RESEARCH NOTES AND COMMENTARIES

MARKET ORIENTATION AND PERFORMANCE: AN INTEGRATION OF DISPARATE APPROACHES

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A series of five Strategic Management Journal *articles has debated several issues concerning the role of market orientation in shaping firm performance. This debate has defined market orientation as a cultural emphasis. Yet, a large body of research in the marketing field views market orientation as an emphasis on certain market information-processing activities. Using data from 217 firms, we test a model that includes both cultural and information-processing elements. The findings suggest that both approaches to market orientation help explain performance, but their effects are mediated by organizational responsiveness. Thus, researchers should not only account for both definitions of market orientation, but they should also investigate market orientation in combination with other important performance antecedents.* Copyright © 2005 John Wiley & Sons, Ltd.

A series of *Strategic Management Journal* articles has discussed the market orientation concept (Christensen and Bower, 1996; Connor, 1999; Hult and Ketchen, 2001; Slater and Narver, 1998, 1999). Debate has surrounded several important issues, including the difference between market and customer orientations and whether customer orientation may breed inertia under technological turbulence. Our paper focuses on one main question: How does market orientation contribute to performance? This is perhaps the key question within the debate, given that many authors view the quest to explain performance as the cornerstone of the strategic management field (e.g., Rumelt, Schendel, and Teece, 1994).

The evolving debate is missing a key element. Specifically, discussion has proceeded as if Narver and Slater's (1990) view of market orientation as the extent to which culture is devoted to meeting customers' needs and outwitting competitors is widely accepted in the marketing field. It is not. A second camp pioneered by Kohli and Jaworski (1990) defines market orientation as the priority placed on generating, disseminating, and interpreting information about customer needs (cf. Sinkula, 1994). To date, the *SMJ* debate has ignored the latter view. As a result, strategic management may possess an incomplete understanding of how market orientation contributes to performance. This paper is intended to help fill this gap. Specifically, we develop and test a model that incorporates both elements.

THEORETICAL FRAMEWORK AND HYPOTHESES

The resource-based view of the firm (RBV) serves as our overarching theoretical framework. The RBV contends that a firm's resources influence performance. Resources are defined as physical assets, intangible assets, and organizational capabilities that are tied semi-permanently to the firm (Wernerfelt, 1984). The view centers on unique resources (e.g., patents, reputations, and market-focused capabilities) that are difficult for competitors to replicate and thus can provide a foundation for superior performance (Barney, 1991). Our hypotheses link market orientation, market information processing (MIP), organizational responsiveness, and performance. Tied to the RBV, our contention is that the three antecedents may not be unique resources individually, but that the confluence of these constructs can create a unique *strategic marketing resource*; the market-focused firm is not a collection of independent elements but a system of interdependent parts (cf. Slater and Narver, 1998).

Our first prediction links market orientation and responsiveness. Market orientation is an ideology that places the highest priority on the creation and maintenance of superior customer value, and that urges employees to develop and exploit market information (Narver and Slater, 1990). Responsiveness is a firm's propensity to act based on knowledge gained (Jaworski and Kohli, 1993).

Drawing from Narver and Slater (1990), market orientation is composed of three subcomponents: customer orientation (understanding customers' needs and wants), competitor orientation (understanding rivals' strengths and weaknesses and how they are satisfying customers' needs and wants), and interfunctional coordination (the firm-wide use of the organization's resources in creating superior customer value). According to Day (1994: 43), these elements collectively support 'the value of thorough market intelligence and the necessity of functionally coordinated actions directed at gaining a competitive advantage.' We agree that cultural elements can be vital to attaining a competitive advantage, but they cannot be expected to shape performance directly. Customers do not purchase a firm's goods and services simply because the firm has a particular type of culture. Instead, market orientation encourages employees to act on the knowledge developed about customers' needs

in order to better serve customers. Thus, our initial prediction is:

Hypothesis 1: Market orientation is positively related to organizational responsiveness.

Our second hypothesis links MIP[1] and organizational responsiveness. Kohli and Jaworski's original conceptualization included responsiveness along with information generation and dissemination as part of their construct. In Jaworski and Kohli (1993), however, these authors suggest a causal link from generation and dissemination on one hand and responsiveness on the other. Sinkula (1994) augmented MIP's conceptualization by arguing that shared interpretation is central to a market orientation. Specifically, information can be effectively acted upon only if a common understanding of that information has been developed (see also Slater and Narver, 1995). Thus, in our study, MIP encompasses generation of information pertaining to customer's needs, dissemination of that information organization-wide, and the process by which shared interpretation of the information arises.

