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**The Empirical Link Between Market Orientation, New Product  
Development And Performance In Export Ventures**

**ABSTRACT**

This study examines the empirical links between the dimensions of market orientation and new product development, namely, market intelligence generation, dissemination and responsiveness, new product technical development, commercialisation, idea development, opportunity analysis and pretest and new product performance in Thai export ventures. Data were gathered via a self-administered mail survey directed to the marketing and research and development departments of 201 Thai export ventures based in Thailand. The sample came from the electronics and electrical industries. The findings indicate that all independent variables, namely, market intelligence generation, dissemination and responsiveness, new product technical development, commercialisation, idea development, opportunity analysis and pretest were able to significantly discriminate between high and low new product performance.

**Key Words:** Market intelligence generation, dissemination, responsiveness, new product development, new product performance

**INTRODUCTION**

New products are the lifeblood of any organization. Their success in the market ensures future sales and company growth (Kok, Hillebrand, & Biemans, 2003). Thus, new product development can be considered the best mechanism for achieving a sustainable competitive advantage (Ettlie and Pavlou, 2006). Furthermore, new product development (NPD) can be a critical business process that enables a firm to increase its diversity and product mix especially in multiple international markets (Rozenfeld and Tahara, 2009). However, rapidly changing customer needs, technological innovation, shorter product life cycles, high costs incurred in R&D and intense competition in the market, will cause NPD to be a highly complex and dynamic and ever changing process (Beverland, Ewing, & Matanda, 2006).

In a dynamic market, successful new products have focused their attention on market oriented behaviour (e.g., Kok et al., 2003; Kok & Biemans, 2009). Furthermore, the significance of market orientation as an antecedent of successful product innovation behaviours, activities

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and new product performance have been identified by several researchers (Augusto & Coelho, 2009; Baker & Sinkular, 2005; Gotteland, & Boulé, 2006; Im & Workman, 2004; Langerak, Hultink, & Robben, 2004). However, market orientation is concerned about learning, which includes developing an understanding of the market, and using that knowledge for marketing actions (Kok, Hillebrand, & Biemans, 2002). As such, many previous studies have conceptualized market orientation as an information processing activity (e.g., Kok et al., 2002; Matsuno & Mentzer, 2000) and these studies have viewed the development of new products from an organization's information processing perspective that combines the generation of market information with the dissemination of that information across different departments, together with the responsiveness of the various departments (Baker & Sinkula, 2005; Kok et al., 2002). Baker and Sinkula (2005) found that 94% of the empirical studies that examined the effect of market orientation on new product performance reported a significant positive relationship. This suggests that there should be a causal link between market orientation and new product performance, however, that link is yet to be conclusively empirically verified.

The NPD process begins from the idea development stage to the final product commercialization stage. At each stage of the development process, a large amount of knowledge and skill is needed to create the new product. These include inputs such as market insight, product concept, product design, function features, application of the component and technology, inner engineering design, system combination, assembling skill, process design and improvement, quality control, product function tests, etc. if an effective new product was to be achieved. A quality of well executed developmental activities in NPD is considered as the heart and soul of the new product development process (Song & Noh, 2006). A substantial body of literature has addressed the importance of the proficiency in the NPD process as a key driver in new product performance (e.g., Song & Noh, 2006). The NPD process may deal with market uncertainty and technology uncertainty that affects the quality of the NPD process (Nadia & Thomson, 2010). Market orientation through market information processing (market intelligence generation, dissemination, and responsiveness) helps firms to reduce the market uncertainty and facilitates effective NPD (Hart, Tzokas, & Sarin, 1999).

To date, there is still a lack of studies that examine the empirical link between individual components of market orientation and new product development with new product performance. Therefore this study intends to fill this gap.

