Testing interaction effects of the dimensions of market orientation on marketing program creativity

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Abstract

Despite the plethora of research on market orientation, our understanding of how different dimensions of market orientation interact with each other in generating new intelligence for marketing programs is limited. In this paper, we develop and test a model that examines the interaction effects of the three dimensions of market orientation—customer orientation, competitor orientation, and cross-functional integration—on generation of marketing program creativity, composed of novelty and meaningfulness dimensions. In empirically testing such effects, we illustrate how to use two-stage least squares (2SLS) estimation. We find significant positive interaction effects between customer orientation and competitor orientation and between competitor orientation and cross-functional integration in predicting marketing program novelty. We also find that competitor orientation and cross-functional integration significantly and positively interact with each other in improving marketing program meaningfulness. Our empirical results provide implications and directions for market orientation research.

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1. Introduction

Recently Nissan Motors launched a creative promotional campaign for the new 2007 Altima, targeted at African-Americans 28 to 38 years in major U.S. cities. The campaign wanted to introduce the 2007 Altima’s Intelligent Key with push-button ignition feature to early adopters. Equipped with relevant customer information—that 26% of monthly “bar-goers” are early adopters of new products—Nissan dropped 20,000 “Lost Keys” in bars, concert halls, sports arenas, and other public places (Elliott, 2007). A tag attached to the key ring asked the finder not to return it to the owner because the Altima “has Intelligent Key with push-button ignition, and I no longer need these.” The tag also invited the finder to go to a Nissan web site to find out more about the 2007 Altima. This creative promotional campaign was spurred by the need for competitive differentiation to attract potential customers, and required a fair amount of internal coordination between marketing, sales and purchasing. This example illustrates the concepts of competitor orientation, customer orientation and cross-functional integration, important dimensions of market orientation that can lead to creative marketing promotions.

The role of market orientation in generating new intelligence for marketing programs has been emphasized in marketing strategy (e.g., Kohli and Jaworski, 1990; Slater and Narver, 1995). One of the keys to success in competitive markets is to implement creative marketing programs to better meet customers’ needs and market trends over time (Jaworski and Kohli, 1993). In order to achieve sustainable growth firms must provide novel and meaningful incentives to customers by implementing creative marketing programs encompassing advertising, promotion, warranty, package, pricing strategy, and distribution channels (Andrews and Smith, 1996).

Extant literature on market orientation (MO) has focused on examining the influence of market orientation on a firm’s performance (e.g., Kohli and Jaworski, 1990; Slater and Narver, 1995; Han et al., 1998; Im and Workman, 2004; Langerak et al., 2004; Lukas and Ferrell, 2000), or on organizational learning (Hurely and Hult, 1998; Slater and Narver, 1995). Some
researchers further investigate how environmental factors such as market and technological turbulence moderate the link between market orientation and innovation outcomes (e.g., Gatignon and Xuereb, 1997; Han et al., 1998). Despite the plethora of research on the effect of MO on innovation outcomes, our understanding of how different dimensions of MO interact with each other in generating market intelligence is limited. In order to narrow this gap, recent research calls for studies to examine potential interaction effects among dimensions of MO (Kirca et al., 2005; Jimenez-Jimenez and Cegarra-Navarro, 2007).

Hence, the goal of this research is to empirically test a model that explores the interaction effects of different dimensions of MO on marketing program creativity. We first define marketing program creativity as the degree to which marketing programs, associated with new product development, are perceived to be different from competitors’ programs as well as more meaningful to target customers (Andrews and Smith, 1996; Im and Workman, 2004). Following Andrews and Smith (1996), we choose marketing program creativity as a dependent variable for the following reasons. First, market orientation is inherently viewed as a market learning process where firms generate, disseminate, and react to new market intelligence (e.g., Kohli and Jaworski, 1990; Slater and Narver, 1995), which results in promoting creative ideas and incentives for consumers. Second, marketing program creativity, often considered as a gestalt of product development activities, helps a product achieve the innovation-related performance goal of product differentiation by providing unique and meaningful incentives to customers (Andrews and Smith, 1996).

