

Linking Strategy Processes To Performance Outcomes In Dynamic Environments: The Need To Target Multiple Bull's Eyes*

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“Why do some firms outperform other firms?” This is the quintessential question in strategic management research (Rumelt *et al.*, 1991). While the field has made progress in investigating the relationship between a firm's *actions* and firm performance, less progress has been made in the investigation of the relationship between strategic *processes* and firm performance (Huff and Reger, 1987). Strategic process research is concerned with how a firm's administrative systems and decision processes influence its strategic position

(Chakravarthy and Doz, 1992). This lack of understanding of the effectiveness of strategic processes is especially apparent for firms operating in dynamic environments (Mintzberg, 1994). There are multiple reasons for this gap in our understanding. We would like to discuss some of the reasons and present how this investigation addresses some of these issues.

One reason for this incomplete understanding of the effectiveness of strategic processes is that many empirical studies focus on strategic processes involving only the top manage-

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ment team (Boyd, 1991; Finkelstein and Hambrick, 1996; Hopkins and Hopkins, 1997; Powell, 1996; Mintzberg, 1994). In addition, these studies usually focus on only one dimension of strategic process such as consensus among the team (e.g., Dess and Priem, 1995) or social integration among the team (e.g., Smith *et al.*, 1994). We investigate a broader range of strategy processes that include participation of other organization members outside the top management team.

Another related gap in our understanding is the moderating role environment plays in understanding the link between strategic processes and firm performance. We know that environments can have a significant impact, however the nature of this impact is unresolved (Powell, 1996). Some studies find a stronger association between strategic processes and firm performance in stable environments (Fredrickson and Mitchell, 1984) and others find a stronger association in unstable environments (Miller and Friesen, 1983). Other process variables impacted by dynamic environments (defined as the high rate of change and uncertainty) are top management teams' ability to make fast decisions, the ability to process information (Eisenhardt, 1989), minimize politics, and their history of working together (Bourgeois and Eisenhardt, 1988). Again the focus in these investigations is on the top management team. We also consider the moderating role of dynamism on strategy process performance relationships where a greater participation of organization members is required.

Finally, despite the long-standing call to include multiple dimensions of performance, there has been a focus

on financial definitions of firm performance. There has been a call for a conceptualization of outcomes other than economic measures (Venkatraman and Ramanujam, 1986). It has been proposed that a broader conceptualization of effectiveness will be more meaningful in the context of strategy process research (Rajagopalan *et al.*, 1993).

This study addresses these gaps in previous research by investigating the impact of different strategy processes on different dimensions of firm performance and the role of the environment in these relationships. In the following two sections we first summarize Hart's (1992) integrative framework and subsequently present the logic behind the hypotheses that are tested in this investigation.

HART'S INTEGRATIVE FRAMEWORK OF STRATEGY PROCESSES

In an attempt to provide a comprehensive framework of strategic processes, Hart (1992) integrates the themes and dimensions used to characterize these processes from previously published typologies. He presents five types of processes that reflect "the complementary roles that top managers and organizational members play in the making of strategy" (1992: 333). The five strategy processes are named Command, Symbolic, Rational, Transactive, and Generative. Two key characteristics of Hart's typology are: the different roles that the top management team and other organizational members play in making strategy, and their relative levels of participation. We will describe each of these processes as they relate to the relative involvement

of the top management team and the other organizational members.

The two processes that have the most top management team involvement are **command** processes and **symbolic** processes. For an organization utilizing command processes, strategy is driven by a leader or small top management team. Top management decides and controls the direction of the firm. Organizational members are not involved in decision making and have little autonomy in their choice of action; their role is to obey. Symbolic processes drive strategy by creating an implicit control system based on shared values, meaning, and identity that become embedded in the social fabric of the organization. The role of top management is to motivate and inspire, and the role of the organizational members is to respond to the challenge. Organizational members are more engaged in strategy with symbolic processes than with command processes.

The processes that Hart describes as involving all levels of the organization are the **rational** processes that are also called strategic planning. The role of the top management is to evaluate and control and the role of the organizational members is to implement the plan. Hart's definition of rational processes differs from other definitions of strategic planning, in that others have focused mostly only on the top management team in their definitions of planning (Boyd, 1991).

There are two processes that represent significant involvement of the organization's employees. These are **transactive** and **generative** processes that leverage organizational members' creativity, though in different ways. Transactive processes drive strategy by an ongoing iterative pro-

cess that involves feedback from key stakeholders and mutual adjustment through learning. The role of the top management is to empower and enable and the role of the organizational members is to learn and improve. Generative processes drive strategy through organizational actors' initiative. The role of the top manager is to endorse and support and the role of the organizational members is to experiment and take risks. Organizational members have a great deal of autonomy and are heavily involved in all aspects of strategy. Alternatively, top management's role is more that of a collaborator. Generative processes represent the highest level of involvement of organizational members combined with the greatest degree of autonomy and the lowest level of intervention from the top management team.