### LITERATURE REVIEW

Many studies have been undertaken to investigate the relationship between market orientation and new product performance, but the majority of them have viewed market orientation as a culture such as that conceptualized by Narver and Slater (1990). Based on an extensive review of the literature this study suggests that few studies have viewed market orientation as a market information processing activity that can enhance new product performance in new product development.

Furthermore, many previous studies have shown the strong relationship between market orientation and new product performance, without isolating the role that the different stages in the NPD process play in new product performance. In addition to that, Langerak et al. (2004) suggested that there is a need to investigate the role that the NPD process plays in all stages of their relationship with new product performance. Therefore, this study aims to

investigate the relationship between the different dimensions of market orientation and the different NPD stages with new product performance.

### ***Market Orientation***

Market orientation is a dynamic capability of a firm as it is the ability of the firm to integrate or combine organizational resources and capabilities (Eisenhardt & Martin, 2000). Market oriented behaviours include the generation, the dissemination and the responsiveness of the firm to market intelligence. Therefore, this study conceptualizes market orientation as an internal organizational capability identified by three separate market behaviours, namely, market intelligence generation, market intelligence dissemination, and responsiveness to market intelligence.

Many scholars have conceptualized market orientation in different ways using a number of different perspectives. For example, Shapiro (1988) conceptualized market orientation as the organizational decision making process which consists of commitment from top management to have information shared between the functional divisions involved in decision making. Arguably, the pioneers of market orientation, Kohli and Jaworski (1990), conceptualized market orientation as the organization-wide generation of market intelligence pertaining to current and future customer needs, the dissemination of that market intelligence across different departments, and the organization-wide responsiveness to that market intelligence.

Narver and Slater (1990), the other key leaders in the field of market orientation research, however, conceptualized market orientation as an organizational culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for buyers and accordingly, the creation of continuous superior performance for the firm. Under this theoretical conceptualization, the market orientation construct would incorporate three distinct behavioural elements, namely, customer orientation, competitor orientation, and inter functional coordination.

Ruekert (1992) conceptualized market orientation as the strategy of obtaining and using information from customers to develop a strategy which will better meet customer needs and implementing that strategy to respond to customer needs. On the other hand, Deshpande, Farley and Webster (1993) conceptualized market orientation as focusing on the customer orientation perspective of market orientation that puts the customer's interest at the forefront and excludes the focus on competitors, while not excluding all other stakeholders such as owners, managers, and employees.

The market orientation concept that was used for this study followed the directions provided by Kohli and Jaworski (1990) and consisted of market intelligence generation, market intelligence dissemination, and responsiveness to market intelligence as three separate and distinct constructs. The reason being is that it is more closely aligned with the NPD process stages which also formed part of the study and its relationship with new product performance. Accordingly, with respect to the new product development process, information is collected internally and externally, then disseminated through the organization, and then used for various product development activities.

### ***New Product Development (NPD)***

NPD is a business process implemented by a group of people that transforms data on market opportunities and technical possibilities into useful information for the design of a commercial product (Clark & Fujimoto, 1991). Similarly, Rozenfeld and Tahara (2009) defined new product development (NPD) as a business process that converts market opportunities, technology, and customer needs into technical and commercial solutions. NPD is important for businesses because it enables firms to achieve a sustainable competitive advantage and become market leaders, other than being a key factor driving a business's success (Chung & Kim, 2003).

The NPD process typically begins with ideas and ends with successful product commercialization in the marketplace. It is typically organized, predictable, and formal, with prescribed sets of activities, questions to be answered, and decisions to be made (Belliveau, Griffin, & Somermeyer, 2002).

There have been numerous models proposed for the NPD process that intend to screen out the "dogs" before expending too many company resources (Carbone & Tippett, 2004). Researchers have investigated the NPD process from a number of different perspectives. For example, Cooper (2001) proposed a stage-gate process. A stage-gate new product process refers to the process of dividing a new product process into a series of gates from creation of the idea to the commercialization stage (Cooper & Edgett, 1996; Howe, Mathieu, & Parker, 2000). Each stage consists of the set of activities undertaken by personnel from different functional departments working together as a team to provide approval and in-depth review. Each stage is then separated by a gate and each gate controls a check point (go or no go) decision. This means that the gate is the point that transforms the outputs from the previous stage into the inputs of the subsequent stage, while reducing the technical and business uncertainties, a stage must be designed to gather vital information.

