

**Strategic orientation of the firm and new product performance:  
The view of the complementary combination approach**

策略導向與新產品績效間之關係：以策略互補的觀點來探討

## **1. Introduction**

The success in new product development of a firm can bring about competitive advantage and further lead to firm's long-term success. According to knowledge-based view, the ability of the firms to successfully integrate resource and knowledge is the potential source of competitive advantage (Grant, 1996). The capability of the firms is the glue that brings various resource and knowledge together and enables the firms to deploy them advantageously (Zhou, Yim, & Tse, 2005). Many studies indicate that a firm's capability is its strategic orientation, which guides the firm to create proper behaviors through a deeply rooted set of values and beliefs to achieve superior performance (Gatignon & Xuereb, 1997; Zhou et al., 2005). Prior studies indicate that strategic orientation is related to new product performance and it has been viewed as an important indicator for successful firm performance (R. G. Cooper, 1994; Gatignon & Xuereb, 1997). Therefore, the study of strategic orientation has attracted major scholarly attention within the specific streams of literature for some decades. Literature of marketing and strategic management shows that a variety of strategic orientations that can positively affect firms' competitive advantage and performance; these orientations include market orientation, technology orientation, entrepreneurial orientation, learning orientation, and network orientation (Baker & Sinkula, 1999; Grinstein, 2008; Hult & Ketchen, 2001; Liu, Luo, & Shi, 2002; Mu & Di Benedetto, 2011). Among previous studies, the great majority of marketing researchers argue that market orientation (MO) is the most important strategic orientation and its contribution to firms' success are overwhelming compared to all other orientations (Grinstein, 2008; Hult & Ketchen, 2001; Narver & Slater, 1990). However, there are an increasing number of studies suggesting that organizations which are too strongly focuses on a single orientation tend to perform poorly in the long run (Hakala, 2011; Pearson, 1993); specifically, firms combining different orientations have found to perform more superior than firms adopting only MO, thus suggesting a serious gap in the literature regarding studying what other orientations can combine together with MO for better firms' performance and how firms can improve performance by balancing between MO and other orientations (Grinstein, 2008; Hakala, 2011).

As the increasing number of studies urge that firms should adopt several orientations simultaneously for firm's new product success and also concentrate on the interrelationships between various dimensions of strategic orientation (Kwake Atuahene-Gima & Ko, 2001; Bhuian, Menguc, & Bell, 2005; Grinstein, 2008; Salavou, Baltas, & Lioukas, 2004), Hakala (2011) adopts a systematic literature review method following Tranfield, Denyer, and Smart's (2003) work, which attempts to identify the key scientific contributions in a given field and builds an evidence base that would be beyond the parameters of a single study, to investigate scholarly peer-reviewed articles that were studied in depth and ranged from 1987 to 2010. Of the 67 papers that have been chosen from 121 articles were reviewed, four main dimensions of strategic orientation were found including market, technology, entrepreneurial, and learning orientations. While papers studying on MO stand as the majority and appear in 66 of the 67 papers, papers studying three kinds of orientations simultaneously are fewer which appear in a total of 15 papers and only one contribution encompasses all four orientations<sup>1</sup>. Trying to significantly expand the existing knowledge in literature, Hakala (2011) proposes three approaches, namely sequential, alternative, and complementary approach, to understand the interaction and relationships of multiple dimensions of strategic orientation and then finally suggests a need for further attention to the interplay of three or more orientations simultaneously as well as to identify the potential configurations of orientations, the way they interact with, and the mechanisms that organizations use to combine the different orientations into an appropriate mix. In addition, the results of Grinstein's (2008) meta-analysis, which involves investigating the relationship between MO and alternative strategic orientations on the total of 135 effects from 70 papers and 77 independent samples, show that MO is strongly correlated with learning and entrepreneurial orientations and it has a positively moderated relationship with technology (innovation) orientation, and also suggest that future studies should involve the conditions under which different firms are likely to adopt different orientation combinations.

Following the stream of previous studies and adopting Hakala's (2011: 212) suggestion and the view of the complementary approach, this study proposes and examines a model which simultaneously exhibits the configuration of four dimensions of strategic orientation for achieving successful new product performance. According to the view of complementary approach (Hakala, 2011), different dimensions of strategic orientation, which are viewed as mutually complementary

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<sup>1</sup> After reviewing Hakala's (2011) study, this study found that the only paper studying all four orientations simultaneously as Hakala (2011) claimed actually includes three dimensions instead, because Hakala (2011) uses the construct of organization learning to represent that of learning orientation.

orientations that are correlated with or supporting one another, combine together into an appropriate strategic orientation mix under some certain situations. It could form a process that one precedes another, or that one is required to transmit the effects (mediation) or to change those effects (moderation). While the competitive advantage of firms has been suggested to be a function of market orientation, learning orientation, entrepreneurial orientation, and innovativeness, no study has examined the linkages among these constructs in an integrated manner (Hult, Hurley, & Knight, 2004: 430). This study intends to shed new light on these constructs and the interrelationships among them.

This study seeks to provide valuable insights in the literature in several ways. First, since literature in marketing and strategic management shows that successful firms may not only manage single orientation in the new product development process, firms may find it more useful to combine several orientations together for developing their new products (Bhuan et al., 2005). Besides, the existing study indicates that incorporate three or more orientations simultaneously are rare (Hakala, 2011). This study then provides a broader view of strategic orientation than previous studies by integrating market, technology, entrepreneurial, and learning orientation at once and elaborating how these orientations interact with others. Second, this study presents a model that simultaneously incorporates four dimensions of strategic orientation with new product performance and environmental factors and systematically examines the relationships among these factors. As Hakala (2011: 209) indicates that firms may have alternative configurations “in which orientations may be combined in different ways to achieve the same objective within an environment or industry sector.” This study provides a more insightful vista that encompasses firms’ internal assets, external contingent intervention, and the process which dealing with the match of resource and boundary in firms’ new product development process.