Following Narver and Slater’s (1990) conceptualization of three dimensions of MO—customer orientation (CUO), competitor orientation (COO), and cross-functional integration (XFI), we empirically explore a model where these dimensions interact with each other, synergistically improving a firm’s generation of creative ideas for marketing programs in the product development context (Han et al., 1998; Im and Workman 2004). From an empirical perspective, our study also contributes to testing nonlinear interaction effects using a two-stage least squares estimation (2SLS) following the recommendations of Bollen and Paxton (1998) and Li and Harmer (1998). This method, that uses composite variables based on multi-item measures, helps test the robustness of the results against the problems (e.g., the inadequacy of significance tests, consistency tests, or fit statistics) involved in testing interaction effects in OLS regression and subgroup analysis (see Bollen, 1996; Bollen and Paxton, 1998; Jaccard et al., 1990 for review).

The next section presents a brief background and literature review. Later, the details on the econometric procedure using 2SLS estimation are described before estimation results. The paper concludes with a discussion of implications and future research directions.

2. Background

While a firm’s MO is mainly concerned with the importance of generating and disseminating market intelligence that responds to customers and competitors, it also focuses on inter-functional coordination within an organization in regards to acquisition and dissemination of market intelligence (Kohli et al., 1993). We adopt Narver and Slater’s (1990) component-wise perspective because this is suitable for marketing program development in the new product development context. In new product development, a firm’s ability to manage cross-functional integration in response to customers and competitors significantly improves creative marketing programs (Cooper, 1979, Langerak et al., 2004). Our study follows others (e.g., Han et al., 1998; Im and Workman, 2004) that examine how the Narver and Slater’s (1990) behavioral dimensions of MO impact innovation outcomes in the new product development context.

3. A proposed model

We develop and empirically test an exploratory model where the three dimensions of MO interact with each other to synergistically influence the generation of creative marketing programs. We expect these constructs to complement each other in a manner that an increase in the level of one construct enhances the contribution of the other construct. Customer orientation (CUO) is defined as the degree of a firm’s efforts to understand its own target customers in order to provide superior value to them continuously. Competitor orientation (COO) refers to the degree of a firm’s efforts to understand the short-term strengths and weaknesses and long-term capabilities and strategies of key competitors, both current and potential. Cross-functional integration (XFI) is defined as the degree of a firm’s coordinated efforts to utilize a firm’s resources in generating superior value for target customers.

Based on a review of the management and marketing literature (i.e., Amabile, 1983, 1988; Andrews and Smith, 1996; Sethi et al., 2001), as well as exploratory field interviews in 15 firms, we define marketing program (MP) creativity as the degree to which MPs are perceived to represent unique differences from competitors’ products and programs in ways that are meaningful to target customers. Consistent with Amabile (1983), this definition identifies two distinct dimensions of creativity: novelty, defined as the degree to which marketing programs are perceived to represent unique differences from competitors and meaningfulness, defined as the extent to which marketing programs are perceived as appropriate and useful to targeted customers. Amabile (1983) argues that both dimensions must be included in the concept of creativity, because novel ideas may be perceived as weird or bizarre for the target audience if they do not carry meaning. Firms must provide novel incentives to customers when they implement marketing programs, to get their attention and exceed expectations from the market that continually evolve over time (Jaworski and Kohli, 1993). Additionally, the marketing programs must also be meaningful so that they appear relevant and interesting to potential customers. While novelty attracts attention and increases the likelihood of a product being in a customer’s consideration set, meaningfulness enables a customer to better evaluate alternatives, try the product, and eventually transform preference into conviction.

