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ABSTRACT

The effect of unpredictable resources on organizational performance in higher education was examined, along with whether some management strategies are more successful under conditions of relative predictability or unpredictability. Perceptions of administrators about institutional resources and performance were studied, along with the effects of institutional structure and three types of strategies: (1) a linear model based on methodical, sequential planning that is oriented to accomplishing stated goals; (2) an adaptive strategy involving assessment of the external environment and the capacities of the school, and adjustment of either or both; and (3) an interpretive strategy that is based on the idea that the organization is a social contract among individuals who freely agree to cooperate. Dimensions of perceived organizational performance include investor confidence, leader credibility, faculty quality, and ability to get resources. The study involved 474 administrators who perceived high levels of unpredictability in revenues and enrollments and 209 administrators who perceived low levels of unpredictability. The results suggest that administrators' perceptions of resource unpredictability are unrelated to perceptions of institutional performance. Strategies that seemed to be linked to performance were the linear and interpretive strategic models. References, tables, and a list of variables are appended. (SW)

STRATEGIES FOR MANAGING WHEN RESOURCES ARE UNPREDICTABLE

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Strategies for Managing When Resources are Unpredictable

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The rate of social, technical, and other changes that affect organizations is increasing, requiring managers to make strategic decisions in the context of unpredictable events. Such unpredictability brings high levels of ambiguity and uncertainty to the managers' task. In particular, managers in many higher education institutions have had to deal recently with volatile environments. Some have had to make multiple mid-year reductions in their budgets on almost no notice. Others have found that enrollments are increasingly difficult to forecast. Given the labor-intensive nature of the enterprise, made even more inflexible by tenure and the long lead time required for curricular change, unpredictability is likely to bring major problems to higher education administrators.

When key resources for an organization are highly unpredictable, the organization's effectiveness is jeopardized (Cameron, 1983). Purposeful action, the achievement of objectives, and even the appearance that someone is in control of the organization may be undermined. The ability of the organization to prepare itself to provide what its mission implies and its constituents want is strained by the organization's inability to determine whether sufficient resources will be available to provide it.

Much of the literature on coping with unpredictability is inherent in the literature on strategy, or strategic management. Although the concept of strategy is not always explicitly linked with the problem of unpredictability, the purpose of strategy is to enable the organization to maintain or enhance its level of performance in the face of changing, unpredictable environments. Authors on strategic management offer many prescriptions for managers to use in such environments, all of them based on a fundamental assumption. They assume that unpredictable, changing environments will undermine organizational

performance unless certain strategic actions are taken. The literature does not agree, however, on specifically which strategic actions will be most effective in producing the desired effects on performance. The prescriptions can be clustered into three major categories, the linear, adaptive, and interpretive models of strategy (Chaffee, in press).

The purpose of this study is to examine the effect of unpredictable resources on organizational performance and whether some management strategies are more successful under conditions of relative predictability and others under unpredictability. We will examine the relationships of (1) environmental predictability with organizational performance and (2) three models of strategy with four measures of organizational performance. On the basis of this examination, we will draw conclusions about the effects of unpredictability and of strategic management on organizational performance. The primary research questions are:

1. Is the perception of predictable or unpredictable resources in an organization's environment related to perceptions of the organization's performance? That is, does an unpredictable environment negatively affect an organization's performance?

2. Is the relationship of three models of strategic management with organizational performance mediated by resource predictability? That is, does the type of strategy used affect performance, and is the relationship affected by predictability of resources?

Empirical studies of strategic management have tended to assume that the answer to the first question is yes, unpredictability negatively affects performance. They have tended not to compare the effectiveness of several types of strategic prescription. And empirical studies on any aspect of management in nonprofit organizations are relatively rare (Wortman, 1979).

Therefore, the following study addresses several important omissions in the existing literature.