The remainder of this proposal is organized as follows. The following section presents the theoretical foundation for the proposed model and outlines the development of the research hypotheses. The next section describes the research design, including the variables, the measurements, and the data utilized in this study. The final section describes the expected results of this study.

## **2. Conceptual Framework and Hypotheses Development**

This study adopts a view in line with Gatignon and Xuereb (1997) and Hakala (2011), in which strategic orientation is considered as principles that direct and influence the activities of a firm and create the proper behaviors to ensure its performance to be reached. Since the strategic orientation of the firm has been studied for decades, many studies have developed and suggested various dimensions of strategic orientation of the firm, and also examined the relationships between orientations and their effects on new product performance (Jeong, Pae, & Zhou, 2006; Yang, Wang, Zhu, & Wu, 2012; Zhou et al., 2005). However, little is known about the relationship among market orientation, technology orientation, entrepreneurial orientation, and learning orientation and their effect on performance (see Grinstein's meta-analysis, 2008). Furthermore, literature shows that firms' individual strategic orientation does not exist in isolation and that firms usually make use of multiple dimensions of strategic orientation to achieve the goal of performance (Cadogan, 2012), suggesting a mutually complementary pattern among the dimensions of strategic orientation (Hakala, 2011). Therefore, the purpose of this study is to propose a framework simultaneously incorporating all four dimensions of strategic orientation and to examine the effects of these orientations on new product performance. After a brief presentation of various dimensions of strategic orientation, this study will discuss how various orientations may interact with each other and influence new product performance of a firm.

### ***2.1 Configuration and dimensions of strategic orientation of the firm***

Strategic orientations have been considered in both marketing and strategic management literature. Strategic orientation refers to a firm's proclivity to allocate and coordinate resource in specific ways for achieving competitive advantage and performance of the firm (Cadogan, 2012). Although the marketing and strategic management literature has presented evidence that a firm's strategic orientation is indeed a significant indicator of its performance (Day, 1990; Gatignon & Xuereb, 1997; Grinstein, 2008), literature also demonstrates that strategic orientation encompasses several different strategic focuses in various studies and the effects of different focuses on performance differ among studies (Kim, Im, & Slater, 2013; Mu & Di Benedetto, 2011; Voss & Voss, 2000; Yannopoulos, Auh, & Menguc, 2012; Zhou et al., 2005). Since strategic orientation is the reflections of how firms operate in the business, researchers observe the patterns of practice and name the emergent patterns using labels. For example, those firms who

behave in accordance with marketing concept are defined as highly market-oriented firms, while other firms who demonstrate the behavior of pursuing technological improvement are categorized as highly technology-oriented firms. In addition, those firms who highlight the spirit of creating new market opportunities can be defined as being highly entrepreneurially oriented, and the firms who manifest much desire to question the existing norm of organization and to create and use knowledge can be considered as being learning-oriented (Calantone, Cavusgil, & Yushan, 2002; McGuinness & Morgan, 2005; Wang, 2008; Zhou et al., 2005).

### ***Market orientation***

MO can be viewed as the culture or activities of the firm to effectively create behaviors for excellent performance (Deshpandé, Farley, & Webster, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Slater & Narver, 1995, 2000). The concept of MO reflects a firm's tendency toward customers, competitors, and other exogenous factors (e.g., Narver & Slater, 1990) as well as a set of information-based activities for generating, disseminating, and responding to market intelligence (e.g., Kohli & Jaworski, 1990; Morgan & Strong, 1998). Specifically, a market-orientated firm is characterized as a firm who has the ability to sense trends and response to the market ahead of the competitors (Boso, Story, & Cadogan, 2013; Day, 1994a).

Since MO has been widely studied in the literature, several meta-analyses in MO research area focus on the relationships between MO and its antecedents as well as consequences, the relationship between MO and organizational performance, the various moderators to that relationship, and the relationships between MO and alternative strategic orientations (Grinstein, 2008; Kirca, Jayachandran, & Bearden, 2005; Rodriguez Cano, Carrillat, & Jaramillo, 2004; Shoham, Rose, & Kropp, 2005). Take one step further, some other studies focus on MO itself and suggest that the concept of market orientation includes both responsive and proactive market orientation (Kwaku Atuahene-Gima, Slater, & Olson, 2005; Bodlaj, Coenders, & Zabkar, 2012; Narver, Slater, & MacLachlan, 2004; Tsai, Chou, & Kuo, 2008). A responsive market orientation is "a business's attempt to understand and to satisfy customers' expressed needs"; while a proactive market orientation is defined as "the attempt to understand and satisfy customers' latent needs" (Narver et al., 2004: 336). Market-oriented firms emphasize the importance of collecting market information related to customers and competitors to create and deliver products of superior customer value. These products are likely to be perceived by customers as satisfying their current needs better than other competing products do (L. G. Cooper, 2000; Mu & Di Benedetto, 2011). Of

the most potent contributions to firms' performance, MO is recognized as one of the strategic orientations that can substantially perform better than other alternative orientations (Grinstein, 2008). Still, some studies disagree on the importance of MO but suggest that the other orientations such as technological, entrepreneurial, and learning orientation can also substantially influence the competitive advantage and performance of firms (Hult & Ketchen, 2001; Noble, Sinha, & Kumar, 2002).