Though our literature review provides anecdotal evidence of the possible interaction effects of the MO dimensions on
marketing program creativity, we are unaware of any study that examines them empirically. A few recent studies reveal the gap in our understanding of the MO constructs by alluding to the need for investigating the interactions among these constructs. Jimenez-Jimenez and Cegarra-Navarro (2007) note that “the relationship is more complex than a linear one,” thus reiterating the need to examine interactions among the different dimensions of MO. An important meta-analysis that examines the antecedents and consequences of MO (Kirca et al., 2005), also emphasizes the need for investigating the interactions among various dimensions of MO. Following a few studies (e.g., Han et al., 1998; Im and Workman, 2004) that focus on the empirical validation of the link between MO and innovation outcomes, our study further explores the interaction effects of the three dimensions of MO on marketing program creativity. Because of the exploratory nature of this research and the paucity of prior theory and empirical findings that directly support the interaction effects we do not provide formal hypotheses. Instead, we empirically explore how any two dimensions of MO, in combination, provide the synergistic effect on marketing program creativity. First, we propose that CUO and COO have a synergistic interaction effect on marketing program creativity. Narver and Slater (1990) claim that customer orientation and competitor orientation, in combination, encompass various activities involved in acquiring, disseminating, and generating intelligence about both the buyers and the competitors in the target market. Day and Wensley (1988) argue that marketing strategy requires a balanced focus on customers and competitors. Hunt and Morgan (1995) support that dual focus of market orientation on both customers and competitors is essential for a firm’s strategy (see also Day and Nedungadi, 1994; Kohli and Jaworski, 1990; Jaworski and Kohli, 1993). Thus, gathering and assessing information about customers and competitors is critical to the generation of creative marketing programs and innovations, since they help a firm to understand customer’s needs, as well as competitive strategies, activities, and threats (Calantone et al., 1993).

Second, we propose that CUO interacts with XFI to enhance the generation of creative marketing programs. A customer-oriented firm with a high level of XFI tends to have a capability to generate creative marketing programs for its customers by providing coordinated efforts across functional teams to systematically acquire, integrate, and disseminate market intelligence and information about customers (Narver and Slater, 1990). A firm that keenly monitors and responds to customer-related intelligence is more likely to generate creative marketing programs when coordinated actions across cross-functional teams combine forces to acquire, disseminate, and react to diverse market information about customers.

Finally, we suggest that COO and XFI in combination have a synergistic effect on generating creative marketing programs. XFI is more likely to help a competitor-oriented firm by systematically acquiring, integrating, and disseminating market intelligence about competitors across functions in search of creative incentives for marketing programs (Narver and Slater, 1990). Thus, a firm that is keenly aware of competitive threats tends to generate novel and meaningful incentives for marketing programs, when the high level of XFI encourages diverse functional groups to collect information about competitors’ marketing programs. In sum, our proposed model suggests that the three dimensions of market orientation positively interact with each other to synergistically enhance the generation of creative ideas and incentives for its marketing programs. Since we focus on examining the interaction effects among three dimensions of MO on marketing program creativity, we do not provide a priori explanations on the main effects of these dimensions. For a detailed analysis of main effects, please refer to, among many studies, recent studies by Im and Workman (2004) and Han et al. (1998).

4. Econometric framework: two-stage least squares estimation

In order to provide empirical validation of the proposed model, we test interaction effects by employing two-stage least squares (2SLS) estimation procedure for composite variables based on multi-item measures. The details of the econometric framework are available from the authors. From an empirical perspective, the structural equation modeling technique may not produce desirable results for estimating nonlinear interaction effects due to the inadequacy of significance tests and fit statistics (Bollen, 1989). The most typical approach used in marketing literature in testing interaction effects, OLS estimation with multiplicative interaction terms (Aiken and West, 1991), may result in biased estimators in the presence of correlation between random error terms and latent variables. Several other methods for testing interaction effects have been suggested—e.g., traditional constrained approach, generalized appended product indicator (GAPI), subgroup analysis, and unconstrained approach are used to test interaction effects in social sciences (Kenny and Judd, 1984; Molder and Algina, 2002; Marsh et al., 2004). All these methods involve trade-offs among accessibility, simplicity, bias, precision, power, and Type I error rates (Marsh et al., 2004). In addition, it is generally agreed that biases from different methods cannot be fully removed, and often produce different estimates (e.g., Marsh et al., 2004).

