A TEST OF STRATEGIC ORIENTATION FORMATION VERSUS STRATEGIC ORIENTATION IMPLEMENTATION: THE INFLUENCE OF TMT FUNCTIONAL DIVERSITY AND INTER-FUNCTIONAL COORDINATION

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The authors argue that strategic orientation formation and strategic orientation implementation are different. The authors also assert that they require different levels of the same antecedents. More specifically, the proposed model posits that strategic orientation formation and implementation are a function of top management team's (TMT) functional diversity and inter-functional coordination. This two-stage model of strategic orientation suggests that on the one hand strategic orientation formation is about consensus making based on diverse views. Strategic orientation implementation underscores the significance of efficient and seamless operationalization of the strategic orientation formed in the first stage of the model. Data obtained from TMTs support our empirical results in that moderate to high TMT functional diversity and high inter-functional coordination are important in the strategic orientation formation stage while low to moderate TMT functional diversity and inter-functional coordination are critical in the implementation stage.

INTRODUCTION

Although members of a firm's dominant coalition ----- especially the chief executive-are presumed to have a generalist's view, each brings to his or her job an orientation that usually has developed from experience in some primary functional area. This functional-track orientation may not dominate the strategic choices an executive makes, but it can be expected to exert some influence (Hambrick and Mason 1984, p. 199).

The above quotation underscores the significance of top management teams (TMT) in strategic decision-making. This paper acknowledges the unequivocal role that TMTs play in influencing strategic orientations adopted by firms and its effect on firm performance. Other scholars share Hambrick and Mason's (1984) opinion; Webster (1988, p.37), for example, asserted that customer-oriented values and beliefs are uniquely the responsibility of top management.

Undeniably, the strategic posture a firm adopts and pursues is of utmost interest to marketing scholars and practitioners. The strategic orientation that a firm follows has been shown to

relate to greater firm performance. Yet, marketing scholars and practitioners alike are still striving to address what factors and their respective levels drive strategic orientation formation versus implementation (e.g., Menon et al. 1999, Noble and Mokwa 1999, White, Conant, and Echambadi 2003). What is needed is an integrated model that tests strategic orientation formation and implementation together. Our paper contributes to this stream of research by empirically validating a model that jointly tests strategic orientation formation and execution.

In accordance with Gatignon and Xuereb (1997, p. 78), we define strategic orientation as "the strategic directions implemented by a firm to create the proper behaviors for the continuous superior performance of the business." Their definition continues, asserting that "Three major strategic orientations of the firm can be identified from the list of factors that determine the success or failure of new products: customer, competitive, and technological orientations" (p. 78). To this end, our notion of strategic orientation reflects the organization wide and collective action of firms that are supported by successful communication, interpretation, adoption, and enactment of information. In this paper, we look at three different types of strategic orientations: customer, competitor, and technological orientation. Given the preceding considerations, we assert that a successful strategic orientation reflects effective implementation of the aforementioned processes (communication, interpretation, adoption, and enactment) manifested in certain strategic directions that enhance business performance.

Consequently, the purpose of our paper is to develop a two-stage model of strategic orientation. Menon et al. (1999) have suggested the importance of including strategy implementation along with strategy formation simultaneously in one model. We concur with their suggestion, and hence the two stages of our model refer to the formation and implementation of strategic orientation. The need for a distinct two-stage model rests on the belief that the success of strategy formation and strategy implementation demands different factors or the same factors at varying levels. Heterogeneity and diversity may be called upon to mold an exhaustive and complete strategy, but homogeneity and efficiency may be the critical factor in successfully executing what was formed.

The first stage of this paper outlines how a strategic orientation is developed and formed. To this end we extend the work of Menon et al. (1999) who have suggested comprehensiveness, cross-functional integration, and strategy consensus commitment, among others, as dimensions of marketing strategy making. Consequently, we include TMT functional diversity to reflect comprehensiveness and inter-functional coordination to reflect cross-functional integration and strategy consensus commitment in our first stage of the model. Our inclusion of TMT functional diversity is also consistent with the concern raised by Hart and Banbury (1994) who have asserted the important role of top mangers in influencing strategy formation.

The second stage underscores the importance of linking strategic orientation formation to firm performance. We assert that this will be determined by how well a strategic orientation is implemented. Noble and Mokwa (1999, p. 57) have viewed implementation as "a critical link between the formulation of marketing strategy and the achievement of superior organizational performance." Understanding this link is a critical move towards a full comprehension of strategy making. Scholars in the filed of market orientation have examined this link, scrutinizing whether or not the adoption of market orientation leads to superior firm performance (Narver and Slater 1990; Jaworski and Kohli 1993;Matsuno and Mentzer 2000). Inquiry into the consequences of strategic orientation is all too natural, since firms would appreciate a handsome return on the successful implementation of strategic orientation. Taken collectively, our conceptual model aims to test which factors contribute to strategic orientation formation versus strategic orientation implementation, and whether different levels of the same factors are equally important in the two stages.

Our work will fill a void in the literature, contributing to a deeper knowledge and understanding of how strategic orientations are formed versus implemented (e.g., is there any difference between customer orientation formation as opposed to customer orientation implementation, and if so, do firms need the same kind and level of factors to achieve this?). More specifically, to the best of our knowledge, our research is the first to address how TMT composition plays a role in shaping the strategic orientations formed and implemented by firms and how this role relates to firm performance. Strategic orientation formation cannot be left for frontline employees; it is a critical area that deserves top management attention. Several scholars have offered their support in incorporating TMTs in strategy decision-making (e.g., Westley and Mintzberg 1989; Hart 1992; Hart and Banbury 1994), and have called for more study in that area: our research, here, answers that call. Despite Kohli and Jaworski's (1990) and Jaworski and Kohli's (1993) explicit underscoring of the significance of senior executives in carving out and influencing strategic orientations some 10 years ago, no research to date has addressed this problem theoretically and empirically. Our paper is expected to further enhance knowledge in this particular domain.