All of the strategy process categories are presented as important aspects of effective strategic processes. In evaluating the effectiveness of these processes, Hart (1992) draws upon work by Venkatraman and Ramanujam (1986), which calls for strategy researchers to focus on multiple dimensions of performance. These include 1) financial, 2) operational, and 3) organizational performance. **Financial** performance involves such indicators as return on investment, return on sales, return on equity, earnings per share, and sales growth. **Operational** performance involves business-level activities such as new product introduction and marketing effectiveness. **Organizational** effectiveness reflects broad organizational outcomes and capabilities such as employee satisfaction and organizational focus on quality or adaptability. Hart proposes that, "given the distinctive orientation of the five strategy-mak-

ing modes, each should relate to particular aspects of performance" (1992: 341).

Hart and Banbury (1994) explore the relationship between different conceptions of firm performance and combinations of strategy-making processes. They find general support that the more firms are able to develop strategy process capabilities by combining skills in all five modes of strategy-making, the higher their performance. They did not, however, explore the individual contribution of each process to performance. We believe that a better understanding of the relationship between the types of performance and distinct strategy processes is needed. A better understanding of the relationship between levels of performance and distinct processes, under different environmental conditions, is important to developing a solid theoretical and empirical foundation for further explorations of combinations of processes and the interactive effects of these processes. That is to say, if we know how individual processes effect different types of performance, under different environmental conditions, we will better be able to understand the effectiveness of combinations of processes. Predictions regarding combinations of processes would then be based on more solid reasoning and empirical evidence by building on previous work. We suggest that there are subtle, but significant process-performance relationships that have been overlooked by researchers; we need to understand these relationships. Using Hart's (1992) typology as a beginning framework, we develop hypotheses for specific process performance relationships. We draw upon relevant works of other strategy pro-

cess researchers in modifying the relationships initially proposed by Hart (1992).

RESEARCH HYPOTHESES

Our first objective was to elaborate Hart's framework (1992) by determining more specifically *which* processes are related to *what* kind of performance. We propose that level of involvement and roles of top management and organization members vary in a systematic way with the different types of performance. Specifically, when shifting focus from financial to operational to organizational performance, the level of participation needs to shift away from top management toward organizational employees. In general, we posit that the strategy processes that emphasize the role of the top management team will be more likely to have a uniform effect across performance levels. Processes that leverage a broader range of employees' capabilities will have the greatest relationship with organizational performance, since this type of performance requires a greater level of cross-organizational involvement. Our second objective was to investigate how these relationships are moderated by environmental dynamism, where dynamism is characterized by uncertainty resulting from rapid growth, unpredictability and innovation (Miller and Friesen, 1983). We first develop hypotheses for specific process-performance links and then follow with the moderating effects of environmental dynamism.

Strategy Process-Performance Links

With command strategic processes, a strong individual or a few top managers exercise control over the firm.

While Hart's (1992) initial conception of this process predicted that use of this process alone would negatively impact performance, the subsequent work of Hart and Banbury (1994) give the argument and evidence of only a positive impact of the processes on performance. We draw upon this later work to investigate a prediction of a positive impact of processes on performance. Our predictions are also based on research that looks at the impact of top management teams on firm performance. Where there have been significant findings, there is evidence of a positive association between dominant CEOs and firm performance (Haleblian and Finkelstein, 1993) and strong leadership has been positively related to performance (Finkelstein and Hambrick, 1996). We are predicting that when strong leadership can influence performance, there should be no difference in the type of performance that it can influence. This is to say top managers should be able to equally influence all levels of performance: financial, operational and organizational performance equally. Our reasoning is that the senior management should be motivated to increase all types of performance, and if they can influence either financial, operational, or organizational performance, they should be able to influence the other types as well. Our reasoning is reflected in the following hypothesis:

H1: There will be no difference between the positive relationship between **command** processes and **financial, operational or organizational** performance.

Effective symbolic processes drive strategy by creating an implicit control system based on shared values, meaning and identity that becomes embedded in the social fabric of the

organization. These processes provide a road map for the future. This is to say that the strategic intent (Hamel and Prahalad, 1994) is clearly articulated and yet allows all levels of the organization latitude in reaching long-run goals. Symbolic processes involve both top management and organizational members, but the top management team has greater involvement. Since symbolic processes focus on the strategic positioning of product development and diversification, we predict that these processes will have the most impact on operational performance. Operational performance is the dimension of performance that measures business effectiveness. Therefore we predict:

H2: The positive relationship between **symbolic** processes and **operational** performance will be stronger than the positive relationship between symbolic processes and financial or organizational performance.

Rational processes are defined in this study as processes seeking to be comprehensive in scope, drawing upon internal and external data in strategy formulation (Hart, 1992). This definition of rational processes has been described as representing the "Planning School" of thought in strategic management (Mintzberg, 1990). Similar to the rationale behind the predictions regarding symbolic processes, rational processes are also involved with preparing the organization for the future and should positively impact operational performance. Rational processes involve a mix of the top management team and organizational members for successful implementation (Wooldridge and Floyd, 1990). It is for these reasons that we expect rational planning processes will have a significant impact on operational performance.

Rational processes go beyond the creation of a vision or mission to encourage the development of specific financial objectives at every level of the organization. These processes emphasize the explicit creation and evaluation of financial goals (Ansoff, 1965). Therefore, we expect rational processes to also positively impact financial performance. Because rational processes focus on financial and operational goals, we hypothesize:

H3: The positive relationship between **rational** processes and **financial** and **operational** performance will be stronger than the positive relationship between rational processes and organizational performance.