Literature on Strategy and Performance

Virtually all literature on strategy and performance assumes that the purpose of strategy is to mediate the effect of uncertainty on organizational performance. The assumption is rarely examined or tested. For example, in a study of strategy, competence, and performance, Snow and Hrebiniak remarked that they had chosen their sample to include industries that varied greatly in terms of environmental uncertainty because they believed that that approach would provide a most powerful test of their hypotheses (1980, p. 322). That is, they believed that varying degrees of uncertainty might well bring varying relationships among strategy, competence, and performance. The authors found that the relationships they studied were the same in both high- and low-uncertainty industries. They discussed possible reasons for the result, but they did not discuss explicitly the validity of the assumption that uncertainty affects the relationships. Similarly, assumptions about the effects of unpredictability are implicit in the literature reviewed in the following discusson.

Strategy Literature

A convenient format for examining a wide range of strategies is provided in a review of the literature that yielded three basic models of strategy (Chaffee, in press). The linear model arose during the 1960s and is oriented toward planning and rational decisionmaking. It was followed by the adaptive model, focusing on the organization's changes in itself and its environment to improve the fit between the two. Recently, the interpretive model has emerged, based on the premise that the organization is essentially a collection of agreements among individuals to participate in cooperative

effort. Theoretical and empirical literature exists in each model that relates to unpredictability, strategy, and performance.

The linear model is based on methodical, sequential planning that is oriented toward accomplishing stated goals. Typically, the leader is construed as a relatively autonomous entrepreneur, and the primary task of the organization is to emerge on top in the competition. Daft (1982) alludes to a component of the model when he recommends that organizations professionalize their management when the environment is uncertain. Tichy (1982) also points out the need for linear strategy when he recommends major revamping of systems (financial, marketing, production, human resource) as a way of coping with a turbulent environment. In an empirical study, Thune and House (1972) found a positive relationship between formal planning and five measures of financial performance in a study of 92 companies. The relationship was strongest in companies with rapidly changing markets.

Other authors disagree. Kiesler and Sproull (1982) point out that caution is necessary in yielding to the conventional wisdom about the value of learning from experience, planning, and emphasizing the information needs of managers. In a rapidly changing environment, planning cannot anticipate the future with accuracy, and lessons from the past may no longer apply. For similar reasons, Hedberg, Nystrom, and Starbuck (1976) suggest metaphorically that managers build tents, not palaces, so that the organization can be more responsive. Finally, in an empirical study, Fredrickson and Mitchell (1984) found a negative relationship between rational strategic decisionmaking and organizational performance. Therefore, arguments and evidence are available that both favor and dispute the value of the linear model of strategy.

Adaptive strategy involves assessing the external environment and the capacities of the organization, adjusting either or both, and establishing a

satisfactory alignment between them. The emphasis is on means more than goals, and it is less centralized and more multifaceted than linear strategy. The preference for tents, rather than palaces, is reflected in adaptive strategy, as is a bias for innovation as a means of coping with uncertainty (Cameron, 1983; Daft, 1982; Daft & Weick, 1984; Tichy, 1982). Because of the importance of relations between the organization and its environment, boundary-spanning activities are central to adaptive strategy (Aldrich & Herker, 1977; Miles, 1980; Thompson, 1967).

Several authors have recommended a combination of linear and adaptive strategy as a suitable method of coping with uncertainty. McCaskey (1982) suggested two metaphors for management's response, the captain of the ship (linear strategy) and riding the river (adaptive strategy). Thompson (1967) suggested that the paradox of administration is the dual search for certainty (linear strategy) and flexibility (adaptive strategy). Two studies found that organizations that do well in highly unpredictable environments actively scan their environments, analyze and feed back external and internal information through an active network of communications, and use decentralized decisionmaking (Miller & Friesen, 1978 and 1983). These studies imply that the best course of action is a blend of linear strategy through which environmental signals are analyzed, and adaptive strategy through which decentralized responses develop. The authors place relatively greater emphasis on adaptive strategy, with its focus on flexibility and localized responsiveness.

Another study found that entrepreneurship and adaptiveness were related to organizational performance (Paine & Anderson, 1977). And several studies of turnaround management found that a combination of efficiency measures (linear strategy) and adaptation facilitated recovery from decline (Chaffee,

1984; Peck, 1984; Schendel, Patton & Riggs, 1976).