To this end, our paper starts with a discussion of the distinction between strategic orientation formation and implementation. We then consider how TMT functional diversity and inter-functional coordination may play different roles in determining strategic orientation formation versus implementation. This is followed by empirical results that tested our two-stage model. We conclude by discussing theoretical and managerial implications along with study limitations and future research directions.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

We first begin by defining the difference between strategic orientation formation and strategic orientation implementation. As mentioned earlier, we define strategic orientation as the organization wide and collective action of firms that is supported by successful communication, interpretation, adoption, and enactment of information. This definition can be broken down into two parts: the adoption, interpretation, and communication of information, and the enactment, implementation, or execution of such information. We argue that the adoption, interpretation, and communication stage is consistent with the formation of strategic orientation. One of the key aspects of this first stage is the need to accommodate diverse perspectives, while at the same time arriving at a consensus of these multifaceted views. Knight et al. (1999, p. 453) define strategic consensus as "the similarity among TMT members' interpretations about the firm's strategic orientation." Our argument here is consistent with the claim advanced by Menon et al. (1999). They asserted that marketing strategy making should be not only comprehensive but also consensual. White et al. (2003) also shared a similar position by stating that an adequate number of marketing strategy development styles should be considered. The rationale for having a comprehensive and exhaustive strategy is to ensure that all potential opportunities have been considered.

Conversely, we posit that the enactment of such information corresponds closely to the implementation and execution phase of strategic orientation. Various definitions of strategy implementation have been suggested in the literature. For example, Wind and Robertson (1983) defined implementation as control and monitoring of the marketing program. Day and Wensley (1983) referred to implementation as the application of resources to strategy. Similarly, Cespedes (1991) argued that implementation is about the "how-to-do-it" aspects of marketing. More recently, White et al. (2003, p. 115) defined it as "the organization's competence in executing, controlling, and evaluating its marketing strategy." The implementation stage has been shown to be a key mediator between the number of marketing strategy development styles and firm performance (White et al. 2003).

Taken collectively, the two stages describe how organizational members collect, process, and disseminate information and, furthermore, how they act upon it. For example, TMT members may scan the market, obtain, and process customer related information. In due process, they will communicate with one another about the nature of such information and try to reach a consensus about the details and content of customer orientation. Once this first stage is complete, the organization moves on to implement what was agreed upon in stage one.

Our two-stage model asserts that varying levels of the same antecedents apply to the formation stage and the implementation stage. In other words, although identical drivers may be at work in the two stages, the extent to which some drivers may be needed more can vary between the two stages. In essence, we argue that it is a "matter of degree" that is at stake rather than a "matter of kind." We next discuss the two critical factors that are expected to shape and form strategic orientation formation and implementation. We subsequently offer our hypotheses for stage one (i.e., strategic orientation formation) followed by those for stage two (i.e., strategic orientation implementation).

TMT Functional Diversity

TMT functional diversity reflects the range of *specialists* (as opposed to *generalists*) in a TMT. A functionally diverse TMT indicates that members possess *depth* in their respective areas but not *breadth* across a range of other areas. Diversity has been embraced with the expectation that it will bring about a richer cognitive pool of ideas, experience, and knowledge. Thus, the benefit of diversity rests on the abundance and variety of information that are expected to be produced as a function of the heterogeneous perspectives. The various benefits that are derivatives of functional diversity reflect the managerial cognition or mental models of TMT constituents (Walsh 1995). Functional backgrounds are the lens through which TMT members view, interpret, and make sense of the business environment (Day and Lord 1992). Therefore, greater functional diversity should prevent myopic thinking and enhance broader problem-solving skills. Moreover, as functional diversity increases, we should expect the band of cognitive and mental maps of the TMT to expand which can prompt more creative, innovative, and cutting-edge solutions. In essence, we anticipate that TMT functional diversity will satisfy the need to consider top management and comprehensiveness in developing a strategic orientation.

Imagine the following scenario. TMTs of two firms, A and B, have 10 members each on their teams. However, the composition of the two teams is drastically different. The TMT of firm A is comprised of 5 executives with a marketing background and 5 executives with an engineering background. Conversely, the TMT of firm B is much more diverse in its representation of functional backgrounds in that it is comprised of 3 marketing executives, 2 finance executives, 2 engineering executives, and 3 law executives. Under such contrasting compositions, the diversity of information that can be produced by TMTs should be greater for firm B than that for firm A. Compared to homogeneous groups, heterogeneous groups are able to invoke broader and more creative skills, ideas, values, and views (e.g., Hambrick and Mason 1984; Hambrick, Cho, and Chen 1996; Carpenter and Frederickson 2001; Sethi 2000; Sethi, Smith, and Park 200; Bunderson and Sutcliffe 2002).

TMT functional diversity is no exception in that a TMT that is functionally diverse will be rewarded with innovation and creativity. To reflect this synergy between information diversity and innovation, the term "innoversity" has been

created (Justesen 2001). We argue that for effective strategic orientation formation to take place, diverse ideas, perspectives, and expertise are needed. Unless strategic orientation formation is supported by a functionality diverse TMT, a unidimensional approach may be mistakenly accepted. Put differently, the quality of strategic orientation may suffer unless inputs from multiple functional backgrounds are accommodated. Using data from the banking industry, Bantel and Jackson (1989) found that TMT functional diversity led to greater administrative innovativeness.

Despite the benefits and rewards of TMT functional diversity, it is not without its shortcomings. Knight et al. (1999, p. 453) found that greater functional diversity led to less strategic consensus. This result is consistent with the common voice in the literature that asserts the side effects of TMT functional diversity create more interpersonal conflict and less consensus. Hambrick, Cho, and Chen (1996) also asserted that greater heterogeneity is expected to create "dispersion in the group's perspective" which is counter to what is needed for strategic consensus. The theoretical framework that encompasses most of the costs associated with functional diversity rests on two theoretical arguments. The first is social categorization theory (Tajfel 1981; Turner 1987) and social identification theory (Turner 1982). The second is the similarity/attraction paradigm (Byrne 1971). Both of these arguments lead us to conclude that greater diversity and heterogeneity in teams create not only benefits but also problems.

Recall that TMT functional diversity reflects the various managerial cognitions possessed by TMT members (Walsh 1995). The bits and pieces of different functional diversity can create chaos when attempting to reach unanimity regarding strategic orientation formation. Unless functional diversity is integrated into a holistic fashion, functional diversity can impair the effectiveness of communication, coordination, cohesiveness, and collaboration. Going back to our example of the two firms A and B, mentioned earlier, firm B is much more functionally diverse than firm A. As a consequence, the more diverse functional backgrounds represented in firm B will reveal different, potentially conflicting, and incompatible mental maps of TMT members than firm A. Therefore, less agreement and consensus may surface as a problem among the TMT constituents.