Both transactive processes and generative processes reflect greater leverage of employee capabilities in strategy-making processes. Transactive and generative processes draw upon the innovative potential of organizational members in setting and implementing strategy. Transactive processes emphasize incremental change through organizational learning and responsiveness to changes in the external environment. Generative processes emphasize more disruptive innovative efforts, encouraging new product/service and venture development as well as incremental product and service extensions. Though their approaches differ, we expect both transactive and generative processes to be positively related to measures of operational performance. As stated earlier, operational performance is the dimension of performance that relates most to the future, with the focus on new product development and diversification. To be successful, both types of moves require high involvement by organization members. New product or technology ideas tend to filter up from

product development labs and require coordinated actions between functional areas of the organization. Diversification requires organization members to establish and integrate activities in new markets with other activities in the organization in order to achieve the benefits of greater scope.

Transactive processes capitalize on learning that arises from interactions with the external environment and from the coordination of activities across the organization. Generative processes, on the other hand, leverage employee creativity by emphasizing and rewarding entrepreneurial initiatives. Due to the extent to which these processes engage organizational members, they promote the ownership and commitment that is said to be missing in many organizations (Hamel and Prahalad, 1994; Wooldridge and Floyd, 1990). Ownership and commitment by organizational members should be positively related to organizational performance. Further, due to the extent to which these processes require responsiveness to the external environment as well as generate new initiatives they should be positively associated with organizational performance.

Based on the above arguments, we expect that both transactive and generative processes will be more related to operational and organizational performance than to financial performance. Therefore we make the following predictions:

H4: The positive relationship between **transactive** processes and **operational** and **organizational** performance will be stronger than the positive relationship between transactive processes and financial performance.

H5: The positive relationship between **generative** processes and **operational** and **organizational** performance will be stronger than the positive relationship between generative processes and financial performance.

In summary, we predict that each of the strategy processes, as outlined by Hart (1992), will impact different dimensions of firm performance. We suggest that the strategy processes that lean heavily upon the capabilities and discretion of the top management team will equally impact all aspects of performance. We also predict that the strategy processes that require more involvement of organizational members and leverage their capabilities will have more impact on organizational and operational levels of performance. The next discussion will focus on how environment moderates the strategy-process performance relationships that we have outlined.

Moderating Role of Environmental Dynamism

The moderating role of environment, especially dynamism, is important to consider for understanding the link between strategic processes and firm performance. Environmental dynamism is defined as the extent or frequency with which changes in technology and demand occur in a given industry and that such change is uncertain, which is consistent with Miller and Friesen (1983). Prior conflicting findings can be attributed to a different definition of dynamism that only accounts for change, but not uncertainty (Hart and Banbury, 1994). In a predictable, yet unstable environment, comprehensive planning was negatively related to performance (Fredrickson and Mitchell, 1984). Studies that measure dynamism as the combination of instability and uncertainty show that it positively moderates the relationship between strategy process and performance.

We propose that higher dynamism, defined as high instability with high uncertainty, requires greater use of planning and structure from top management. Therefore, environmental dynamism will positively moderate the strategy process-performance relationships involving the top management team. Miller and Friesen (1983) found that successful firms engage in more analysis in the planning process, suggesting that rational processes enhance performance in more dynamic environments. In a similar vein, Priem *et al.* (1995) found a strong positive rationality-performance relationship for firms in more dynamic environments. Bourgeois and Eisenhardt (1988) found that more effective microcomputer firms were both highly analytical and careful, but also made strategic decisions quickly with the CEO driving the process. This suggests that processes with significant and more directive involvement from the top management team will increase firm performance in dynamic environments. Therefore, we predict that:

H6A: Environmental dynamism will **positively moderate** command process-performance relationships.

H6B: Environmental dynamism will **positively moderate** symbolic process-performance relationships.

H6C: Environmental dynamism will **positively moderate** rational process-performance relationships.

In contrast, we suggest that strategic processes that depend more heavily on involvement from organizational members will be less effective

in dynamic environments. This is because strategic processes that involve employees are resource- and time-intensive endeavors. In technology intensive environments, researchers have found the decision speed is paramount (Bourgeois and Eisenhardt, 1988). Processes primarily driven by organization members outside the top management team require greater communication, coordination and negotiation. Transactive processes that emphasize organization learning require the coordination of activities across the organization (Hart, 1992). Coordination of activities across the organization will increase the time it takes to respond or decide how to adapt to the environment. If the environment is changing quickly and unpredictably, new knowledge may be obsolete by the time it is adopted. Similarly, by the time the organizational members develop new procedures, as is common when using generative processes, the new procedures may no longer make sense in a dynamic environment. While there are many structure and control practices that increase the efficiency of communication, coordination and negotiation (c.f. Hill and Jones, 2001), the overall effect of using strategy processes that involve many organization-wide members will be to increase the decision time frame. With such strategy processes the ability to match decision speed with the rate of change and uncertainty in the environment declines with higher levels of dynamism. We therefore hypothesize that:

H7A: Environmental dynamism will **negatively moderate** transactive process-performance relationships.

H7B: Environmental dynamism will **negatively moderate** generative process-performance relationships.

METHOD

Our sample was obtained from the directory of U.S. firms published by the Corporate Technology Information Services (CorpTech¹). This data set provides us with firms in a range of technology intensive, dynamic industries.