We concur with Day (1994) that information-processing abilities are (1) critical due to acceleration of change, the explosion of available market data, and the importance of anticipatory action; and (2) a source of competitive advantage due to their value in numerous activities, their difficulty to achieve, and the difficulty that competitors have imitating them. However, we do not expect MIP to directly influence performance. Instead, the activities associated with MIP allow the firm to enact better actions, which in turn should enhance performance (see Hypothesis 3 below). The expectation that information-processing activities shape actions that then shape performance is consistent with extant sense-making research (e.g., Thomas, Clark, and Gioia, 1993). Thus, our second prediction is:

Hypothesis 2: Market information processing is positively related to organizational responsiveness.

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[1] While devotees of Kohli and Jaworski (1990) refer to their conceptualization as market orientation, it is relabeled here as market information processing to avoid using 'market orientation' to refer to two different concepts (see Sinkula, 1994).

Our final prediction links responsiveness with performance. Market changes force firms to augment their offerings to maintain or increase their value to customers. The RBV suggests that a firm has a foundation for a sustained competitive advantage if its resources provide value to customers, are superior to those of competitors, and are difficult to imitate or substitute (Barney, 1991). Any organization whose capability to respond leads to improvements that translate into superior benefits for customers can satisfy the first two requirements. However, a market-focused organization also has imperfectly inimitable characteristics. Specifically, it is the product of a socially complex and idiosyncratic context that is difficult for competitors to understand and emulate (Day, 1994). This inimitability facilitates the unique capability to respond to customers' current and latent needs, resulting in superior performance (Hult and Ketchen, 2001). Accordingly, our final hypothesis is:

Hypothesis 3: Organizational responsiveness has a positive effect on performance.

Given this set of hypotheses, our overall expectation is that responsiveness mediates the links between market orientation and MIP on one hand and performance on the other.

METHOD

Sample

The sample was drawn from 1136 public firms obtained from a commercial database. We focused on single-business firms to allow examination of objective, firm-level performance. Following Slater and Olson (2001), we relied on marketing executives to assess the study's subjective elements because most relate to marketing culture and behaviors within a strategic management context. Three mailings sent in 4-week intervals elicited 217 usable responses. Fifty-two surveys were undeliverable; thus the overall response rate was 20.0 percent (217/1084). Responding firms averaged 4952 employees and 36 years of operations, were slightly less service-oriented (48.7%) than product-oriented (51.3%), and most had some international operations (85.8%) vs. being purely domestic (14.2%). An extrapolation procedure was used to assess non-response bias (Armstrong and

Overton, 1977). No significant differences were found between early and late respondents on the scales or the performance indicators. Also, no differences were found between respondents who replied after each mailing.

Measurement

The Appendix lists the measures and their sources. All reflective measures of market orientation and MIP were drawn from extant research except for the shared interpretation scale, which was developed based primarily on Huber (1991). Three objective formative indicators (ROI, ROA, and ROE) obtained via Compustat and annual reports were used to assess performance in time $t + 1$. These measures were taken 1 year after the survey. Three subjectively measured controls (innovativeness, learning climate, and organizational memory) were included, along with firm age, size (number of employees), and performance in time t.

Table 1 reports the correlations, average variances extracted, and shared variances. Table 2 presents the results of the measurement analysis, including means, standard deviations, construct reliabilities, loadings, and fit indices. As detailed below, the six latent constructs, involving 13 dimensional scales and 30 items, were found to be reliable and valid in the context of this study.

Following data collection, we assessed the dimensionality, reliability, and validity of scales using LISREL. The CFA model resulted in a good fit to the data, with DELTA2, RNI, and CFI all being 0.99 ($\chi^2 = 432.39$, d.f. $= 327$, RMSR $= 0.04$) (see Gerbing and Anderson, 1992).