The third model of strategy is interpretive. It is based on the idea that the organization is a social contract among individuals who freely agree to cooperate to achieve individually desired ends (Keeley, 1980) and that the reality of the organization is socially constructed through individuals' interactions (Berger & Luckmann, 1966). Strategy emerges as orienting metaphors or frames of reference for understanding the organization and its context, so interpretive strategy emphasizes the importance of communication, symbols, norms, and achieving social legitimacy. Consistent with interpretive strategy, Emery and Trist (1965) recommended that organizations deal with turbulence through the emergence socially of an agreed value system, and Tichy (1982) pointed out the importance of addressing organization members' values and beliefs. Snow and Hrebiniak (1980) found that either an adaptive strategic orientation (analyzer or prospector) or an interpretive strategic orientation (defender) produced high performance, regardless of the level of environmental uncertainty.

Performance Literature

A common measure of organizational performance is financial return, or profitability. Profit is a useful measure of performance for business organizations both because business leaders and researchers agree as to its centrality and, for researchers, because it is related to several theoretical bases on which performance might be measured. That is, profit is a goal of business and therefore profit can represent the goal model of effectiveness (Etzioni, 1964; Campbell, 1977; Scott, 1977). Profit is also the primary outcome of the organization that is needed to satisfy diverse constituents, so it can represent the multiple constituencies model of effectiveness (Connolly, Conlon, & Deutsch, 1980; Miles, 1980; Zammuto, 1982). Furthermore,

profit is a measure of the ability of the organization to obtain resources, so it can represent the system-resource model of effectiveness (Yuchtman & Seashore, 1967).

However, profit has no direct counterpart in the not-for-profit organization. Measuring performance is more contentious in that sector. In particular, it is difficult to deal with the goal model of effectiveness, since not-for-profit organizations are often established for multiple, vaguely specified goals. One study has found that strategies are unlikely to improve organizational performance on multiple dimensions simultaneously--strategies that bring one kind of financial success in unpredictable circumstances do not bring another kind of financial success (Jauch, Osborn, & Glueck, 1980). Given the difficulty of representing the goal model of effectiveness for the sample of this study and given the likelihood that strategies affect different performance measures differently, a sensible approach to measuring performance in this context is to use several measures and to represent both the multiple constituency and system-resource models of effectiveness.

With this background, the purpose of the study was to examine empirically the assumption that unpredictability affects strategy and performance, and whether the choice of strategy affects performance. In addition to strategy, institutional structure plays a role in these analyses of higher-education organizations. Size, loose coupling, and whether the institution is public or independent are among the structural variables that have been shown to affect strategy and performance in higher education institutions (Cameron, 1983; Cohen & March, 1974; Zammuto, Whetten, & Cameron, 1983). The effects of such variables must be accounted for in the analyses.

Research Method

At a representative sample of 334 four-year colleges and universities,

data were collected by surveying 1,328 top administrators. Individuals in that sample were selected for inclusion in this analysis if they fell into one of two groups. One group of 474 administrators perceived high levels of unpredictability in key resources (revenues and enrollments); the other perceived low levels of unpredictability ($n = 209$). An analysis of the groups indicated that predictability was not systematically associated with growth or decline, a possibility that would have confounded the research.

A variable list is presented in the appendix, showing the item on which each variable is based and the mean response to that item. The independent variables are multiple measures of the major concepts described in the previous section--linear strategy, adaptive strategy, interpretive strategy, and institutonal structure. Variables representing two other strategy typologies are included. Domain defense (interpretive), domain offense, and domain creation (both adaptive) were developed by Miles and Cameron (1982), while the defender (interpretive), analyzer, and prospector (both adaptive) strategic orientations were developed by Miles and Snow (1978).

All variables are based on items from the survey of administrator perceptions except for the variables representing the institution's size and control. All variables consist of scores ranging from 1 (strongly disagree) to 5 (strongly agree) except for the variables "change image," size, and control. "Change image" is a dichotomous variable, with a score of 1 assigned if the respondent checked a change of image as his or her institution's most likely response to changes in the outside world. Respondents had three other choices on this item, all of which were coded zero for these analyses. Size consisted of two dummy variables, one for small and the other for medium size. Control was scored by assigning a 1 to public institutions, a 2 to independent institutions.