For this study, the NPD process is defined as five key stages following Song and Parry (1997). Song and Parry (1997) divided the NPD process into five stages: (1) idea development and initial screening, (2) business and market opportunity analysis, (3) technical development, (4) product testing, and (5) product commercialization.

### ***Performance***

There appears to be no uniform definition of performance in the literature. There has been a variety of performance measures adopted by previous researchers. These include sales (Zou, Fang, and Zhao, 2003), sales growth (Madsen, 1989; Rose and Shoham, 2002), market share, profitability (Geringer and Hebert, 1991; Johnson and Arunthanes, 1995), access to markets etc. (Johnson, Black, and Sakano, 1993). However, the most frequently used performance measures appear to be economic in nature. As such, in this study we defined new product performance in terms of market and financial success.

Given the issues raised in the literature relating to the dimensions of market orientation and the stages of new product development the following research question is offered for testing in relation to export ventures in Thailand:

**RQ: To what extent is new product performance in Thailand at a market level and at a financial level influenced by:**

1. Market intelligence generation.
2. Market intelligence dissemination.

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3. Market intelligence responsiveness.
4. New product technical development.
5. New product commercialisation.
6. New product idea development.
7. New product opportunity analysis.
8. New product pretest.

### RESEARCH DESIGN

The empirical link between the different dimensions of market orientation, the different stages of new product development and new product performance were examined via an empirical investigation of 201 export ventures located in the Republic of Thailand. The administration of the survey was via mail and a survey packet including a personalised cover letter and self-administered questionnaire was sent to both the marketing and research development departments of each venture. The sample came from the electrical and electronics industries. The questionnaire was developed from existing measures and pre-tested using a small sample before the final instrument was mailed to the sample. All independent variables were measured via five-point bi-polar scales (Julian, 2003). In this study senior executives of both the marketing and research development departments were used as the key informants. To reach the most knowledgeable key informants, the questionnaire was directed to senior executives of both the marketing and research development departments. From the results of the pre-test, it was expected that these executives would be the executives most knowledgeable about the organisation's new product performance. The case, where these executives were not directly responsible for the organization's new product development it was expected that these executives would re-direct the questionnaire to the appropriate executive within the firm.

The measures for each of the distinctive market orientation dimensions and the different stages of NPD encompassed the four learning activities that constitute the firm's overall organizational learning processes (Huber, 1991; Schein, 1990; Sinkula, 1994; Slater and Narver, 1995). These activities are knowledge acquisition, knowledge sharing, knowledge utilization and unlearning. A key element of the market orientation and NPD constructs is the extent to which a particular capability has been instrumental in outperforming competitors.

**Market Intelligence Generation** - is a measure of the respondents' perceptions of the firm's efforts to generate market information by formal and informal mechanisms, which can be in the form of customer surveys, collecting and evaluating market information (competitors, macroeconomic, business environment, social trend, and regulation), contacting and spending time with suppliers, or making contacts with government officials. The measure developed for this construct was an adaptation of the market intelligence generation scale developed by Kohli and Jaworski (1990) and Matsuno and Mentzer (2000). The measure had 8 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.87.

**Market Intelligence Dissemination** - is a measure of respondents' perceptions of the firm's effort to disseminate market information in the form of spending time for discussion, sharing market information, and distributing or transferring market information through various departments. The measure developed for this construct was an adaptation of the market intelligence dissemination scale developed by Kohli and Jaworski (1990) and Matsuno and Mentzer (2000). The measure had 8 self-report items that demonstrated acceptable reliability

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and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.88.