Composite reliability was calculated using procedures outlined by Fornell and Larcker (1981). The formula specifies that $CR_\eta = (\Sigma\lambda_{yi})^2/[(\Sigma\lambda_{yi})^2 + (\Sigma\varepsilon_i)]$, where $CR_\eta =$ composite reliability for scale η; $\lambda_{yi} =$ standardized loading for scale item y_i, and $\varepsilon_i =$ measurement error for scale item y_i. We also examined the parameter estimates and their associated t-values, and assessed the average variance extracted for each construct (Anderson and Gerbing, 1988). The composite reliabilities for the 13 subjective scales ranged from 0.61 to 0.94, with factor loadings ranging from 0.64 to 0.99 ($p < 0.01$), and average variances extracted ranging from 44.0 percent to 84.5 percent (see Tables 1 and 2 for detailed results). In addition, the 30 items were found to be reliable and valid when evaluated based on

Table 1. Correlation matrix and shared variances ($n = 217$)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Market orientation elements																	
1. Competitor Orientation	0.66	0.29	0.29	0.13	0.22	0.18	0.20	0.02	0.21	0.25	0.26	0.18	0.18	0.14	0.00	0.00	0.02
2. Customer Orientation	0.54	0.62	0.46	0.14	0.09	0.10	0.13	0.01	0.28	0.35	0.37	0.31	0.34	0.15	0.00	0.00	0.01
3. Interfunctional Coordination	0.54	0.68	0.78	0.25	0.25	0.35	0.30	0.02	0.37	0.29	0.44	0.20	0.27	0.20	0.00	0.01	0.02
Market information-processing elements																	
4. Information Generation	0.36	0.38	0.50	0.63	0.52	0.46	0.40	0.05	0.31	0.23	0.29	0.12	0.19	0.28	0.00	0.01	0.05
5. Information Dissemination	0.47	0.30	0.50	0.72	0.44	0.61	0.31	0.02	0.30	0.20	0.28	0.14	0.20	0.28	0.10	0.00	0.02
6. Shared Interpretation	0.43	0.32	0.59	0.68	0.78	0.85	0.24	0.02	0.31	0.24	0.35	0.15	0.22	0.29	0.07	0.00	0.02
7. Organizational Responsiveness	0.45	0.36	0.55	0.63	0.56	0.49	0.51	0.00	0.24	0.14	0.12	0.03	0.05	0.14	0.00	0.00	0.00
8. Performance (time period $t + 1$)	0.14	-0.12	-0.15	-0.23	-0.13	-0.13	0.07	1.00	0.16	0.00	0.02	0.00	0.00	0.10	0.04	0.03	0.50
Controls																	
9. Innovativeness	0.46	0.53	0.61	0.56	0.55	0.56	0.49	-0.40	0.74	0.32	0.34	0.26	0.29	0.28	0.00	0.00	0.16
10. Team Orientation	0.50	0.59	0.54	0.48	0.45	0.49	0.37	-0.04	0.57	0.65	0.58	0.35	0.41	0.21	0.00	0.00	0.00
11. Systems Orientation	0.51	0.61	0.66	0.54	0.53	0.59	0.34	-0.15	0.58	0.76	0.67	0.35	0.45	0.28	0.01	0.00	0.02
12. Learning Orientation	0.43	0.56	0.45	0.35	0.37	0.39	0.16	0.03	0.51	0.59	0.59	0.79	0.34	0.14	0.00	0.00	0.00
13. Memory Orientation	0.43	0.58	0.52	0.44	0.45	0.47	0.23	-0.04	0.54	0.64	0.67	0.58	0.48	0.15	0.00	0.00	0.00
14. Organizational Memory	0.38	0.39	0.45	0.53	0.53	0.54	0.37	-0.32	0.53	0.46	0.53	0.37	0.39	0.84	0.02	0.00	0.10
15. Firm Age	-0.03	-0.04	-0.02	0.20	0.31	0.27	-0.03	-0.21	0.06	0.06	0.08	0.03	0.00	0.15	1.00	0.00	0.04
16. Firm Size	0.07	0.07	0.09	0.06	-0.02	0.00	0.06	0.18	0.02	0.04	0.00	0.04	-0.02	0.05	0.01	1.00	0.03
17. Performance (time period t)	0.14	-0.12	-0.15	-0.23	-0.13	-0.13	0.03	0.71	-0.40	-0.04	-0.15	0.03	-0.04	-0.32	-0.21	0.18	1.00

All correlations above 0.08 are significant at the $p < 0.05$ level. Average variances extracted are underlined and included on the diagonal. Shared variances are included above the diagonal.