Understanding the trade-offs noted above, we propose using a 2SLS estimation employing SYSLIN procedure in SAS (Bollen and Paxton 1998; Li and Harmer 1998) in order to provide empirical evidence on the synergistic effects between the dimensions of MO. This method is preferred to other methods for the following reasons: (1) it provides consistent estimates; (2) it is robust even when variables violate the multivariate normality assumption; (3) it has no convergence problems; (4) it isolates specification error and generates estimated asymptotic standard errors for significance tests; (5) it does not require that observed variables come from multinomial distributions; (6) it allows observed and latent variables to originate from nonnormal distributions; (7) it is less demanding computationally than structural equation modeling technique (see Bollen, 1996; Bollen and Paxton, 1998; Jaccard et al., 1990); and (8) it is capable of reducing biases that may result from the presence of correlation between random error terms and latent variables (Aiken and West, 1991).
5. **Empirical analysis**

5.1. **Sample**

The data for this study were collected through a large-scale, cross-sectional survey of U.S. high-tech manufacturing companies. The sample includes manufacturing firms in the following fields: computer software and hardware, automation, telecommunications, medical products, biotechnology, subssembly, photonics, advanced materials, energy and environmental products, and tests and measurements. The sampling frame consisted of project team leaders in the new product development teams drawn from the CorpTech Directory of Technology Companies since these project leaders were capable of evaluating how market orientation influences marketing program novelty at the team level. Their titles include project/team leader, assistant project/product manager, and project/product manager. We chose high-tech firms since they engage in intense product innovation activities and creative marketing programs in response to an environment characterized by high uncertainty, rapid changes in industry standards, and short technology lifecycles (Song and Montoya-Weiss, 2001). In total, we received responses from 222 product innovation project leaders, resulting in a 20.8% response rate. After 16 surveys were excluded because of incomplete responses, a total of 206 responses remained for further analysis. The participating firms were relatively large with an average of 4562 employees and average annual sales of $853 million.

Respondents were asked to report on the marketing programs associated with the most recently developed and launched new product for which their business unit was responsible. T-test results for major constructs confirm that there were no significant differences between early and late respondents, indicating that nonresponse bias does not influence the generalizability of the findings of this study (Armstrong and Overton, 1977). Multicollinearity diagnostic tests (Belsley et al., 1980) confirm that no serious multicollinearity exists (all condition indexes < 30, and all variance inflation factors < 10). Since our study did not allow us to obtain measures of predictor and criterion variables from different sources, we ensured confidentiality and anonymity of the respondents to minimize the effects of Common Methods Bias (Podsakoff et al., 2003).

5.2. **Measures**

5.2.1. **Marketing program creativity measure**

Following Churchill (1979), we developed a marketing program creativity measure by conducting a series of pretests including a pilot study (n = 106) from high-tech industries. Following Im and Workman (2004), we use a Likert-type, domain-specific scale of creativity, which is tailored to assess MP creativity as an outcome of the new product development and launch activities at the team level. Through this scale development process, we determined whether the empirical responses were consistent with the conceptual constructs (see Churchill, 1979; Gerbing and Anderson, 1988). Using the pilot study data, we purified the measurement items for the scale by conducting exploratory factor analyses, assessing Cronbach’s alphas for internal consistency, and removing items with low cross loadings, or low item-to-total correlation.

In this study, marketing program creativity is measured through assessment of two dimensions: marketing program novelty and meaningfulness. Both dimensions are measured by 4-item Likert-type scales (with 1 = strongly disagree and 7 = strongly agree) and both exhibit good reliabilities (Cronbach’s alphas = 0.90).

5.2.2. **Market orientation measures and control variable**

We adopted Narver and Slater’s (1990) measure of MO. The measurement items for MO were revised and refined using traditional measure development methods as recommended by Churchill (1979) in a pilot test. After 2 items that had low item-to-total correlations were excluded, the remaining 13 measurement items (5, 4, and 4 items for CUO, COO, and XFI) represent the three dimensions of market orientation well with good reliabilities. After measure refinement, the results with Cronbach’s αs over 0.72 (Appendix A) show that all three measures exhibit good internal consistency.

In the final validation process using study data (N = 206), we find that our measures have good discriminant and convergent validities (Bagozzi et al., 1991). The interrater correlations and test–retest reliabilities support that all measures exhibit desirable reliabilities. The results from confirmatory factor analysis indicated that all items in the confirmatory measurement model significantly and positively loaded on their intended subjective latent constructs, thus confirming the unidimensionality and convergent validity (Anderson and Gerbing, 1988; Bagozzi and Yi, 1988; Bagozzi et al., 1991). The significant results from chi-squares difference tests (all p values < 0.05) for all pairs of major constructs indicated that unrestricted models (where correlations were freely estimated) are preferred to restricted models (where correlations were fixed at 1), thereby confirming discriminant validity (Anderson and Gerbing, 1988).