Four dependent variables, dimensions of perceived organizational performance, were employed in this study. The first two measures relate to the multiple constituencies model of performance in which the primary aim is to satisfy multiple constituents of the organization. Investor confidence is the extent to which respondents agreed that those who make a personal or financial investment in their institutions believe that they receive an ample return. Leader credibility is respondent agreement with the statement that top administrators have high credibility. The second pair of performance measures relates to the system resource model of performance in which an effective organization is one that is able to garner key resources for its use. Faculty quality is the mean of responses to three survey items rating perceptions of the quality of faculty publishing, teaching, and professional development at the respondent's institution. Ability to get resources is the mean of responses to three survey items rating the respondent's perceptions of the institution's relative ability to attract students, faculty members, and financial support.

The first research question deals with the relationship between perceived unpredictability and perceived performance. To investigate the question, we used a multivariate test of significance of group differences on the four measures of organizational performance. A significant overall F statistic would be followed by a discriminant analysis to determine which variables most differentiated between the groups.

If the two groups, those with predictable and unpredictable resources, differed significantly on the perceived performance measures, then the strategies employed in the groups may provide partial explanation for performance differences. The relationships among resource predictability, strategy, and performance are the subject of the second research question.

Although finding a significant difference in performance scores would constitute the most straightforward path to the second question, subsequent analyses are not contingent on affirmatively answering the first research question. It is conceivable that the groups might not differ on perceived performance, yet differ very much on the strategies they used to reach the same end. The identification of such differences—particularly the managerial actions that enhance or detract from perceived performance—should be useful to administrators in both groups.

The second research question deals with the mediating effect of resource predictability on the relationship between strategy and organizational performance. The analysis used a multiple regression paradigm, specifically focused on testing the equality of the relationship between the dependent (performance) variables and the independent (strategy and structure) variables under different experimental conditions (high and low unpredictability of resources) (Johnston, 1972; Morrison, 1983). The procedure involved estimating separate regression equations for each group for each of the four dependent variables. The equality of the relationship between the dependent and independent variables could then be examined with the following tests, which may be generally understood as an extension of covariance analysis:

1. Parallelism of the regression slopes, or of equal regression parameter vectors. Stated as a null hypothesis, this is,

H_0: $B_1 = B_2 = B$ where B is a (k x 1) vector of regression coefficients, $B_2, B_3, \ldots B_k$

Rejection of the null hypothesis would indicate that the relationship of managerial control and strategic management with organizational effectiveness significantly differed in the two groups.

2. Equality of intercepts (slopes assumed constant). Stated as a null hypothesis, this is

$$H_0: a_1 = a_2 = a \quad \text{where } a_1 = \bar{Y}_1 - B\bar{X}_1$$
$$a_2 = \bar{Y}_2 - B\bar{X}_2$$

Rejection of the null hypothesis would indicate that the means of the two groups significantly differed on the dependent (performance) variables after controlling for group differences on the managerial control and strategic management variables.

3. Homogeneity of the complete relationship, or of the overall equality of the regression functions. Stated as a null hypothesis, this is,

$$H_0: \quad a_1 + BX_1 = a_2 + BX_2 = a + BX$$

This test would only be done if the two previous null hypotheses were not rejected. It is equivalent to asking whether a single, overall regression line provides an adequate fit to all groups. Rejection of the hypothesis would indicate that while (1) the individual regression lines were parallel and (2) the adjusted group means lie on a line with slope B, yet a single regression vector does not adequately represent both groups.

4. Equality of specific coefficients or sets of coefficients. These tests are conditional on finding significant differences between the regression coefficient vectors. They allow the investigator to determine which coefficient or set of coefficients most contributed to group differences.

With 27 predictor variables, estimated coefficients might be significantly influenced by the effects of multicollinearity among predictor variables. However, estimates of the squared multiple correlations among the

predictor variables indicated that multicollinearity was not a problem. The coefficients ranged in magnitude from .07 to .76. Work by Krakower (1979), Marquadt and Snee (1975), and Chatterjee and Price (1977) suggest that multicollinearity will have little if any effect on estimated coefficients when squared multiple correlations are less than .9.

