory dispersion did not have any effect on financial performance. Under conditions of low turbulence, high memory dispersion increases financial performance. As mentioned previously, in this study, the possible moderating effect of environmental turbulence on this relationship was deliberately ignored. It is clear that the sample of this study mainly contains companies that involve businesses with high market and/or technological turbulence. The possible moderating effect of high environmental turbulence on the link between memory

dispersion and new product performance may be one of the reasons for these insignificant results. Furthermore, this result is not surprising given that there have been conflicting views regarding the effect of memory dispersion on new product performance. One view suggests that memory dispersion improves new product success by facilitating cross-functional understanding, cooperation, and cross-fertilization (Moorman and Miner 1997; Souder 1987) and more timely and coherent response to market information (Day 1994). Yet, another view suggests that a low level of memory dispersion in organizations might have a positive impact on innovation and creativity (Moorman and Miner 1997). These suggested conflicting effects might have worked in opposite ways in this study until the net effect of memory dispersion on new product performance is close to zero and insignificant. Furthermore, Moorman and Miner (1997) also found that market turbulence moderates the effect of memory dispersion on financial performance. In this study, for the sake of research clarity, any possible moderating effects of environmental variables (i.e., market turbulence, technological turbulence, and competitive intensity) on this relationship were deliberately ignored.

5.2. Contributions of the Study

The contributions of the suggested model to the literature are five-fold: *First*, this research study has useful implications for businesses. This study identified possible consequences of a market orientation. Market orientation increases levels of learning orientation, the marketing-R&D integration, and organizational memory level within the organization. These factors can be considered as organizational capabilities that enable the organization to process and utilize market knowledge more effectively. It was found

in this study that organizational memory level leads to better new product performance. Thus, organizational memory level serves as a mediator between market orientation and new product performance. This study provides insights for practitioners on how to improve new product performance by modifying the degree of market orientation in their organization. Furthermore, this study sheds some light on how to process and utilize market intelligence in order to obtain favorable new product outcomes.

The examination of the link between market orientation and learning orientation contributed to the relevant research in three ways: First, even though the amount of scholarly work on organizational learning has been extensive (e.g., Argyris 1977; Garvin 1993; Huber 1996; Levitt and March 1988; March 1991; McGill, Slocum, and Lei 1992; Senge 1990; Simon 1991), there has been a lack of any widely-accepted theory that explains the conditions and climate necessary for a learning organization (Slater and Narver 1995). In this sense, the results of this study may contribute to the ongoing research effort that aims to fulfill an immediate need for theory development on organizational learning (Huber 1991, 1996; Slater and Narver 1995) and to answer the calls for more systematic research on organizational learning (Huber 1991, 1996). Second, the incorporation of a learning orientation into the marketing literature has been limited to date (e.g., Baker and Sinkula 1999; Hult 1998; Hurley and Hult 1998). Such incorporation is a vital step in the development of this line of research (Hurley and Hult 1998). This study significantly contributes to this line of research by providing valuable insights to researchers with regard to the nature of the connection between market orientation and learning orientation within the context of manufacturing businesses.

There has been relatively little scholarly research on organizational learning/learning orientation in a marketing context (Sinkula 1994). Finally, Sinkula, Baker, and Noordewier's (1997) learning orientation scale was used to measure the level of learning orientation. This study confirms the reliability of this scale. This study generated the same reliability level (.94) as that of Baker and Sinkula (1999).

Second, the suggested model synthesized and effectively integrated the two important concepts from two related literatures which appear to have grown apart. These two concepts are market orientation and new product performance. The constructs such as organizational memory level and dispersion and marketing/R&D integration were borrowed from the new product performance literature. The suggested model attempted to determine potential mediators of the market orientation-new product market performance relationship. It identified organizational memory level as a possible mediator of this link. Thus, the suggested model successfully integrated these two different literatures.

Third, this study incorporated the marketing-R&D integration, organizational memory level and organizational memory dispersion in a theoretical framework that was based on the market orientation-new product performance relationship. Thus, this study fills an important void. Furthermore, this study confirmed the presence of a crucial relationship between market orientation and the marketing-R&D integration. The study shows that market-oriented organizations place more emphasis on the integration between marketing and R&D units in the new product development process.

The concept of organizational memory has not received significant attention from researchers either conceptually and empirically. Past conceptual work on organizational memory has been fragmented and inadequate (Walsh and Ungson 1991). The research on organizational memory within the marketing context has also been scarce (e.g., Hult 1998; Moorman and Miner 1997, 1998b; Sinkula 1994). This study identified one important determinant of organizational memory level within the marketing context. The study findings showed that market orientation has a significant positive effect on organizational memory level pertinent to the new product's domain.

It has been believed that organizational memory plays an important and complicated role in new product development activities and influences the NPD processes and new product outcomes (Cohen and Levinthal 1990; Day 1994; Garud and Nayyar 1994; Moorman and Miner 1997). More empirical testing has been needed in addition to that of Moorman and Miner's (1997) study to verify organizational memory's role in new product development. This study contributes to the relevant literature by investigating the role of organizational memory in new product development. The possible connections between the marketing/R&D integration and organizational memory level and dispersion were examined. According to the author's best knowledge, there have been few studies that have suggested the existence of such a relationship.

Fourth, the link between market orientation and innovativeness was investigated, which revealed that there was no significant link between market orientation and innovativeness. This finding contributes to the ongoing debate regarding whether the marketing concept or a market-oriented approach serves as an impediment to (e.g.,

Bennet and Cooper 1979; McGee and Spiro 1988) or as a facilitator of organizational innovativeness (e.g., Hurley and Hult 1998) by adding new information (no significant relationship between market orientation and organizational innovativeness).

Organizational innovativeness was also viewed as an outcome of a learning orientation. It was shown that learning orientation positively affects organizational innovativeness. This finding sheds some light on the nature of innovative behavior in organizations and reveals one of the potential determinants of organizational innovativeness or "an organization's propensity to innovate" (Wolfe 1994, p.408). To the author's best knowledge, this relationship has not been previously investigated. Therefore, this study made an important contribution to the organizational innovativeness research. The nature of the relationship between learning orientation and organizational innovativeness was uncovered. Wolfe (1994) argued that innovation is an outcome of a number of contextual elements such as individual, organizational, technological, and environmental factors and that paying close attention to these contextual elements provides a richer understanding of the innovation concept (Wolfe 1994). Learning orientation can be considered as an organizational-level contextual factor that is likely to positively affect innovation within the organization. Thus, this study provides a better understanding of the innovation concept by identifying the nature of the links between these two variables. This study also investigated the relationship between organizational innovativeness and learning orientation within the cultural context as suggested by Hurley and Hult (1998).

Fifth, the proposed model was tested over a large random sample of U.S. manufacturing companies. The study sample is composed of a large variety of businesses. As a result, the findings of this study may be applicable to a wide range of industries rather than being limited to a single industry as was the case in past research.

5.3. Study Limitations and Future Research Implications

This study has some limitations that should be addressed by future research. In this section, these shortcomings and their future research implications are discussed. Also, additional future research avenues are suggested.

First, obviously, the number of possible mediators that may have a significant role in the market orientation - new product success/performance relationship is probably larger than the number of those used in this study. Apparently, the inclusion of all possible organizational variables in a more holistic theoretical model would be more reflective of a real-life situation. For example, various organizational variables including formalization, centralization, departmentalization, departmental conflicts, organizational norms and control could be a part of a more comprehensive model. However, developing and testing such a comprehensive model is a difficult task to undertake. As a result, the proposed model is a simplification of reality. Future research should focus on the development and testing of more inclusive theoretical models that will extend the scope of the current research study. It is hoped that the suggested theoretical model will serve as a useful framework for the development of more comprehensive future models.

Second, the present study assessed the level of market orientation only from the firm's perspective. In other words, this construct was measured by the "subjective

judgments" of one respondent (a marketing executive/director/manager) from each surveyed firm (Pelham and Wilson 1995, p.23). Therefore, it is likely that the measurement of this construct was affected by different "cognitive biases" such as "position bias" (Pelham and Wilson 1995, p.23). It is a widely-mentioned concern that measuring the level of market orientation in a firm through perceptions of sellers only is likely to generate biased study results (e.g., Caruana, Ramaseshan, and Ewing 1998; Deshpandé, Farley, and Webster 1993; Siguaw, Simpson, and Baker 1999; Steinman, Deshpandé, and Farley 2000). It was argued that even using multiple respondents from each company might not reduce this bias and significantly improve results. The one way in which the level of market orientation can be measured more precisely is to measure it through the perceptions of customers/buyers, who are less subjective respondents (Pelham and Wilson 1995), in addition to those of providers/sellers (Caruana, Ramaseshan, and Ewing 1998; Deshpandé, Farley and Webster 1993; Pelham and Wilson 1995; Siguaw, Simpson and Baker 1999; Steinman, Deshpandé and Farley 2000). It is clear that this approach is much easier to apply when the research involves only a single company. If there is more than one company involved, this method might not be cost- and time-efficient.

Third, this study adopted a single-informant approach in data collection from each firm. The reliability of a single informant is unarguably questionable (Matsuno and Mentzer 2000). Past research suggests that it is possible that there may be differences in the perceived levels of market orientation among different functional groups (Gray *et* al. 1998) within the same organization. It is a commonly-shared concern among academics

that an uncertain level of informant bias may be incurred when transcendent concepts such as learning, innovativeness, etc. are assessed using a single respondent per SBU (Homburg and Pflesser 2000). Furthermore, another significant issue with relying on data from a single informant involves common method bias (variance). Common method bias occurs when all constructs (i.e., market orientation, learning orientation, innovativeness, memory level, and memory dispersion) in the measurement instrument are evaluated by the same respondent (Matsuno and Mentzer 2000). Common method bias is likely to exist in the current study since all measurements used are perceptual or subjective and evaluated by the same person in each company. Olson, Walker, and Ruekert (1995) used different respondents to measure conceptually-related variables to reduce common method bias. In this study, this remedy was not applicable. Additionally, Olson, Walker, and Ruekert (1995) suggested including several more objective measures of the variables used, such as objective measures of performance outcomes to minimize common method bias. Even though this suggestion was beneficial, it was not feasible in the circumstances of the current study. As explained by the authors, the difficulties associated with obtaining and using objective measures were also present in the current study. These obstacles were twofold: First, many firms would not be willing to disclose confidential information such as sales and financial information related to the new product or the firm. Second, it would be quite complicated to meaningfully compare actual sales and financial information across a wide variety of manufacturing industries and product categories included in the sample (Olson, Walker, and Ruekert 1995).

It is argued that, in organizational research, the use of more than one key informant within an organizational unit may help develop more reliable measures of organizational constructs (Deshpandé, Farley, and Webster 1993, p.28; Moriarty and Bateson 1982), offset individual response bias, and hence, reduce measurement error (Huber and Power 1985; Slater and Narver 1994a, p.50). Therefore, to survey multiple individuals from each company can give more reliable insights about the true level of market orientation in an organization. As a result, it is strongly suggested that future research investigate the suggested links in the present model using a multiple-informant approach. For example, a marketing executive and an engineering executive from each company could be selected as target respondents to incorporate more diverse perspectives in the assessment of the model constructs. Additionally, the employment of longitudinal studies and multiple methods in future empirical studies may make researchers more capable in evaluating the extent to which bias occurs (Matsuno and Mentzer 2000).

Fourth, a broad cross section of manufacturing industries were included in the sample for the purposes of increasing the generalizability (Baker and Sinkula 1999; Gatignon and Xuereb 1997; Olson, Walker, and Ruekert 1995) of the study results and reducing industry-specific biases (Olson, Walker, and Ruekert 1995). Gatignon and Xuereb (1997) argued that "the highly diverse type of industries represented in the sample could create too much noise to confirm the broad range of theoretical contingencies" (p.88). Accordingly, they suggested that "although heterogeneity in a sample is a condition for empirical generalization, sector- or industry-level studies would be useful to validate these results" (p.88). In this study, the effects of regional and industry-specific

conditions were not taken into account (Appiah-Adu 1997). Therefore, it is suggested that the proposed model should be tested in specific industry contexts (i.e., food, electronics / automotive industries, banking / finance sectors, and so on) by taking their contextual differences or conditions into account.

Fifth, using cross-sectional data in the analysis of the suggested relationships in the model poses some limitations. Some of the concerns mentioned by Siguaw, Simpson, and Baker (1998, p.100) related to the cross-sectional data used for their study also apply to the present study. First, cross-sectional data investigates the hypothesized relationships among the model variables at "one point in time" and hence it gives "a static perspective" (Siguaw, Simpson, and Baker 1998, p.100) on the suggested relationships. These relationships are often dynamic in nature. Second, some of the relationships presented in this study may have a reciprocal nature, which means if one variable might influence a second variable at a specific time, over time, the second variable might affect the former variable (Siguaw, Simpson, and Baker 1998, p.100). In other words, the dependency relationship between two variables may be reversed over time. Also, it is argued that a market orientation operates on a continual basis. There is a lagged effect between market orientation and new product performance. There may be some firms which have recently adopted a market orientation, and it may be too early to assess the effect of market orientation on new product performance (Sargeant and Mohamad 1999). Even though the level of market orientation is high in these firms, its real effect on new product performance may not be seen until some years later. Sargeant and Mohamad (1999) contended that the adoption of a market orientation is considered to be a long-term

investment with long-term benefits. Thus, the effect of a long-term investment on performance can only be measured using appropriate long-term measures such as employee and customer satisfaction rather than employing short-term measures such as profitability (Sargeant and Mohamad 1999). It is known that with cross-sectional data it is not possible to observe causal relationships between market orientation and new product performance (Atuahene-Gima 1995). Potential changes or causal links in the proposed relationships in the model over time can only be captured through a longitudinal study (Menon, Jaworski, and Kohli 1997). Future research may investigate these causal links among the model variables through longitudinal studies.

Finally, based on the results of this study, the following issues should be empirically investigated in future research: In this study, the impact of market orientation on the marketing-R&D integration and the impact of this integration on new product performance were examined. The marketing-R&D integration in the new product development process is considered critical to new product success even though this study did not find a significant link between them. This study did reveal a strong positive link between market orientation and the marketing-R&D integration. The marketing function's interfaces with other functional units such as sales and manufacturing are profound to new product success (Fisher, Maltz, and Jaworski 1997) as well. Therefore, future research should examine whether a market orientation affects the levels of the marketing function's interfaces with other functional units. Moreover, further research should focus on the relationship between the marketing function's interfaces with the other functional units and new product performance. Future studies should also

investigate the market orientation – learning orientation link more closely at a component level. A component-wise approach may provide valuable insights for researchers as well as practitioners regarding which dimensions of market and learning orientations are closely connected and which are not. Thus, researchers can focus on potential factors that facilitate these component-level links. By targeting component-level facilitators of the market orientation – learning orientation link, practitioners can develop more precise action plans to enhance learning orientation within their organizations. Also, according to the results of this study, the link between market orientation and organizational memory dispersion was not significant. In future studies, the possible moderating effects of some variables on this link should be investigated. For example, the potential moderating effects of business type (low-tech business versus high-tech business) and/or dominant culture type (engineering culture versus marketing culture) and/or new product type (product modifications, line extensions, me-too products, or radical innovations) on the relationship between market orientation and memory dispersion should be examined. Finally, future studies should also examine the moderating effects of the organization's size on the relationships between market orientation and learning orientation, organizational memory level and dispersion.