In addition, we use managerial encouragement to take risk (RISKTAKE) as a control variable, which might influence new product innovation outcomes (Jaworski and Kohli, 1993). We define managerial encouragement to take risk as the extent to which the management team understands the risk and uncertainty associated with new product development, and expects and encourages employees to take risks involved in new product development and launch activities (Andrews and Smith, 1996; Jaworski and Kohli, 1993; Sethi et al., 2001). We added this control variable in order to explore if the proposed interaction effects are influenced by an important organizational factor.

5.3. **Results**

Prior to examining the interaction effects, we examine descriptive statistics and correlations of all variables using summated scores across multiple items (Table 1). The means and standard deviations indicate that there is enough variability in the measures of the major constructs. The signs of the
correlations are consistent with our proposed relationships, though these correlations do not necessarily imply causality.

Following Bollen and Paxton’s (1998) approach, we used 2SLS regression employing SYSLIN procedure in SAS to test interaction effects. In order to verify the robustness of our estimates we also estimated the coefficients using Ordinary-Least-Squares (OLS) regression. The estimation results for interaction effects using 2SLS and OLS regression are summarized in Table 2. Although we have run full-model regressions with both main and interaction effects, given the focus of the paper and the need to simplify presentation, we report the results of interaction effects only. Fig. 1 reports the results from 2SLS regression analysis. Both 2SLS and OLS provide consistent results in terms of significance testing. Below 2SLS estimates for each dependent variable are discussed separately.

5.3.1. Dependent variable: MP novelty (MPN)

The coefficient of CUO × COO is positive and statistically significant at \( p < 0.10 \), indicating a positive, though weak, interaction effect between CUO and COO on MP novelty. However, the coefficient estimate of CUO × XFI is not statistically significant. The coefficient of COO × XFI is positive and significant at \( p < 0.05 \), thus indicating that the interaction between COO and XFI enhances MP novelty. Finally, RISKTAKE has a positive and statistically significant impact on MP Novelty.

5.3.2. Dependent variable: MP meaningfulness (MPM)

The results in Table 2 and Fig. 1 show that the estimated coefficient of CUO × COO is positive and that of CUO × XFI is negative. However, both the estimates are statistically insignificant. The positive and statistically significant coefficient of COO × XFI in both 2SLS \( (p < 0.05) \) and OLS \( (p < 0.10) \) procedures indicates that the interaction between COO and XFI enhances MP meaningfulness. In addition, we found that RISKTAKE significantly influences MP meaningfulness \( (p < 0.10 \) for 2SLS, and \( p < 0.01 \) for OLS).

6. Implications

Using 2SLS estimation, we examined the interaction effects of MO dimensions on the two dimensions of marketing program creativity—MP novelty and MP meaningfulness. Although we did not provide ex ante formal hypotheses for the interaction effects among the three dimensions of MO due to the lack of a theoretical basis in prior literature, we provide ex post explanations of both significant and non-significant interaction effects based on our empirical findings. First, our findings suggest that positive interaction effects between COO and XFI...

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**Table 1**

Correlation among dependent and independent variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Mean (s.d.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Customer orientation (CUO)</td>
<td>1.00</td>
<td>4.80 (1.47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Competitor orientation (COO)</td>
<td>0.18***</td>
<td>1.00</td>
<td>4.90 (1.51)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cross-functional integration (XFI)</td>
<td>0.28***</td>
<td>0.37***</td>
<td>1.00</td>
<td>4.54 (1.43)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Customer and competitor orientations (CUO × COO)</td>
<td>0.73***</td>
<td>0.77***</td>
<td>0.42***</td>
<td>1.00</td>
<td>23.89 (11.03)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Customer orientation and cross-functional integration (CUO × XFI)</td>
<td>0.76***</td>
<td>0.34***</td>
<td>0.80***</td>
<td>0.70***</td>
<td>1.00</td>
<td>22.38 (10.73)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Managerial encourage to risk taking (RISKTAKE)</td>
<td>0.15***</td>
<td>0.10***</td>
<td>0.24***</td>
<td>0.76***</td>
<td>0.34***</td>
<td>1.00</td>
<td>12.72 (3.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Marketing program novelty (MP novelty)</td>
<td>0.17***</td>
<td>0.22***</td>
<td>0.19***</td>
<td>0.15**</td>
<td>0.30***</td>
<td>0.24***</td>
<td>0.24***</td>
<td>0.32***</td>
<td>1.00</td>
</tr>
<tr>
<td>8. Marketing program meaningfulness (MP meaningfulness)</td>
<td>0.35***</td>
<td>0.22**</td>
<td>0.12*</td>
<td>0.38***</td>
<td>0.28***</td>
<td>0.23***</td>
<td>0.31***</td>
<td>0.72***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Significant at the 0.10 level; **Significant at the 0.05 level; ***Significant at the 0.01 level.