We mailed survey questionnaires to chief executive officers of 2,000 organizations. Previous research indicates that top administrators can provide reliable information about basic environmental and organizational characteristics of their organizations (see Miller and Friczen, 1983). A total of 377 surveys were returned for a 19% response rate. This response rate is not atypical for research using CEOs as respondents and allows for adequate statistical power for generalization (Milliken, 1990). Although non-response bias is always a concern when response is voluntary, non-responding firms did not differ significantly from responding firms in the proportion of privately owned firms, number of employees, sales revenue, annual percentage growth in number of employees or year of formation.

Of the 377 surveys returned, 314 contained complete information on the items used in this study. Most (80%) are private firms that represent a broad spectrum of technology industries, including subassembly and components, manufacturing, transportation, and chemical industry. When asked about their organizational stage, twenty-five percent

¹ The time frame draws from the 1996 CorpTech Directory, as this was what was the time frame for the administration of the survey.

identified themselves as being in the mature stage. Over half of the firms reported annual sales revenues of less than \$5 million and employ fewer than 25 workers. Approximately 33% have sales revenues of \$1 to \$5 million and employ 25 to 500 workers. Under 2% employ over 5,000 workers and about 3% have sales of over \$500 million. Finally, 9.2% of the firms in the sample have been in business for 25 or more years, 19.5% for between 10 and 24 years, 36.3% for between 5 and 9 years, and the remaining 35% have been in business for less than 5 years.

MEASURES

The scales used to construct the variables in this investigation have been standardized and validated by other researchers. The multiple-item measures are listed in Appendix A. The questions were presented on a five-point Likert scale.

Performance. Performance is represented as a multidimensional construct following the conceptual work of Venkatraman and Ramanujam (1986) and the operational definitions used by Hart and Banbury (1994). The three underlying constructs are *financial performance*, *operational performance*, and *organizational performance*. *Financial performance* is measured two ways: profitability and sales growth (Hart and Banbury, 1994). *Operational performance* is calculated from the mean of three items that relate to questions regarding product development, diversification into new markets, and anticipated new products. *Organizational performance* is operationalized as organizational quality and organizational adaptability. Subjective measures of performance that are used as data are

not available for 80% of the firms in our sample as they are privately owned. Validity has been demonstrated between perceptual and objective performance measures (Chandler and Hanks, 1993; Hart and Banbury, 1994; Venkatraman and Ramanujam, 1986).

Strategy Processes. The five types of strategy processes, *Command*, *Symbolic*, *Rational*, *Transactive*, and *Generative*, are measured using the set of items developed by Hart and Banbury (1994). *Command Processes* are primarily influenced by the CEO and top management team. *Symbolic Processes* are processes that drive the organization through symbolic means. *Rational Processes* are processes driven by formal plans or analysis. *Transactive Processes* are adaptive processes that are made on an incremental basis, with multiple inputs. *Generative Processes* focus on the entrepreneurial activity of all employees.

Environmental Dynamism. *Environmental Dynamism* is defined as the extent or frequency with which changes in technology and demand occur in a given industry and the unpredictability of this change (Miller and Friesen, 1983). This construct is measured using five items from a scale developed by Powell (1996). The mean for this variable is 3.54. A 3.00 represents a neutral response on questions related to environmental dynamism.

Firm Size. Firm size is defined as the total number of employees and is obtained from the 1996 CorpTech database. Since CorpTech reports firm size using categories, it is estimated by using the midpoint of the category coded for each firm to account for ordinal differences within the sample. We employ the natural log of firm size (Fredrickson and

Mitchell, 1984) as well as the square of the natural log of firm size in our analysis to account for midrange effects.

Typically, alpha coefficients of multi-item measures should fall within a range of .70 and .90 for narrow constructs, and .55 to .70 for moderately broad constructs (Van de Ven and Ferry, 1979). The alpha coefficients in our study are consistent with those found by Hart and Banbury (1994). All of the coefficient alphas in this study are in these ranges (See Appendix A).

We employ Harman's one-factor test as outlined by Podsakoff and Organ (1986) to detect common method variance problems associated with the use of self-reported measures (Campbell and Fiske, 1959; Fiske, 1982). If a substantial amount of common method variance is present in a factor analysis, either a single factor will emerge or one general factor will account for the majority of the covariance (Podsakoff and Organ, 1986). The unrotated factor solution showed that the first factor accounts for 27.6% of the variance. This represents less than half of the 63.5% total variance explained by the factor solution, an indication that common method variance is not a problem with our measures.

RESULTS

We first report correlations among variables used in this study and then report results to test hypotheses. Table 1 reports inter-correlations among the variables used in the study. As expected, performance measures are strongly correlated with one another (Variables 1-5 in Table

1). Dynamism is correlated with all the performance variables, except financial performance. Dynamism is also positively correlated with command, transactive, and generative processes. Firm size is not significantly correlated with any of the variables. There are some significant relationships among strategy process variables. As we might expect, command and symbolic processes are significantly correlated, since both of these processes are strongly influenced by the CEO and top management team. Generative and transactive processes are significantly related also, as would be predicted since these processes focus more on organizational members. Interestingly, symbolic processes are also related to rational, transactive, and generative processes.