Table 2. Summary statistics of the measurement analysis

Variable	Items in scale	Mean	S.D.	Composite reliability	Parameter estimates
Market orientation elements					
Competitor Orientation	2	5.06	1.35	0.79	0.74–0.87
Customer Orientation	3	5.20	1.21	0.83	0.70–0.83
Interfunctional Coordination	2	4.42	1.18	0.87	0.87–0.89
Market information-processing elements					
Information Generation	2	3.56	1.17	0.77	0.74–0.84
Information Dissemination	2	3.67	1.38	0.61	0.64–0.68
Shared Interpretation	2	3.61	1.35	0.92	0.90–0.94
Organizational Responsiveness	3	3.36	0.88	0.75	0.64–0.79
Controls					
Innovativeness	3	4.94	1.41	0.90	0.85–0.87
Team Orientation	2	4.75	1.47	0.79	0.75–0.86
Systems Orientation	2	4.41	1.44	0.80	0.79–0.84
Learning Orientation	2	5.42	1.35	0.88	0.88–0.89
Memory Orientation	2	4.38	1.36	0.64	0.67–0.71
Organizational Memory	3	4.95	1.52	0.94	0.86–0.99

Fit statistics: $\chi^2 = 432.4$; d.f. $= 327$; delta2 $= 0.99$; CFI $= 0.99$; RNI $= 0.99$; RMSR $= 0.04$

each item's error variance, modification index, and residual covariation (Fornell and Larcker, 1981).

Discriminant validity was assessed using two different techniques. First, we calculated shared variance between pairs of constructs and examined whether it was lower than the average variances extracted for each construct. Shared variance was calculated as $\gamma^2 = 1 - \psi$, where $\gamma^2 =$ shared variance between constructs, and with ψ (diagonal) indicating the amount of unexplained variance. Because η and ε were standardized, γ^2 was equal to the r^2 between the two constructs. Average variance extracted was calculated as $V_\eta = \Sigma\lambda\gamma_i^2/(\Sigma\lambda\gamma_i^2 + \Sigma\varepsilon_i)$, where $V_\eta =$ average variance extracted for η; $\lambda_{yi} =$ standardized loading for scale item γ_i, and $\varepsilon_i =$ measurement error for scale item γ_i. In all but two cases, the variance extracted was higher than 50 percent (ranging from 44% to 84.5%). Also, in all but two cases the variances extracted were higher than the associated shared variances. The exceptions are: information dissemination/generation and information dissemination/shared interpretation. Given that we use MIP as a summated scale—composed of generation, dissemination, and interpretation—the lack of discriminant validity among these dimensions does not inhibit our analysis.

The second test involved analyzing all pairs of constructs in two-factor CFA models using LIS-REL (Anderson and Gerbing, 1988; Fornell and Larcker, 1981). Each model was run twice; once

constraining the phi coefficient (ϕ) to unity and once freeing it. A chi-square (χ^2) test on the nested models assessed whether the χ^2 values were significantly lower for the unconstrained models. The lowest $\Delta\chi^2$ was found between the shared interpretation and intelligence dissemination. Analyzing these two scales simultaneously, the unconstrained model (U) resulted in a $\chi^2 = 4.2$, d.f. $= 1$, while the constrained model (C) resulted in a $\chi^2 = 20.5$, d.f. $= 2$. As such, $\Delta\chi^2_{(1)} = 16.3$ when comparing the U and C models, which is significantly above the critical value of 3.84. Hence, although the two scales are highly correlated ($r = 0.78$), they exhibit discriminant validity. All other combinations resulted in higher $\Delta\chi^2_{(1)}$.

RESULTS

Table 3 displays the results of the hypothesis testing. The hypotheses were tested using OLS-based hierarchical regression, each involving a two-step model (no evidence of non-normality was found in the data based on skewness, kurtosis, and heteroscedasticity examinations). The control variables were entered in step 1, followed by the hypothesized variable(s) in step 2.[2] One-tailed tests

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[2] Based on suggestions from an anonymous reviewer, we also tested the addition of an interaction term of market orientation * MIP (entered in a third step) in addition to our hypotheses.