Results

The multivariate test for significant differences between the high and low unpredictability groups on the four performance variables indicated no statistically significant differences. Group means differed by less than one-tenth of a point on all four variables:

	Confidence	Credibility	Fac Quality	Resources
Predictable	3.8	3.5	2.8	2.6
Unpredictable	3.8	3.4	2.8	2.7

The results of the analysis suggest that administrators' perceptions of resource unpredictability are unrelated to perceptions of institutional performance. Hence, irrespective of the level of unpredictability, administrators:

1. generally agreed (3.8) with the notion that those who make a personal or financial investment in their institution believe they receive ample return on their investment.
2. were equivocal but tended to agree (3.4-3.5) with the notion that administrators have high credibility.
3. were generally equivocal (2.8) regarding faculty quality.
4. were equivocal but tended to disagree (2.6-2.7) regarding the ability of their institution to get resources.

On the basis of these results, we conclude that perceived unpredictability of resources is not related to perceived organizational performance.

To examine the second research question, each of the performance (dependent) variables was regressed on the list of strategy and structure (independent) variables shown in the appendix. Unstandardized regression coefficients for predictable, unpredictable, and pooled groups for the regression on all four performance variables are shown in tables 1 through 4.

Insert Tables 1 through 4 about here

The first set of tests for the equality of regression coefficient vectors failed to identify any significant differences between the groups for any of the dependent variables. Subsequent tests for the equality of intercept parameters and for the homogeneity of relationships (intercept and slope together) also failed to yield significant group differences. The results of the three sets of analyses suggest that a single, pooled regression model may be used to describe the relationship between each of the dependent and independent variables in the study.

In other words, it appears that institutions in both predictable and unpredictable groups are perceived by their administrators to employ similar if not identical strategies as they pertain to these four dimensions of organizational performance. Therefore, subsequent discussions of the results will deal only with the pooled-group regressions. These equations do not explain a great deal of the variance in performance. The highest R^2 in tables 1 though 4 indicates that less than 50% of the variation in perceived performance is explained by perceived status on strategic and structural

variables. Important predictors of performance may not have been measured in these models.

The second research question asked whether the relationships between strategy and organizational performance differ under conditions of predictable and unpredictable resources. Based on the tests of homogeneity of relationships, the answer appears to be no. However, further examination of the pooled-group regressions reveals that strategy is associated with organizational performance, disregarding resource predictability.

The significant pooled-groups regression coefficients that were reported in tables 1 through 4 are summarized in table 5. They suggest that specific variables can be identified that are related to organizational performance in the minds of these administrators. Linear and interpretive strategy yield several significant variables. The linear and interpretive model variables that contribute to several performance measures include having a distinctive purpose, reducing conflict, having long-range plans, and conserving resources. Adaptive strategy makes only one positive contribution (prospector orientation aids the ability to get resources) and one negative contribution (boundary spanning harms both of the system-resource measures). In addition, the structural variables of size and control appear to be important intervening variables in most of the strategy-performance relationships. The sign and significance of the regression coefficients suggests that administrators from larger private institutions rated their schools more highly on three of the four performance measures.

Insert Table 5 about here

Looking at table 5 by columns rather than rows, it appears that

administrators are in greater agreement regarding the factors that are associated with multiple-constituencies measures of performance (investor confidence and leader credibility) than system-resource measures (faculty quality and ability to get resources). The multiple-constituencies measures are associated with linear and interpretive strategies—highly rational, conservative, take-charge management in institutions with a distinctive purpose, low internal conflict, and relatively tight relations among organizational subunits. The picture is less coherent when one examines the predictors of the two system-resource measures of performance. Interpretive strategy (distinctive purpose and less conflict) continues to play a key role, but the role of linear and adaptive strategy is weak and schizophrenic. Paying a great deal of attention to the environment through boundary spanning is seen as negative, yet the high-performing institution actively seeks out and tries new activities (prospector orientation) while also conserving resources.

Discussion

The results confirm some previous studies, dispute others, and expand the scope of relevant strategy variables. In particular,

1. The study does not support the assumption that unpredictability affects organizational performance.

2. The study found, as did Snow and Hrebiniak (1980) that unpredictability does not appear to be a determinant of the strategy-performance relationship.

3. The study found that, disregarding predictability, the primary strategy variables that appear to be related to performance represent the linear and interpretive models of strategy.