### ***Technology orientation***

Technology orientation (TO) refers to a firm's propensity to introduce or use new technologies or innovations (Gatignon & Xuereb, 1997; Hult et al., 2004). Since a firm with TO is recognized as the one who is keen on the acquisition of new technologies and the application of the latest technology (Gatignon & Xuereb, 1997), several studies use different terms of innovation orientation and product orientation to depict TO (Grinstein, 2008). TO has been recognized as an important factor that positively influences firms' long-term success because of the innovativeness provided for the market. The rationale for TO is that consumers favor products with technological advantage (Gao, Zhou, & Yim, 2007; Hsu, Tsai, Hsieh, & Wang, 2014). A technology-oriented firm often encourages employees with creativity idea in inventing something drastically new; therefore, introducing breakthroughs become a strategic and cultural priority (Hamel & Prahalad, 1994; Zhou et al., 2005).

Technology-oriented firms utilize advance technology to create product differentiation and promote product designs that exceed those of competitors (Mu & Di Benedetto, 2011). Although customers are sometimes not sure of what they really want, technology-oriented firms bring in successful new products by defining human needs, hence determining the nature of consumer demand (Berthon, Hulbert, & Pitt, 2004). In essence, technology-oriented firms focus on the investment in new technologies and utilization of new technologies to innovate product, rather than the development of product based on current customer needs, which is the main difference compared to the view of MO (Christensen & Bower, 1996; Hakala, 2011).

### ***Entrepreneurial orientation***

Entrepreneurial orientation (EO) refers to firms' proclivity to explore new market opportunities (Boso et al., 2013; Lumpkin & Dess, 1996; Matsuno, Mentzer, & Özsomer, 2002). The

central idea underlying the concept of entrepreneurship is a new entry (Lumpkin & Dess, 1996) that could be the pursuit of new market opportunities or the renewal of existing areas of operation (Hult & Ketchen, 2001; Zhou et al., 2005). Firms with (EO) have the ability to adjust their operations in the dynamic competitive environment, to change and shape the environment, and have the willing to commit resource to exploiting uncertain opportunities (Covin & Slevin, 1989; Hakala, 2011). As such, entrepreneurial-oriented firms can be characterized as the following five dimensions of entrepreneurial processes: autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness; successful new entry can be achieved when some of these factors are functionally operating (Lumpkin & Dess, 1996). EO has been viewed as a resource, a capability, and an organizing context that allows firms to take advantage of their resource bases (Newbert, 2007). As EO focuses on the process of exploring the market area for future advantage to the firm (Wiklund & Shepherd, 2011), the firms with EO constantly question previously held assumptions about customers, competitors, and the environment leading to frame-breaking activities (Kwake Atuahene-Gima & Ko, 2001: 56). Previous studies suggest that EO positively affects firm performance as entrepreneurial-oriented firms have the ability to better adjust and shape the environment (e.g., Hakala, 2011; Hult et al., 2004; Wiklund & Shepherd, 2005). Other studies have found that EO also indirectly affects performance through learning orientation (Wang, 2008), interact with market-oriented behaviours (Boso et al., 2013; Zahra, 2008), or curvilinearly intervenes the relationship between MO and performance (Bhuian et al., 2005).

### ***Learning orientation***

Learning orientation (LO) refers to a firm's value that influences its propensity to create and use knowledge in order to attain competitive advantage (Sinkula, Baker, & Noordewier, 1997; Wang, 2008). The value associated with LO consists of a commitment to learning, shared vision, and open-mindedness (Day, 1994b; Sinkula et al., 1997). The firms with LO encourage its members to consistently question the organizational norms which guide organizational actions, reflecting as a set of knowledge-questioning values (Baker & Sinkula, 1999; McGuinness & Morgan, 2005). LO can be viewed as a process of improving insights, knowledge, and understanding to improve organizational performance and customer value (Nasution, Mavondo, Matanda, & Ndubisi, 2011). In literature, LO is analogous to organizational learning (Sinkula et al., 1997; Slater & Narver, 1995); however, LO places more emphasis on cultural aspects compared to organizational learning (Nasution et al., 2011; Sinkula et al., 1997). Baker and Sinkula (1999) suggest that generative

learning results from proactive organizational behavior and not in direct response to environmental events. A firm with LO perceives strong importance to and promotes the development of new skills, prefers for challenging work, and exhibits high curiosity for new ways of enhancing performance (Kwaku Atuahene-Gima et al., 2005; Herhausen & Schögel, 2013). LO has been identified to have a significant impact on innovativeness (Hurley & Hult, 1998; Nasution et al., 2011; Shoham, Vigoda-Gadot, Ruvio, & Schwabsky, 2012), on customer value (Nasution et al., 2011), and to be the basis for implementing strategic change in organizations (McGuinness & Morgan, 2005).

### ***Conceptual framework***

In summary, strategic orientation of the firm encompasses several different strategic focuses which affect the firms' proclivity to allocate and coordinate resource in a specific way to achieve superior performance (Cadogan, 2012; Mu & Di Benedetto, 2011). For example, a market-oriented firm is interested mainly in the external environment, its customers and competitors, and also in turning market knowledge into valuable actions (Kohli & Jaworski, 1990; Narver & Slater, 1990). A technology-oriented firm is likely to pay more attention inside the firm on developing new technologies, products and services for creating excellent customer value, thus further providing competitive advantages for the firm (Gatignon & Xuereb, 1997). An entrepreneurial-oriented firm is apt to support some certain types of process and behavior that exhibit highly proactive toward new market opportunities and innovation (Wiklund & Shepherd, 2011; Zhou et al., 2005). A firm with learning orientation is inclined to be unsatisfied with its theories in use (Argyris & Schon, 1978) and prone to create and use new knowledge (Wang, 2008).