Table 3. Results of hierarchical regression analysis: standardized regression results

Predictor variables	Criterion variable					
	Responsiveness			Performance (time period $t + 1$)		
	Step 1	Step 2	t-value[a]	Step 1	Step 2	t-value[a]
Innovativeness	0.26	0.15	0.89	−0.17	−0.22	−1.29
Learning Climate	0.39**	−0.15	−0.75	−0.07	−0.03	−0.16
Organizational Memory	0.08	0.07	0.51	−0.12	−0.12	−0.87
Firm Age	0.06	0.05	0.45	−0.17	−0.20*	−1.79
Firm Size	0.05	0.01	0.06	−0.14	−0.14	−1.26
Performance (time period t)	0.19	0.24*	1.77	0.60***	0.53***	3.66
Market Orientation		0.31*	1.57	0.23	0.12	0.58
Market Information Processing		0.53***	3.40	0.02	−0.13	−0.72
Organizational Responsiveness					0.30**	1.81
F-value	4.56**	7.35**		6.22**	6.23**	
R^2	.41	0.61		0.57	0.61	
ΔR^2		0.20			0.04	
F-value for ΔR^2		9.73***			3.29**	

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$
[a] The t-values are reported after step 2 of the hierarchical regression analysis in each of the two models. One-tailed tests were used for the directional hypotheses (involving MO, MIP, and R) and two-tailed tests were used for the control variables.

were used for the hypotheses because directional predictions were offered; otherwise two-tailed tests were used. Each subjective scale was composed as a summated index of the items that constitute the scale; equal weights were given to each item (see Narver and Slater, 1990; Jaworski and Kohli, 1993).

In Hypotheses 1 and 2, we predicted positive relationships between market orientation (Hypothesis 1) and market information processing (Hypothesis 2) and responsiveness. Market orientation (beta = 0.31, $p < 0.10$) and MIP (beta = 0.53, $p < 0.01$) were both positively related to responsiveness, and they explained significant variance beyond that explained by the controls ($\Delta R^2 = 0.20$, $p < 0.01$). The overall model explained 61 percent of the variance. The variance inflation factors (VIF) for the predictors were below the acceptable threshold of 10.0 (ranging from 1.07 to 3.88), indicating that multicollinearity did not affect the analysis. Thus, Hypotheses 1 and 2 were supported. In support of Hypothesis 3, we found that responsiveness significantly affected subsequent performance (beta = 0.30, $p < 0.05$). The inclusion of responsiveness explained significant

variance in performance beyond that explained by earlier models ($\Delta R^2 = 0.04$, $p < 0.05$). The overall model explained 62 percent of the variance. The VIF for the predictors were well below 10 (ranging from 1.09 to 4.19).

Overall, both market orientation and MIP affected responsiveness positively, while neither variable affected performance directly. Applying the guidelines offered by Baron and Kenny (1986) to these findings indicates that responsiveness fully mediates the relationships between market orientation and MIP on one hand and performance on the other.

DISCUSSION

Our study's results should be viewed in the context of its limitations. Given the large number of firms targeted, we used key informants wherein one executive per firm provided survey responses. Although such an approach has long been fruitfully used in strategy research, using multiple informants might have shed additional light on the relationships studied. Also, our 1-year lag between antecedents and performance is a limitation. Future studies would benefit from longitudinal designs that permit stronger direct testing of causality and examination of potential feedback loops among variables. Despite these limitations, our study offers important insights.

Briefly, the logic is that it is plausible that the interaction of market orientation and MIP explains responsiveness and performance (i.e., a firm may need both). However, the interaction term was insignificant in the analyses of both models in Table 3 and was, therefore, excluded in the final analysis.

The support found for all of our hypotheses offers implications for the *Strategic Management Journal* debate on market orientation. Following an initial discussion of related concepts by Christensen and Bower (1996), commentaries by Slater and Narver (1998, 1999) and Connor (1999) debated several important issues. Subsequently, Hult and Ketchen (2001) offered empirical evidence that market orientation does in fact influence performance. However, Hult and Ketchen (2001: 905) make it clear that they offer 'only initial results directly related to the debate' and that testing of other models is needed. For example, the debate has focused exclusively on Narver and Slater's (1990) market orientation definition while ignoring the equally viable conceptualization of Kohli and Jaworski (1990).

In response to the current state of the market orientation debate, this study incorporated both versions of market orientation into a model of performance. Performance prediction is perhaps the key element of the debate, given strategic management's interest in performance. The results reveal that both Narver and Slater's and Kohli and Jaworski's concepts are important and *different* performance antecedents, suggesting that future studies should include both versions. Specifically, Narver and Slater's conceptualization of market orientation is *culture-centered* while Kohli and Jaworski's market orientation is *information process-centered*, and they exemplify both conceptual and empirical distinctiveness. It is important to recognize, however, that market orientation's performance effects were felt through responsiveness. As such, market orientation is not typically a 'lever' that can be pulled to directly increase performance. Thus, studies should cast market orientation within broader models, not simply link market orientation directly with performance.