**Table 2**

Interactive effects estimation results

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Independent variables</th>
<th>2SLS</th>
<th>OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2SLS</td>
<td>OLS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regular estimates</td>
<td>Sig</td>
<td>Standardized estimates</td>
</tr>
<tr>
<td>Marketing program novelty</td>
<td>CUO × COO</td>
<td>0.53</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>CUO × XFI</td>
<td>−0.22</td>
<td>−0.42</td>
</tr>
<tr>
<td></td>
<td>COO × XFI</td>
<td>0.75</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>RISKTAKE</td>
<td>0.25</td>
<td>**</td>
</tr>
<tr>
<td>Marketing program meaningfulness</td>
<td>CUO × COO</td>
<td>0.17</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>CUO × XFI</td>
<td>−0.08</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>COO × XFI</td>
<td>0.47</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>RISKTAKE</td>
<td>0.15</td>
<td>−</td>
</tr>
</tbody>
</table>

*Significant at the 0.10 level.
**Significant at the 0.05 level.
***Significant at the 0.01 level.
are robust in predicting both MP novelty and meaningfulness. These significant interaction effects between COO and XFI indicate that a competitor-oriented firm that is keenly aware of threats and opportunities in a highly competitive high-tech environment tends to generate both novel and meaningful motives for marketing programs when different functional groups communicate, interact closely with each other to monitor competitors’ activities and industry trends. The competition between manufacturers of erectile dysfunction (ED) drugs lends support to this result. Viagra was the first drug in this category launched by Pfizer in 1998. Viagra was effective for about 4 hours after it was taken but had side effects if it was taken with food and drink. Levitra from Glaxo Smith Kline was launched next with a similar duration of effectiveness. Finally, in 2003 Eli Lilly launched Cialis. After studying the competition, Cialis came up with the meaningful differentiation that its effectiveness would last for up to 36 hours after a man took it, a big increase compared to Viagra and Levitra. This enabled Cialis to develop the novel positioning that Cialis was for couples interested in a romantic weekend rather than those in a hurry (Arndt, 2003). This meaningful differentiation and novel positioning was possible only because of close cooperation between different functions at Eli Lilly including R&D, Marketing, and Sales.

Second, our findings suggest that positive, though weak, interaction effects exist between CUO and COO in predicting MP novelty. This positive interaction between CUO and COO indicates that a firm’s balanced focus on customers and competitors helps generate novel incentives for MPs. Thus, in order to enhance novel perspectives in MPs, a firm’s efforts to continuously acquire and monitor customers’ needs and expectations should be combined with its efforts to understand competitors’ threat and activities. Such a blend of two orientations offers the potential to create more novel promotion, pricing strategy, channel deployment, and service in response to the rapidly changing and unique market intelligence in high-tech industry. Apple’s marketing of the iPod seems to illustrate this result. Interestingly, iPod was not the first digital music player; there were digital MP3 players from Creative and iRiver before iPod. Apple noticed that these players all had limited capacity because they used flash memory. Apple was the first to bring out iPod in 2001 with a small hard drive to store music, a novel feature. From its past products such as candy-colored iMacs and the easy-to-use Mac operating system, Apple knew that cool design and a user-friendly interface could be a hit with consumers. No wonder the neatly designed first iPod with the scrolling wheel interface and the iTunes music service were big hits with consumers. So also was the price of 99 cents per download for each song from iTunes (Yoffie and Merrill, 2006). Thus, Apple demonstrated a balanced approach to competitor and customer orientation that did result in more novel than meaningful marketing programs for the iPod.