5.4. International Marketing Implications

The relationship between market orientation and new product performance has received little research attention to date. An investigation of this relationship in an international context can help to develop a better understanding of the potential variations in the impacts of market orientation on organizational factors resulting from cultural and

economic differences among nations. This kind of research would also reveal the universal and global significance of a market orientation (Atuahene-Gima 1995). As suggested by Cadogan, Diamantopoulos, and Mortanges (1999), the linkage between market orientation and company performance (or more specifically, new product performance) can be explored in an export context in more detailed studies. More specifically, theoretical frameworks concerning the consequences and antecedents of an export market orientation should be developed and tested. The influences of environmental factors on the linkage between market orientation and firm performance deserve a thorough examination in the export context as well. Environmental factors in an export setting are more complicated and are different from those in domestic environments. In order to investigate the suggested issues here effectively, a better, broader, multi-faceted measure of export performance, including new product performance, should be developed. The export market orientation scale developed by Cadogan, Diamantopoulos, and Mortanges (1999) can be a useful tool in conducting future studies related to export market orientation.

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APPENDIXES

APPENDIX A: MEASUREMENT SCALES

Appendix A.1
Model Measurement Scales

Marketing-R&D Interface Borrowed from Li and Calantone (1998)

In our new product development program related to this new product, Marketing and R&D:

- communicated for new product development.
- shared information on customers.
- did not share information about competitors' products and strategies. (R)
- cooperated in establishing new product development goals and priorities.
- cooperated in generating and screening new product ideas and testing concepts.
- cooperated in evaluating and refining new product.
- were not represented on our product development team. (R)
- Technological knowledge and market knowledge were integrated in our new product development.

Organizational Memory Level Borrowed from Moorman and Miner (1997)

Prior to the project, compared to firms in our industry, my division/business unit had:

- a great deal of knowledge about this category.
- a great deal of experience in this category.
- a great deal of familiarity in this category.
- invested a great deal of R&D in this category.

Organizational Memory Dispersion Borrowed from Moorman and Miner (1997)

Please rate the degree of consensus among the people working on this new product project for the following new product areas:

- product design
- brand name
- packaging
- promotional content
- product quality level

Product Competitive Advantage* Borrowed from Song and Parry (1997)

- Compared to competitive products, this product offered some unique features or attributes to the customer.
- This product was clearly superior to competing products in terms of meeting customers' needs.
- This product permitted the customer to do a job or do something he [or she] could not presently do with what was available.
- This product was higher quality than competing products — tighter specifications, stronger, lasted longer, or more reliable.
- This product had superior technical performance relative to competing products.

Market Orientation Borrowed from Narver and Slater (1990) and Maignan, Ferrell and Hult (1999)

Customer Orientation

- We constantly monitor our level of commitment and orientation to serving customers' needs.
- Our business objectives are driven primarily by customer satisfaction.
- Our strategy for competitive advantage is based on our understanding of customer needs.
- Our business strategies are driven by our beliefs about how we can create greater value for customers.
- We give close attention to after-sales service.
- We measure customer satisfaction systematically and frequently.

Competitor Orientation

- We rapidly respond to competitive actions that threaten us.
- Our salespeople regularly share information within our organization regarding our competitors' actions.
- Top management regularly discusses competitors' strengths and strategies.
- We target customers where we have an opportunity for competitive advantage.
- We can usually anticipate how our competitors will respond to our competitive moves.
- We systematically analyze the products offered by our competitors.

Interfunctional Coordination

- All of our business functions (e.g., marketing/sales, manufacturing, R&D, etc.) are integrated in serving the needs of our target markets.
- All of our business functions and departments are responsive to each other's needs and requests.
- Our top managers from every function regularly visit our current and prospective customers.
- We freely communicate information about our successful or unsuccessful customer experiences across all business functions.
- Our managers understand how everyone in our business can contribute to creating customer value.

Learning Orientation Borrowed from Baker and Sinkula (1999)

Commitment to Learning

- Managers basically agree that our business unit's ability to learn is the key to our competitive advantage.
- The basic values of this business unit include learning as key to improvement.
- The sense around here is that employee learning is an investment, not an expense.
- Learning in my organization is seen as a key commodity necessary to guarantee organizational survival.
- Our culture is one that does not make employee learning a top priority. (R)
- The collective wisdom in this enterprise is that once we quit learning, we endanger our future.

Shared Vision

- There is a well-expressed concept of who we are and where we are going as a business unit.
- There is a total agreement on our business unit vision across all levels, functions, and divisions.
- All employees are committed to the goals of this business unit.
- Employees view themselves as partners in charting the direction of the business unit.
- Top leadership believes in sharing its vision for the business unit with the lower levels.
- We do not have a well-defined vision for the entire business unit. (R)

Open-Mindedness

- We are not afraid to reflect critically on the shared assumptions we have about the way we do business.
- Managers in this business unit do not want their "view of the world" to be questioned. (R)
- Our business unit places a high value on open-mindedness.
- Managers encourage employees to "think outside of the box."
- An emphasis on constant innovation is not a part of our corporate culture. (R)
- Original ideas are highly valued in this organization.

Organizational Innovativeness Borrowed from Hurley and Hult (1998)

- Technical innovation, based on research results, is readily accepted.
- Management actively seeks innovative ideas.
- Innovation is readily accepted in program/project management.
- People are penalized for new ideas that don't work. (R)
- Innovation in XYZ is perceived as too risky and is resisted. (R)

Competitive Intensity* Borrowed from Jaworski and Kohli (1993)

- Competition in our industry is cutthroat.
- There are many "promotion wars" in our industry.
- Anything that one competitor can offer, others can match readily.
- Price competition is a hallmark of our industry.

- One hears of a new competitive move almost every day.
- Our competitors are relatively weak.

Market Turbulence* Borrowed from Slater and Narver (1999)

- The diversity in our marketing practices needed to serve our different customers has substantially increased in our principal served market segment over the past 3 years.

Technological Turbulence* Borrowed from Slater and Narver (1999)

- Production/service technology has changed very much in our principal served market segment over the past 3 years.
- Research and development activity has substantially increased in our principal served market segment over the past 3 years.

Overall Business Performance* Borrowed from Jaworski and Kohli (1993) and Baker and Sinkula (1999)

- Overall performance in your business unit last year was:
- Relative to competition, overall performance in your business unit last year was:

New Product Success (Firm Level)* Borrowed from Baker and Sinkula (1999)

For your business unit's principal served market segment over the past 3 years.

- New product introduction rate relative to largest competitor.
- New product success rate relative to largest competitor.
- Degree of product differentiation.
- First to market with new applications.
- New product cycle time (i.e., inception to rollout) relative to competition.

New Product Performance (Product Level) Borrowed from Moorman (1995), Olson, Walker; and Ruekert (1995), Cooper and Kleinschmidt (1995), and Ayers, Dahlstrom and Skinner (1997)

- Market share relative to its stated objective
- Sales relative to its stated objective
- Return on assets relative to its stated objective
- Profit margin relative to its stated objective
- Return on investment relative to its stated objective
- The quality of the new product in comparison with other products developed within the firm
- The quality of the new product in comparison with products developed by competitors
- Management's satisfaction with the product's final design
- The time it took to reach the break-even point after introduction
- The degree to which sales objectives were reached
- The degree to which developmental budgets were adhered to
- The time required to complete the project relative to its anticipated time frame
- The degree to which the new product project met its commercial objectives
- The degree to which the new product was considered to be a technical success

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(*) The starred construct is not a part of the suggested model.

Appendix A.2
Summary of New Product Performance/Success Measures

Dimension	Scale Items	Study
	Financial Measures	
Profitability	The degree to which profitability exceeds/falls behind a minimum acceptable profitability criterion for this type of investment (0=fell far short to 10=far exceeded the minimum criterion) (single product level).	Cooper (1979b), Cooper and Kleinschmidt (1995)
	Relative to your firm's objectives for this product, how successful was this product from a profitability standpoint? (0=far less than the objectives to 10=far exceeded the objectives).	Song and Parry (1997)
	How successful was this product from an overall profitability standpoint? (0=a great financial failure to 10=a great financial success).	Song and Parry (1997)
	Relative to your firm's other new products, how successful was this product from a profitability standpoint? (0=far less than our other new products to 10=far exceeded our other new products).	Song and Parry (1997)
Profit Impact	Did the new product/service enhanced the profitability of the firm's other products /services? (1=not at all to 7=very large).	Atuahene-Gima (1995)
Meeting Profit Objectives	How strong an impact the effort has on the business unit's annual profits.	Cooper (1998)
	The extent to which it meets the business's profit objectives.	Cooper (1998)
Profitability Relative to Spending	To what extent has the new product/service been successful in meeting its profit objectives launch (1=not successful to 7=very successful).	Atuahene-Gima (1995)
Profitability versus Competitors	How profitable the business unit's total new product efforts are relative to the amount spent on them.	Cooper (1998)
Profit Margin	How profitable the total new product effort is relative to competitors.	Cooper (1998)
	Pretax profit margin on this product (percentage converted into 5-point scale: 1-5%, 6-10%, 11-15%, 16-20%, >21%)	Li and Calantone (1998)
	Profit margin relative to its stated objective during the first 12 months of its life in the marketplace (7 point Likert scale, where 1=low and 7=high).	Moorman (1995)
	Before-tax profit of the new product in comparison with similar products of other firms in the same market (5-point scale: lowest 20%, lower-middle 20%, middle 20%, upper-middle 20%, top 20%).	Li and Calantone (1998)
New Product Short-term Financial Performance	The level of new product profitability and sales that occur within the first year of introduction.	Moorman and Miner (1997)
	Relative to your firm's (division's) stated objectives,	

	how is your firm (division) performing on financial performance of new product/ service development.	Moorman and Rust (1999)
Return on Investment (ROI)	Return on investment of the new product in comparison with similar products of other firms in the same market (5-point scale: lowest 20%, lower-middle 20%, middle 20%, upper-middle 20%, top 20%).	Li and Calantone (1998)
	Relative to other products of our firm, this one has a better return on investment.	Gatignon and Xuereb (1997)
	Relative to our competitors' products, this one has a better return on investment.	Gatignon and Xuereb (1997)
	Return on investment relative to its stated objective during the first 12 months of its life in the marketplace (7 point Likert scale, where 1=low and 7=high).	Moorman (1995)
Return on Assets (ROA)	Return on assets relative to its stated objective during the first 12 months of its life in the marketplace (7 point Likert scale, where 1=low and 7=high).	Moorman (1995)
Sales Volume	Relative to your firm's other new products, how successful was this product from a sales volume standpoint? (0=far less than the sales of our other new products to 10= far exceeded the sales of our other new products).	Song and Parry (1997)
	Sales relative to its stated objective during the first 12 months of its life in the marketplace (7 point Likert scale, where 1=low and 7=high).	Moorman (1995)
	Did the new product/service enhance the sales and customer use of the firm's other products/services? (1=not at all to 7=very large).	Atuahene-Gima (1995)
Percentage of Sales by New Products	The percentage of the business's sales accounted for by new products introduced within the last three years (multiple new products).	Cooper (1998)
Impact on the Firm	The impact that the product's sales and profits had on the company (0=large negative impact to 10=large positive impact scale).	Cooper and Kleinschmidt (1995)
Sales Impact	How strong an impact the total new product effort has on the business unit's sales revenues or turnover.	Cooper (1998)
Meeting Sales Objectives	The extent to which the total new product effort meets the business unit's sales objectives for new products. (7-point Likert scale).	Cooper (1998), Olson, Walker and Ruekert (1995)
Sales and Customer Use Objectives	To what extent has the new product/service been successful in meeting its sales and customer use objectives since its launch (1=not successful to 7=very successful).	Atuahene-Gima (1995)
Sales and Customer Use Growth Objectives	To what extent has the new product/service been successful in meeting its sales and customer use growth objectives since its launch (1=not successful to 7=very successful).	Atuahene-Gima (1995)
Commercial Objectives	The extent to which a project met its commercial objectives. Successful (1)/ unsuccessful (0) on achieving commercial objectives (single product level).	Ayers, Dahlstrom and Skinner (1997)

	This new product has succeeded in achieving its main objectives.	Gatignon and Xuereb (1997)
Success Rate	Whether the product is considered to be a financial and commercial success (yes/no).	Cooper and Kleinschmidt (1995)
	The proportion of new product development projects that became commercial successes.	Cooper (1998)
	New product success rate relative to largest competitor in your business unit's principal served market segment over the past 3 years (1=low to 7=high scale).	Baker and Sinkula (1999)
New Product Success	New product success relative to all other competitors in the SBU's principal served market over the past year.	Slater and Narver (1994a, 1999) Appiah-Adu (1997)
Overall New Product Success	All things considered, how successful the business unit's total new product efforts are when compared to competitors.	Cooper (1998)
	New product/service development (1=much below expectations to 7= much above expectations).	Pelham and Wilson (1996)
	Market development (1=much below expectations to 7= much above expectations).	Pelham and Wilson (1996)
New Product Introduction Rate	New product introduction rate relative to largest competitor in your business unit's principal served market segment over the past 3 years (1=low to 7=high scale).	Baker and Sinkula (1999)
Market Share	The percent market share achieved in the defined domestic target market.	Cooper and Kleinschmidt (1995)
	Product market share (percentage converted in to 5-point scale (1-5%, 6-10%, 11-15%, 16-20%, >21%).	Li and Calantone (1998)
Market Share Objectives	Market share relative to its stated objective during the first 12 months of its life in the marketplace (7 point Likert scale, where 1=low and 7=high).To what extent has the new product/service been successful in meeting its market share objectives since its launch (1=not successful to 7=very successful).	Moorman 1995 Atuahene-Gima (1995)
Adherence to Budget	The degree to which developmental budgets were adhered to (7-point Likert scale).	Olson, Walker, and Ruekert (1995)
Cost Efficiency/ Reduction	How would you rate the product on meeting of target costs (a five-point scale, where 1=very unsuccessful to 5= very successful).	Sivadas and Dwyer (2000)
	Did the new product/service achieve important cost efficiencies? (1=not at all to 7=very large).	Atuahene-Gima (1995)
	Did the new product/service substantially lower costs for the firm? (1=not at all to 7=very large).	Atuahene-Gima (1995)
Product-Related Measures		
Quality/Reliability	The quality of the new product in comparison with other products developed within the firm (7-point Likert scale).	Olson, Walker and Ruekert (1995)
	The quality of the new product in comparison with	Olson, Walker and Ruekert

	products developed by competitors (7-point Likert scale).	(1995)
	Product had superior quality and reliability (a five-point scale, where 1=very unsuccessful to 5= very successful).	Sivadas and Dwyer (2000)
Design	Management's satisfaction with the product's final design (7-point Likert scale).	Olson, Walker and Ruekert (1995)
Technical Success	The degree to which the new product was considered to be a technical success (0 to 10=great technological success).	Cooper and Kleinschmidt (1995)
New Product Creativity	The extent to which the product is/has: novel; challenged existing ideas for this category; offered new ideas for category; creative; interesting; spawned ideas for other products; encouraged fresh thinking (a semantic differential scale).	Moorman (1995)
	The degree to which a new product is novel and has generative capacity (i.e. the potential to change thinking and practice).	Moorman and Miner (1997)
	Relative to your firm's (division's) stated objectives, how is your firm (division) performing on creativity of new product/ service development.	Moorman and Rust (1999)
Product Differentiation	Degree of product differentiation in your business unit's principal served market segment over the past 3 years (1=low to 7=high scale).	Baker and Sinkula (1999)
Proprietary Advantage	Did the new product/service provide your firm with proprietary advantage such as patents or trade secrets? (1=not at all to 7=very large).	Atuahene-Gima (1995)
Project/Process/Market/Time-Related Measures		
Time Efficiency	How speedy and time efficiently this project was undertaken (0= slow; inefficient, time wasted to 10= fast; very time efficient).	Cooper and Kleinschmidt (1995)
	The time required to complete the project relative to its anticipated time frame (7-point Likert scale).	Olson, Walker and Ruekert (1995)
	How would you rate the product on time taken to introduce product into the market (idea to market) (a five-point scale, where 1=very unsuccessful to 5= very successful).	Sivadas and Dwyer (2000)
On-schedule Project	Product was released on time (a five-point scale, where 1=very unsuccessful to 5= very successful).	Sivadas and Dwyer (2000)
Speed	The degree to which the project stayed on-schedule (0=stayed on (or ahead) of schedule to 10=fell far behind schedule).	Cooper and Kleinschmidt (1995)
	Relative to your firm's (division's) stated objectives, how is your firm (division) performing on speed of new product/ service development.	Moorman and Rust (1999)
New product Timeliness	Timely-Untimely*; Opportune-Inopportune*; Well timed-Poorly timed* (semantic differential scale, * Reverse coded)	Moorman (1995)