To test Hypotheses 1 through 5, we estimate the relationship between the strategy processes and performance using hierarchical multiple regression models (Tabachnick and Fidel, 1983). This procedure allows us to control for both dynamism and firm size *before* accounting for the effect of strategy process. We are interested in finding out whether or not the different strategy processes explain any additional variance over that captured in the base model, so two-step regression models are employed. Step 1 model statistics are reported in the top section in Table 2 and include estimates of environmental dynamism, firm size and the size variable squared with each performance measure. Size is included as a variable to control for the effect of size found in other studies. Though not reported in Table 2², dynamism is negatively related to fi-

² Complete regression results for Step 1 models can be obtained from the authors.

Table 1
Means, Standard Deviations and Correlations (N = 314)

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Financial	3.14	1.06												
2. Growth	3.30	1.05	.460**											
3. Future Pos.	3.68	0.67	.126*	.297**										
4. Org. Quality	4.01	0.59	.354**	.320**	.374**									
5. Org. Adapt.	4.09	0.85	.027	.127*	.333**	.241**								
6. Dynamism	3.54	0.71	-.098	.133*	.276**	.123*	.346**							
7. Firm Size	3.28	1.69	-.018	-.003	.047	.038	.045	-.031						
8. Firm Size ²	13.61	14.91	.015	.022	.069	.072	.057	-.016	.964**					
9. Command	3.86	0.76	.057	.015	.109	.102	.145**	.186**	-.068	-.054				
10. Symbolic	3.89	1.05	-.011	.039	.199**	.130*	.075	.077	.014	.032	.121*			
11. Rational	3.18	0.89	.095	.052	.099	.041	.022	.030	-.110	-.094	.014	.291**		
12. Transactive	3.89	0.60	.006	.094	.331**	.301**	.391**	.228**	-.010	.004	-.008	.166**	.309**	
13. Generative	3.90	0.61	.014	.109	.391**	.375**	.483**	.305**	.021	.025	.061	.115*	.082	.620**

* p<.05

**p<.01

nancial profitability and positively related to growth (measures of financial performance), operational performance, quality, and adaptability (measures of organizational performance). In contrast to the correlations reported in Table 1, firm size has a curvilinear relationship with profitability and quality. The combi-

nation of a negative relationship with firm size and a positive relationship with firm size squared indicates that both smaller and larger firms have higher performance after controlling for dynamism.

We test hypotheses 1 through 5 by comparing the Step 2 squared semi-partial correlations of strategy pro-

Table 2
Results of Regression Analysis on Performance
Change in R² when Strategy Process Variables Enter the Base Models (N = 314)

Model Statistics	Financial Performance		Operational Performance	Organizational Performance	
	(1) Profitability	(2) Growth	(3) Future Positioning	(4) Quality	(5) Adaptability
Step 1 Model with control variables					
R ²	.027	.026	.085	.032	.124
F-model	2.843	2.707	9.546	3.446	14.587
P	.038	.045	.000	.017	.000
SE	1.0463	1.0391	.6400	.5807	.8040
Step 2-Command					
b _{Command}	.100	-.018	.053	.062	.097
R ² -Δ _{Command}	.005	.000	.004	.006	.007
F-Δ _{Command}	1.602	.051	1.205	2.030	2.568
Step 2-Symbolic					
b _{Symbolic}	-.012	.023	.111	.063	.037
R ² -Δ _{Symbolic}	.000	.001	.030	.012	.002
F-Δ _{Symbolic}	.041	.166	10.449***	4.039*	.734
Step 2-Rational					
b _{Rational}	.108	.053	.071	.024	.015
R ² -Δ _{Rational}	.008	.002	.009	.001	.000
F-Δ _{Rational}	2.654	.628	3.053*	.429	.089
Step 2-Transactive					
b _{Transactive}	.043	.112	.312	.278	.469
R ² -Δ _{Transactive}	.001	.004	.074	.076	.102
F-Δ _{Transactive}	.180	1.236	27.303***	26.258***	40.690***
Step2-Generative					
b _{Generative}	.086	.128	.365	.355	.577
R ² -Δ _{Generative}	.002	.005	.103	.125	.156
F-Δ _{Generative}	.718	1.639	39.027***	45.654***	66.717***

1-tailed test: * p<.05
*** p<.001



cess across different types of performance (Step 2 $R^2\Delta$ reported in Table 2). F-statistics and significance levels are also reported for each Step 2 model. Since our hypotheses predict direction, one-tailed tests are employed. We account for multicollinearity among the different strategy process variables by regressing each strategy process alone for each measure of performance after controlling for dynamism and firm size. This means that each Step 2 model reported in Table 2 contains only one strategy process variable.

Hypothesis 1 predicts that there will be no difference between the positive relationship between command processes and financial, operational or organizational performance. To test this hypothesis, we compare the change in the magnitude of the squared semi-partial correlation ($R^2\Delta$) for command processes across the performance measures: profitability, growth, future positioning, quality, and adaptability (See Table 2). For support of the hypothesis we would expect to find that the change in R^2 ($R^2\Delta_{\text{Command}}$) to be the same with profitability and growth (financial performance), future positioning (operational performance), quality, and adaptability (organizational performance) measures. Command is not related to any of the performance measures since the Step 2 models are not significant. Hypothesis 1 is not supported.