**Market Intelligence Responsiveness** - is a measure of respondents' perceptions of the firm's responsiveness to market information such as responding to market changes (e.g., customer needs, regulatory change, competitors) by taking actions in the form of market segmentation, planning, and new product development. The measure developed for this construct was an adaptation of the market intelligence responsiveness scale developed by Kohli and Jaworski (1990) and Matsuno and Mentzer (2000). The measure had 8 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.85.

**New Product Development** - measured how well the firm performed NPD activities in each stage, including the idea development stage, the technical development stage, the opportunity analysis stage, the pretest stage and the commercialization stage. Each new product development construct was adapted from Song and Parry (1997) and Swink and Song (2007). The new product idea development construct was adapted from Song and Parry (1997) and had 5 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.88. The new product technical development construct was also adapted from Song and Parry (1997) and had 9 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.90. The new product opportunity analysis construct was also adapted from Song and Parry (1997) and had 7 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.83. The new product development pretesting construct was adapted from Swink and Song (2007) and had 5 self-report items that demonstrated acceptable reliability and internal consistency, above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.78. Finally, the new product development commercialization construct was adapted from Song and Parry (1997) and had 7 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.92.

**New Product Performance** - was measured in terms of the perceived level of external success of the new product in terms of market success and financial success using such measures of market and financial performance as sales, market share, revenue, profit, and return on investment (ROI). The measurement scale was adapted from Griffin and Page (1996) and had 8 self-report items that demonstrated acceptable reliability and internal consistency, well above the 0.7 recommended by Nunnally (1967), with a coefficient alpha of 0.96.

After the pilot test the questionnaire was directed to a purposeful sample of 201 export ventures in the Republic of Thailand from the electrical and electronics industries, yielding 103 useable questionnaires being returned accounting for an effective response rate of 51.2 percent and considered to be adequate.

### DATA ANALYSIS

The data were initially analysed using principal components analysis to assess the psychometric properties of the instrument. The primary concern was interpretability of the factors. All items loaded appropriately and no cross loadings above 0.2 were identified with

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only factor loadings of above 0.5 being accepted. Each scale was reviewed using factor analysis to establish that they were unidimensional. The final reliabilities for all scales were greater than the 0.70 recommended by Nunnally (1967).

The preliminary results indicated that the psychometric properties of the scale were acceptable and as such it was appropriate to examine the research question. To what extent is new product performance influenced by market intelligence generation, dissemination and responsiveness, new product technical development, commercialisation, idea development, opportunity analysis and pretest when measured by a new product performance measure that includes market and financial measures of performance.

To explore the influence of market intelligence generation, dissemination and responsiveness, new product technical development, commercialisation, idea development, opportunity analysis and pretest on new product performance, a 2-group discriminant analysis was used in order to determine which variables best distinguished between firms with high- versus low-new product performance. All variables were entered simultaneously in the discriminant analysis so as to determine which variables were the best discriminators, after controlling for all other variables (Jackson, 1983). The antecedent variables of market intelligence generation, dissemination and responsiveness, new product technical development, commercialisation, idea development, opportunity analysis and pretest were each measured on composite scales created by summing the items, respectively. In the discriminant analysis, the two groups were identified by splitting the groups at the median score for the composite measure of new product performance that included market and financial measures of performance.

**Table 1 Discriminant Analysis — Structure Matrix**

Characteristics	Alpha Reliability	Composite Measure of Performance	P<
Market Intelligence Responsiveness	0.85	.872	0.001
Market Intelligence Dissemination	0.88	.662	0.001
Market Intelligence Generation	0.87	.365	0.001
New Product Commercialisation	0.92	.326	0.001
New Product Idea Development	0.87	.303	0.001
New Product Technical Development	0.90	.210	0.01
New Product Pretest	0.78	.182	0.05
New Product Opportunity Analysis	0.83	.180	0.05

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within function.