Previous studies have often assumed that unpredictability affects

performance and that it affects the strategy-performance relationship. The assumption has been so widespread, both among researchers and among administrators, that the apparent lack of support for it in these data is surprising. It bears noting that administrators were not asked whether they believed such relationships existed; rather, the inquiry into relationships was created through the research method and statistical procedures. That is, administrators may believe that unpredictability affects performance and the strategy-performance relationship—what this study found is that there is no statistically significant predictability-related pattern in their responses to questions about the relationships. Instead, the analyses suggest that certain variables of strategy and structure are systematically related to performance, regardless of the predictability of the context.

The findings may be affected by artifacts of the methodology. One such artifact is that we do not know the validity of these measures, nearly all of which are one-item scales. We have handled this issue by discussing the results as perceived relationships, not claiming that they are objectively verifiable. Second, the data are cross-sectional, not longitudinal. Administrators answered questions about strategy, unpredictability, and performance simultaneously. Since it takes time before the organization feels, responds to, and shows the effects of unpredictability, a cross-sectional research design cannot fully assess the dynamics involved. Third, the study uses a limited set of performance variables. The goal model of effectiveness was omitted because of the nature of the organizations studied; no financial measures were used because of lack of current data; and many other measures could reasonably be chosen to represent performance objectives. It is conceivable that the findings would be different if these limitations had not existed.

Disregarding predictability, the strategic and structural predictors of performance confirm some findings of prior research but do not confirm others. The strong support for the value of linear strategy confirms the findings of Thune and House (1972) on the value of formal planning, but is different from the Fredrickson and Mitchell (1984) results showing that comprehensive-rational strategic decisionmaking is negatively related to performance. The lack of support for adaptive strategy in this study is quite unlike the strong support evidenced in a number of others (Cameron, 1983; Miller & Friesen, 1978 and 1983; Paine & Anderson, 1977; Schendel, Patton, & Riggs, 1976). The strong support for interpretive strategy is consistent with previous work on higher-education organizations (Chaffee, 1984; Clark, 1970), but not typical of strategy research. Institutional structure variables, too, have often yielded similar results in other higher-education studies. In summary, the study takes one of two popular positions on linear strategy, fails to support a popular position on adaptive strategy, and focuses new attention on the importance of interpretive strategy.

When assessing the pooled regression equations, disregarding predictability, it is important to keep in mind that the results are based on responses by administrators from two extreme groups—those experiencing very high (n = 474) and very low (n = 209) perceived predictability. The results are not statistically different for the two groups taken separately, but the pooled regressions may be affected by the sample selection. The larger group is weighted more heavily than the smaller group in the pooled estimates. The tests for differences between the two groups could have been affected by some dominance from the larger group. If so, having had two groups with equal sizes might have produced a statistically significant difference between high and low unpredictability. Furthermore, the values of the pooled-group

coefficients are necessarily dominated by the larger group. However, any problems that might have arisen from either possibility are minimized by the fact that the coefficients in the two groups were very similar.

Conclusion

Two primary conclusions for research emerge from these analyses. First, additional research is needed on the effects, if any, of unpredictability on strategy and performance. However pervasive such effects may be in some contexts, (a) they are poorly documented and (b) it appears that one cannot assume that they are universal. In this study, there were no significant differences in perceptions of performance or the strategic predictors of performance between administrators with high predictability versus those with low predictability.

Second, researchers might do well to re-examine their choices of strategy models in future studies. Most of the theoretical works and empirical studies of strategy in recent years have emphasized the adaptive model (Chaffee, 1984). The linear model is no longer in vogue, and the interpretive model is just beginning to draw attention. Yet it was the latter two, not the adaptive model, that explained organizational performance in this study. Although the result may be due to the special nature of higher education organizations, the showing of the adaptive model was exceptionally poor.

The major message for administrators is that satisfying multiple constituents regarding organizational performance (and, to a lesser extent, obtaining important resources for the organization) may be primarily a matter of improved management and improved communication, rather than one of changing the products or services of the organization. Improved management may help because higher-education organizations have a reputation--deserved or not--for poor management, and so that area holds promise for visible improvement.

Alternatively, it may be that constituents in Western culture value the appearance of rational decisionmaking so much that improvements in that area are greatly appreciated. Improved communication and a distinctive identity may be especially important for organizations that, like colleges and universities, have difficulty expressing the nature and value of their contributions to society.