First to Market	First to market with new applications in your business unit's principal served market segment over the past 3 years (1=low to 7=high scale).	Baker and Sinkula (1999)
Break-Even Point Time	The time it took to reach the break-even point after introduction (7-point Likert scale).	Olson, Walker and Ruekert (1995)
New Product Cycle Time	New product cycle time (i.e., inception to rollout) relative to competition in your business unit's principal served market segment over the past 3 years (1=low to 7=high scale).	Baker and Sinkula (1999)
New Market and Product/Service Opportunities	Did the new product/service open new market and product/service opportunities for the firm? (1=not at all to 7=very large).	Atuahene-Gima (1995)

Appiah-Adu 1997, p.12
Atuahene-Gima 1995, p.289
Ayers, Dahlstrom, and Skinner 1997, p.111
Baker and Sinkula 1999, p.425
Cooper 1998, p.5
Cooper and Kleinschmidt 1995, p.442
Gatignon and Xuereb 1997, p.89
Li and Calantone 1998, p.23
Moorman 1995, p.331
Moorman and Miner 1997, p.94
Moorman and Rust 1999, p.196
Olson, Walker and Ruekert 1995, p.56
Pelham and Wilson 1996, p.39
Sivadas and Dwyer 2000, p.47
Slater and Narver 1994a, p.51, 1999, p.150
Song and Parry 1997, p. 75

APPENDIX B: FIELDWORK AND MAIL SURVEY MATERIALS

Appendix B.1
Selected Sets of Low-Tech and High-Tech Manufacturing Businesses That are Represented in the Sample

Low-Tech Businesses

20 Food & Kindred Products
- 2024 Ice Cream & Frozen Deserts
- 2038 Frozen Specialties
- 2064 Candy & Other Confectionary Products
- 2066 Chocolate & Cocoa Products
- 2084 Wines, Brandy & Brandy Spirits
- 2086 Bottled & Canned Soft Products
- 2096 Potato Chips & Similar Snacks
- 2099 Food Preparations

21 Tobacco Products
- 2111 Cigarettes
- 2121 Cigars

23 Apparel & Other Finished Products Made from Fabrics & Similar Materials
- 2389 Apparel & Accessories
- 2387 Apparel Belts
- 2392 Household Furnishings
- 2396 Automotive & Apparel Trimmings
- 2399 Fabricated Textile Products

25 Furniture & Fixtures
- 2512 Upholstered Household Furniture
- 2514 Metal Household Furniture
- 2515 Mattresses & Bed Springs
- 2517 Wood Television & Radio Cabinets
- 2519 Household Furniture
- 2521 Wood Office Furniture
- 2522 Office Furniture, Except Wood
- 2531 Public Building & Related Furniture
- 2541 Wood Partitions & Fixtures
- 2599 Furnitures & Fixtures

26 Paper & Allied Products
- 2653 Corrugated & Solid Fiber Boxes
- 2655 Fiber Cans, Drums & Similar products
- 2656 Sanitary food Containers
- 2671 Packaging Paper & Plastics Film, Coated & Laminated

2676 Sanitary Paper Products
2678 Stationary Products
2679 Converted Paper Products

28 Chemicals & Allied Products
2841 Soap & Other Detergents
2842 Specialty Cleaning, Polishes & Sanitation Goods
2844 Toilet Preparations
2891 Adhesives & Sealants

30 Rubber & Miscellaneous Plastic Products
3011 Tires & Inner Tubes
3052 Rubber & Plastics Hose & Beltings
3053 Gaskets, Packing & Sealing Devices
3061 Mechanical Rubber Goods
3069 Fabricated Rubber Products
3082 Unsupported Plastics Profile Shapes
3085 Plastics Bottles
3086 Plastics Foam Products
3088 Plastics Plumbing Fixtures
3089 Plastics Products

34 Fabricated Metal Products, Except Machinery & Transportation Equipment
3412 Metal Barrels, Drums & Pails
3421 Cutlery
3423 Hand & Edge Tools
3425 Saw Blades & Handsaws
3429 Manufactured Hardware (General)
3433 Heating Equipment, Except Electricity
3451 Screw Machine Products
3452 Bolts, Nuts, Rivets & Washers
3491 Industrial Valves
3496 Miscellaneous Fabricated Wire Products
3499 Fabricated Metal Products

39 Miscellaneous Manufacturing Industries
3915 Jewelers' Materials & Lapidary Work
3942 Dolls & Stuffed Toys
3944 Games, Toys & Children's Vehicles
3949 Sporting & Athletic Goods
3951 Pens & Mechanical Pencils
3953 Marking Devices
3996 Hard Surface Floor Coverings
3999 Manufacturing Industries

High-Tech Businesses

35 Industrial & Commercial Machinery & Computer Equipment

3523 Farm Machinery & Equipment
3524 Lawn and Garden Equipment
3531 Construction Machinery
3541 Machine Tools, Metal Cutting Type
3545 Machine Tool Accessories
3549 Metalworking Machinery
3552 Textile Machinery
3554 Paper Industries Machinery
3556 Food Products Machinery
3565 Packaging Machinery
3569 General Industrial Machinery
3571 Electronic Computers
3572 Computer Storage Devices
3575 Computer Terminals
3577 Computer Peripheral Equipment
3578 Calculating & Accounting Equipment
3579 Office Machines
3589 Service Industry Machinery
3599 Industrial Machinery

36 Electronic & Other Electrical Equipment & Components Except Computer Equipment
3621 Motors & Generators
3631 Household Cooking Equipment
3632 Household Refrigerators & Freezers
3633 Household Laundry Equipment
3634 Electric Housewares & Fans
3635 Household Vacuum Cleaners
3639 Household Appliances
3645 Residential Lighting Fixtures
3646 Commercial Industrial &Institutional Electric Lighting Fixtures
3647 Vehicular Lighting Equipment
3648 Lighting Equipment
3651 Household Audio & Video Equipment
3661 Telephone & Telegraph Apparatus
3663 Radio & TV Communications Equipment
3669 Communications Equipment
3679 Electronic Components
3694 Engine Electrical Equipment
3699 Electrical Equipment & Supplies

37 Transportation Equipment
3711 Motor vehicles & Car Bodies
3714 Motor vehicle Parts & Accessories
3728 Aircraft Parts & Equipment
3751 Motorcycles, Bicycles & Parts

3792 Travel Trailers & Campers

38 Measuring, Analyzing & Controlling Instruments; Photographic, Medical & Optical Goods; Watches & Clocks

3812 Search & Navigation Equipment
3821 Laboratory Apparatus & Furniture
3822 Auto Controls Regulating Residential & Coml. Environment & Appliances
3823 Industrial Instruments Measurement Display/ Control Process Variable
3826 Analytical Instruments
3827 Optical Instruments & Lenses
3829 Measuring and Controlling Devices
3842 Surgical Appliances & Supplies
3845 Electromedical Equipment
3861 Photographic Equipment & Supplies
3873 Watches, Clocks, Watchcases & Parts

Businesses That Were Excluded

22 Textile Mill Products
24 Lumber and Wood Products, Except Furniture
27 Printing, Publishing & Allied Industries
29 Petroleum Refining & Related Industries
31 Leather & Leather Products
32 Stone, Clay, Glass & Concrete Products
33 Primary Metal Industries

Source: D & B Million Dollar Directory, America's Leading Public & Private Companies, Series Cross-Reference By Industry, 2001 Edition, Dun & Bradstreet, Inc, p. XI-XIII.

Appendix B.2
Survey Questionnaire

A BUSINESS PRACTICES SURVEY

Dear Respondent:
Please read each question carefully and answer it completely. There are no right or wrong answers to these questions.

SECTION A: Please answer a series of questions relating to the most recent product development project that you were involved in within your business unit, and which has been on the U.S. market for anywhere from one to five years. Please refer to this project when answering questions 1 through 6.

1) This product I have chosen can be characterized as: (Please check one only)

____ **A product modification**, that involves only slight incremental changes in already existing products and is familiar both to the firm and to the market.
____ **A line extension**, that is new to the market but not very new to the firm.
____ **A me-too product**, that is new to the firm but not new to the market.
____ **A radical** or **true innovation**, that is both new to the firm and new to the market and can be called as a new-to-the-world product.

2) In our product development program related to this product, Marketing and R&D / Engineering:

Never 1 2 3 4 5 6 7 *Fully* (02) communicated for new product development.

Never 1 2 3 4 5 6 7 *Fully* (03) shared information on customers.

Never 1 2 3 4 5 6 7 *Fully* (04) did not share information about competitors' products and strategies.

Never 1 2 3 4 5 6 7 *Fully* (05) cooperated in establishing new product development goals and priorities.

Never 1 2 3 4 5 6 7 *Fully* (06) cooperated in generating and screening new product ideas and testing concepts.

Never 1 2 3 4 5 6 7 *Fully* (07) cooperated in evaluating and refining new product.

Never 1 2 3 4 5 6 7 *Fully* (08) were not represented on our product development team.

Never 1 2 3 4 5 6 7 *Fully* (09) integrated technological knowledge and market knowledge in our new product development.

3) Prior to the project, compared to firms in our industry, my division or business unit had:

Strongly Disagree						*Strongly Agree*		
1	2	3	4	5	6	7	(10)	a great deal of knowledge about this product category.
1	2	3	4	5	6	7	(11)	a great deal of experience in this product category.
1	2	3	4	5	6	7	(12)	a great deal of familiarity with this product category.
1	2	3	4	5	6	7	(13)	invested a great deal in R&D in this product category.

4) Please rate the degree of consensus among the people working on this new product project for the following areas:

Low						*High*		
1	2	3	4	5	6	7	(14)	product design.
1	2	3	4	5	6	7	(15)	brand name.
1	2	3	4	5	6	7	(16)	packaging.

1 2 3 4 5 6 7 (17) promotional content.

1 2 3 4 5 6 7 (18) product quality level.

5) Please indicate your degree of agreement or disagreement with the following statements regarding this product.

Strongly Disagree — *Strongly Agree*

1 2 3 4 5 6 7 (19) Compared to competitive products, this product offered some unique features or attributes to the customer.

1 2 3 4 5 6 7 (20) This product was clearly superior to competing products in terms of meeting customers' needs.

1 2 3 4 5 6 7 (21) This product permitted the customer to do a job or do something he [or she] could not presently do with what was available.

1 2 3 4 5 6 7 (22) This product was higher quality than competing products — tighter specifications, stronger, lasted longer, or more reliable.

1 2 3 4 5 6 7 (23) This product had superior technical performance relative to competing products.

6) Please rate the selected new product project with regards to the following outcomes to date since product launch:

Low — *High*

1 2 3 4 5 6 7 (24) Market share relative to its stated objective

1 2 3 4 5 6 7 (25) Sales relative to its stated objective

1 2 3 4 5 6 7 (26) Return on assets relative to its stated objective

1 2 3 4 5 6 7 (27) Profit margin relative to its stated objective

1 2 3 4 5 6 7 (28) Return on investment relative to its stated objective

1 2 3 4 5 6 7 (29) The quality of the new product in comparison with other products developed within the firm

1 2 3 4 5 6 7 (30) The quality of the new product in comparison with products developed by competitors

1 2 3 4 5 6 7 (31) Management's satisfaction with the product's final design

1 2 3 4 5 6 7 (32) The time it took to reach the break-even point after introduction

1 2 3 4 5 6 7 (33) The degree to which sales objectives were reached

1 2 3 4 5 6 7 (34) The degree to which developmental budgets were adhered to

1 2 3 4 5 6 7 (35) The time required to complete the project relative to its anticipated time frame

1 2 3 4 5 6 7 (36) The degree to which the new product project met its commercial objectives

1 2 3 4 5 6 7 (37) The degree to which the new product was considered to be a technical success

<u>SECTION B</u>: Please consider the overall business activities of your division or business unit in answering the question 7.

7) To what extent does each statement listed below accurately describe your division or business unit? Please indicate your level of agreement or disagreement with each of the following statements:

Strongly Disagree — *Strongly Agree*

1 2 3 4 5 6 7 (38) We constantly monitor our level of commitment and orientation to serving customers' needs.

1	2	3	4	5	6	7	(39)	Our business objectives are driven primarily by customer satisfaction.
1	2	3	4	5	6	7	(40)	Our strategy for competitive advantage is based on our understanding of customer needs.
1	2	3	4	5	6	7	(41)	Our business strategies are driven by our beliefs about how we can create greater value for customers.
1	2	3	4	5	6	7	(42)	We give close attention to after-sales service.
1	2	3	4	5	6	7	(43)	We measure customer satisfaction systematically and frequently.
1	2	3	4	5	6	7	(44)	We rapidly respond to competitive actions that threaten us.
1	2	3	4	5	6	7	(45)	Our salespeople regularly share information within our organization regarding our competitors' actions.
1	2	3	4	5	6	7	(46)	Top management regularly discusses competitors' strengths and strategies.
1	2	3	4	5	6	7	(47)	We target customers where we have an opportunity for competitive advantage.
1	2	3	4	5	6	7	(48)	We can usually anticipate how our competitors will respond to our competitive moves.
1	2	3	4	5	6	7	(49)	We systematically analyze the products offered by our competitors.
1	2	3	4	5	6	7	(50)	All of our business functions (e.g., marketing/sales, manufacturing, R&D, etc.) are integrated in serving the needs of our target markets.
1	2	3	4	5	6	7	(51)	All of our business functions and departments are responsive to each other's needs and requests.
1	2	3	4	5	6	7	(52)	Our top managers from every function regularly visit our current and prospective customers.
1	2	3	4	5	6	7	(53)	We freely communicate information about our successful or unsuccessful customer experiences across all business functions.
1	2	3	4	5	6	7	(54)	Our managers understand how everyone in our business can contribute to creating customer value.
1	2	3	4	5	6	7	(55)	Managers basically agree that our business unit's ability to learn is the key to our competitive advantage.
1	2	3	4	5	6	7	(56)	The basic values of this business unit include learning as key to improvement.
1	2	3	4	5	6	7	(57)	The sense around here is that employee learning is an investment, not an expense.
1	2	3	4	5	6	7	(58)	Learning in my organization is seen as a key commodity necessary to guarantee organizational survival.
1	2	3	4	5	6	7	(59)	Our culture is one that does not make employee learning a top priority.
1	2	3	4	5	6	7	(60)	The collective wisdom in this enterprise is that once we quit learning, we endanger our future.
1	2	3	4	5	6	7	(61)	There is a well-expressed concept of who we are and where we are going as a business unit.
1	2	3	4	5	6	7	(62)	There is a total agreement on our business unit vision across all levels, functions, and divisions.
1	2	3	4	5	6	7	(63)	All employees are committed to the goals of this business unit.
1	2	3	4	5	6	7	(64)	Employees view themselves as partners in charting the direction of the business unit.
1	2	3	4	5	6	7	(65)	Top leadership believes in sharing its vision for the business unit with the lower levels.
1	2	3	4	5	6	7	(66)	We do not have a well-defined vision for the entire business unit.
1	2	3	4	5	6	7	(67)	We are not afraid to reflect critically on the shared assumptions we have about the way we do business.
1	2	3	4	5	6	7	(68)	Managers in this business unit do not want their "view of the world" to be questioned.