According to Hakala's (2011) study of systematic literature review, it is necessary and essential for research and management practice to investigate a more accurate understanding of the overall strategic orientation and thoughtful configuration of the compatible orientations in order to realize the links between different orientations and its effect on firm's performance. The reason is that orientations are different but function together in configuration and that different configurations may suit different contingencies. Reviewing literature in marketing and strategy management, this study proposes a conceptual framework as shown in Figure 1 and suggests hypotheses as the followings.



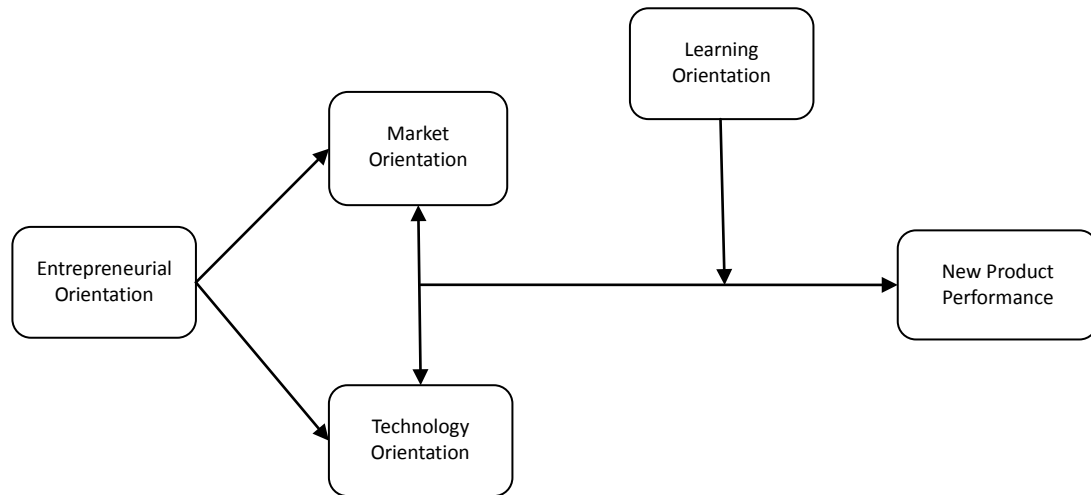


Figure 1 Conceptual Framework

## 2.2 The relationships among entrepreneurial orientation, MO, and technology orientation

Entrepreneurial orientation, market orientation, and technology orientations are the dimensions of strategic orientation and have been widely discussed in the literature (Hakala, 2011). Although all orientations emphasis on new ideas, MO favors ideas that better satisfy customer needs, TO prefers those that employ state-of-the-art technologies, and EO desires those that could lead to new product-market opportunities (Lumpkin & Dess, 1996; Zhou et al., 2005). Previous studies indicate that strategic orientation is the strategic directions implemented by a firm to create proper behaviors through a deep-rooted set of values and beliefs (Gatignon & Xuereb, 1997). These values and beliefs define the resource to be used in business' activities (Day, 1994a). Lumpkin and Dess (1996: 136) suggest that as the concept of EO is a new entry, both tech-based and market-based innovations are likely to occur. In such condition, an entrepreneurial-oriented firm is likely to explore and enter a new market segment or to develop a new product or service project and launch into the market. In other words, EO reflects the degree to which a firm tends to pursuit new market opportunities or to rejuvenate the existing areas of operation through the introduction of innovations (Hult & Ketchen, 2001; Lumpkin & Dess, 1996). It implies that EO is likely to have positive effects on both MO and TO. Thus, this study suggests:

*H1a: Entrepreneurial orientation has a positive effect on market orientation.*

*H1b: Entrepreneurial orientation has a positive effect on technology orientation.*

### ***2.3 The joint effects of MO and TO on new product performance***

As the firms recognize an entrepreneurial opportunity, they may combine both technology and market focus and act on such opportunities (Mu & Di Benedetto, 2011: 342). Although both MO and TO involve providing the offerings to the market, MO favors providing products that can better satisfy customer needs, whereas TO prefers facilitating new technology and providing innovation that could evoke customer potential needs (Lumpkin & Dess, 1996). Specifically, the philosophy of MO is “customer-pull” and that of TO is recognized as “technological push” (Zhou et al., 2005). In literature, both MO and TO have been recognized as significant factors affecting new product performance of the firm (Kwaku Atuahene-Gima, 1995; Hakala & Kohtamäki, 2011b; Hortinha, Lages, & Filipe Lages, 2011; Rodríguez-Pinto, Carbonell, & Rodríguez-Escudero, 2011; Tsai et al., 2008). However, most studies discuss the effect of individual orientation on performance. Although some briefly discuss the effect of MO and TO at the same time, little has been deeply illustrated the joint effects of MO and TO on product performance (e.g., Berthon et al., 2004; Hakala & Kohtamäki, 2011a). Berthon, Hulbert, and Pitt (1999; 2004) suggest that a firm is no one of whether it is market-oriented or innovation-oriented; instead, the firm is likely to have both orientations simultaneously but has various degree of each focus. Therefore, they develop a conceptual framework that focuses on two dimensions: customer (market orientation) and innovation (technology orientation). They identify and describe four alternative modes of interaction between market and technology orientations according to the classification by dichotomizing each orientation dimension that firm processes. First, for the firms combined with a high degree of both MO and TO, a true link is established and presents over time. This link can be viewed as a dialogue between MO and TO of the firm. The firms can balance these two orientations in a wide range of spectrum through negotiation or conversation (Berthon et al., 1999). Previous studies consider the link between market and new product development as a key strategic asset of the firms (Hamel & Prahalad, 1994; Li & Calantone, 1998; Sinkula, 1994). If the firms merely focus on MO, they may lose their innovation competence (Christensen & Bower, 1996; Im & Workman Jr, 2004) and therefore become stuck on developing incremental innovations (Hortinha et al., 2011). Conversely, if the firms overly rely on TO, they could heighten their product innovation but may also lead to an unsuccessful market growth because of neglect of customer needs completely (Kleinschmidt & Cooper, 1991). Successful firms can be characterized by the unwavering focus on technology and market simultaneously, and that is what affects the success of the new product (Knotts, Jones, & Brown, 2008; Mu & Di Benedetto, 2011; Shaw, 2000). Therefore,