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Table 1

REGRESSIONS ON INVESTOR CONFIDENCE

Variable	Predictable (N = 209)	Unpredictable (N = 474)	Pooled (N = 683)
Linear Strategy			
Long range plan	.04	.09*	.07*
Priority cuts	.06	.04	.04
Feedback info	-.01	-.01	.00
Locus of control	.08	-.02	.01
Conserve resources	.06	.12***	.11***
Revenue seeking	.11*	.06	.07**
Professional mgt	.00	-.03	-.02
Multiyear strategy	.05	-.08*	-.04
Centralization	.06	.01	.03
Specialization	.01	-.03	-.02
Adaptive Strategy			
Analyzer	.08	-.00	.02
Prospector	.06	-.02	-.02
Domain offense	.02	.06	.05
Domain creation	.07	-.04	-.03
Product diversity	-.07	.06	.03
Market diversity	.05	-.01	.01
Boundary span	-.04	-.03	-.03
Interpretive Strategy			
Distinctive purpose	.22***	.26***	.25***
Less pluralism	-.09	-.02	-.04
Less conflict	.19**	.04	.07*
Defender	-.11*	.04	-.00
Domain defense	.05	.08	.08*
Change image	.04	.06	.05
Institutional Structure			
Loose coupling	-.01	-.03	-.03
Public/private	.23*	.21**	.20**
Small size	.11	-.36**	-.25*
Medium size	.23	-.28*	-.15
R^2	.39	.22	.24

*p<.05 **p<.01 ***p<.001

Table 2

REGRESSIONS ON LEADER CREDIBILITY

Variable	Predictable (N = 209)	Unpredictable (N = 474)	Pooled (N = 683)
Linear Strategy			
Long range plan	.10	.08	.08*
Priority cuts	.07	.17***	.15***
Feedback info	.05	.06	.06
Locus of control	.02	-.08*	-.05
Conserve resources	.07	.05	.05
Revenue seeking	.10	.01	.02
Professional mgt	.15*	.21***	.20***
Multiyear strategy	.05	-.07	-.04
Centralization	-.04	.03	-.00
Specialization	-.01	.05	.02
Adaptive Strategy			
Analyzer	-.02	.08	.06
Prospector	-.11	.11*	.06
Domain offense	-.04	-.03	-.03
Domain creation	.08	.01	.02
Product diversity	-.08	.03	-.01
Market diversity	.02	.00	.01
Boundary span	-.01	-.02	-.02
Interpretive Strategy			
Distinctive purpose	.09	.21***	.18***
Less pluralism	-.01	.06	.04
Less conflict	.35***	.18***	.22***
Defender	-.02	.00	-.02
Domain defense	.04	.00	.01
Change image	.11	.05	.06
Institutional Structure			
Loose coupling	-.00	-.12**	-.08**
Public/private	.03	.01	.04
Small size	-.12	.01	-.02
Medium size	-.13	.00	-.03
R^2	.45	.42	.40

*p<.05 **p<.01 ***p<.001

Table 3

REGRESSIONS ON FACULTY QUALITY

Variable	Predictable (N = 209)	Unpredictable (N = 474)	Pooled (N = 683)
Linear Strategy			
Long range plan	-.03	.05	.03
Priority cuts	-.05	-.04	-.03
Feedback info	.06	.03	.04
Locus of control	-.03	-.00	-.02
Conserve resources	.09	.02	.04
Revenue seeking	.05	-.01	.00
Professional mgt	-.07	.02	-.01
Multiyear strategy	.11	-.01	.02
Centralization	.00	.03	-.02
Specialization	-.05	-.03	-.03
Adaptive Strategy			
Analyzer	-.03	-.02	-.01
Prospector	.00	.05	.04
Domain offense	-.01	.06	.04
Domain creation	-.04	-.02	-.01
Product diversity	.06	.02	.03
Market diversity	-.02	-.02	-.02
Boundary span	-.12*	-.08	-.08*
Interpretive Strategy			
Distinctive purpose	.14**	.12**	.12***
Less pluralism	-.02	.03	.01
Less conflict	-.01	.03	.02
Defender	.00	-.01	-.01
Domain defense	-.05	.04	.01
Change image	.17	-.09	-.00
Institutional Structure			
Loose coupling	-.04	.01	-.00
Public/private	.19	.15	.16**
Small size	-.98***	-.45***	-.59***
Medium size	-.69***	-.28*	-.39***
R^2	.24	.14	.14