1 2 3 4 5 6 7 (69) Our business unit places a high value on open-mindedness.

1 2 3 4 5 6 7 (70) Managers encourage employees to "think outside of the box."

1 2 3 4 5 6 7 (71) An emphasis on constant innovation is not a part of our corporate culture.

1 2 3 4 5 6 7 (72) Original ideas are highly valued in this organization.

1 2 3 4 5 6 7 (73) Technical innovation, based on research results, is readily accepted.

1 2 3 4 5 6 7 (74) Management actively seeks innovative ideas.

1 2 3 4 5 6 7 (75) Innovation is readily accepted in program / project management.

1 2 3 4 5 6 7 (76) People are penalized for new ideas that don't work.

1 2 3 4 5 6 7 (77) Innovation in this business unit is perceived as too risky and is resisted.

8) To what extent does each statement listed below correctly describe the market environment of your division or business unit? Please indicate your level of agreement or disagreement with each of the following statements:

Strongly Disagree *Strongly Agree*

1 2 3 4 5 6 7 (78) Competition in our industry is cutthroat.

1 2 3 4 5 6 7 (79) There are many "promotion wars" in our industry.

1 2 3 4 5 6 7 (80) Anything that one competitor can offer, others can match readily.

1 2 3 4 5 6 7 (81) Price competition is a hallmark of our industry.

1 2 3 4 5 6 7 (82) One hears of a new competitive move almost every day.

1 2 3 4 5 6 7 (83) Our competitors are relatively weak.

9) In our principal served market segment over the past 3 years:

Increased 1 2 3 4 5 6 7 *Decreased* (84) The diversity in our marketing practices needed to serve our different customers has substantially:

Increased 1 2 3 4 5 6 7 *Decreased* (85) Research and development activity has substantially:

Very Much 1 2 3 4 5 6 7 *Very Little* (86) Production / service technology has changed:

10) Please consider the overall performance of your division or business unit in responding to these statements.

Poor *Excellent*

1 2 3 4 5 6 7 (87) Rate the overall performance of your business unit during the past year.

1 2 3 4 5 6 7 (88) Relative to the competition, rate the overall performance of your business unit during the past year.

11) Please rate the performance of your business unit in its principal served market segment over the past 3 years.

Low *High*

1 2 3 4 5 6 7 (89) New product introduction rate relative to largest competitor.

1 2 3 4 5 6 7 (90) New product success rate relative to largest competitor.

1 2 3 4 5 6 7 (91) Degree of product differentiation.

1 2 3 4 5 6 7 (92) First to market with new applications.

1 2 3 4 5 6 7 (93) New product cycle time (i.e., inception to rollout) relative to competition.

SECTION C: Please answer the following questions:

12) Which industry(s) is your division or business unit in? _____

13) Is your division or business unit considered to be a high-tech business? ____ Yes ____ No

14) What type of products does your division or business unit mostly produce? (Please check **all** that apply)

____ Consumer Products ____ Industrial Products ____ Consumer Services ____ Industrial Services

15) What is the approximate age of your division or business unit? _____

16) How many employees does your division or business unit currently have? (Please check **one** only)

□ 1-19 □ 20-49 □ 50-99 □ 100-249 □ 250-499 □ 500-999 □ 1000-4999 □ 5000-9999 □ 10000+

17) What is the amount of annual sales for your division or business unit last year? (Please check **one** only)

□ < $5 million
□ ≥ $5 million - < 10 million
□ ≥ $10 million - < 20 million
□ ≥ $20 million - < 50 million
□ ≥ $50 million - < 100 million
□ ≥ $100 million - < 500 million
□ ≥ $500 million - < 1 billion
□ ≥ $1 billion

18) What is your current job title? _____

19) How long have you been in your current position? _____

20) How long have you been working for your current division or business unit? _____

21) Would you like to receive a copy of our findings? ____ Yes ____ No

If yes, please give your e-mail address: _____

THANK YOU FOR YOUR COOPERATION!

Appendix B.3
Questionnaire Outline

Project-Level Variables
Type of New Product*
Marketing-R&D Interface/Integration
Organizational Memory Level
Organizational Memory Dispersion
Product Competitive Advantage*
New Product Performance (Product Level)

Organizational-Level Variables
Market Orientation
  Customer Orientation
  Competitor Orientation
  Interfunctional Coordination
Learning Orientation
  Commitment to Learning
  Shared Vision
  Open-Mindedness
Organizational Innovativeness

Environmental Variables
Competitive Intensity*
Market Turbulence*
Technological Turbulence*

Performance Variables
Overall Business Performance*
New Product Performance (Firm Level)*

Demographic Information
Industry Type*
Business Type*
Product Type*
The Age of Business Unit
The Size of Business Unit (the number of employees and the amount of annual sales)*
The Respondent's Current Job Title*
The Respondent's Experience in the Current Position*
The Respondent's Experience in the Current Business Unit*

(*) This variable is not a part of the suggested model.

Appendix B.4
Fieldwork In-depth Interview Questions

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1. What does the term "market/marketing orientation" mean to you? What kinds of things does a market/marketing-oriented company *do*? (*)

2. What organizational factors foster or discourage this orientation? (*)

3. What environmental factors foster or discourage this orientation?

4. What are the positive consequences of this orientation? What are the negative consequences?(*)

5. How do you define a 'new product'?

6. What attributes determine the competitive advantage of a new product?

7. What criteria does your division/business unit use to measure new product performance?

8. What organizational-level factors affect new product performance?

9. What project-level factors affect new product performance?

10. Briefly define the new product development process for your industry/business? To what extent do the marketing department and R&D participate and interact in new product development?

11. Do you think there is a *connection* between a market orientation and new product performance/outcomes? If there is, which factors facilitate or discourage this connection? Are there any outcomes of a market orientation that specifically lead to new product competitive advantage and success?

12. What are the most convenient ways through which we can contact with marketing managers/executives in your organization as well as in other organizations? If any, what professional networks/associations, professional conferences/meetings, professional e-mail lists/ mail lists/ forums/ chat rooms or directories are available to you as marketing managers/executives to gather and/or to communicate?

13. What factors encourage and/or discourage you to respond to a mail questionnaire? (i.e., offering monetary incentives via per response base or lottery, donating money to charities, offering research findings, etc.).

(*) Borrowed from Kohli and Jaworski (1990, p.2).

Appendix B.5
Cover Letter

Dear Marketing Executive:

We are conducting a nationwide survey of marketing executives to examine product development activities within their respective companies. We are requesting your help in this academic study which will attempt to provide strategic insight into the new product development process and the acquiring and maintaining of competitive advantage. We believe that the results will be of great interest and benefit to you.

We would like to assure you that your responses to this survey will be held in the strictest of confidence. Individual responses will not be revealed. Only aggregated data will be used for reporting and publishing purposes. In thanks for your participation we would like to offer you a summary of the study findings. Please send a request under separate cover as we want to keep your responses anonymous. You will be automatically entered to a random drawing for a chance to win a $300-cash prize. Also, we would like to donate $1.00 to the American Cancer Society for your willingness to help us in this research project.

Please keep in mind that there are no right or wrong answers. Please answer all of the questions. We believe that you will be able to complete the survey in no more than 15 minutes. We have enclosed a postage-paid, self-addressed return envelope for your convenience.

Please help us in this important research. Please do not hesitate to contact either of us should you have any questions about this survey. We look forward to getting your responses. Thank you very much for your help.

Sincerely,

John B Ford

Dr. John B. Ford, Ph.D.
Professor of Marketing
Old Dominion University

T Dursun Kilic

T. Dursun Kilic, M.B.A.
Ph.D. Candidate, Old Dominion University
Instructor, New York Institute of Technology

P.S. If you have any questions about this survey, please do not hesitate to contact us at: tdurs001@odu.edu or jbford@odu.edu, or to call us at: (201) 487-9066 or (757) 683-3587.

APPENDIX C: RESULTS OF ANALYSES

Appendix C.1
Assessment of Nonresponse Bias

Nonresponse Bias Assessment

T-Test

Group Statistics

	CASENO	N	Mean	Std. Deviation	Std. Error Mean
AGE	>= 69	45	33.93	28.11	4.19
	< 69	66	32.27	21.26	2.62
EMPSIZE	>= 69	45	3.02	1.31	.19
	< 69	66	3.32	1.49	.18
ANSALES	>= 69	45	2.87	1.63	.24
	< 69	66	3.06	1.63	.20
EXPPOSI	>= 69	44	5.1211	3.4337	.5177
	< 69	66	6.2045	5.1673	.6360
EXPCOMP	>= 69	44	8.7614	7.7223	1.1642
	< 69	65	9.6308	8.3420	1.0347

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AGE	Equal variances assumed	1.894	.172	.354	109	.724	1.66	4.69	-7.63	10.96
	Equal variances not assumed			.336	77.065	.738	1.66	4.94	-8.18	11.50
EMPSIZE	Equal variances assumed	.241	.625	-1.079	109	.283	-.30	.27	-.84	.25
	Equal variances not assumed			-1.107	102.267	.271	-.30	.27	-.83	.23
ANSALES	Equal variances assumed	.049	.824	-.616	109	.539	-.19	.31	-.82	.43
	Equal variances not assumed			-.616	94.413	.540	-.19	.32	-.82	.43
EXPPOSI	Equal variances assumed	6.698	.011	-1.222	108	.225	-1.0834	.8869	-2.8413	.6745
	Equal variances not assumed			-1.321	108.000	.189	-1.0834	.8201	-2.7089	.5421
EXPCOMI	Equal variances assumed	.764	.384	-.550	107	.584	-.8694	1.5810	-4.0036	2.2648
	Equal variances not assumed			-.558	97.070	.578	-.8694	1.5575	-3.9606	2.2218

Appendix C.2
Characteristics of the Sample

Descriptives

Statistics

		AGE	EXPPOSI	EXPCOMP
N	Valid	111	110	109
	Missing	0	1	2
Mean		32.95	5.7712	9.2798
Median		26.00	5.0000	6.0000
Mode		20	5.00	5.00
Std. Deviation		24.16	4.5671	8.0725
Range		112	23.17	34.17
Minimum		3	.83	.83
Maximum		115	24.00	35.00

Frequency Tables

PRODTYPE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	25	22.5	22.5	22.5
	2	22	19.8	19.8	42.3
	3	24	21.6	21.6	64.0
	4	40	36.0	36.0	100.0
	Total	111	100.0	100.0	

BUSTYPE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	68	61.3	61.3	61.3
	1	43	38.7	38.7	100.0
	Total	111	100.0	100.0	

PRTYPEIP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	19	17.1	17.1	17.1
	1	92	82.9	82.9	100.0
	Total	111	100.0	100.0	

PRTYPEIS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	94	84.7	84.7	84.7
	1	17	15.3	15.3	100.0
	Total	111	100.0	100.0	

PRTYPECS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	104	93.7	93.7	93.7
	1	7	6.3	6.3	100.0
	Total	111	100.0	100.0	

PRTYPECP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	79	71.2	71.2	71.2
	1	32	28.8	28.8	100.0
	Total	111	100.0	100.0	

EMPSIZE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	9.0	9.0	9.0
	2	28	25.2	25.2	34.2
	3	29	26.1	26.1	60.4
	4	31	27.9	27.9	88.3
	5	5	4.5	4.5	92.8
	6	3	2.7	2.7	95.5
	7	5	4.5	4.5	100.0
	Total	111	100.0	100.0	

ANSALES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	4.5	4.5	4.5
	1	13	11.7	11.7	16.2
	2	32	28.8	28.8	45.0
	3	20	18.0	18.0	63.1
	4	22	19.8	19.8	82.9
	5	11	9.9	9.9	92.8
	6	6	5.4	5.4	98.2
	7	1	.9	.9	99.1
	8	1	.9	.9	100.0
	Total	111	100.0	100.0	

TITLE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.9	.9	.9
	1	33	29.7	29.7	30.6
	2	9	8.1	8.1	38.7
	3	15	13.5	13.5	52.3
	4	11	9.9	9.9	62.2
	5	5	4.5	4.5	66.7
	6	16	14.4	14.4	81.1
	7	13	11.7	11.7	92.8
	8	3	2.7	2.7	95.5
	9	5	4.5	4.5	100.0
	Total	111	100.0	100.0	

Appendix C.3
Factor Analysis Results

Marketing-R&D Interface/Integration

Factor Analysis

Communalities

	Initial	Extraction
INT2	1.000	.712
INT3	1.000	.345
INT5	1.000	.666
INT6	1.000	.605
INT7	1.000	.655
INT9	1.000	.622

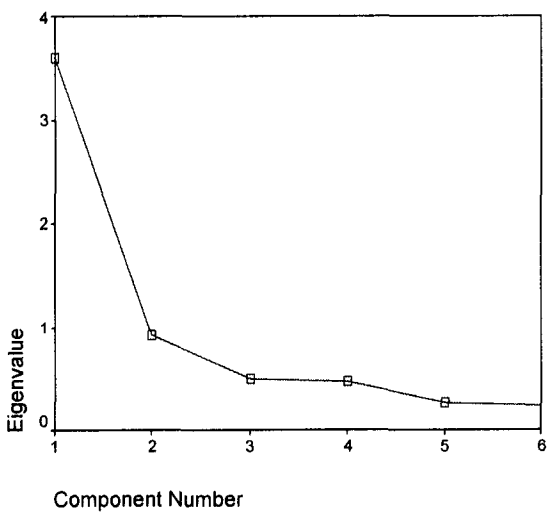
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.606	60.099	60.099	3.606	60.099	60.099
2	.927	15.452	75.551			
3	.500	8.327	83.878			
4	.466	7.768	91.646			
5	.267	4.444	96.090			
6	.235	3.910	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
INT2	.844
INT3	.587
INT5	.816
INT6	.778
INT7	.810
INT9	.789

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Organizational Memory Level

Factor Analysis

Communalities

	Initial	Extraction
ML10	1.000	.830
ML11	1.000	.763
ML12	1.000	.834
ML13	1.000	.300

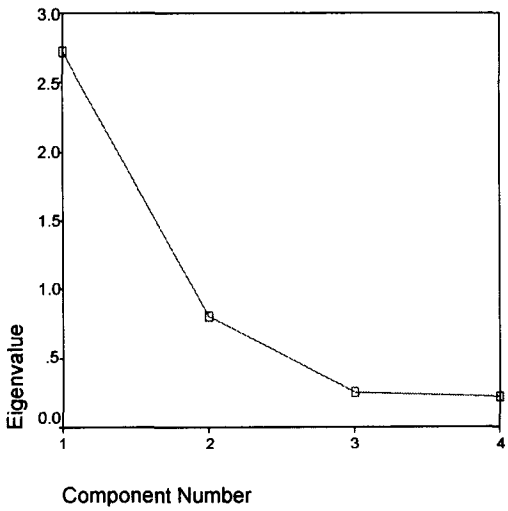
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.727	68.164	68.164	2.727	68.164	68.164
2	.801	20.020	88.183			
3	.254	6.344	94.528			
4	.219	5.472	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
ML10	.911
ML11	.873
ML12	.913
ML13	.547

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Organizational Memory Dispersion

Factor Analysis

Communalities

	Initial	Extraction
MD14	1.000	.190
MD16	1.000	.687
MD15	1.000	.568
MD18	1.000	.213
MD17	1.000	.481