Findings outside the hypotheses also provide some insights. The lack of any significant interactions between market orientation and MIP suggests that these two elements do not work in concert. There are additional possible explanations for the finding, however. It may be that other elements (such as organizational structure) are needed to link the two. Perhaps there is an interaction, but it takes a more complex form than can be detected through regression, such as a configurational relationship. In addition, the association of MIP and responsiveness perhaps reinforces the need to 'reorient' the market orientation debate

away from its previous narrow focus on the Narver and Slater conceptualization. Future research is needed to sort through these possibilities.

More broadly, studies of other aspects of the debate are needed. For example, we depicted customer orientation as one of three subcomponents of market orientation based on Slater and Narver's (1998, 1999) ideas. As such, our view is that market orientation cannot be fully captured by only focusing on customer orientation. Connor (1999) seemingly disagrees. The debate could be advanced through a study focused on these constructs' empirical composition and their relative merit for explaining key outcomes.

CONCLUSION

Given the turbulence of many industries, it seems certain that the requirements of strategic management will continue to evolve in unpredictable ways. Thus, understanding what facilitates the delivery of products and services to satisfy customers' needs offers researchers an increasingly important challenge. Our study has taken an initial step by providing evidence that a market-focused culture, market information processing, and organizational responsiveness function together to influence success. In this vein, we have specifically extended knowledge by examining important issues from the recent market orientation debate in *SMJ*.

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APPENDIX

Market orientation (adapted from Narver and Slater 1990)

[Seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

Competitor orientation

- Our salespeople regularly share information concerning competitors' strategies.
- Top management regularly discusses competitors' strengths and strategies.

Customer orientation

- Our business objectives are driven primarily by customer satisfaction.
- Our strategies are driven by beliefs about how we can create greater value for customers.
- We measure customer satisfaction systematically and frequently.

Interfunctional coordination

- All of our business functions are integrated in serving the needs of our target markets.
- All of our business functions are responsive to each other's needs and requests.

Market information processing (the shared interpretation scale was developed based on Huber,

1991; the information generation and information dissemination scales are from Kohli, Jaworski, and Kumar, 1993)
[Five-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

Information generation

- We are fast to detect changes in our customers' product preferences.
- We are fast to detect fundamental shifts in our industry (e.g., competition, technology).

Information dissemination

- When something important happens to major customers, the whole organization knows about it shortly.
- When one unit finds out something important about competitors, it is fast to alert other units.

Shared interpretation

- We develop a shared understanding in our organization of the available market information.
- We develop a shared understanding in our organization of the implications of a marketing activity.

Organizational responsiveness (adapted from Kohli *et al.*, 1993)
[Five-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

- It takes us a short time to decide how to respond to our competitor's price changes.
- We are fast to respond to changes in our customer's product or service needs.
- If a major competitor launched a campaign to our customers, we implement a response immediately.

Performance (collected via Compustat data in time period *t* as a control variable and in time period *t* + 1 as a dependent variable)

- Return on investment (ROI).
- Return on assets (ROA).
- Return on equity (ROE).

Innovativeness (adapted from Hurley and Hult, 1998)

[Seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

- We actively seek innovative product and service ideas.
- Innovation is readily accepted in program/project management.
- Innovation in our organization is encouraged.

Learning climate (adapted from Hult, 1998)

[Seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

Team orientation

- A team spirit pervades our ranks in the organization.
- Cross-functional teamwork is the common way of working in our organization.

Systems orientation

- We have a good sense of interconnectedness of all parts of the organization.
- We understand where all the activities fit-in in the organization.

Learning orientation

- We agree that our ability to learn is the key to improvement.
- The basic values of this organization include learning as a key to improvement.

Memory orientation

- We have specific mechanisms for sharing lessons learned in our organization.
- Organizational conversation keeps alive the lessons learned from history.

Organizational memory (adapted from Moorman and Miner, 1997)
[Seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree']

- We have a great deal of knowledge about our global marketplace.
- We have a great deal of experience with our global marketplace.
- We have a great deal of familiarity with our global marketplace.