this study suggests that a firm with a strong link between MO and TO is more likely to enhance the achievement of the goal and new product performance.

Second, for the firms combined with a low degree of MO and a high degree of TO, the firms believe that in certain circumstances innovation defines human needs. Thus, to determine the nature of customer demand and to provide new products or services for the market can induce changes in basic customer behavior. In other words, innovation technology shapes and defines the market (Berthon et al., 2004). A technology-oriented firm advocates a strong commitment to R&D, the acquisition of new technologies, and the application of the latest technologies (Gatignon & Xuereb, 1997; Mu & Di Benedetto, 2011; Slater, Hult, & Olson, 2007). A technology-oriented firm has the ability to simultaneously focus on internal technological resource and external technological opportunities. Such technological superiority boosts a firm's competitive advantage (Cohen & Levinthal, 1989; Gatignon & Xuereb, 1997; Song & Parry, 1997a; Yang et al., 2012). Prior research has identified technology orientation as valuable to customer value, innovativeness, and new product development (L. G. Cooper, 2000; Hortinha et al., 2011; Song & Parry, 1997b). Therefore, this study suggests that a firm with a high level of TO and low MO is likely to achieve the goal and new product performance of the firm.

Third, the firms combined with high MO and low TO may rely heavily on both formal or structured and informal or unstructured market research to collect the information and to provide the offerings to meet the needs and wants of the market. Therefore, customer value and satisfaction become the priority of the firms. A firm with heavy focuses on MO is able to identify the needs and wants of the target market and delivering product and services that could bring in profit and performance of the firm (Berthon et al., 2004). However, since the focus of MO is to satisfy current market needs, the strong market-oriented firm who is also low technology-oriented could only develop an incremental new product but not a radical new product to achieve product performance.

Fourth, for the firms combined with a low degree of both MO and TO, the firms itself become the focus of its own attention and have no communication between innovation and the market. Little market research occurs; the market is not market-driven, nor modified by the present of the innovation. Technology is either halt or developed for its own sake. Internal efficiency and short-term profits are the centers of the firms (Berthon et al., 2004). However, Berthon et al., (1999) argue that the nature of alternative strategic focus is not so simple as "one is

good” and “another is bad”. Under a given set of environmental conditions, each of the modes might be appropriate. Indeed, the objectives of the firms vary across different organizations, and the situation and competition position may also be different. Some of the businesses are the market leader and challengers, and some may be those who strive hardily for survival and seek for heightening internal efficiency. For example, a firm that focuses either MO or TO reflects himself a conservative and does nothing but standard jobs to its customers’ requirement; otherwise, the firm might pursue the goal of cost leadership or economies of scale for its own innovation that is invented either by high technology or by market research. Therefore, once the goal of the firm is being reached, the firm could also attain its new product performance. Thus, based upon the above-mentioned literature, this study suggests:

*H2: The joint effect of MO with TO of the firm is positively related to new product performance.*

## **2.4 The moderating role of learning orientation**

High performing firms not only gather and understand the information about market and technology but also require translating that knowledge into learning (Hortinha et al., 2011; Noble et al., 2002). Day (1994b) explains that success of the firm depends not only on the acts of acquiring, disseminating, and responding to market information but also on the ability to question the organizational norms that guide the activities of the firm to perform the information process. It has been suggested that without the ability to engage in learning may hinder the generation of breakthrough ideas and limit the new product development of the firm to incremental innovation (Baker & Sinkula, 1999). LO is conceptualized as a set of values that influence the degree to which an organization is satisfied with its theories in use (Argyris & Schon, 1978) and dominant logics (Bettis & Prahalad, 1995).