Inter-functional Coordination

While we assert that TMT functional diversity is beneficial, because of the reasons cited above, a mechanism that simultaneously enhances benefits and subdues costs seems necessary. We argue that inter-functional coordination can be such a mechanism. We define inter-functional coordination as the integration and collaboration of multiple functional areas (or departments) within an organization (Narver and Slater 1990). Communication, coordination, collaboration, and cohesiveness are expected to improve as a result of inter-functional coordination. Inter-functional coordination captures the tendency for different functional areas to accommodate disparate views and work around conflicting perspectives and mental models by putting aside functional interests for the benefit of the whole organization. Our intention to include inter-functional coordination as an antecedent to strategic orientation stems from the argument proposed by Menon et al. (1999), who contend that cross-functional integration, communication quality, and consensus commitment are critical in developing a quality marketing strategy. We expect that for the above three to be effective, in addition to alleviating the downside of TMT functional diversity, inter-functional coordination becomes significantly important. We expect that inter-functional coordination will play a facilitating role in attenuating the costs associated with functional diversity. Taken collectively, we propose the following hypothesis:

H1: Strategic orientation (e.g., customer orientation, competitor orientation, and technological orientation) will be higher when TMT functional diversity and inter-functional coordination are both high versus moderate and low.

We have discussed the role of TMT functional diversity and its desirable level for forming strategic orientations. Next, we consider how the same factors affect strategic orientation implementation. For the purpose of our paper, we assert that strategic orientation implementation is concerned about the performance effect of strategic orientation. In other words, it looks at the strategic orientation-firm performance relationship. Our notion of strategic orientation implementation is consistent with that of Noble and Mokwa (1999, p. 57). They defined implementation as "a critical link between the formulation of marketing strategy and the achievement of superior organizational performance." This second stage of our conceptual model underscores the importance of not only strategic consensus in forming a strategic orientation, but also how strategic orientation is linked to firm performance. The central thesis of our second stage rests on the argument that once a strategic orientation has been formed through consideration of multiple and varying perspectives and inter-functional coordination, different levels of TMT functional diversity and inter-functional coordination will be required. We posit that at this second stage, low to moderate TMT functional diversity and inter-functional coordination are desirable.

While strategic orientation formation is a building process that can benefit from diverse mental models, strategic orientation implementation is an enactment process where efficiency is critical. Our argument concurs with that of White et al. (2003) who have shown that the relationship between the number of marketing strategy development styles and its implementation capability follows an "inverted U" relationship. In other words, implementation can suffer beyond a certain number of marketing strategy development styles due to time, costs, and control issues. Therefore, along similar lines, having a high

functionally diverse TMT at the implementation stage can inadvertently cause more harm than good.

A routine and standard process should facilitate the performance effect of strategic orientation. We consider a TMT that is relatively less functionally diverse to be effective for this purpose. One of the reasons for not realizing a performance effect of strategic orientation may be that despite a superior strategic orientation formation, its implementation may be laggard, thus curbing market delivery and commercialization. The former CEO of Apple Computers, Amelio, nicely conveys in the following analogy the significance of having less diversity (or difference) in the implementation stage:

"Apple is a boat. There's a hole in the boat, and it's taking on water. But there's also a treasure on board. And the problem is, everyone on board is rowing in *different* directions, so the boat is just standing still. My job is to get everyone rowing in the *same* direction so we can save the treasure" (Fortune 1997).

This quotation illustrates that it is essential for organizations to have less diversity and more uniformity when trying to move or implement an idea. To further support our expectations, Zaltman, Duncan, and Holbeck (1973) have suggested that participation improves the initiation stage of innovative behavior, but deters the implementation stage. Atuahene-Gima (2003) echoed similar claims, in that he found a negative effect of participation on new product development speed.

In addition to low TMT functional diversity, we expect inter-functional coordination to reduce its role in this stage. This prediction follows from the less significant role that TMT functional diversity has on strategic orientation implementation. Based on our earlier discussion about TMT functional diversity and inter-functional coordination, less inter-functional coordination will be needed in this stage due to the reduced need for functional diversity; Recall that inter-functional coordination becomes especially relevant under high TMT functional diversity. We do acknowledge, however, that at least a moderate level of inter-functional coordination may be necessary even at this stage as disagreements on implementation can surface. Taken collectively, we offer the following hypothesis:

H2: The association between strategic orientation (e.g., customer orientation, competitor orientation, and technological orientation) and firm performance will be higher when the levels of both TMT functional diversity and inter-functional coordination are low-to-moderate.

METHOD

Pretest, Sample, and Data Collection

The data used in this study comes from a larger project conducted in Australia. We first obtained a list of 750 SBUs operating in a variety of manufacturing industries from a private databank company. The list contained names and addresses of CEOs and/or senior executives of respective SBUs. We took this approach because SBU is typically a unit with autonomous resource allocation and decision-making authority (Gupta and Govindarajan 1984). Therefore, TMTs at this unit of analysis are expected to exert considerable influence on the nature of strategic orientation formation and execution. We selected CEOs and/or senior executives as key respondents of our survey for two reasons: first, these managers belong to the apex of the company and therefore are the most knowledgeable about the context of the project performed, second, they are also natural members of the TMTs.

Prior to the survey data collection, we conducted a pretest of the survey instruments on fifteen managers who were randomly selected from the list. Responses collected from the managers revealed that the survey items were appropriate and there was no need to modify any scale items and/or questions. Then, we moved onto the survey data collection phase.

We excluded the fifteen managers from our original list. We followed Dillman's (1978) Total Design Method. Consequently, we mailed our survey packages to a total of 735 managers, including a personalized letter outlining the overall purpose of our study, a booklet containing the survey items, and a postage-paid envelope with an individually typed return-address label. In an attempt to motivate managers to participate in our study, we offered them a summary report of the final results of our survey. After the first mailing, 160 surveys were returned. In addition, about four weeks after the first mailing, we initiated a second mailing by which we obtained 82 completed surveys. As a result of the two waves of mailing, we obtained a total of 242 usable questionnaires (i.e., 32.9 percent response rate).

We checked for the likelihood of nonresponse bias, using the extrapolation technique recommended by Armstrong and Overton (1977). We divided the total sample into two groups: those that were received before the second mailing, and those that were received after the second mailing. A mean comparison of each variable (i.e., t-test) revealed that the respondents were not different from nonrespondents.