Third, in contrast to our expectation, we found no statistically significant interaction effect between CUO and XFI on both MP novelty and meaningfulness. One possible explanation is that in a highly customer-oriented firm, the high XFI often discourages project teams to take risks in generating novel and meaningful ideas for marketing programs, which are
often considered weird or inefficient by members from other functional groups. We also found the non-significant interaction effect between CUO and COO on MP meaningfulness, which indicates that a firm’s dual focus on customers and competitors fails to generate meaningful marketing programs, while it helps generate intelligence for novel programs.

Fourth, the comparison of the estimated standardized coefficients also suggests that the interaction between COO and XFI is relatively more potent than that between COO and CUO in predicting MP novelty (standardized coefficient of 1.50 for COO×XFI and 1.03 for CUO×COO) and MP meaningfulness (standardized coefficients of 1.30 for COO×XFI and 0.44 for CUO×COO).

Finally, from the methodology perspective, we provide a roadmap to use 2SLS for testing interaction effects by illustrating econometric procedure of 2SLS estimation in testing the interaction effects between dimensions of MO on MP novelty and MP meaningfulness. Compared to other methods to test interaction effects (e.g., regression with product term by Aiken and West (1991), subgroup analysis, and product term indicant analysis by Kenny and Judd (1984)), 2SLS is considered appropriate for testing data with non-normality that tends to inflate the test statistic and suitable when the reliability of indicators is high and the sample size is not small (Molder and Algina, 2002). One of the important benefits of using 2SLS is to provide unbiased estimate by controlling the endogeneity—correlated errors between latent constructs and dependent variable. More recently, Molder and Algina (2002) support that the bias from 2SLS is minimized especially when the reliability of indicators is high and the sample size is not small.

6.1. Managerial implications

Our empirical results provide several implications for managers. First, managers should not myopically focus on improving one perspective of MO in isolation in order to generate creative marketing programs. Instead, managers should learn that the combination of particular dimensions of MO would provide a firm competitive advantage through generation of novel or meaningful incentives for marketing programs. A manager should realize that whether a particular dimension of MO influences his or her company’s MP creativity depends on how s/he makes the best use of these dimensions both individually and in groups. If a firm’s culture heavily emphasizes monitoring and responding to key competitor’s activities and moves (i.e., in a high competitor-orientated culture), a manager must simultaneously invest enough effort and time to foster coordination and communication among cross-functional teams in order to help new product teams generate novel and meaningful marketing programs. In addition, the manager in such a competitor-oriented culture can focus on exerting his or her efforts to understand and respond to its own target customers in order to improve the generation of novel MPs.

The natural tendency of marketers is to take ownership of the customer relationship and be customer-oriented in order to generate new and novel ideas for marketing programs. The study results, however, show that a firm’s emphasis on customer orientation in combination with competitor orientation improves MP novelty. Thus, marketers need to have one eye on customers and the other eye on competitors. If resources are allocated to both of these simultaneously, firms will generate novel marketing program ideas, as Apple did with the first iPod. In addition to customer and competitor orientations, marketers would benefit from internal marketing or building relationships with other groups within the firm such as R&D, engineering, manufacturing and so on. The biggest payoff in terms of both novel and meaningful marketing program ideas comes from cross-functional integration in conjunction with competitor orientation as illustrated by the Cialis example. Thus, it may be appropriate for the marketing department to allocate dedicated personnel for competitor analysis as well as internal marketing efforts.

Finally, managers also need to be aware that not all combinations of dimensions of market orientation are considered a panacea for generating novel and meaningful MP. Managers should further understand why combining some dimensions of MO may not, under certain situations, help in enhancing MP creativity. For example, the combination of CUO and XFI does not provide a synergistic effect on both MP novelty and meaningfulness, since some creative ideas collected in response to customer’s needs and expectations are often discounted by the high level of cross-functional integration, which provides checkpoints from the multiple perspectives in the team. Alternatively, the creative ideas that are generated through close and efficient communication and coordination in the cross-functional teams are often confronted by resistance to changes in marketing programs.