Hypothesis 2 states that **symbolic** processes will have a more positive relationship to operational performance than to financial or organizational performance. To find support for Hypothesis 2, we would need to find that the change in R^2 with future positioning (operational performance) is greater than the change in

R^2 for profitability or growth (financial performance), and quality or adaptability (organizational performance). Hypothesis 2 is supported as the change in R^2 for future positioning (operational performance) is positive and significant and is greater than the changes in R^2 for profitability, growth and adaptability, each of which is not statistically significant. Hypothesis 2 is also supported when we compare quality (organizational performance) with future positioning (operational performance). While the change in R^2 for quality is statistically significant, the strength of the relationship is smaller.

Hypothesis 3 states that **rational** processes will have a more positive relationship to financial and to operational performance than to organizational performance. The hypothesis will be supported if the changes in R^2 for profitability and growth (financial performance) and future positioning (operational performance) are greater than the changes in R^2 for quality and adaptability (organizational performance). The hypothesis is only supported for future positioning (operational performance), but not for profitability and growth (financial performance). We, therefore, find partial support for Hypothesis 3.

Hypothesis 4 states that **transactive** processes will have a more positive relationship to operational and to organizational performance than to financial performance. To test this hypothesis we determine whether the changes in R^2 for transactive processes as a predictor of operational performance (as measured by future positioning) and organizational performance (as measured by quality and adaptability) are greater than the change in R^2 for transactive processes

as a predictor of financial performance (as measured by profitability and growth). The change in R^2 for future positioning is significant and greater than the changes in R^2 for profitability and growth, which are not statistically significant. The changes in R^2 for transactive processes as a predictor of quality and adaptability are significant and also greater than the changes in R^2 for profitability and growth. Hypothesis 4 is supported.

Hypothesis 5 states that **generative** processes will have a more positive relationship to operational and organizational performance than to financial performance. The change in R^2 for future positioning (operational performance) is significant and greater than the changes in R^2 for profitability and growth (financial performance), which are not significant. Similarly, the change in R^2 for quality is significant as is the change in R^2 for adaptability, and both are significantly different from the change in R^2 for financial performance. Hypothesis 5 is supported.

Hypotheses 6 (A,B,C) and 7 (A,B) predict moderated relationships. These relationships are tested using moderated regression (Tabachnick and Fidel, 1983), a test that has been used in similar studies (Dean and Sharfinan, 1996; Li and Simerly, 1998; Brews and Hunt, 1999; Homburg *et al.*, 1999). We test the hypotheses by inspecting the squared semi-partial correlations ($R^2\Delta$) that represent the unique contribution that each interaction term makes above the explained variance (R^2) reported for the control and strategy process variables alone. We also account for multicollinearity among the interaction terms by regressing each interaction term with the re-

spective performance variable separately. Table 3 reports the Step 1 model statistics that include all control variables and strategy process variables and then Step 2 model statistics for each of the interaction terms.

Hypotheses 6A, 6B and 6C state that dynamism will positively moderate the process-performance relationships for command, symbolic and rational processes respectively. Hypothesis 6A is supported for command as $R^2\Delta_{\text{Dynamism} \times \text{Command}}$ reported for profitability and growth (Table 3, columns 1 and 2, respectively) are both positive and significant. The results also indicate that the moderation variable *Dynamism* \times *Symbolic* is positively and significantly related to quality, and negatively and significantly related to adaptability, indicating partial support for Hypothesis 6B. *Dynamism* \times *Rational* is positively and significantly related to both organizational quality (Column 4) and organizational adaptability (Column 5) in support of Hypothesis 6C.

Hypotheses 7A and 7B state that dynamism will negatively moderate process-performance relationships for transactive and generative processes, respectively. The unique contribution of the *Dynamism* \times *Transactive* interaction term is not significant for all performance measures; therefore, Hypothesis 7A is not supported. The results indicate a negative and significant relationship between *Dynamism* \times *Generative* and organizational adaptability in Column 5, indicating partial support for Hypothesis 7B.

DISCUSSION

This study contributes to a better understanding of the complex relationship between firm performance

Table 3
Results of Regression Analysis on Performance:
Change in R^2 when Interaction Terms Enter the Base Models (N = 314)