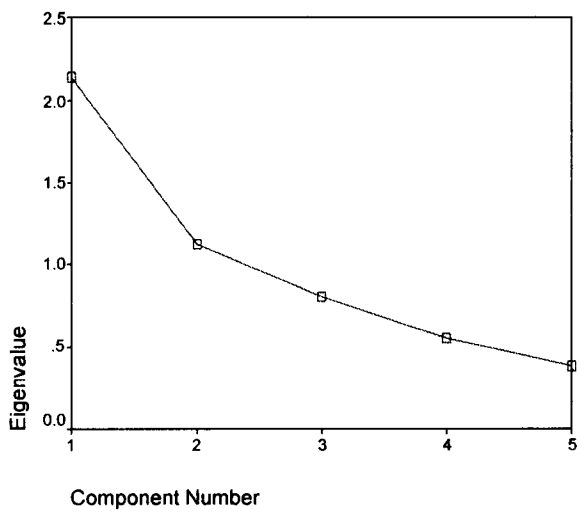
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.138	42.767	42.767	2.138	42.767	42.767
2	1.121	22.418	65.186			
3	.798	15.966	81.152			
4	.554	11.075	92.228			
5	.389	7.772	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
MD14	.435
MD16	.829
MD15	.753
MD18	.461
MD17	.694

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

New Product Performance

Factor Analysis

Communalities

	Initial	Extraction
PP24	1.000	.710
PP25	1.000	.702
PP26	1.000	.778
PP27	1.000	.446
PP28	1.000	.820

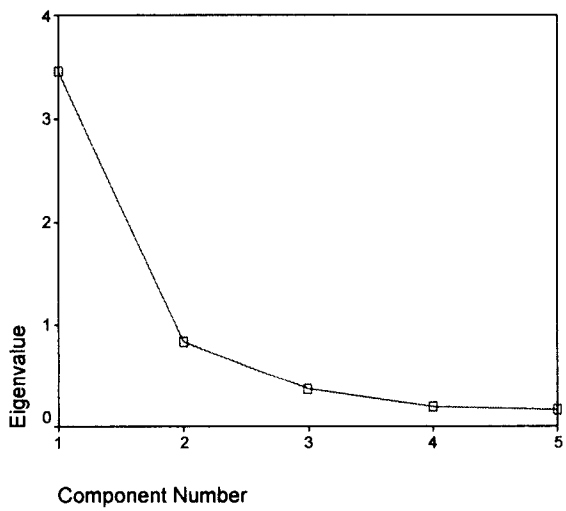
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.456	69.123	69.123	3.456	69.123	69.123
2	.833	16.651	85.774			
3	.364	7.271	93.045			
4	.184	3.684	96.730			
5	.164	3.270	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
PP24	.843
PP25	.838
PP26	.882
PP27	.667
PP28	.906

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Market Orientation

Factor Analysis

Communalities

	Initial	Extraction
CO38	1.000	.669
CO39	1.000	.764
CO40	1.000	.683
CO41	1.000	.662
CO42	1.000	.374
CO43	1.000	.513
CMO44	1.000	.375
CMO45	1.000	.692
CMO46	1.000	.526
CMO47	1.000	.458
CMO48	1.000	.486
CMO49	1.000	.521
IC50	1.000	.712
IC51	1.000	.673
IC52	1.000	.646
IC53	1.000	.475
IC54	1.000	.673

Extraction Method: Principal Component Analysis.

Total Variance Explained

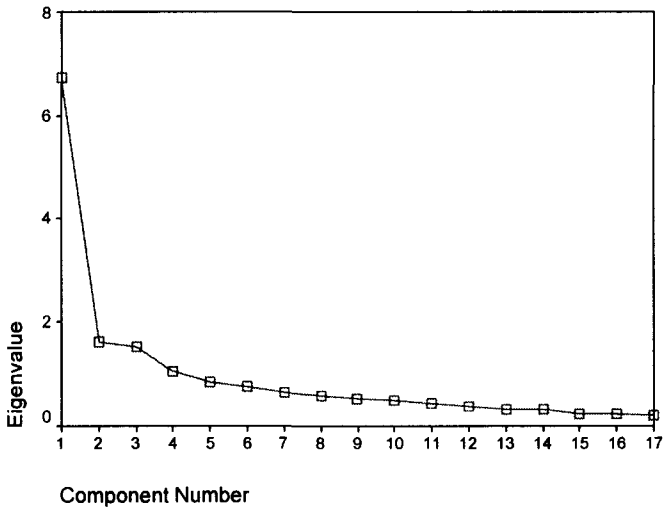
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Componen	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.741	39.654	39.654	6.741	39.654	39.654	3.420	20.118	20.118
2	1.626	9.564	49.218	1.626	9.564	49.218	3.329	19.584	39.702
3	1.536	9.038	58.256	1.536	9.038	58.256	3.154	18.554	58.256
4	1.070	6.293	64.549						
5	.838	4.931	69.480						
6	.778	4.577	74.056						
7	.659	3.878	77.935						
8	.576	3.388	81.323						
9	.536	3.153	84.476						
10	.496	2.917	87.393						
11	.437	2.573	89.966						
12	.378	2.226	92.192						
13	.338	1.989	94.180						
14	.319	1.874	96.054						
15	.248	1.456	97.510						
16	.222	1.308	98.819						
17	.201	1.181	100.000						

Extraction Method: Principal Component Analysis.

Market Orientation (Continued)

Factor Analysis

Scree Plot



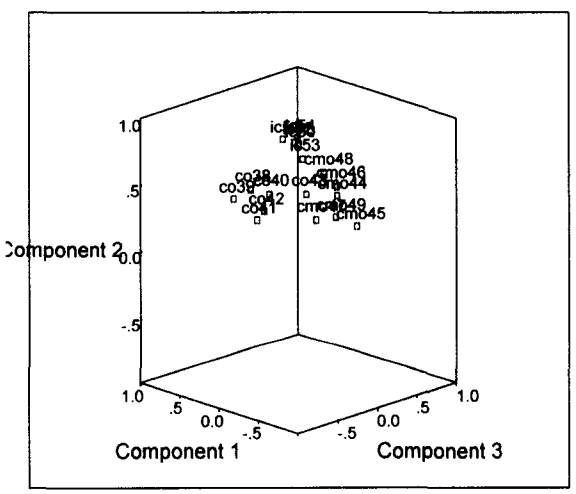
Component Matrix[a]

	Component		
	1	2	3
CO38	.699	.162	-.392
CO39	.651	.231	-.535
CO40	.752	.267	-.216
CO41	.623	.419	-.313
CO42	.516	.185	-.272
CO43	.686	.172	.112
CMO44	.491	-5.92E-02	.362
CMO45	.520	.315	.568
CMO46	.627	-2.03E-03	.366
CMO47	.565	.308	.209
CMO48	.642	-.132	.239
CMO49	.554	.262	.381
IC50	.811	-.233	6.397E-03
IC51	.670	-.446	-.160
IC52	.505	-.621	-7.04E-02
IC53	.614	-.313	2.967E-02
IC54	.676	-.463	-3.01E-02

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Component Plot in Rotated Space



Customer Orientation

Factor Analysis

Communalities

	Initial	Extraction
CO38	1.000	.689
CO39	1.000	.682
CO40	1.000	.665
CO41	1.000	.578
CO42	1.000	.393
CO43	1.000	.453

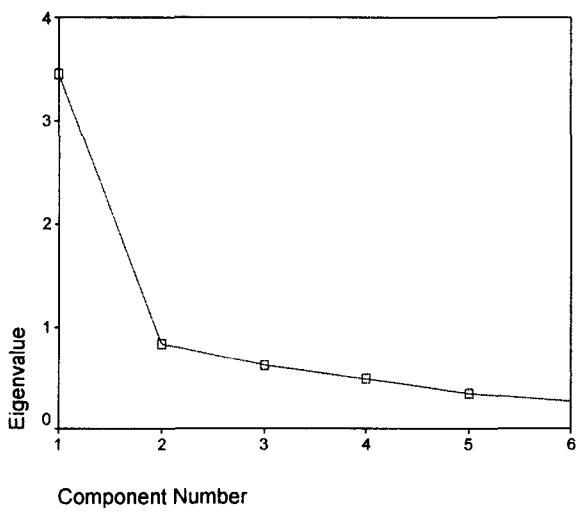
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.458	57.637	57.637	3.458	57.637	57.637
2	.844	14.063	71.700			
3	.613	10.211	81.910			
4	.489	8.146	90.056			
5	.331	5.521	95.577			
6	.265	4.423	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
CO38	.830
CO39	.826
CO40	.815
CO41	.760
CO42	.627
CO43	.673

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Competitor Orientation

Factor Analysis

Communalities

	Initial	Extraction
CMO44	1.000	.349
CMO45	1.000	.561
CMO46	1.000	.534
CMO47	1.000	.446
CMO48	1.000	.470
CMO49	1.000	.503

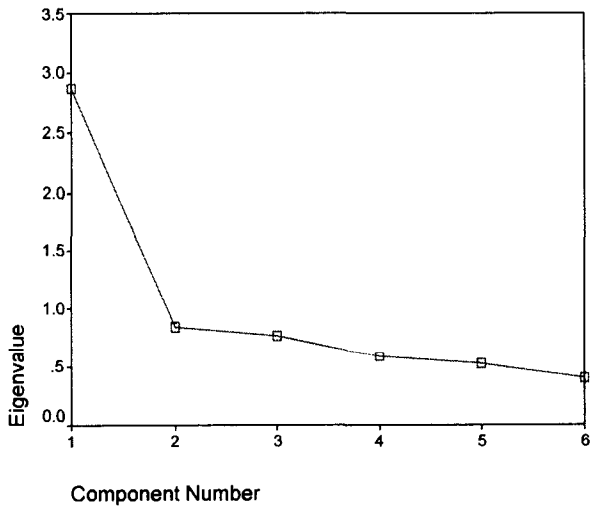
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.864	47.733	47.733	2.864	47.733	47.733
2	.852	14.196	61.928			
3	.767	12.781	74.709			
4	.593	9.889	84.598			
5	.522	8.708	93.306			
6	.402	6.694	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
CMO44	.591
CMO45	.749
CMO46	.731
CMO47	.668
CMO48	.685
CMO49	.709

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Interfunctional Coordination

Factor Analysis

Communalities

	Initial	Extraction
IC50	1.000	.691
IC51	1.000	.678
IC52	1.000	.552
IC53	1.000	.492
IC54	1.000	.686

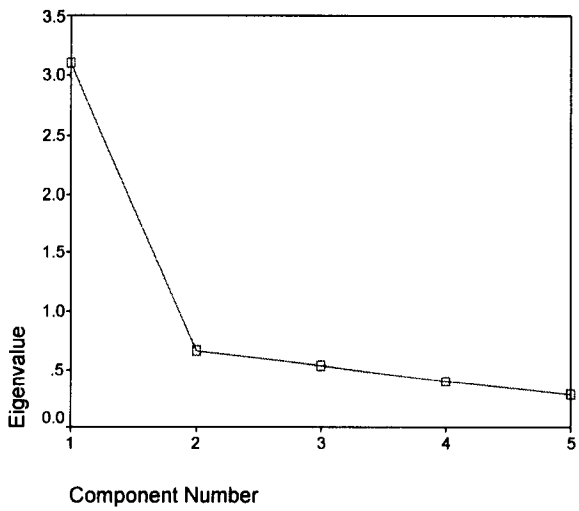
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.099	61.980	61.980	3.099	61.980	61.980
2	.664	13.280	75.260			
3	.545	10.905	86.165			
4	.403	8.065	94.229			
5	.289	5.771	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
IC50	.831
IC51	.823
IC52	.743
IC53	.701
IC54	.828

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Learning Orientation

Factor Analysis

Communalities

	Initial	Extraction
CL55	1.000	.618
CL56	1.000	.761
CL57	1.000	.800
CL58	1.000	.850
CL60	1.000	.722
SV61	1.000	.758
SV62	1.000	.756
SV63	1.000	.694
SV64	1.000	.717
SV65	1.000	.680
OM67	1.000	.494
OM69	1.000	.658
OM70	1.000	.655
OM72	1.000	.644
CL59N	1.000	.495
SV66N	1.000	.423
OM68N	1.000	.698
OM71N	1.000	.524

Extraction Method: Principal Component Analysis.

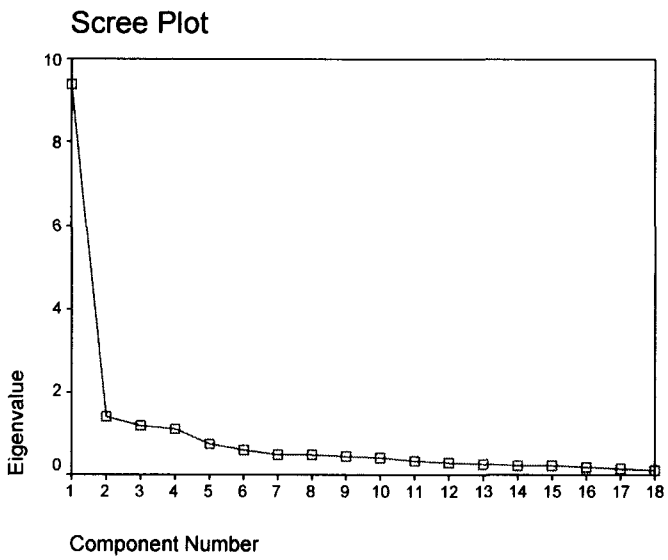
Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.377	52.096	52.096	9.377	52.096	52.096	4.561	25.340	25.340
2	1.410	7.835	59.931	1.410	7.835	59.931	3.877	21.539	46.879
3	1.160	6.444	66.375	1.160	6.444	66.375	3.509	19.496	66.375
4	1.107	6.151	72.526						
5	.752	4.179	76.705						
6	.589	3.272	79.977						
7	.490	2.720	82.697						
8	.474	2.636	85.333						
9	.446	2.477	87.810						
10	.390	2.169	89.979						
11	.344	1.908	91.887						
12	.281	1.562	93.449						
13	.267	1.484	94.934						
14	.229	1.275	96.209						
15	.205	1.140	97.349						
16	.202	1.120	98.469						
17	.157	.875	99.344						
18	.118	.656	100.000						

Extraction Method: Principal Component Analysis.