7. Limitations and direction for future research

Our research contributes to understanding the synergistic effect between the dimensions of MO on the generation of novel and meaningful marketing programs as well as the empirical validation of such interaction effects using 2SLS procedure. Our empirical results support the claim that different perspectives of MO should be, but not uniformly, combined to accelerate the generation of new market intelligence for products and programs (e.g., Gatignon and Xuereb, 1997).

However, the generalizability of our results is limited for the following reasons. First, our results may be idiosyncratic to the specific U.S. sample of firms that we collected data from in the high-tech industry. Thus, this study should be extended to other industry sectors such as consumer goods or services or to other countries in order to help generalize the findings. Second, although our study focuses on the interaction effects of dimensions of MO on the generation of novel and meaningful incentives for MPs, understanding of such effects on other innovation-related outcomes is limited. Further research is required to examine other innovation outcomes—i.e., types of innovations (incremental and radical innovations), and new product advantage—such that the relationships between dimensions of MO and innovation-related outcomes can be clarified.
Third, our data may still suffer from common method bias (CMB), which was caused by collecting both independent and dependent variables from the same respondent. As suggested by Podsakoff et al. (2003) we did ensure confidentiality and anonymity of the respondents to minimize, if not fully eliminate, the effects of CMB. Despite the fact that studies that test interaction effects may suffer less from method biases, future study needs to use dual respondents to avoid potential CMB. Finally, the 2SLS procedure we employed in this study to test interaction effects could be further validated by probing the consistency with alternative methods. In particular, since 2SLS uses a predicted value of a single indicator (usually a scaling variable) from the multi-item scale in the second stage of the estimation, we recommend that the significant main effects in 2SLS should not be directly compared to the results from interaction-term regression, path analysis, and structural equation model where a summated composite scale or a hierarchical latent construct from multi-item indicators is estimated. While we compared the results between 2SLS and OLS in a limited manner, a further study is called for examining the robustness of the results using different methods to test interaction effects.

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Appendix A. Measurement scale items

Marketing program novelty (7-point, 4-item scale, Cronbach’s α = 0.90)

Compared to your competitors, the marketing program associated with new product you selected

is really “out of the ordinary.”
can be considered as revolutionary.
provides radical differences from industry norms.
shows an unconventional way of solving problems.

Marketing program meaningfulness (7-point, 4-item scale, Cronbach’s α = 0.90)

Compared to your competitors, the marketing program, associated with new product you selected

is relevant to customers’ needs and expectations.
is considered suitable for customers’ desires.
is appropriate for customers’ needs and expectations.
is useful for customers.

Customer orientation (7-point, 5-item scale, Cronbach’s α = 0.85)

Our business objectives are driven primarily by customer satisfaction.
We constantly monitor our level of commitment and orientation to serving customers’ needs.

Our strategy for competitive advantage is based on our understanding of customers’ needs.
Our business strategies are driven by our beliefs about how we can create greater value for customers.
We measure customer satisfaction systematically and frequently.
We give close attention to after-sales service.*

Competitor orientation (7-point, 4-item scale, Cronbach’s α = 0.72)

Our salespeople regularly share information within our business concerning competitors’ strategies.
We rapidly respond to competitive actions that threaten us.
Top management regularly discusses competitors’ strengths and strategies.
We target customers where we have an opportunity for competitive advantage.

Cross-functional integration (7-point, 4-item scale, Cronbach’s α = 0.86)

Our top managers from every function regularly visit our current and prospective customers.
We freely communicate information about our successful and unsuccessful customer experiences across all business functions.
All of our business functions are integrated in serving the needs of our target markets.
All of our managers understand how everyone in our business can contribute to creating customer value.
All functional groups work hard to thoroughly and jointly solve problems.

Managerial encouragement to take risks (adapted from Jaworski and Kohli, 1993)

Top management expects employees to take risks when they propose new ideas for new products.
Top management believes that the higher financial risks involved in new product projects are worth taking for higher rewards.
Top management encourages the development of innovative marketing strategies, knowing well that some will fail.

*All items are measured by 7-point Likert-type scales.

References