Initial findings revealed the following demographic characteristics of the participating SBUs: (1) the average size was 681 full–time employees; (2) the SBUs represented a variety of industries, such as food, mining, automotive, construction materials, chemicals, etc.; (3) the average TMT size was 6.38 members with functional backgrounds in marketing (10.8 %), sales/customer service (11.5 %), finance/accounting (13.2 %), general management (14.6 %), human resources/personnel (5.1 %), information technology (3.2 %), operations/distribution/logistics (21.3 %), R & D (4.6 %), and administrative support (15.7 %); (4) 88 percent of TMT members were males and the average age was 45; (5) the average experience of TMT members with their employing organizations was 11 years; and finally, (6) 50 percent of TMTs had a team member representing the marketing function.

Measures

Functional diversity. We obtained numeric information on the functional background of the TMT members from key respondents. Consequently, the functional diversity measure we use is not subjective or perceptual but objective (for a perceptual measure of functional diversity, see Sethi 2000). Using the Herfindal-Hirschman index, which has been employed in the relevant literature (e.g., Ancona and Caldwell 1992), the following mathematical equation for each TMT was computed:

$$H = 1 - \sum p_i^2 \text{ where } i = 1 \rightarrow s \text{ and } s = 9$$

H = functional diversity
p_i = the percentage of TMT members in each functional area

We captured TMT members' functional backgrounds in nine general categories in order to be consistent with previous studies and to be able to infer comparable results (e.g., Simons, Pelled, and Smith 1999). The nine functional backgrounds included these categories: marketing; sales/customer service; finance/accounting; general management; human resources/personnel; information technology; operations/distribution/logistics; R & D; and administrative support. If a function was not represented (i = 0), its value was assigned a 0. Using the above equation, H can take on values ranging from 0 (low diversity) to 1 (high diversity).

Strategic orientations. The scales of customer orientation (six items) and competitor orientation (four items), and inter-functional coordination (five items) were taken from Narver and Slater (1990). Pretest results revealed that the original items of Narver and Slater's (1990) scales were adequate for the Australian context and there was no need to modify any scale item. Previous researchers have mostly examined the construct of market orientation without breaking it down into its sub-dimensions (i.e., customer orientation, competitor orientation, and interfunctional coordination). However, we took a decompositional approach to the construct of market orientation to explore more explicitly how the customer orientation and competitor orientation dimensions of market orientation are affected by functionally diverse TMTs (e.g., Gatignon and Xuereb 1997; Han, Kim, and Kim 2001; Noble, Sinha, and Kumar 2001). That is, it is most likely that the level of customer orientation and competitor orientation are differently affected by the level of TMT functional diversity and collapsing these two dimensions to form an index of market orientation may cause a misinterpretation of the influence of TMT functional diversity on customer orientation and competitor orientation.

Technological orientation was measured with two dimensions: new product development (three items), and commitment to R & D program (three items), which were taken from Han, Kim, and Kim (2001). Table 1 indicates the list of items used to measure the three dimensions of market orientation and the two dimensions of technological orientation.

SBU performance. We measured SBUs' performance using both financial and nonfinancial measures. We included two financial measures of business performance that can be characterized as lagging indicators: return on sales (ROS) and return on assets (ROA). A measure of SBU's overall market position serves to capture the SBU's effectiveness perspective (e.g., Vorhies and Morgan 2003), while overall efficiency of operations represents the learning and growth component of SBU performance. All performance variables were measured on a five-point, self-anchoring scale (1-much worse; 3- same; 5- much better) that reflected perceptual measures of the SBU's performance relative to principal competitors over the last 3 years. These relative performance measures are single-items, similar to those found in previous studies (e.g., Jaworski and Kohli 1993; Matsuno and Mentzer 2000; Matsuno, Mentzer, and Ozsomer 2002; Narver and Slater 1990; Noble, Sinha, and Kumar 2002). In addition, prior studies have demonstrated statistically significant correlations between perceptual and objective measures of performance (e.g., Pearce, Robins and Robinson 1987), indicating that perceptual ratings of performance can be considered as reliable indicators.

Measures Assessment

First, we conducted an exploratory factor analysis (EFA). The results of the EFA revealed two things: one, there was no need to delete any scale items based on poor factor loadings and/or cross-loadings; and two, seven factors with eigenvalues greater than 1.0 accounted for 80 percent of the total variance with the first factor accounting for only 21 percent of the variance.

Next, we followed a two-step procedure to estimate the measurement model and to check for reliability and validity of the multi-item constructs (Anderson and Gerbing 1988). Using LISREL 8.3 (Jöreskog and Sörbom 1996), we estimated the

TABLE 1
CONFIRMATORY FACTOR ANALYSIS

Constructs	Factor loadings	t-values
Customer orientation (Narver and Slater 1990)		
(1- strongly disagree; 5-strongly agree) (=.85, CR = .86; AVE = .51)		
Our business objectives are driven by customer satisfaction	.778	11.03
We closely monitor and assess our level of commitment in serving customers' needs	.737	10.72
Our competitive advantage is based on understanding customers' needs	.748	10.82
Business strategies are driven by the goal of increasing customer value	.796[a]	-
We frequently measure customer satisfaction	.635	9.09
We pay close attention to after-sale-service	.578	7.80
Competitor orientation: (Narver and Slater 1990)		
(1- strongly disagree; 5-strongly agree) (=.79, CR = .80; AVE = .50)		
In our organization, our salespeople share information about competitor information	.777[a]	-
We respond rapidly to competitive actions	.745	11.24
We regularly discuss competitors' strengths and weaknesses	.659	10.32
Customers are targeted when we have an opportunity for competitive advantage	.626	9.64
Inter-functional coordination: (Narver and Slater 1990)		
(1- strongly disagree; 5-strongly agree) (=.78; CR = .79; AVE = .43)		
Our top managers from each function regularly visit customers	.619[a]	-
Information about customers is freely communicated throughout our organization	.692	8.54
Business functions are integrated to serve the target market needs	.708	9.82
Our managers understand how employees can contribute to value of customers	.632	7.72
We share resources with other business units	.627	7.03
New product development: (Han, Kim, and Kim 2001)		
(1- strongly disagree; 5-strongly agree) (=.85; CR = .86; AVE = .67)		
We use the latest technologies in new product development	.904	12.34
Our products are on the leading edge of the industry standards	.821	12.05
We systematically scan for new technologies inside and outside the industry	.720[a]	-
Commitment to R & D program: (Han, Kim, and Kim 2001)		
(1- strongly disagree; 5-strongly agree) (=.80; CR = .81; AVE = .59)		
Significant portions of profit are reinvested in research and development	.878	11.43
We use incentive system for R & D personnel for new patents	.607	9.34
Regular R & D meetings are attended by all top executives	.786[a]	-

[a] Initial loading was fixed to 1 to set the scale of the construct.