Learning Orientation (Continued)

Factor Analysis



Component Matrix [a]

	Component		
	1	2	3
CL55	.733	-.237	-.156
CL56	.774	-.283	-.286
CL57	.798	-.403	-3.37E-03
CL58	.790	-.447	.162
CL60	.706	-.436	-.182
SV61	.780	.300	-.245
SV62	.742	.261	-.370
SV63	.676	.253	-.416
SV64	.799	.172	-.221
SV65	.790	.225	-7.37E-02
OM67	.657	-.105	.227
OM69	.781	-2.26E-02	.219
OM70	.768	.103	.235
OM72	.738	.104	.298
CL59N	.604	-.266	.244
SV66N	.542	.355	5.278E-02
OM68N	.730	.267	.306
OM71N	.485	.343	.413

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Commitment to Learning

Factor Analysis

Communalities

	Initial	Extraction
CL55	1.000	.607
CL56	1.000	.708
CL57	1.000	.770
CL60	1.000	.716
CL58	1.000	.789
CL59N	1.000	.510

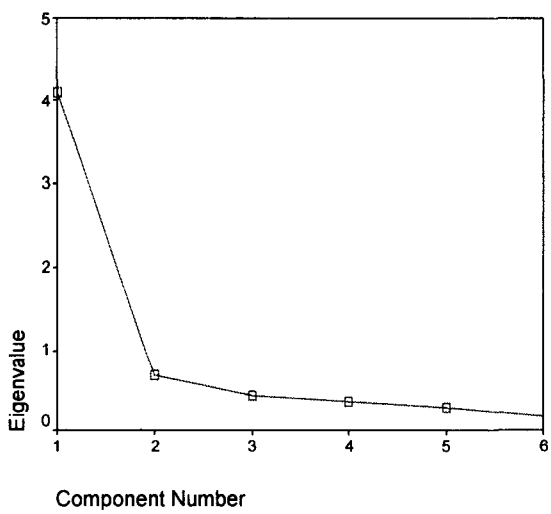
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.099	68.317	68.317	4.099	68.317	68.317
2	.679	11.316	79.634			
3	.421	7.024	86.657			
4	.355	5.913	92.570			
5	.283	4.709	97.279			
6	.163	2.721	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
CL55	.779
CL56	.842
CL57	.877
CL60	.846
CL58	.888
CL59N	.714

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Shared Vision

Factor Analysis

Communalities

	Initial	Extraction
SV61	1.000	.776
SV62	1.000	.702
SV64	1.000	.725
SV65	1.000	.699
SV63	1.000	.623
SV66N	1.000	.399

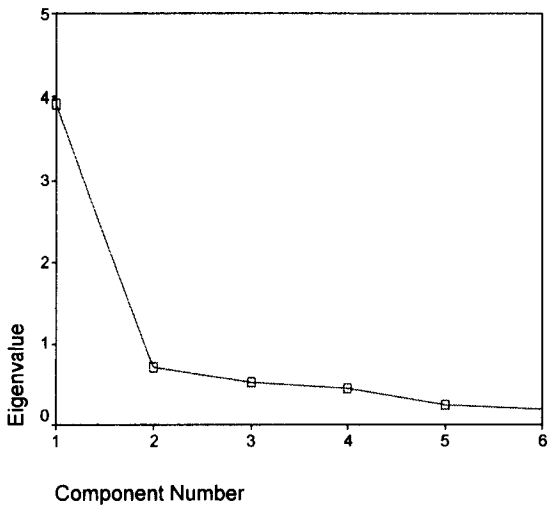
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.923	65.382	65.382	3.923	65.382	65.382
2	.706	11.761	77.143			
3	.513	8.552	85.696			
4	.446	7.436	93.131			
5	.235	3.910	97.041			
6	.178	2.959	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
SV61	.881
SV62	.838
SV64	.851
SV65	.836
SV63	.789
SV66N	.631

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Open-Mindedness

Factor Analysis

Communalities

	Initial	Extraction
OM67	1.000	.526
OM69	1.000	.715
OM70	1.000	.717
OM72	1.000	.707
OM68N	1.000	.652
OM71N	1.000	.335

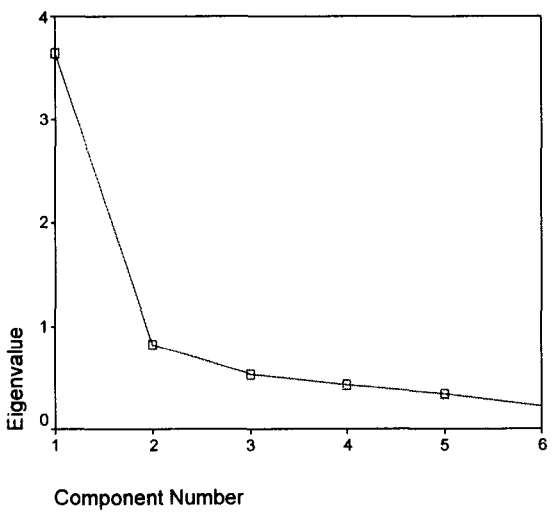
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.652	60.862	60.862	3.652	60.862	60.862
2	.829	13.814	74.676			
3	.535	8.919	83.594			
4	.427	7.120	90.714			
5	.336	5.592	96.307			
6	.222	3.693	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
OM67	.725
OM69	.846
OM70	.847
OM72	.841
OM68N	.807
OM71N	.578

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Organizational Innovativeness

Factor Analysis

Communalities

	Initial	Extraction
OI73	1.000	.658
OI74	1.000	.809
OI75	1.000	.749
OI76N	1.000	.478
OI77N	1.000	.474

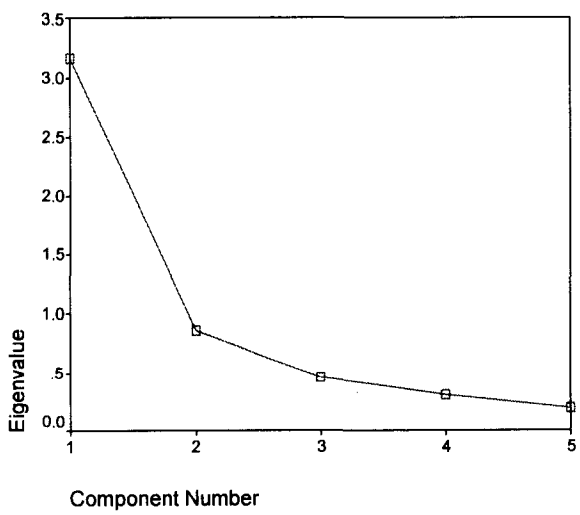
Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.168	63.366	63.366	3.168	63.366	63.366
2	.867	17.338	80.704			
3	.460	9.202	89.906			
4	.312	6.246	96.152			
5	.192	3.848	100.000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix[a]

	Component
	1
OI73	.811
OI74	.899
OI75	.866
OI76N	.691
OI77N	.688

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Appendix C.4
Reliability Analysis Results

Reliability Analysis: Marketing-R&D Interface/Integration

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

		Mean	Std Dev	Cases
1.	INT2	5.8739	1.2440	111.0
2.	INT3	5.3423	1.7658	111.0
3.	INT5	5.4955	1.4515	111.0
4.	INT6	5.2883	1.4484	111.0
5.	INT7	5.8108	1.2899	111.0
6.	INT9	5.6937	1.2777	111.0
7.	INT4N	4.7838	2.1591	111.0
8.	INT8N	5.6396	1.8330	111.0

Correlation Matrix

	INT2	INT3	INT5	INT6	INT7
INT2	1.0000				
INT3	.4295	1.0000			
INT5	.6391	.3943	1.0000		
INT6	.5098	.3129	.5974	1.0000	
INT7	.6875	.1923	.6478	.6182	1.0000
INT9	.5989	.5667	.4649	.5394	.5161
INT4N	.2097	.0840	.2753	.1655	.2365
INT8N	.3188	.1817	.3821	.2997	.3093

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	INT9	INT4N	INT8N
INT9	1.0000		
INT4N	.2097	1.0000	
INT8N	.2824	.2719	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	43.9279	68.2493	8.2613	8

Reliability Analysis: Marketing-R&D Interface/Integration (Continued)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
INT2	38.0541	53.9789	.6960	.6111	.7638
INT3	38.5856	54.3722	.4132	.4208	.8004
INT5	38.4324	51.3931	.7087	.5846	.7562
INT6	38.6396	53.2690	.6093	.4985	.7705
INT7	38.1171	54.2862	.6471	.6381	.7685
INT9	38.2342	54.2537	.6568	.5545	.7676
INT4N	39.1441	54.4336	.2873	.1229	.8339
INT8N	38.2883	53.6980	.4166	.1917	.8010

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 8 items

Alpha = .8048 Standardized item alpha = .8369

Reliability Analysis: Marketing-R&D Interface/Integration (Modified Scale*)

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	INT2	INT3	INT5	INT6	INT7
INT2	1.0000				
INT3	.4295	1.0000			
INT5	.6391	.3943	1.0000		
INT6	.5098	.3129	.5974	1.0000	
INT7	.6875	.1923	.6478	.6182	1.0000
INT9	.5989	.5667	.4649	.5394	.5161

	INT9
INT9	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	33.5045	42.0341	6.4834	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
INT2	27.6306	30.3441	.7400	.6102	.8125
INT3	28.1622	29.9735	.4625	.4180	.8726
INT5	28.0090	28.9363	.7038	.5617	.8154
INT6	28.2162	29.6801	.6499	.4955	.8259
INT7	27.6937	30.8508	.6643	.6374	.8244
INT9	27.8108	30.5184	.7001	.5478	.8185

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .8527 Standardized item alpha = .8640

(*) The items INT4N and INT8N were eliminated from the original scale.

Reliability Analysis: Organizational Memory Level

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	ML10	ML11	ML13	ML12
ML10	1.0000			
ML11	.7428	1.0000		
ML13	.3851	.2728	1.0000	
ML12	.7809	.7467	.3898	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	20.6757	30.3120	5.5056	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
ML10	15.1441	16.9972	.7862	.6764	.7178
ML11	15.4324	17.0295	.7017	.6261	.7552
ML13	16.2703	20.8354	.3791	.1757	.9019
ML12	15.1802	17.3127	.7921	.6822	.7180

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 4 items

Alpha = .8253 Standardized item alpha = .8319

Reliability Analysis: Organizational Memory Dispersion

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	MD14	MD15	MD16	MD17	MD18
MD14	1.0000				
MD15	.1868	1.0000			
MD16	.1961	.5146	1.0000		
MD17	.1060	.4596	.4337	1.0000	
MD18	.2580	.0668	.3682	.0821	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	27.1532	19.0763	4.3676	5

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
MD14	21.3514	16.3572	.2503	.0959	.6719
MD15	21.8559	11.2699	.5139	.3566	.5600
MD16	22.1532	10.6945	.6196	.4183	.4989
MD17	22.1712	11.9068	.4496	.2659	.5960
MD18	21.0811	15.9661	.2562	.2000	.6707

Reliability Coefficients 5 items

Alpha = .6625 Standardized item alpha = .6458

Reliability Analysis: New Product Performance

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	PP24	PP25	PP26	PP27	PP28
PP24	1.0000				
PP25	.8175	1.0000			
PP26	.6343	.6544	1.0000		
PP27	.3628	.3274	.5263	1.0000	
PP28	.6441	.6322	.8091	.6571	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	23.8288	40.8523	6.3916	5

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
PP24	19.2162	27.6983	.7349	.6960	.8599
PP25	19.1171	26.9589	.7207	.7037	.8624
PP26	19.1351	25.2634	.7982	.6899	.8436
PP27	18.7658	29.8174	.5378	.4454	.9018
PP28	19.0811	24.7115	.8427	.7557	.8324

Reliability Coefficients 5 items

Alpha = .8861 Standardized item alpha = .8851

Reliability Analysis: Market Orientation

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	86.3694	221.9441	14.8978	17

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CO38	80.9820	197.4906	.6260	.6075	.8919
CO39	80.8288	199.3250	.5603	.6337	.8939
CO40	80.6216	197.6555	.6759	.6211	.8908
CO41	80.4865	204.3975	.5372	.5653	.8950
CO42	80.7658	203.7992	.4453	.3750	.8973
CO43	81.8468	189.9309	.6313	.5213	.8913
CMO44	81.2973	202.9563	.4371	.3004	.8977
CMO45	81.1081	199.4791	.4702	.5234	.8970
CMO46	81.4324	194.9749	.5750	.4728	.8933
CMO47	80.5766	206.1736	.5034	.3950	.8960
CMO48	81.4955	198.7250	.5868	.4469	.8931
CMO49	81.5495	197.9771	.4897	.5080	.8964
IC50	81.2883	186.8070	.7660	.7047	.8863
IC51	81.9099	196.9736	.6089	.5825	.8923
IC52	82.8018	197.7240	.4450	.4345	.8987
IC53	81.4144	195.7903	.5650	.4633	.8937
IC54	81.5045	193.0159	.6205	.5585	.8917

Reliability Coefficients 17 items

Alpha = .8996 Standardized item alpha = .9021

Reliability Analysis: Customer Orientation

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	CO38	CO39	CO40	CO41	CO42
CO38	1.0000				
CO39	.6639	1.0000			
CO40	.5775	.6426	1.0000		
CO41	.4736	.6194	.6212	1.0000	
CO42	.4828	.3818	.3264	.3604	1.0000
CO43	.5338	.3640	.4716	.3439	.4224

	CO43
CO43	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	32.6847	35.0906	5.9237	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CO38	27.2973	24.1017	.7327	.5727	.7925
CO39	27.1441	24.3790	.6883	.5955	.8011
CO40	26.9369	25.2960	.6906	.5499	.8027
CO41	26.8018	27.0695	.6191	.4795	.8180
CO42	27.0811	26.6388	.5066	.2914	.8362
CO43	28.1622	23.3735	.5487	.3643	.8392

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .8411 Standardized item alpha = .8500

Reliability Analysis: Competitor Orientation

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	CMO44	CMO45	CMO46	CMO47	CMO48
CMO44	1.0000				
CMO45	.3660	1.0000			
CMO46	.2742	.4642	1.0000		
CMO47	.3291	.4702	.3930	1.0000	
CMO48	.3511	.3114	.3788	.3229	1.0000
CMO49	.2350	.4418	.4659	.2676	.4852

	CMO49
CMO49	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	30.7568	33.1676	5.7591	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CMO44	25.6847	25.4179	.4235	.2143	.7668
CMO45	25.4955	22.3977	.5893	.3878	.7250
CMO46	25.8198	22.5309	.5693	.3437	.7307
CMO47	24.9640	26.8169	.5033	.2938	.7525
CMO48	25.8829	24.6498	.5282	.3235	.7420
CMO49	25.9369	22.5687	.5497	.3720	.7365

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .7763 Standardized item alpha = .7793

Reliability Anaysis: Interfunctional Coordination

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	IC50	IC51	IC52	IC53	IC54
IC50	1.0000				
IC51	.6875	1.0000			
IC52	.4678	.5245	1.0000		
IC53	.4295	.4194	.4589	1.0000	
IC54	.6395	.5707	.5041	.5172	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	22.9279	36.2493	6.0207	5

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
IC50	17.8468	23.3127	.6961	.5663	.7965
IC51	18.4685	24.9967	.6959	.5381	.8003
IC52	19.3604	23.4326	.6011	.3722	.8256
IC53	17.9730	25.4629	.5582	.3288	.8335
IC54	18.0631	23.3687	.7056	.5134	.7940

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 5 items

Alpha = .8422 Standardized item alpha = .8452

Reliability Analysis: Learning Orientation

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Statistics for SCALE	Mean	Variance	Std Dev	N of Variables
	83.8378	390.8826	19.7707	18

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
CL55	79.0631	353.4778	.6807	.9380
CL56	78.8829	348.8134	.7250	.9371
CL57	79.0541	341.8152	.7494	.9365
CL58	79.1802	347.0945	.7474	.9367
CL60	79.0541	352.2152	.6630	.9383
SV61	79.0541	347.4698	.7439	.9368
SV62	79.6396	350.2326	.6964	.9377
SV63	79.1712	356.5613	.6301	.9389
SV64	79.6667	346.6788	.7644	.9364
SV65	78.9910	341.2090	.7522	.9364
OM67	78.8108	359.9002	.6067	.9394
OM69	78.8919	351.7700	.7340	.9372
OM70	78.7568	351.5312	.7260	.9373
OM72	78.6577	352.2999	.6919	.9378
CL59N	79.7027	347.9926	.5768	.9405
SV66N	79.5315	350.3240	.5099	.9424
OM68N	79.7477	339.8631	.6993	.9377
OM71N	79.3874	358.2031	.4565	.9427

Reliability Coefficients

N of Cases = 111.0 N of Items = 18

Alpha = .9414

Reliability Analysis: Commitment to Learning

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	CL55	CL56	CL58	CL57	CL60
CL55	1.0000				
CL56	.6894	1.0000			
CL58	.6435	.6421	1.0000		
CL57	.5835	.6721	.8199	1.0000	
CL60	.5703	.6809	.6758	.6634	1.0000
CL59N	.3763	.4693	.5876	.5728	.5912