A strong MO may lead to adaptive learning (Slater & Narver, 1995) which is capable of facilitating incremental innovation but it is not capable of facilitating discontinuous innovation, unless the firm is accompanied by a strong LO which lead to generative learning that affects a firm’s ability to challenge old assumptions about how to act in the market and is able to facilitate discontinuous innovation (Argyris & Schon, 1978; Baker & Sinkula, 1999). A firm that has strong TO is able to keep up with the rate of technological change in the industry (Schilling, 2002). By continuously both investing technology development and enhancing learning-oriented value which is associated with generative learning, the firm is able to facilitate discontinuous innovation and

then achieving its new product performance (Baker & Sinkula, 1999; Schilling, 2002). However, since some of the firms may only emphasis either on satisfying market needs or on pursuing technology advancement, those firms may possibly constrain product innovativeness of their own or neglect customer expectation of the innovation. Firms with strong learning orientation often require employees to constantly question the organizational norms that guide organizational actions (Sinkula, 1994; Sinkula et al., 1997). Therefore, it is likely to increase the rate of internal and external change in an organization; therefore achieving new product performance of the firm eventually. Thus, this study suggests:

*H3: The joint effect of MO with TO on new product performance is stronger when learning orientation is high rather than low.*

### **3. Research Design**

#### **3.1. Measures of Constructs**

The measures used are from extant literature, which has been employed in survey studies. However, the measures were modified slightly to fit the context of this study. These items were pre-tested through interviews with both academic researcher and managers to tap the full extent of the constructs. Next, these experts were asked to comment on the ease with which they understand the items. Where items are confusing, they reword or eliminate the items in keeping with questionnaire development guideline (Churchill, 1979). After incorporating suggested changes, a pilot test was conducted to fine-tune the measures, instructions, and layout. All items are scored on a seven-point scale anchored from 1 = “*strongly disagree*” to 7 = “*strongly agree*.” Each measure is addressed as follows.

New product performance is measured using a 7-item scale adopted from Baker and Sinkula (1999) and Mu & Di Benedetto (2011). Market orientation is adopted from Narver and Slater (1990) using a 14-item scale to measure a firms’ tendency on customer orientation, competitor orientation, and interfunctional coordination. Technological orientation is measured using a 5-item scale adopted from the work of Zhou et al. (2005) and Mu and Di Benedetto (2011), using a 5-item scale to assess a firm’s tendency in using state-of-the-art technologies in new product development. This study adapts the measure of entrepreneurial orientation from Nasution et al. (2011), using a 13-item scale to assess a firm’s tendency in autonomy, risk-taking, and

proactiveness in new product development. This study adapts the measure of learning orientation from the work of Nasution et al. (2011) and Baker and Sinkula (1999), using a 15-item scale to assess a firm's tendency in commitment to learning, shared vision, and open-mindedness.

This study controls for firm size, firm age, and environment dynamic to rule out the possible alternative explanation and ensure the robustness of the results. Previous studies indicate that firm age could affect a firm's EO (Covin & Slevin, 1989), MO (Kohli & Jaworski, 1990; Slater & Narver, 1995), and performance (Ahuja & Lampert, 2001). The firms' ability to mobilize resource is different depending on firm's age (Song, Nason, & Di Benedetto, 2008). This study adapts the measure of environmental dynamism from the work of Jaworski and Kohli (1993), Zhou et al. (2005), and Mu and Di Benedetto (2011), with items assessing market turbulence, technological turbulence, and competitive intensity. Market turbulence refers to the extent to which a firm perceives the speed of change about customers' preference to the product. Technological turbulence denotes the extent to which a firm perceives that a technology in an industry is in a state of flux. Competitive intensity represents the extent to which the behavior, resources, and ability of competitors to differentiate their products in the market.

### ***3.2. Sample and Data Collection***

The sample was drawn from Taiwan. The eligible firms are those who must have introduced at least one product to the market for less than three years. This limitation is instituted to increase the accuracy of the resulting performance data. Initially, each subject will be contacted by telephone to verify qualification of having launching new project less than three years from the date and then to solicit cooperation in the study. If contacts were determined to be appropriate informants for this study and were willing to participate, a package will be mailed out consisting of a personalized letter on university headed paper, a copy of questionnaire survey, a stamped return envelope, and instructions. A reminder letter will send out two weeks later and another letter and package to those who still had not responded three weeks later.

Because this study focuses on new product projects, the adequate survey respondents are executives of the firms or managers who were familiar with or in charge of new product development projects and the personnel from R&D, marketing, or manufacturing functional units that have been responsible for at least one of new product development projects launched within the three years prior to data collection. Before answering the questionnaire, respondents are also

asked to identify one new product launched within the last three years. This new product then served as a referent for all questions pertaining to the firm's product development process. Respondents then answer each question item according to their experience and judgment based on their involvement in the product development process on whether they agree or disagree with the statements in the question items.

The initial sample included 212 eligible informants. Of all eligible participants, 147 provided survey responses. A t-test indicated no significant difference at the .05 significance level for the study's measures between those who completed the questionnaire in consultation with others and those who did not. After deleting 22 invalidated questionnaires, the final sample included 125 usable questionnaires, representing a 58% response rate. A routine check for non-response bias was performed using Armstrong and Overton's (1977) procedure. As in previous research, this study conducts Harman's one-factor test and enters all the construct measures into single factor analysis as Podsakoff and Organ (1986) recommend. Results indicate that neither a single factor nor a general factor could account for the majority of the covariance in the measures, confirming that common method variance is not a serious problem in the sample.

### **3.3. Reliability, Validity, and Descriptive Statistics**

Reliability is initially evaluated using Cronbach's alpha and item-to-total correlations. Confirmation factor analysis (CFA) is used to access the dimensionality, reliability, and validity of the scales. The hypotheses in this study are tested using OLS-based hierarchical regression. Each construct is composed as a summated index of the items that constitute the construct according to equal weight (Hult, Ketchen, & Slater, 2005). In a concern of multicollinearity that results from high correlations between the product term and its individual variables, this study adopts a mean-centering method to create robust and bias-free regression results and to produce a more accountable coefficient for the interaction. Table 1 reports the descriptive statistics for the variables used in the model estimations.