Notes:

1. t-values are significant at $p < .001$.
2. CR-composite reliability; AVE- average variance extracted.

measurement model via confirmatory factor analysis (CFA) that consisted of competitor orientation, customer orientation, the two dimensions of technological orientation (i.e., new product development and commitment to R & D), and inter-functional coordination. CFA revealed that all factor loadings were higher than .40, normalized residuals were less than 2.58, and modification indices were less than 3.84 (Anderson and Gerbing 1988). The measurement model was a good fit to the data: ($\chi^2_{(179)} = 336.1$, GFI = .91, TLI = .91, CFI = .92, PNFI = .62, RMSEA = .06 [lower bound = .04, upper bound = .07]). We report the reliability estimates (Cronbach's alpha, composite reliability, and average variance extracted) for the constructs in Table 1.

CFA also revealed that all the estimated coefficients of the indicators were significant (t > 2.0) (Gerbing and Anderson 1988) and all the estimates for the average variance extracted (AVE) were equal to or higher than .50, except for inter-functional coordination (Bagozzi and Yi 1988). Consequently, the convergent validity of the constructs was supported. To check for discriminant validity, we performed a chi-square difference test for every pair of constructs in our model. For every pair, we compared the unconstrained model with the constrained model in which the correlation between any two constructs was set to one. For example, the test for discriminant validity between competitor orientation and customer orientation ($\chi^2_{(1)} = 21.3$; $p < .001$) showed a significant chi-square difference, supporting discriminant validity.

Because we measured technological orientation using two subdimensions (new product development and commitment to R & D program), we performed a second-order CFA. The results revealed that new product development (loading = .97, t-value = 12.67, $p < .001$, $R^2 = .87$) and commitment to R & D program (loading = .86, t-value = 10.99, $p < .001$, $R^2 = .79$) were first-order indicators of the second-order construct of technological orientation ($\chi^2_{(9)} = 21.05$, GFI = .95, TLI = .93, CFI = .96, PNFI = .60, RMSEA = .04 [lower bound = .02, upper bound = .06]). Factor loadings ranged between .72 and .90 and were statistically significant (t > 2.00). Cronbach's

TABLE 2
DESCRIPTIVE STATISTICS AND INTERCORRELATIONS (N = 242)

Variables	1	2	3	4	5	6	7	8	9
1. Functional diversity	-								
2. Customer orientation	-.02	-							
3. Competitor orientation	.08	.58	-						
4. Inter-functional coordination	.03	.75	.51						
5. Technology orientation	-.03	.52	.39	.44	-				
6. ROS	.23	.07	.05	.05	.18	-			
7. ROA	.21	.09	.07	.10	.15	.79	-		
8. Overall efficiency	.21	.28	.24	.31	.37	.52	.59	-	
9. SBU market position	-.05	.32	.17	.24	.35	.42	.33	.51	-
Mean	.73	3.89	3.97	3.78	3.15	3.62	3.60	3.83	4.09
Standard deviation	.17	.69	.61	.62	.81	1.02	.99	.80	.75

Correlations above .10 are significant at $p < .05$.

alpha values were .85 for new product development and .80 for commitment to R & D program. The composite reliability coefficients were .86 and .81 for new product development and commitment to R & D program, respectively and the AVE values were 67 % for new product development and 59 % for commitment to R & D program. Overall, the findings revealed that the two subdimensions of new product development and commitment to R & D program could be aggregated to form a second-order construct of technological orientation (e.g., Han, Kim, and Srivastava 1998). We report the means, standard deviations, and inter-correlations for the constructs in Table 2.

ANALYSES AND RESULTS

In this study, we posit that the interaction between TMT functional diversity and inter-functional coordination will influence (1) the level of the three types of strategic orientation (i.e., customer orientation, competitor orientation, and technological orientation) and (2) the relationship between these three types of strategic orientation and firm performance. It is most likely that the firms in our sample will show different characteristics in terms of the varying levels of TMT functional diversity and inter-functional coordination. Hence, it is essential to cluster the firms in our sample to examine the incidence of uniformity or disparity concerning the importance of TMT functional diversity and inter-functional coordination among the firms in our sample (Grove, Fisk, and Dorsch 1998). This approach will also enable us to investigate the corresponding levels of strategic orientations and the performance effect of strategic orientations more explicitly. To test our hypotheses, we conducted cluster analysis, multivariate analysis of variance (MANOVA), and univariate analysis of variance (ANOVA). Previous studies have employed similar approaches to test their hypotheses (e.g., Bowen 1990; Kotabe and Duhan 1993; Grove, Fisk, and Dorsch 1998).

Cluster Solutions

We employed the Ward's method with the squared Euclidean distance measure to cluster the constructs of functional diversity and inter-functional coordination. Jambulingam, Kathuria, and Doucette (2005) suggest that the Ward's method has several advantages in terms of its robustness, ability to recover known cluster structure, and capability to maximize within and between cluster heterogeneity. Miller and Roth (1994, p. 290) point out that "[O]ne thorny problem with cluster analysis is the determination of the most appropriate number of clusters." As with most models, the goal is to obtain a balance between parsimony and accuracy that best reflects the nature of the data (Jambulingam, Kathuria, and Doucette 2005).

Lehmann (1979) suggests using sample size (n) to assist in arriving at the final number of clusters that "n/50 gives a tentative boundary on the maximum number of clusters" (p. 570-571). According to this rule, our final number of clusters should be maximum five. Then, we followed the procedure employed by Jambulingam, Kathuria, and Doucette (2005). First, we ran a hierarchical clustering model to generate a dendogram, which graphically illustrated how the firms grouped into four and five clusters. Second, in order to obtain confidence in the stability of membership in the clusters, we conducted two iterations of the Ward's method with the number of clusters set at four and five. When we compared the four solutions, we confirmed that cluster membership was stable across solutions. Taking the three tests collectively and for reasons of parsimony, we concluded that the four-cluster solution identified by the Ward's method was robust enough to further pursue our analysis (e.g., Jambulingam, Kathuria, and Doucette 2005). Table 3 indicates the results of our cluster analysis.