Model Statistics	Financial Performance		Operational Performance	Organizational Performance	
	(1) Profitability	(2) Growth	(3) Future Positioning	(4) Quality	(5) Adaptability
Step 1 Model with control & strategy process variables					
R^2	.045	.033	.217	.175	.302
F	1.804	1.281	10.596	8.112	16.471
P	.076	.252	.000	.000	.000
SE	1.0449	1.0438	.6000	.5404	.7236
Step 2-Dynamism x Command					
$b_{\text{Dynamism} \times \text{Command}}$	.210	.336	.051	.004	-.075
$R^2 - \Delta_{\text{Dynamism} \times \text{Command}}$	.012	.032	.002	.000	.002
$F - \Delta_{\text{Dynamism} \times \text{Command}}$	3.939*	10.263**	.705	.004	1.038
Step 2-Dynamism x Symbolic					
$b_{\text{Dynamism} \times \text{Symbolic}}$	.014	.031	-.064	.068	-.090
$R^2 - \Delta_{\text{Dynamism} \times \text{Symbolic}}$	.000	.000	.005	.008	.006
$F - \Delta_{\text{Dynamism} \times \text{Symbolic}}$	.030	.152	2.017	2.844*	2.721*
Step 2-Dynamism x Rational					
$b_{\text{Dynamism} \times \text{Rational}}$	.027	.132	-.049	.088	.110
$R^2 - \Delta_{\text{Dynamism} \times \text{Rational}}$	.000	.006	.002	.009	.006
$F - \Delta_{\text{Dynamism} \times \text{Rational}}$	.080	1.927	.800	3.201*	2.792*
Step 2-Dynamism x Transactive					
$b_{\text{Dynamism} \times \text{Transactive}}$	-.053	-.028	-.101	.077	-.068
$R^2 - \Delta_{\text{Dynamism} \times \text{Transactive}}$	.001	.000	.005	.004	.001
$F - \Delta_{\text{Dynamism} \times \text{Transactive}}$	.160	.044	1.822	1.299	0.563
Step 2-Dynamism x Generative					
$b_{\text{Dynamism} \times \text{Generative}}$	-.049	-.076	-.081	-.003	-.298
$R^2 - \Delta_{\text{Dynamism} \times \text{Generative}}$	.000	.001	.003	.000	.026
$F - \Delta_{\text{Dynamism} \times \text{Generative}}$	.151	.359	1.257	.002	11.952***

1-tailed test:
* $p < .05$
** $p < .01$
*** $p < .001$

and strategy processes. Our results show that different strategy processes support different types of performance. As predicted, symbolic and rational processes that involve top management are more strongly related to operational performance. Further, results indicate that the more a firm draws upon transactive and generative processes, the better the firm per-

forms organizationally in terms of organizational quality and adaptability. In contrast, none of the predicted relationships with financial performance were supported. These results imply that firms need to have multiple processes in place to achieve multiple performance objectives.

The call to include the moderating role of the environment in strategic

investigations (Dess *et al.*, 1990) is amplified by the results of this study. We found evidence that environmental dynamism moderates the relationship between process and performance. As predicted, environmental dynamism positively moderated the relationship between command, symbolic and rational processes and performance. Top-down and comprehensive processes are more effective in more dynamic environments. Unpredictably, the relationship between symbolic processes and organizational adaptability was negatively moderated by dynamism. Top-down directions supported by symbolic processes are less effective for adaptability. The use of multiple processes to support multiple performance goals is not as straight forward in more dynamic environments. These results point to the trade-offs that are in place when managing multiple organizational goals in dynamic environments and call for further investigation.

In contrast, there was partial but minimal support that environmental dynamism negatively moderates the relationships with processes that involve organization members and performance. In more dynamic environments, generative processes are negatively related to organizational adaptability. The positive relationship between generative processes and organizational adaptability is less strong in dynamic environments. Environmental dynamism did not influence the relationship between transactive processes and performance. The strong positive relationship between transactive processes with operational and organizational performance holds with different levels of dynamism.

One of the more interesting findings was the lack of significant results of all of the processes with financial performance. Had we limited our investigation to financial performance, we would have missed the role strategy processes play in operational and organizational performance. This provides support for the claims of others that a focus on financial measures as measures of effectiveness is too narrow (Rajagopalan *et al.*, 1993; Venkatraman and Ramanujam, 1986).

There are a number of avenues that future research should investigate. We have chosen to focus on the impact of the strategic processes independent from each other. Hart and Banbury (1994) provide evidence that there is a relationship between the number of strategy processes a firm uses and firm performance. Future research should further investigate which combination of processes increase performance. Some processes may be only effective when used in conjunction with other processes. For example, our finding that strategy processes were not related to financial performance could be further explored by investigating the relationship of combinations of processes to financial performance. It is hoped that our finding of the relationship between organizational level of process and organizational level of performance will give research on combination of processes a more solid foundation with which to pursue this research. This avenue of research needs to be complemented with additional theory development and model building. It is also reasonable to suggest a relationship between the levels of performance. According to Rajagopalan *et al.* (1993), performance out-

comes can be categorized as either process or economic outcomes. They argue that strategy processes may directly impact process and economic outcomes, but they may also indirectly impact economic outcomes through process outcomes. The mediating effect of process outcomes on economic performance needs to be explored. For example, operational and organizational performance may mediate the relationship between strategy process and financial performance.

Overall the results of this study should be viewed with some caution. Our methodology was cross-sectional survey research and we can only prove association, not causality. Our sample includes many small firms and is comprised of high technology firms. Future research should examine more firms in more stable environments and larger firms to insure generalizability of the findings. Self-reported, cross-sectional data are particularly susceptible to errors resulting from consistency and priming. We have attempted to minimize these limitations by testing for common method variance (Podsakoff and Organ, 1986).

There are several implications for managers. If an organization seeks to excel operationally and organizationally, then the involvement of members of the organization across multiple levels is required. This gives evidence to Hamel and Prahalad's

(1994) claim that successful implementation involves empowering employees to perform strategic actions. Managers should also target multiple goals (or bull's eyes). If operational and organizational measures of performance reflect the benefits of capabilities that are rare, valuable, and difficult to imitate or substitute (Barney, 1991), then these capabilities may be sources of sustainable competitive advantage. Finally, even though managers are advised to master contradictory skills, there may be trade-offs with the use of different strategy processes in dynamic environments. Managers may need to decide if they want the strategic processes to focus on the organization's ability to change quickly or to focus on building quality services. The answer will depend on the unique strategic issues facing the organization.