**Table 1 Correlation Matrix and Descriptive Statistics of Measures**

| <b>Variable</b>                 | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| (1) New product performance     |          |          |          |          |          |          |          |          |          |           |
| (2) Market orientation          | .17      |          |          |          |          |          |          |          |          |           |
| (3) Technology orientation      | .09      | .23      |          |          |          |          |          |          |          |           |
| (4) Entrepreneurial orientation | .23      | .33      | .20      |          |          |          |          |          |          |           |

|                              |      |      |      |      |      |      |       |       |      |      |
|------------------------------|------|------|------|------|------|------|-------|-------|------|------|
| (5) Learning orientation     | .34  | .20  | .24  | .24  |      |      |       |       |      |      |
| (6) Market turbulence        | .17  | .06  | .05  | -.03 | .23  |      |       |       |      |      |
| (7) Technological turbulence | .16  | .10  | .11  | .02  | .25  | .30  |       |       |      |      |
| (8) Competition intensity    | .20  | .10  | .03  | .14  | .34  | .21  | .10   |       |      |      |
| (9) Firm age                 | -.22 | -.26 | -.09 | -.08 | -.24 | -.28 | -.28  | -.20  |      |      |
| (10) Firm size               | -.15 | -.23 | .12  | -.14 | .05  | -.02 | -.14  | .12   | .09  |      |
| Number of items              | 7    | 14   | 5    | 13   | 15   | 8    | 6     | 7     | 1    | 1    |
| Mean                         | 4.2  | 4.9  | 4.8  | 5.0  | 4.8  | 5.1  | 4.9   | 4.8   | 5.0  | 3.8  |
| SD                           | .70  | .59  | .68  | .41  | .66  | .83  | .64   | .69   | 1.64 | 1.29 |
| Skewness                     | -.58 | -.18 | .03  | -.03 | -.34 | .12  | .07   | -1.37 | .28  | .13  |
| Kurtosis                     | -.40 | -.30 | -.55 | -.19 | .33  | -.27 | -1.25 | 3.91  | -.77 | -.81 |

Notes: The figures on the triangle elements are correlations among the composite measures (unweighted mean of the items for each construct). N = 125.

## 4. Analyses

### 4.1 Results

Since the product term is usually highly correlated with its individual variable in the moderated regression model, this study follows the straightforward procedure suggested by Friedrich (1982) to reduce or eliminate multicollinearity bias. In Table 2, the results in Model 2 show that the coefficient estimate of entrepreneurial orientation is significant ( $\beta = .28$ ,  $p < .001$ ), indicating that entrepreneurial orientation has a positive effect on market orientation. The results support H1a.

**Table 2 Results of Regression Analysis**

| Independent Variables       | Criterion: MO |            | Criterion: MO |            |
|-----------------------------|---------------|------------|---------------|------------|
|                             | Model 1       |            | Model 2       |            |
|                             | b             | t          | b             | t          |
| Firm age                    | -.14          | (-2.52) ** | -.13          | (-2.45) ** |
| Firm size                   | -.17          | (-2.54) ** | -.14          | (-2.09) *  |
| Market turbulence           | -.04          | (-.32)     | -.01          | (-.07)     |
| Technological turbulence    | .00           | (.03)      | .01           | (.06)      |
| Competition intensity       | .12           | (.93)      | .05           | (.42)      |
| Entrepreneurial orientation |               |            | .28           | (3.35) *** |
| F value                     | 3.28 **       |            | 4.84 ***      |            |



|                         |         |           |
|-------------------------|---------|-----------|
| R <sup>2</sup>          | .12     | .20       |
| Adjusted R <sup>2</sup> | .08     | .16       |
| ΔR <sup>2</sup>         | .12     | .08       |
| F change                | 3.28 ** | 11.19 *** |

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (one-tailed test for hypotheses, and two-tailed test for control variables).

Notes: N = 125. b = standardized path coefficients. t = t value. MO = market orientation.

In Table 3, the results in Model 4 show that the coefficient estimate of entrepreneurial orientation is significant ( $\beta = .22$ ,  $p < .01$ ), indicating that entrepreneurial orientation has a positive effect on technological orientation. The results support H1b.

**Table 3 Results of Regression Analysis**

| Independent Variables       | Criterion: TO |        | Criterion: TO |           |
|-----------------------------|---------------|--------|---------------|-----------|
|                             | Model 3       |        | Model 4       |           |
|                             | b             | t      | b             | t         |
| Firm age                    | -.04          | (-.75) | -.04          | (-.63)    |
| Firm size                   | .11           | (1.53) | .14           | (1.93)    |
| Market turbulence           | .01           | (.05)  | .03           | (.25)     |
| Technological turbulence    | .17           | (1.11) | .17           | (1.15)    |
| Competition intensity       | -.02          | (-.16) | -.08          | (-.56)    |
| Entrepreneurial orientation |               |        | .22           | (2.48) ** |
| F value                     | .85           |        | 1.762         |           |
| R <sup>2</sup>              | .04           |        | .08           |           |
| Adjusted R <sup>2</sup>     | -.01          |        | .04           |           |
| ΔR <sup>2</sup>             | .04           |        | .05           |           |
| F change                    | .85           |        | 6.14 *        |           |

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (one-tailed test for hypotheses, and two-tailed test for control variables).

Notes: N = 125. b = standardized path coefficients. t = t value. TO = technological orientation.