Cluster 1: This cluster of 106 firms had a mean functional diversity value of .76, which was slightly above the grand mean (.73). The mean value of inter-functional coordination was 4.07, which was well above the grand mean and second to that of Cluster 3. The range of functional diversity was from .38 to .97 while that for inter-functional coordination was between 3.80 and 4.40. Taking these into consideration, we can state that firms in Cluster 1 had a moderate level of functional diversity and a inter-functional coordination. Hence, we label these firms "conservative."

TABLE 3
CLUSTER SOLUTIONS

Clusters/Variables	Cluster 1 n = 106	Cluster 2 n = 84	Cluster 3 n = 28	Cluster 4 n = 20	ANOVA	Tukey HSD
Functional diversity (FD)	.76 (.38-.97)	.73 (.38-.98)	.78 (.63-.96)	.71 (.38-.89)	198.76 (< .001)	3>2,4 1>2,4
Inter-functional coordination (IC)	4.07 (3.80-4.40)	3.35 (3.00-3.60)	4.79 (4.60-5.00)	2.60 (2.20-2.80)	573.84 (< .001)	3>1,2,3 1>2,4 2>4
Classification of clusters	Moderate FD Moderate IC	Moderate FD Low IC	High FD High IC	Low FD Low IC		
Label of clusters	Conservative	Common	Superior	Dwindling		

Entries are mean values and those in parentheses are maximum-minimum values.

luster 2: This cluster of 84 firms had a mean functional diversity value of .73 and a mean inter-functional coordination value of 3.35. The mean value of functional diversity was equal to the grand mean and the mean value of inter-functional coordination was below the grand mean (3.78). The range of functional diversity (.38-.98) was similar to that of Cluster 1. Based on these characteristics, we can conclude that Cluster 2 had a moderate level of functional diversity and a low level of inter-functional coordination. Hence, we label these firms "common."

Cluster 3: This cluster of 28 firms had a mean functional diversity value of .78 and a mean inter-functional coordination value of 4.79. The mean values of functional diversity and inter-functional coordination were the highest among the four clusters. Compared to Clusters 1 and 2, the range of functional diversity (.63-.96) was smaller. Taking these characteristics into consideration, Cluster 3 had a high level of functional diversity and a high level of inter-functional coordination. Hence, we label these firms "superior."

Cluster 4: This cluster of 20 firms had a mean functional diversity value of .71 and a mean inter-functional coordination value of 2.60. The mean values of functional diversity and inter-functional coordination were the lowest of the four clusters. The range of functional diversity was similarly broad ranging from .38 to .89. Conclusively, Cluster 4 can be characterized as firms with the lowest level of functional diversity and the lowest level of inter-functional coordination. Hence, we label these firms "dwindling."

We compared the cluster centroids to determine how the clusters differ. To do so, we employed MANOVA and ANOVA tests where the clusters were the independent variables and the variables used in the cluster analysis (i.e., functional diversity and inter-functional coordination) were the dependent variables. We found that the levels of functional diversity and inter-functional coordination were not equal across the four clusters (Wilks' λ = 150.2; $p < .001$). This led us to further pursue the differences in mean values for each of the clusters by employing ANOVA. We found that there were significant differences across the four clusters in terms of the level of functional diversity and inter-functional coordination (for inter-functional coordination F = 573.94, $p < .001$; for functional diversity F = 31.22, $p < .001$). More specifically, in terms of functional diversity, conservative and superior firms were significantly higher than common and dwindling firms. In terms of inter-functional coordination, superior firms were significantly higher than conservative, common, and dwindling firms, while conservative firms were significantly higher than common and dwindling firms, and common firms were significantly higher than dwindling firms (Table 3).

Next, we examined other differences between the clusters using demographic profiles of firms based on firm size, TMT size, TMT educational diversity, TMT age diversity, TMT gender diversity, and TMT experience diversity. Table 4 indicates the results of demographic differences across clusters. We found that there were significant differences across the four clusters (Wilks' λ = 2.37; $p < .001$). More specifically, ANOVA results revealed that dwindling firms were significantly larger than conservative, common, and superior firms (F = 5.86, $p < .001$). Firms in dwindling firms had significantly larger TMT than common firms (F = 3.78, $p < .01$). Superior firms had a higher level of TMT gender diversity than common firms (F = 4.40, $p < .01$). Dwindling firms had a higher level of TMT experience diversity than common and superior firms (F = 3.67, $p < .01$). In addition, dwindling firms had a higher level of TMT educational diversity than superior firms (F = 3.98, $p < .01$). We did not find a significant difference across clusters in terms of TMT age diversity.

Hypotheses Tests

To test Hypothesis 1, we ran a MANOVA where the null hypothesis states that the four clusters are equal across our three dependent variables, customer orientation, competitor orientation, and technological orientation. We found that the four clusters were not equal across the three dependent variables (Wilks' = 14.04; $p < .001$). This led us to further pursue the differences in mean values for each of the dependent variables by employing ANOVA.

TABLE 4
DEMOGRAPHIC DIFFERENCES ACROSS CLUSTERS

Clusters/Variables	Conservative Firms n = 106	Common Firms n = 84	Superior Firms n = 28	Dwindling Firms n = 20	ANOVA	Tukey HSD
Firm Size (log) Mean = 2.34 sd = 1.17	2.29	2.26	2.37	2.84	5.86 (< .001)	4>1,2,3
TMT size Mean = 6.36 Sd = 2.26	6.30	6.17	6.71	7.00	3.78 (< .01)	4>2
TMT gender diversity Mean = .13 Sd = .13	.13	.09	.19	.13	4.40 (< .01)	3>2
TMT age diversity Mean = .17 Sd = .06	.17	.17	.19	.17	1.44 (ns)	-
TMT experience diversity Mean = .69 Sd = .28	.65	.71	.71	.58	3.67 (< .01)	4<2,3
TMT educational diversity Mean = .38 Sd = .22	.39	.38	.34	.44	3.98 (<.01)	4>3

Table 4 presents the result of ANOVA. We report the results of Hypothesis 1 for customer orientation followed by competitor orientation and technological orientation. First, for customer orientation and competitor orientation, we found that there were significant differences across the four clusters (for customer orientation F = 33.90, $p < .001$; for competitor orientation F = 31.22, $p < .001$). More specifically, according to Hypothesis 1, superior firms should be the highest while dwindling firms should be the lowest. Finally, conservative and superior firms should be greater than common and dwindling firms. Conservative firms were higher than common and dwindling firms but lower than superior firms. Also, common firms were greater than dwindling firms but less than superior firms. Superior firms were greater than dwindling firms. Taken collectively, Hypothesis 1 was supported for customer orientation and competitor orientation. Second, for technological orientation, the results were very similar in that dwindling firms were lower than conservative and common firms, while superior firms were greater than conservative and common firms ($F = 15.81$, $p < .001$). Therefore, Hypothesis 1 was also supported for technological orientation.