	CL59N
CL59N	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	28.0901	58.8827	7.6735	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CL55	23.3153	44.5451	.6710	.5497	.8933
CL56	23.1351	42.2816	.7531	.6318	.8815
CL58	23.4324	40.9022	.8253	.7376	.8708
CL57	23.3063	39.2326	.8059	.7183	.8726
CL60	23.3063	42.0690	.7703	.6039	.8791
CL59N	23.9550	41.1343	.6103	.4292	.9078

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .9018 Standardized item alpha = .9058

Reliability Analysis: Shared Vision

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	SV61	SV62	SV63	SV64	SV65
SV61	1.0000				
SV62	.7493	1.0000			
SV63	.5518	.6608	1.0000		
SV64	.6594	.5934	.6967	1.0000	
SV65	.7419	.6044	.5313	.6866	1.0000
SV66N	.5243	.4062	.3638	.4537	.4423

	SV66N
SV66N	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	26.9730	56.7356	7.5323	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
SV61	22.1892	39.3912	.8117	.7228	.8444
SV62	22.7748	40.7034	.7356	.6508	.8566
SV63	22.3063	42.8144	.6756	.5855	.8667
SV64	22.8018	40.2695	.7625	.6453	.8524
SV65	22.1261	38.4385	.7397	.6201	.8549
SV66N	22.6667	40.3152	.5182	.2967	.9007

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .8830 Standardized item alpha = .8914

Reliability Analysis: Open- Mindedness

Correlation Matrix

	OM67	OM69	OM70	OM72	OM68N
OM67	1.0000				
OM69	.5536	1.0000			
OM70	.5582	.7001	1.0000		
OM72	.5386	.6818	.6535	1.0000	
OM68N	.4544	.6382	.5445	.6156	1.0000
OM71N	.2803	.2760	.4492	.3675	.5051

	OM71N
OM71N	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	28.7748	48.1943	6.9422	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
OM67	23.7477	37.3903	.5884	.3882	.8461
OM69	23.8288	34.7613	.7265	.6507	.8230
OM70	23.6937	34.3053	.7442	.6106	.8195
OM72	23.5946	34.1523	.7321	.5751	.8210
OM68N	24.6847	30.2724	.7142	.5544	.8248
OM71N	24.3243	35.6029	.4692	.3421	.8726

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .8587 Standardized item alpha = .8672

Reliability Analysis: Organizational Innovativeness

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	OI73	OI74	OI75	OI76N	OI77N
OI73	1.0000				
OI74	.7082	1.0000			
OI75	.7001	.8010	1.0000		
OI76N	.3961	.4826	.4236	1.0000	
OI77N	.3522	.5067	.4294	.5479	1.0000

N of Cases = 111.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	26.0360	34.4532	5.8697	5

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
OI73	20.7477	23.2267	.6539	.5545	.8129
OI74	20.9820	22.1451	.7902	.7150	.7781
OI75	20.8739	23.1112	.7319	.6780	.7947
OI76N	20.5495	23.0134	.5655	.3637	.8391
OI77N	20.9910	23.0272	.5598	.3791	.8410

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 5 items

Alpha = .8450 Standardized item alpha = .8518

Appendix C.5
Correlation Matrix

Correlations

		ML	MD	CO	CMO	IC	MS	SLS	ROA	PM	ROI	MRI	CL	SV	OM	OI
ML	Pearson Correlation	1.000	.247**	.367**	.351**	.271**	.251**	.258**	.215*	.125	.247**	.197*	.231*	.285**	.181	.230*
	Sig. (2-tailed)		.009	.000	.000	.004	.008	.006	.023	.191	.009	.038	.015	.002	.057	.015
	Sum of Squares and Cross-products	3334.324	652.514	1316.649	1225.243	987.405	218.054	240.622	210.973	113.270	241.919	774.162	1072.243	1300.027	761.892	817.297
	Covariance	30.312	5.932	11.970	11.139	8.976	1.982	2.187	1.918	1.030	2.199	7.038	9.748	11.818	6.926	7.430
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
MD	Pearson Correlation	.247**	1.000	.358**	.176	.222*	.152	.181	.022	.175	.057	.317**	.297**	.281**	.272**	.329**
	Sig. (2-tailed)	.009		.000	.064	.019	.112	.057	.818	.066	.552	.001	.002	.003	.004	.000
	Sum of Squares and Cross-products	652.514	2098.396	1018.360	488.135	642.225	104.586	133.901	17.207	125.928	44.288	987.423	1093.468	1016.459	905.829	928.387
	Covariance	5.932	19.076	9.258	4.438	5.838	.951	1.217	.156	1.145	.403	8.977	9.941	9.241	8.235	8.440
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
CO	Pearson Correlation	.367**	.358**	1.000	.587**	.570**	.182	.198*	.169	.318**	.201*	.460**	.478**	.458**	.268**	.365**
	Sig. (2-tailed)	.000	.000		.000	.000	.055	.037	.076	.001	.035	.000	.000	.000	.005	.000
	Sum of Squares and Cross-products	1316.649	1018.360	3859.964	2128.486	2237.477	170.441	198.910	178.279	310.207	211.171	1942.658	2388.153	2249.054	1210.117	1394.261
	Covariance	11.970	9.258	35.091	19.350	20.341	1.549	1.808	1.621	2.820	1.920	17.661	21.710	20.446	11.001	12.675
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
CMO	Pearson Correlation	.351**	.176	.587**	1.000	.549**	.190*	.201*	.114	.153	.130	.353**	.369**	.435**	.360**	.414**
	Sig. (2-tailed)	.000	.064	.000		.000	.046	.034	.234	.110	.173	.000	.000	.000	.000	.000
	Sum of Squares and Cross-products	1225.243	488.135	2128.486	3848.432	2093.054	172.541	196.216	116.730	144.703	133.189	1449.622	1792.432	2074.270	1581.919	1537.973
	Covariance	11.139	4.438	19.350	33.168	19.028	1.569	1.784	1.061	1.315	1.211	13.178	16.295	18.857	14.381	13.982
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
IC	Pearson Correlation	.271**	.222*	.570**	.549**	1.000	.160	.136	.154	.172	.079	.309**	.709**	.631**	.590**	.545**
	Sig. (2-tailed)	.004	.019	.000	.000		.094	.155	.107	.071	.407	.001	.000	.000	.000	.000
	Sum of Squares and Cross-products	987.405	642.225	2237.477	2093.054	3987.423	151.901	138.694	164.550	170.505	84.982	1325.036	3604.721	3149.784	2711.198	2118.288
	Covariance	8.976	5.838	20.341	19.028	36.249	1.381	1.261	1.496	1.550	.773	12.046	32.770	28.634	24.647	19.257
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
MS	Pearson Correlation	.251**	.152	.182	.190*	.160	1.000	.817**	.634**	.363**	.644**	.319**	.162	.074	.052	.056
	Sig. (2-tailed)	.008	.112	.055	.046	.094		.000	.000	.000	.000	.001	.090	.441	.585	.562
	Sum of Squares and Cross-products	218.054	104.586	170.441	172.541	151.901	226.342	198.604	161.629	85.712	164.153	326.694	195.874	87.838	57.315	51.550
	Covariance	1.982	.951	1.549	1.569	1.381	2.058	1.805	1.471	.779	1.492	2.970	1.781	.799	.521	.469
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
SLS	Pearson Correlation	.258**	.181	.198*	.201*	.136	.817**	1.000	.654**	.327**	.632**	.244**	.105	.020	.015	.032
	Sig. (2-tailed)	.006	.057	.037	.034	.155	.000		.000	.000	.000	.010	.271	.831	.875	.736
	Sum of Squares and Cross-products	240.622	133.901	198.910	196.216	138.694	198.604	260.775	179.198	83.018	172.928	268.144	136.883	26.135	17.793	32.153
	Covariance	2.187	1.217	1.808	1.784	1.261	1.805	2.371	1.629	.755	1.572	2.438	1.244	.238	.162	.292
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
ROA	Pearson Correlation	.215*	.022	.169	.114	.154	.634**	.654**	1.000	.526**	.809**	.139	.084	-.015	-.045	.008
	Sig. (2-tailed)	.023	.818	.076	.234	.107	.000	.000		.000	.000	.146	.383	.877	.639	.935
	Sum of Squares and Cross-products	210.973	17.207	178.279	116.730	164.550	161.829	179.198	287.586	140.144	232.423	160.153	114.063	-19.919	-55.658	8.225
	Covariance	1.918	.156	1.621	1.061	1.496	1.471	1.629	2.614	1.274	2.113	1.456	1.037	-.181	-.506	7.477E-02
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
PM	Pearson Correlation	.125	.175	.318**	.153	.172	.363**	.327**	.526**	1.000	.657**	.232*	.166	.057	.112	.133
	Sig. (2-tailed)	.191	.066	.001	.110	.071	.000	.000	.000		.000	.014	.081	.550	.240	.163
	Sum of Squares and Cross-products	113.270	125.928	310.207	144.703	170.505	85.712	83.018	140.144	246.559	174.766	247.468	210.369	71.189	128.577	128.748
	Covariance	1.030	1.145	2.820	1.315	1.550	.779	.755	1.274	2.241	1.589	2.250	1.912	.647	1.169	1.170
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
ROI	Pearson Correlation	.247**	.057	.201*	.130	.079	.644**	.632**	.809**	.657**	1.000	.169	-.035	-.013	-.071	-.001
	Sig. (2-tailed)	.009	.552	.035	.173	.407	.000	.000	.000	.000		.077	.717	.896	.460	.992
	Sum of Squares and Cross-products	241.919	44.288	211.171	133.189	84.982	164.153	172.928	232.423	174.766	286.937	194.126	-47.477	-16.757	-87.306	-.991
	Covariance	2.199	.403	1.920	1.211	.773	1.492	1.572	2.113	1.589	2.609	1.765	-.432	-.152	-.794	-9.01E-03
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
MRI	Pearson Correlation	.197*	.317**	.460**	.353**	.309**	.319**	.244**	.139	.232*	.169	1.000	.254**	.321**	.168	.238*
	Sig. (2-tailed)	.038	.001	.000	.000	.001	.001	.010	.146	.014	.077		.007	.001	.079	.012
	Sum of Squares and Cross-products	774.162	987.423	1942.658	1449.622	1325.036	326.694	268.144	160.153	247.468	194.126	4623.748	1390.955	1724.514	829.613	996.982
	Covariance	7.038	8.977	17.661	13.178	12.046	2.970	2.438	1.456	2.250	1.765	42.034	12.645	15.677	7.542	9.063
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
CL	Pearson Correlation	.231*	.297**	.478**	.369**	.709**	.162	.105	.084	.166	-.035	.254**	1.000	.675**	.683**	.583**
	Sig. (2-tailed)	.015	.002	.000	.000	.000	.090	.271	.383	.081	.717	.007		.000	.000	.000
	Sum of Squares and Cross-products	1072.243	1093.468	2388.153	1792.432	3604.721	195.874	136.883	114.063	210.369	-47.477	1390.955	6477.099	4291.270	4000.252	2886.640
	Covariance	9.748	9.941	21.710	16.295	32.770	1.781	1.244	1.037	1.912	-.432	12.645	58.883	39.012	36.366	26.242
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
SV	Pearson Correlation	.285**	.281**	.458**	.435**	.631**	.074	.020	-.015	.057	-.013	.321**	.675**	1.000	.730**	.669**
	Sig. (2-tailed)	.002	.003	.000	.000	.000	.441	.831	.877	.550	.896	.001	.000		.000	.000
	Sum of Squares and Cross-products	1300.027	1016.459	2249.054	2074.270	3149.784	87.838	26.135	-19.919	71.189	-16.757	1724.514	4291.270	6240.919	4197.324	3254.108
	Covariance	11.818	9.241	20.446	18.857	28.634	.799	.238	-.181	.647	-.152	15.677	39.012	56.736	38.157	29.583
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
OM	Pearson Correlation	.181	.272**	.268**	.360**	.590**	.052	.015	-.045	.112	-.071	.168	.683**	.730**	1.000	.840**
	Sig. (2-tailed)	.057	.004	.005	.000	.000	.585	.875	.639	.240	.460	.079	.000	.000		.000
	Sum of Squares and Cross-products	761.892	905.829	1210.117	1581.919	2711.198	57.315	17.793	-55.658	128.577	-87.306	829.613	4000.252	4197.324	5301.369	3763.901
	Covariance	6.926	8.235	11.001	14.381	24.647	.521	.162	-.506	1.169	-.794	7.542	36.366	38.157	48.194	34.217
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
OI	Pearson Correlation	.230*	.329**	.365**	.414**	.545**	.056	.032	.008	.133	-.001	.238*	.583**	.669**	.840**	1.000
	Sig. (2-tailed)	.015	.000	.000	.000	.000	.562	.736	.935	.163	.992	.012	.000	.000	.000	
	Sum of Squares and Cross-products	817.297	928.387	1394.261	1537.973	2118.288	51.550	32.153	8.225	128.748	-.991	996.982	2886.640	3254.108	3763.901	3789.856
	Covariance	7.430	8.440	12.675	13.982	19.257	.469	.292	7.477E-02	1.170	-9.01E-03	9.063	26.242	29.583	34.217	34.453
	N	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111

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

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

Appendix C.6
Amos Output

Title

Final Estimated Model: Wednesday, October 05, 2005 02:14 PM

Your model contains the following variables

pp24	observed	endogenous
pp25	observed	endogenous
pp26	observed	endogenous
pp27	observed	endogenous
MD	observed	endogenous
OM	observed	endogenous
SV	observed	endogenous
CL	observed	endogenous
OI	observed	endogenous
ML	observed	endogenous
MRI	observed	endogenous
IC	observed	endogenous
CMO	observed	endogenous
CO	observed	endogenous
NPP	unobserved	endogenous
LEARNOR	unobserved	endogenous
MLEVEL	unobserved	endogenous
MDISPER	unobserved	endogenous
MRDINT	unobserved	endogenous
ORGINNO	unobserved	endogenous
err24	unobserved	exogenous
err25	unobserved	exogenous
err26	unobserved	exogenous
err27	unobserved	exogenous
MKTOR	unobserved	exogenous
res10	unobserved	exogenous
res12	unobserved	exogenous
err14	unobserved	exogenous
err67	unobserved	exogenous
err61	unobserved	exogenous
err55	unobserved	exogenous
err73	unobserved	exogenous
err10	unobserved	exogenous
err2	unobserved	exogenous
res11	unobserved	exogenous
res8	unobserved	exogenous
res7	unobserved	exogenous
res9	unobserved	exogenous
err50	unobserved	exogenous
err44	unobserved	exogenous
err38	unobserved	exogenous

Number of variables in your model: 41
Number of observed variables: 14
Number of unobserved variables: 27
Number of exogenous variables: 21
Number of endogenous variables: 20

Summary of Parameters

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	27	0	4	0	0	31
Labeled	0	0	0	0	0	0
Unlabeled	22	3	17	0	0	42
Total	49	3	21	0	0	73

The model is recursive.