All variables used for the discriminant analysis were measured on five-point interval scales



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Correctly Classified: 93.2%  
Wilks' Lambda = 0.381,  $p < 0.001$   
Canonical Correlation = 0.787

In the discriminant analysis, new product performance perceptions were examined by using a composite measure of new product performance that included financial and market success. In the discriminant analysis, the discriminant function was significant (Chi Square [composite measure of new product performance] = 93.708,  $df = 8$ ;  $p = 0.000$ ). Table 1 gives the correlations between each discriminating variable and its respective discriminant function. For the composite measure that was used to assess new product performance the strongest predictors were market intelligence responsiveness, dissemination, and generation, together with new product commercialization, new product idea development, new product technical development, new product pretest and new product opportunity analysis. In fact all antecedent variables were strong predictors of new product performance.

To assess how effectively the derived discriminant functions were able to classify cases, a confusion matrix was generated and the jackknife (leave-one-out) method was applied for classification (Crask and Perreault, 1977). For a composite measure of new product performance, market intelligence responsiveness, dissemination, and generation, together with new product commercialization, new product idea development, new product technical development, new product pretest and new product opportunity analysis, 93.2 percent of the grouped cases were correctly classified.

Largely, the results indicate that the new product performance of Thai export ventures at a market and financial level is influenced by market intelligence responsiveness, dissemination, and generation, together with new product commercialization, new product idea development, new product technical development, new product pretest and new product opportunity analysis.

### DISCUSSION

This study sought to examine the influence of the different dimensions of market orientation and the different stages of new product development, namely, market intelligence generation, dissemination and responsiveness, new product technical development, commercialization, idea development, opportunity analysis and pretest on new product performance in Thai export ventures. Although the market orientation literature provides strong evidence to suggest that there is a significant empirical relationship between the different dimensions of market orientation and performance, there is limited empirical evidence between the different dimensions of market orientation and new product performance together with limited empirical evidence on the relationship between the different stages of new product development and new product performance. This study's finding overcomes this void in the literature finding that the different dimensions of market orientation and the different stages of new product development were all able to significantly discriminate between high and low export performance.

Market orientation has been theorized to have a significant positive effect on overall export performance. The results of this study, therefore, contribute to the body of knowledge by identifying that market orientation also has a significant positive effect on new product performance confirming that a sustainable competitive advantage and superior performance can be achieved by being equipped to respond to current and future market needs via accurate information gathering. This finding further suggests that market orientation via successful

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intelligence generation, dissemination and responsiveness is a necessary ingredient for successful new product performance.

The findings of this study suggest that market orientation is a three-dimensional construct consisting of market intelligence generation, market intelligence dissemination, and market intelligence responsiveness. Each of the three dimensions of market orientation influences new product performance significantly and positively. Market intelligence responsiveness as a predictor variable is the strongest predictor of new product performance for the Thai export ventures. This is followed by market intelligence dissemination and generation. It is important for the management of Thai export market ventures to be aware of these findings for future success. Therefore, for higher new product performance in their export ventures the management of the Thai export ventures need to have a dedicated focus on intelligence dissemination. In other words, the higher the firms' intelligence dissemination, the higher their new product performance. The logic behind this contention is that the greater the dissemination of intelligence amongst the firms different departments the greater the knowledge of their customers' needs and wants will be through all the firm's different departments and through this knowledge it will enable management to better position the firm with respect to its competitors thereby yielding better new product performance. In relation to the different stages of new product development each different stage had a significant positive impact on new product performance suggesting that all stages of new product development were important when it came to new product performance.

The study findings contribute to the debate in the strategic management literature in two primary ways. First, the study introduces new product performance into the marketing capabilities-based competitive strategy research as applied in international marketing identifying all three market orientation dimensions as key antecedents of new product performance. Second, the study findings suggest that all stages of the new product development process have a significant impact on new product performance.

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