In Table 4, the results in Model 6 show that the coefficient estimate of the interaction term for market orientation and technological orientation is significant but negative ( $\beta = -.16$ ,  $p < .05$ ), indicating that the interaction effect of market orientation and technological orientation has a negative effect on new product performance. The results do not support H2. Furthermore, the results in Model 7 show that the coefficient estimate of the interaction term for market orientation, technological orientation, and learning orientation is positive and significant ( $\beta = .16$ ,  $p < .05$ ), indicating that the interaction effect of market orientation, technological orientation, and learning orientation has a positive effect on new product performance. The results support H3.

**Table 4** Results of Regression Analysis for Moderation

| Independent Variables   | Criterion: NPP |         | Criterion: NPP |           |          |             |
|---|----------------|---------|----------------|-----------|----------|-------------|
|   | Model 5        |         | Model 6        |           | Model 7  |             |
|   | b              | t       | b              | t         | b        | t           |
| Firm age  | -.10           | (-1.71) | -.10           | (-1.69)   | -.08     | (-1.48)     |
| Firm size   | .13            | (1.90)  | .13            | (1.87)    | .12      | (1.90)      |
| Market turbulence   | .08            | (.70)   | .11            | (1.00)    | .11      | (1.01)      |
| Technological turbulence  | .17            | (1.18)  | .19            | (1.35)    | .09      | (.63)       |
| Competition intensity   | .19            | (1.42)  | .18            | (1.44)    | .07      | (.58)       |
| Market orientation x<br>Technological orientation                           |                |         | -.16           | (-2.17) * | -.27     | (-3.36) *** |
| Learning orientation  |                |         |                |           | .29      | (3.21) ***  |
| Market orientation x<br>Technological orientation x<br>Learning orientation |                |         |                |           | .16      | (2.19) *    |
| F value   | 3.11 *         |         | 3.46 **        |           | 4.74 *** |             |
| R <sup>2</sup>  | .12            |         | .15            |           | .25      |             |
| Adjusted R <sup>2</sup>   | .08            |         | .11            |           | .19      |             |
| ΔR <sup>2</sup>   | .12            |         | .03            |           | .10      |             |
| F change  | 3.11 *         |         | 4.72 *         |           | 7.46 *** |             |

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (one-tailed test for hypotheses, and two-tailed test for control variables).

Notes: N = 125. b = standardized path coefficients. t = t value. NPP = new product performance.

## 4.2 Discussion

The goal of this study is to advance the marketing and innovation management literature by identifying the relationships among the dimensions of strategic orientation and their effects on new product performance in the firms' NPD process. Results show that the effect of entrepreneurial orientation positively affects on market orientation and technological orientation and that the joint effect of market orientation and technological orientation has a greater impact on new product performance when learning orientation is high rather than low. However, the results show that the joint effect of market orientation and technological orientation has a significant but negative effect on new product performance.

The findings of this study show that a firm with a high level of entrepreneurial orientation which the firm clings to explore new market opportunities or pursuit the renewal of existing area

of operation may lead to a high level of market orientation and technological orientation. Prior studies had suggested that the higher the market orientation, the higher the new product performance is. Encouraging employees discover their customer needs and preference and their competitors' action represents market orientation. In order to encourage employees to sense trends and response to the market ahead of the competitors, the firms should advocate autonomy, risk-taking, and proactiveness. In the meantime, the findings of this study show that a firm with both market orientation and technological orientation has a negative effect on new product performance unless the firm implements the learning orientation. This interesting finding shows us that since the firm may possess both market orientation and technological orientation at the same time, without implementing the learning orientation which all employees share vision with open-mindedness and commit to the organizational goal, the firm may possibly lose the direction of the organization and fall in pursuit of the new product success.

## **5. Conclusions**

The findings of this study extend the marketing and innovation management literature to generate insights into the relationship between strategic orientation and new product performance. To deepen the understanding of this relationship, this study proposes a framework which exhibits the configuration of four dimensions of strategic orientation for achieving successful new product performance. As strategic orientation has been viewed as an essential for firm's performance (Gatignon & Xuereb, 1997), there are more and more scholars discussing the issue but studying from various points of angle. However, there is litter research has investigated the combination of these orientations together. Several studies in marketing and strategic management indicate that the synergy of complementary orientations is likely to be more efficient and effective than that of any single orientation operating independently (Milgrom & Roberts, 1990; Mu & Di Benedetto, 2011). Salavou et al. (2004) suggest that further research should concentrate on interactions between strategic orientations and the links between them.

### ***5.1. Theoretical Implications and Managerial Contributions***

This study contributes to academic scholars and the practicing managers in several ways. First, this study shed new light on marketing literature by proposing a configuration of the

dimensions of strategic orientation in a model. Unlike some research which merely examines one of two dimensions of strategic orientation at a time, this study simultaneously examines the relationship among the dimensions of strategic orientation and their effect on new product performance.

Second, this study provides an insight by uncovering the importance of entrepreneurial orientation for enriching the firms' market orientation and technological orientation in order to achieve the new product success. This study shows that encouraging employees to be proactive, risk-taking, and autonomous leads to a higher market orientation and technological orientation in a firm, which provides the managers a way to carry out their strategic orientation.

## **5.2. Limitations and Directions for Future Research**

The results of this study have two main limitations. First, the generalizability of these findings is limited because these findings are based on a sample of Taiwanese manufacturing firms. In other words, the findings of this study should be further validated in other contexts. Second, this study merely examines the dimensions of strategic orientation on new product performance. However, there are many other factors may impact on this relationship, such as environmental conditions. Further studies could discuss the possible interaction and examine how the factor affects this relationship.

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