Sample size = 111

Computation of degrees of freedom

Number of distinct sample moments = 105
Number of distinct parameters to be estimated = 42
Degrees of freedom = 105 - 42 = 63

Minimum was achieved

Chi-square = 88.949
Degrees of freedom = 63
Probability level = 0.017

Regression Weights

		Estimate	S.E.	C.R.	P	Label	
LEARNOR	<--	MKTOR	0.922	0.115	8.034	0.000	par-15
MLEVEL	<--	LEARNOR	-0.111	0.212	-0.523	0.601	par-6
MLEVEL	<--	MKTOR	0.559	0.266	2.103	0.035	par-7
MDISPER	<--	MKTOR	0.026	0.177	0.145	0.885	par-8
MDISPER	<--	LEARNOR	0.220	0.146	1.501	0.133	par-17
ORGINNO	<--	MKTOR	-0.046	0.144	-0.321	0.748	par-14
MRDINT	<--	MDISPER	0.242	0.177	1.371	0.170	par-18
ORGINNO	<--	LEARNOR	0.768	0.126	6.081	0.000	par-19
MRDINT	<--	MKTOR	0.492	0.178	2.766	0.006	par-24
MRDINT	<--	MLEVEL	0.074	0.134	0.548	0.584	par-25
NPP	<--	LEARNOR	-0.013	0.039	-0.341	0.733	par-4
NPP	<--	MLEVEL	0.044	0.020	2.158	0.031	par-5
NPP	<--	MRDINT	0.008	0.018	0.464	0.642	par-12
NPP	<--	ORGINNO	0.014	0.043	0.332	0.740	par-13
NPP	<--	MDISPER	-0.008	0.028	-0.282	0.778	par-16
pp24	<--	NPP	1.000				
pp25	<--	NPP	1.099	0.099	11.082	0.000	par-1
pp26	<--	NPP	1.568	0.351	4.464	0.000	par-2
pp27	<--	NPP	0.851	0.165	5.168	0.000	par-3
MD	<--	MDISPER	1.000				
OM	<--	LEARNOR	1.000				
SV	<--	LEARNOR	0.950	0.087	10.932	0.000	par-9
CL	<--	LEARNOR	0.860	0.089	9.614	0.000	par-10
OI	<--	ORGINNO	1.000				
ML	<--	MLEVEL	1.000				
MRI	<--	MRDINT	1.000				
IC	<--	MKTOR	1.000				
CMO	<--	MKTOR	0.825	0.120	6.899	0.000	par-20
CO	<--	MKTOR	0.496	0.081	6.088	0.000	par-21

Standardized Regression Weights

			Estimate
LEARNOR	<--	MKTOR	0.803
MLEVEL	<--	LEARNOR	-0.111
MLEVEL	<--	MKTOR	0.488
MDISPER	<--	MKTOR	0.031
MDISPER	<--	LEARNOR	0.305
ORGINNO	<--	MKTOR	-0.046
MRDINT	<--	MDISPER	0.130
ORGINNO	<--	LEARNOR	0.883
MRDINT	<--	MKTOR	0.321
MRDINT	<--	MLEVEL	0.055
NPP	<--	LEARNOR	-0.076
NPP	<--	MLEVEL	0.247
NPP	<--	MRDINT	0.062
NPP	<--	ORGINNO	0.070
NPP	<--	MDISPER	-0.032
pp24	<--	NPP	0.677
pp25	<--	NPP	0.693
pp26	<--	NPP	0.942
pp27	<--	NPP	0.552
MD	<--	MDISPER	0.990
OM	<--	LEARNOR	0.925
SV	<--	LEARNOR	0.798
CL	<--	LEARNOR	0.737
OI	<--	ORGINNO	0.996
ML	<--	MLEVEL	0.997
MRI	<--	MRDINT	0.998
IC	<--	MKTOR	0.803
CMO	<--	MKTOR	0.687
CO	<--	MKTOR	0.628

Sample Covariances - Estimates

	CO	CMO	IC	MRI	ML	OI	CL	SV	OM	MD	pp27	pp26	pp25	pp24
CO	14.571	10.819	11.786	8.690	6.675	6.367	9.985	9.610	6.307	4.153	1.618	0.832	0.881	0.660
CMO	10.819	32.869	18.856	15.025	11.038	11.332	13.691	16.426	14.268	3.452	1.304	1.052	1.768	1.554
IC	11.786	18.856	35.923	10.312	8.896	15.157	26.757	24.455	21.744	4.150	1.536	1.482	1.249	1.368
MRI	8.690	15.025	10.312	53.882	8.460	12.381	9.615	13.722	10.342	6.655	1.909	0.639	2.466	3.407
ML	6.675	11.038	8.896	8.460	30.039	5.205	7.963	10.262	7.141	4.792	1.020	1.901	2.168	1.964
OI	6.367	11.332	15.157	12.381	5.205	22.806	17.277	20.670	22.894	5.100	1.191	0.376	0.312	0.663
CL	9.985	13.691	26.757	9.615	7.963	17.277	41.901	27.436	26.452	6.458	1.505	0.618	0.895	1.305
SV	9.610	16.426	24.455	13.722	10.262	20.670	27.436	42.429	28.333	5.939	0.494	-0.194	0.151	0.659
OM	6.307	14.268	21.744	10.342	7.141	22.894	26.452	28.333	35.282	6.559	1.331	0.081	0.454	0.855
MD	4.153	3.452	4.150	6.655	4.792	5.100	6.458	5.939	6.559	15.822	0.662	-0.038	1.050	0.851
pp27	1.618	1.304	1.536	1.909	1.020	1.191	1.505	0.494	1.331	0.662	2.221	1.263	0.748	0.772
pp26	0.832	1.052	1.482	0.639	1.901	0.376	0.618	-0.194	0.081	-0.038	1.263	2.591	1.614	1.458
pp25	0.881	1.768	1.249	2.466	2.168	0.312	0.895	0.151	0.454	1.050	0.748	1.614	2.349	1.789
pp24	0.660	1.554	1.368	3.407	1.964	0.663	1.305	0.659	0.855	0.851	0.772	1.458	1.789	2.039

Implied Covariances - Estimates

	CO	CMO	IC	MRI	ML	OI	CL	SV	OM	MD	pp27	pp26	pp25	pp24
CO	14.197	9.311	11.283	6.554	5.161	7.464	8.944	9.881	6.890	2.574	0.193	0.356	0.249	0.227
CMO	9.311	32.869	18.775	10.905	8.587	12.420	14.882	16.440	17.307	4.283	0.321	0.592	0.414	0.377
IC	11.283	18.775	35.317	13.215	10.406	15.051	24.965	19.923	20.973	5.190	0.389	0.717	0.502	0.457
MRI	6.554	10.905	13.215	53.790	7.827	9.110	10.886	12.027	12.660	6.461	0.591	1.088	0.762	0.694
ML	5.161	8.587	10.406	7.827	30.039	5.982	7.238	7.996	8.417	2.116	1.128	2.078	1.456	1.325
OI	7.464	12.420	15.051	9.110	5.982	22.806	18.943	20.927	22.030	5.224	0.276	0.508	0.356	0.324
CL	8.944	14.882	24.965	10.886	7.238	18.943	40.824	24.469	25.759	6.120	0.242	0.445	0.312	0.284
SV	9.881	16.440	19.923	12.027	7.996	20.927	24.469	42.429	28.457	6.761	0.267	0.492	0.344	0.314
OM	6.890	17.307	20.973	12.660	8.417	22.030	25.759	28.457	35.027	7.117	0.281	0.518	0.363	0.330
MD	2.574	4.283	5.190	6.461	2.116	5.224	6.120	6.761	7.117	15.822	0.004	0.007	0.005	0.005
pp27	0.193	0.321	0.389	0.591	1.128	0.276	0.242	0.267	0.281	0.004	2.222	1.248	0.875	0.796
pp26	0.356	0.592	0.717	1.088	2.078	0.508	0.445	0.492	0.518	0.007	1.248	2.595	1.612	1.467
pp25	0.249	0.414	0.502	0.762	1.456	0.356	0.312	0.344	0.363	0.005	0.875	1.612	2.351	1.791
pp24	0.227	0.377	0.457	0.694	1.325	0.324	0.284	0.314	0.330	0.005	0.796	1.467	1.791	2.041

Goodness-of-Fit Indexes for the Full SEM

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	88.949	0.000	812.776	CMIN
Degrees of freedom	63	0	91	DF
P	0.017		0.000	P
Number of parameters	42	105	14	NPAR
Discrepancy / df	1.412		8.932	CMINDF
RMR	1.273	0.000	9.282	RMR
GFI	0.902	1.000	0.390	GFI
Adjusted GFI	0.836		0.296	AGFI
Parsimony-adjusted GFI	0.541		0.338	PGFI
Normed fit index	0.891	1.000	0.000	NFI
Relative fit index	0.842		0.000	RFI
Incremental fit index	0.965	1.000	0.000	IFI
Tucker-Lewis index	0.948		0.000	TLI
Comparative fit index	0.964	1.000	0.000	CFI
Parsimony ratio	0.692	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.617	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.667	0.000	0.000	PCFI
Noncentrality parameter estimate	25.949	0.000	721.776	NCP
NCP lower bound	4.950	0.000	816.666	NCPHI
FMIN	0.809	0.000	7.389	FMIN
F0	0.236	0.000	6.562	F0
F0 lower bound	0.045	0.000	5.767	F0LO
F0 upper bound	0.500	0.000	7.424	F0HI
RMSEA	0.061		0.269	RMSEA
RMSEA lower bound	0.027		0.252	RMSEALO
RMSEA upper bound	0.089		0.286	RMSEAHI
P for test of close fit	0.257		0.000	PCLOSE
Akaike information criterion (AIC)	172.949	210.000	840.776	AIC
Browne-Cudeck criterion	186.213	243.158	845.197	BCC
Bayes information criterion	397.590	771.602	915.656	BIC
Consistent AIC	328.750	599.501	892.709	CAIC
Expected cross validation index	1.572	1.909	7.643	ECVI
ECVI lower bound	1.381	1.909	6.849	ECVILO
ECVI upper bound	1.836	1.909	8.506	ECVIHI
MECVI	1.693	2.211	7.684	MECVI
Hoelter .05 index	103		16	HFIVE
Hoelter .01 index	114		17	HONE

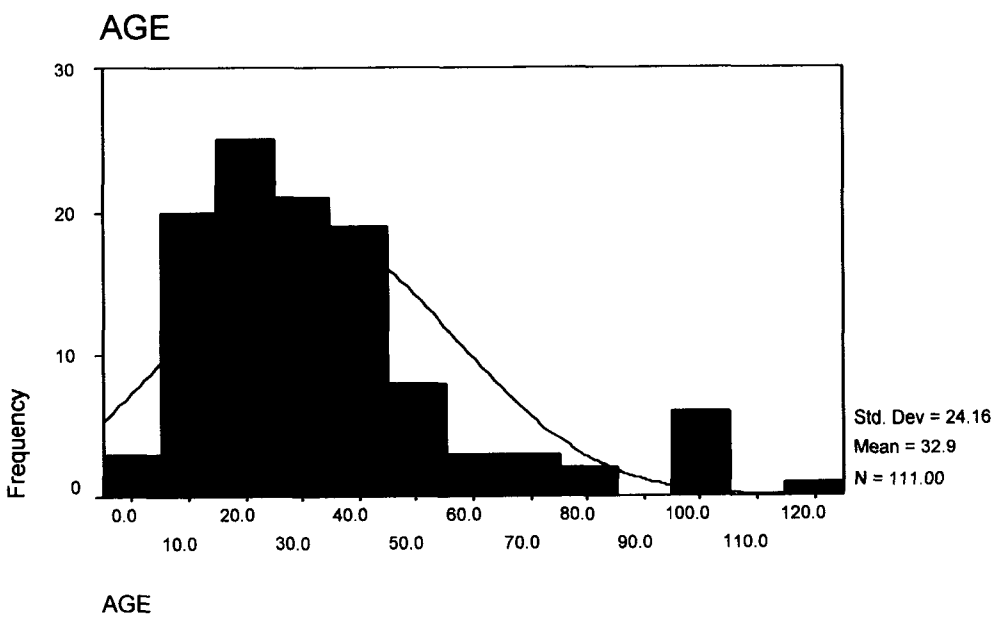
Appendix C.7
Descriptives and Histogram of Age Variable

Distribution of AGE Variable

Statistics

AGE

N	Valid	111
	Missing	0
Mean		32.95
Std. Error of Mean		2.29
Median		26.00
Mode		20
Std. Deviation		24.16
Variance		583.87
Skewness		1.470
Std. Error of Skewness		.229
Kurtosis		2.007
Std. Error of Kurtosis		.455
Range		112
Minimum		3
Maximum		115
Sum		3657



Distribution of AGE Variable – (Continued)

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	3	2.7	2.7	2.7
	5	3	2.7	2.7	5.4
	6	2	1.8	1.8	7.2
	7	1	.9	.9	8.1
	8	1	.9	.9	9.0
	10	4	3.6	3.6	12.6
	12	3	2.7	2.7	15.3
	13	2	1.8	1.8	17.1
	14	4	3.6	3.6	20.7
	15	5	4.5	4.5	25.2
	18	1	.9	.9	26.1
	19	2	1.8	1.8	27.9
	20	13	11.7	11.7	39.6
	22	2	1.8	1.8	41.4
	23	2	1.8	1.8	43.2
	25	6	5.4	5.4	48.6
	26	2	1.8	1.8	50.5
	28	2	1.8	1.8	52.3
	30	10	9.0	9.0	61.3
	34	1	.9	.9	62.2
	35	6	5.4	5.4	67.6
	37	1	.9	.9	68.5
	40	8	7.2	7.2	75.7
	41	2	1.8	1.8	77.5
	43	2	1.8	1.8	79.3
	45	1	.9	.9	80.2
	50	7	6.3	6.3	86.5
	57	1	.9	.9	87.4
	60	1	.9	.9	88.3
	62	1	.9	.9	89.2
	68	2	1.8	1.8	91.0
	70	1	.9	.9	91.9
	75	1	.9	.9	92.8
	80	1	.9	.9	93.7
	95	2	1.8	1.8	95.5
	100	4	3.6	3.6	99.1
	115	1	.9	.9	100.0
	Total	111	100.0	100.0	

VITA

Educational Background

Ph.D. in Business Administration/ Marketing, Old Dominion University, Norfolk, Virginia, 2005
M.A. in Economics, Old Dominion University, Norfolk, Virginia, 1999
M.B.A. in Marketing, Fairleigh Dickinson University, Teaneck, New Jersey, 1996
M.S. in General Management, Istanbul Technical University, Istanbul, Turkey, all course-work completed, 1993
B.Sc. in Engineering, Istanbul Technical University, Istanbul, Turkey, 1991

Work/Teaching Experience

New York Institute of Technology
Canakkale Onsekiz Mart University
Yapi ve Kredi Bankasi
Kansuk Pharmaceuticals
Balinler A.S.
Tur-kon Textile Co.

Honors, Awards and Recognitions

2003	Member of *Phi Kappa Phi*, the honor society for the students who are ranked in the top 10 percent of their programs in terms of their academic performance
1998	Member of *Beta Gamma Sigma*, the honor society for outstanding business students
1998	AMA International Marketing Faculty Consortium Fellow, Michigan State University, East Lansing, Michigan
1987- 1993	Recipient of Scholarships from Uran Holding Companies, Istanbul Technical University, and Istanbul Chamber of Commerce for high academic achievement

Research Interests

New Product Development / Performance Issues
Market Orientation / The Marketing Concept / Driving Markets
Brand Equity / Company Reputation Issues
Inter-Organizational Collaborations / Joint Ventures / Alliances

Technology

Programming Languages: Basic, Advanced Basic, Pascal.
Software Applications: SPSS, SAS, LISREL, AMOS, COMPUSTAT, MYSTAT, Corel WordPerfect Suite, and Microsoft Office Professional.
Operating Systems: Windows 95, 98, Windows XP, MS-DOS.

Conference Proceedings / Presentations

5th Annual Hawaii International Conference on Business, Honolulu, Hawaii, 2005
3rd Annual Hawaii International Conference on Business, Honolulu, Hawaii, 2003
6th International Conference on Corporate Reputation, Boston, Massachusetts, 2002
AMA Summer Educators' Conference, San Francisco, California, 1999
AMS National Conference, Miami, Florida, 1999