To test Hypothesis 2, we conducted a correlation analysis by employing a Fisher's r-to-z transformation (http://davidmlane.com/hyperstat/A50760.html). Based on Hypothesis 2, we tested for the difference between conservative and common firms against superior and dwindling firms expecting the correlations to be greater for conservative and common firms compared to superior and dwindling firms. Table 5 indicates the results of correlations between the three types of strategic orientation and the dependent variables. Accordingly, for technological orientation, when ROA was the dependent variable, common firms were significantly higher than superior and dwindling firms; when ROS, overall efficiency and market position were the dependent variables, however, our hypothesis was not supported. Consequently, Hypothesis 2 was supported only for the dependent variable of ROA.

For customer orientation, when ROS and ROA were the dependent variables, dwindling firms were significantly higher than other firms. However, when market position and overall efficiency of operations were the dependent variables, superior firms were significantly higher than other firms. This finding was opposite to our hypothesis. Hence, Hypothesis 2 was supported for customer orientation only for the dependent variables of ROS and ROA.

For competitor orientation, when ROS was the dependent variable, dwindling firms were significantly higher than other firms. For the other dependent variables no support was found. Therefore, Hypothesis 2 was supported only when ROS was the dependent variable.

DISCUSSION

The goal of this research was to test a two-stage model of strategic orientation formation and implementation. Drawing on upper echelon theory and the strategy development literature, we argued that TMT functional diversity and inter-functional coordination are two key factors in influencing strategic orientation formation and execution. We concept-

TABLE 5
MEAN STRATEGIC ORIENTATIONS BY CLUSTERS

Dependent variable	Conservative Firms n = 106	Common Firms n = 84	Superior Firms n = 28	Dwindling Firms n = 20	F (p-value)	Tukey HSD
Customer orientation	4.06	3.66	4.52	3.00	33.90 (< .001)	(1 > 2, 4) (2 > 4) (3 > 1, 2, 4)
Competitor orientation	4.09	3.77	4.57	3.25	31.22 (< .001)	(1 > 2, 4) (2 > 4) (3 > 1, 2, 4)
Technological orientation	3.24	2.98	3.79	2.40	15.81 (< .001)	(3 > 1, 2) (4 < 1, 2)

TABLE 6
CORRELATION ANALYSIS

Dependent variables	Clusters	Customer orientation	Competitor Orientation	Technological Orientation
Return-on-sales	Cluster 1	.03	-.01	.11
	Cluster 2	-.13	-.13	.22*
	Cluster 3	.21	.16	.24
	Cluster 4	.51*	.55*	.24
Return-on-assets	Cluster 1	-.02	-.04	-.02
	Cluster 2	-.08	-.03	.26*
	Cluster 3	.25	.22	.21
	Cluster 4	.50*	.00	.20
Overall efficiency of operations	Cluster 1	.14	.12	.25**
	Cluster 2	-.02	-.04	.25*
	Cluster 3	.47*	.22	.40*
	Cluster 4	.31	-.11	.41
Market position	Cluster 1	.22*	.14	.26**
	Cluster 2	.07	-.25*	.34**
	Cluster 3	.60**	.59**	.59**
	Cluster 4	.59**	.23	.02

* $p < .05$; ** $p < .01$

ually distinguished strategic orientation formation from strategic orientation implementation, and found that different levels of TMT functional diversity and inter-functional coordination are required for the two stages. Our results showed that customer, competitor, and technological orientation were higher when TMT functional diversity and inter-functional coordination both were moderate to high. In fact, the three strategic orientations were the highest in the superior cluster and lowest in the dwindling cluster. This attests to our claim that in the strategic orientation formation stage, multiple and heterogeneous views are welcomed as long as they are accompanied by ample inter-functional coordination. This result supports the argument that strategic orientation demands comprehensiveness and cross-functional integration, communication quality, and consensus. The fact that TMT functional diversity and inter-functional coordination go hand-in-hand is no surprise given that in order to accommodate heterogeneous perspectives and to be comprehensive, different opinions may emerge and even clash. To reassure order and consensus, communication and cross-functional coordination become essential.

For strategic orientation implementation, however, our hypothesis received mixed support. When the dependent variables were return on sales and return on assets (both financial performance measures that focus on efficiency), our hypothesis received support. For example, the strongest association between customer orientation, competitor orientation, and return on sales occurred in the cluster of dwindling cluster. For technological orientation, the strongest association was observed in the cluster of common firms. When return on assets was the firm performance measure, similar results were obtained, except for competitor orientation where no association was found. Taken collectively, these findings support our expectation that in the strategic orientation implementation stage, when the firm performance measures are financial based measures that underscore

efficiency, less TMT functional diversity and inter-functional coordination are needed.

Results were not as consistent however when the firm performance measures were more market-based, such as overall efficiency of operations and market position. In fact, the strongest association between the three strategic orientations and overall efficiency of operations and market position occurred in the cluster of superior firms. This is an interesting finding, as the results suggest the opposite of what we had expected in the implementation stage. Contrary to the financial efficiency based measures where we received support, the market-based measures of firm performance seemed to benefit from the implementation of strategic orientation when TMT functional diversity and inter-functional coordination were both high. This implies that less of a distinction occurs between the formation and implementation stages of strategic orientation when the firm performance measures are more market-based because the combination of TMT functional diversity and inter-functional coordination does not change across the two stages. A potential explanation could be that financial efficiency measures are objective and straightforward, furthering the argument that increased homogeneity and decreased coordination across functions are necessary. Conversely, for market-based firm performance measures, because they are relatively more subjective, firms may need to carry through their high TMT functional diversity and inter-functional coordination beyond their formation stage to the implementation stage.