The results of this investigation indicate that investment in strategy processes do make a positive difference. It is important to recognize that the relationship between these processes and other measures of performance are still positive in dynamic environments, just less so. While the complex ties between process and performance becomes even more complicated in dynamic environments, it seems that competing in the new competitive landscape still requires investing in multiple processes while at the same time targeting multiple "bull's eyes."

APPENDIX A: MEASUREMENT SCALES

Performance. Respondents were asked to rate their firm's performance over the past three years. The scale was anchored with "Low Performer" as a 1, "Moderate" as a 3 and "High Performer" as a 5. The following represents the statements, with the variable being measured in parentheses. The statements were presented in a different order.

FINANCIAL PERFORMANCE

Profitability (Alpha Coefficient = .88)

- Cash Flow
- Profitability/return on assets

Growth (Alpha Coefficient = .85)

- Over the past three years, our revenue growth has exceeded our competitors.
- Over the past three years our revenue (sales) growth has been outstanding.

OPERATIONAL PERFORMANCE

Future Positioning (Alpha Coefficient = .67)

- Technical product/service design and development
- Diversification into new markets
- New products next year
- Extent of product/service changes over the past five years

ORGANIZATIONAL PERFORMANCE

Quality (Alpha Coefficient = .61)

- Quality of product/service.
- Employee satisfaction
- Overall company performance

Adaptability

- The organization is very responsive and changes easily.

Strategic Processes. Respondents were asked to indicate, on a scale of 1-5, the extent they agreed with each item. The scale was anchored with "Strongly Disagree" as a 1, "Neutral" as a 3, and "Strongly Agree" as a 5. The following represents the statements, with the variable being measured in parentheses. The statements were presented in random order.

COMMAND (Alpha Coefficient = .66)

- The chief executive of our company determines and executes the strategy based upon analysis of the business situation.
- Strategy, for this company, is primarily set by the CEO and a few of his or her direct reports.
- The CEO primarily defines our firm's "vision"—its basic purpose and general direction.

SYMBOLIC

- I have a "dream" about where this company will be in twenty years and do my best to communicate this sense throughout the organization.

RATIONAL (Alpha Coefficient = .78)

- Our company adopts a written strategic plan each year to guide our operating activities.

- Strategic planning in our firm is a formal procedure occurring in a regular cycle.
- We have a written mission statement that is communicated to the employees.
- Formal analysis of the business environment and our competitors forms the basis for our company's strategic plan.

TRANSACTIVE (Alpha Coefficient = .66)

- Our company continually adapts its strategy based on feedback from the market.
- Strategy is made on an iterative basis, involving managers, staff and executives in an ongoing dialogue.
- Business planning is ongoing, involving everyone in the process to some degree.
- Most people in this company have input into the decisions that affect them.

GENERATIVE (Alpha Coefficient = .59)

- People are encouraged to experiment in this company so as to identify new, more innovative approaches or products.
- Employees in this company understand what needs to be accomplished in order for the organization to survive and prosper.
- Most people in this organization are willing to take risks.

Environmental Dynamism. (Alpha coefficient = .70) Respondents were asked to indicate, on a scale of 1-5, the extent they agreed with each item. The scale was anchored with "Strongly Disagree" as a 1, "Neutral" as a 3, and "Strongly Agree" as a 5.

- Demand in our industry has been growing rapidly in the past three years.
- Innovation and R&D are more prevalent in our industry than in most industries.
- Our industry is still in early growth and infancy.
- Our industry would be characterized as a high-technology industry.
- Our industry is more unstable than most, changing more quickly and unpredictably.

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Linking Strategy Processes to Performance Outcomes in Dynamic Environments: The Need to Target Multiple Bull's Eyes 133
Linda F. Tegarden, Yolanda Sarason and Catherine Banbury

We investigate the relationship between strategy processes and firm performance and the moderating role of environmental dynamism on these relationships. Multiple dimensions of strategy processes are drawn upon that look at the relative roles of the top management team and organizational members in the strategic process. Multiple dimensions of performance are also used that differentiate between financial, operational and organizational performance. The results indicate that distinct strategy processes influence different types of organizational performance. In general, there is support that the processes that draw upon the top management team are more likely to have a greater influence on operational and organizational performance. Additionally, processes that draw upon all employees are more likely to have a greater influence on organizational performance. There is evidence that dynamism positively moderates certain process-performance relationships that draw upon the top management team and negatively moderates certain process-performance relationships that draw upon all members of the organization. It seems that competing in the new competitive landscape requires that organizations not only invest in multiple strategic processes, but that they also target multiple performance "bull's eyes."

A Proposed Model of Between-Group Helping: An Identity-Based Approach 154
Adam S. Rosenberg and Linda K. Treviño

This article presents a model of the antecedents of between-group helping (BGH), defined as discretionary acts of helping performed by a group in order to assist one or more other groups. Building upon theories of social identity, we describe how individual, intragroup, and organizational factors contribute to the development of in-group and out-group orientations among group members. These orientations dictate