Our research adds to the growing body of evidence documenting what organizations can do to adequately develop and implement strategies. Our results contribute to the marketing strategy literature by understanding the ideal composition of personnel that champions such strategic orientations. Our results provide first-hand empirical support of how TMT functional diversity influences customer, competitor, and technological orientation formation versus execution. Jaworski and Kohli (1993) stated the importance of top management on the development of market orientation. Our study extends this framework by explicitly considering TMT functional diversity and the accompanying role of interfunctional coordination not only on the formation of strategic orientation, but also on the implementation of strategic orientation. Therefore, the theoretical contribution of our study demonstrates how the same factors that contribute to the two-stages of strategy making differ in their respective levels in determining the development and execution of strategic orientation.

In summary, our research has shown that strategy formation is about incorporating divergent views and multiple perspectives. Conversely, strategy implementation is about executing efficiently what was agreed upon in strategy formation. Whereas moderate-to-high TMT functional diversity pays off in forming a strategy, this diversity becomes a bottleneck for strategy execution, at least when the firm performance measures are financial and efficiency based.

Our findings also have implications for managers. Firms may need two different TMTs that are comprised of varying degrees of functional diversity such as a strategy formation team versus a strategy execution team where the former is made up of individuals from heterogeneous functional backgrounds, while the latter is comprised of members from homogeneous functional backgrounds. In today's business world, firms are pushed to be more market driving as opposed to merely market driven (Jaworski, Kohli, and Sahay 2000; Carrillat, Jaramillo, and Locander 2004). Or as Narver, Slater, and MacLachlan (2004) put it, proactive relative to responsive market orientation is needed to uncover latent customer needs. To accomplish a market driving or a proactive strategic orientation, firms sometimes construct what are known as "skunkworks." These skunkworks are groups that are formed to encourage creativity and innovative thought. Such groups intentionally work outside the confines of normal business routines and practices to generate fresh ideas for strategy development. We believe that TMT functional diversity and inter-functional coordination can become essential in achieving such goals. For example, firms such as Dell utilize the Global Diversity Leadership Council and Career Quest to underscore the significance of diversity in today's business environment. Lucent Technologies Canada, Inc. also understands the importance of diversity by trying to integrate diversity with innovativeness (Innoversity Network 2000).

Furthermore, in addition to functional diversity, other diversities exist, such as race, gender, experience (tenure), and education. In this study, only functional diversity was examined. From a practical standpoint, however, multiple diversities can interact and be combined. A particular diversity may mesh better with some than with others; a particular mix of diversity may be well suited for strategic orientation formation while another combination may be more effective for execution. For example, the combination of TMT functional diversity and TMT race diversity may work well for strategic orientation formation, whereas TMT experience diversity and TMT gender diversity may be especially effective for implementation purposes. A particular type of diversity can be extremely beneficial for strategic orientation formation while the same diversity may prove to be detrimental to strategic orientation implementation. Finding the optimal combination of diversities that are more effective for strategic orientation formation versus implementation can be a key success factor. The interplay of diversity is a critical question for managers, and should be explored in further detail.

This study's limitations provide potential avenues for future research. For example, if strategy orientation execution falls short of expectations, do firms go back to revise their strategic orientation formation, or do they change the level of TMT functional diversity and inter-functional coordination? Also,

if a strategy is ill formed, how will this impact strategy execution? Will the low level of TMT functional diversity and inter-functional coordination be equally effective in such cases? In this study, we have deliberately argued for a two-stage model of strategic orientation formation versus implementation. In other words, we have made a clear-cut distinction between the two stages. In reality, however, the process may not be so linear and discrete, for reciprocity may be at work. Our study does not capture the dynamics of the interplay between the two stages. Future researchers may want to explore if indeed such a reciprocal relationship exists. Moorman and Miner (1998) provide a concept called improvisation in a new product development context where convergence of marketing strategy composition and execution is realized. In line with the above argument, more research is needed to uncover whether the combination of TMT functional diversity and inter-functional coordination changes, and if so, why across the strategy formation and implementation state, depending on whether the firm performance measures are financial or market-based. The current research was not able to answer such questions, but future studies may delve into this matter.

Strategic orientation formation is about arriving at a quality decision by incorporating multiple views, while execution is about following through on a given process based on the decision agreed upon in the formation stage. TMT functional diversity will incur costs such as mediocre performance on communication, collaboration, and cohesiveness. However, we did not have explicit items to measure such process variables that can function as mediators in expanding our knowledge into *how* TMT functional diversity affects strategic orientation formation and execution. Admittedly, this is a limitation of the study, and future studies should measure such process type variables as debate or communication quality to enhance our understanding of what actually occurs in the "black box" of strategy-making. Consequently, models that include process variables such as conflict management, power or communication effectiveness, in addition to our inter-functional coordination, will paint a more complete picture of the formation and the implementation process.

Our findings for H2 received mixed support: our study was not able to cluster the different types of strategic orientations. It may very well be that the level of TMT functional diversity and inter-functional coordination, when considering strategic orientation implementation, is more relevant for certain clusters of strategic orientation than others. Finally, we only covered one particular type of TMT diversity. The literature reports other types of TMT diversities such as experience, educational, race, and gender diversity. Future studies should include these diversities, and the interaction between such diversities. This will inform managers about which types of diversities to bundle and which ones to debundle depending on whether the focus is on strategic orientation formation or implementation.

CONCLUSION

The strategic direction of a firm determines its destiny and hence is of the utmost importance. This paper, using foundations from upper echelon and diversity theories, has contributed to the understanding of strategic orientation formation and implementation. In particular, we looked at three different types of strategic orientations (customer, competitor, and technological). Our findings support the claim that TMT functional diversity and inter-functional coordination play different roles in strategy formation versus execution. While moderate-to-high TMT functional diversity and inter-functional coordination were necessary for strategic orientation formation, lower levels were required for strategic orientation execution when firm performance was focused on financial efficiency. Although some academics and practitioners have contested that formation and implementation occur concurrently and little distinction is warranted (our results from H2 when firm performance was market-based actually provided support for this), our results yield a different story when firm performance is financially oriented, and suggest that different levels of diversity and inter-functional coordination are appropriate. Our study takes a small step forward in addressing the elusive conceptual distinction between strategy development and implementation. We hope future studies build on the present one to expand our knowledge in this important domain.

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