*p<.05 **p<.01 ***p<.001

Table 4

REGRESSIONS ON ABILITY TO GET RESOURCES

Variable	Predictable (N = 209)	Unpredictable (N = 474)	Pooled (N = 683)
Linear Strategy			
Long range plan	-.02	.05	.02
Priority cuts	.01	-.01	-.00
Feedback info	.12*	-.03	.02
Locus of control	-.03	-.05	-.04
Conserve resources	.16***	.08*	.10***
Revenue seeking	.03*	.04	.03
Professional mgt	-.05	.04	.02
Multiyear strategy	.10	.00	.04
Centralization	-.02	-.04	-.03
Specialization	-.02	.02	.01
Adaptive Strategy			
Analyzer	.02	.01	.02
Prospector	.10	.08*	.08**
Domain offense	-.10	.09*	.05
Domain creation	-.06	-.02	-.02
Product diversity	.04	.04	.03
Market diversity	.05	-.05	-.03
Boundary span	-.16**	-.09*	-.11**
Interpretive Strategy			
Distinctive purpose	.10	.18***	.15***
Less pluralism	-.00	-.04	-.03
Less conflict	.08	.07	.07*
Defender	-.02	.06	.03
Domain defense	.01	.04	.03
Change image	-.03	.05	.02
Institutional Structure			
Loose coupling	.01	-.00	-.01
Public/private	.14	.30***	.25***
Small size	-.62**	-.46***	-.48***
Medium size	-.26	-.24*	-.19
R^2	.34	.27	.25

*p<.05 **p<.01 ***p<.001

Table 5

SUMMARY OF SIGNIFICANT PREDICTORS OF PERFORMANCE

	Performance: Multiple Constituencies Model		Performance: System Resource Model	
Predictor Categories	Investor Confidence	Leader Credibility	Faculty Quality	Ability to Get Resources
Linear Strategy	Long range plans Conserve resources Revenue seeking	Long range plans Priority cuts Professional management		Conserve resources
Adaptive Strategy			Boundary span (neg.)	Boundary span (neg.) Prospector
Interpretive Strategy	Distinctive purpose Less conflict Domain defense	Distinctive purpose Less conflict	Distinctive purpose	Distinctive purpose Less conflict
Institutional Structure	Private Med-Large	Loosely coupled (neg.)	Private Large	Private Med-large
R^2	.24	.40	.14	.25

Appendix

VARIABLE LIST

Variable	Item
Linear Strategy	
Long range plan $\bar{X} = 3.4$*	Long-term planning is neglected (inversely scored).
Priority cuts $\bar{X} = 3.6$	When cutbacks occur, they are done on a prioritized basis.
Feedback info $\bar{X} = 3.9$	The top administrative team receives rapid and accurate feedback about enrollment and financial conditions.
Locus of control $\bar{X} = 2.7$	Top administrators believe that factors outside the institution largely determine its condition (inversely scored).
Conserve resources $\bar{X} = 3.0$	The top administrative team provides incentives for conserving resources.
Revenue seeking $\bar{X} = 3.0$	Top administrators emphasize finding new money, more so than saving money, for a balanced budget.
Professional mgt $\bar{X} = 3.7$	We are increasing the quality of the individuals in top administrative positions.
Multiyear strategy $\bar{X} = 3.2$	The top administrative team has developed multi-year strategies to achieve long-term institutional objectives.
Centralization $\bar{X} = 3.4$	Major decisions are very centralized.
Specialization $\bar{X} = 3.1$	This institution has many administrators performing specialized functions.
Adaptive Strategy	
Analyzer $\bar{X} = 2.6$	This institution tries new activities or policies, but not until after others have found them successful.
Prospector $\bar{X} = 3.0$	This institution is likely to be the first to try new activities or policies.
Domain offense $\bar{X} = 3.8$	This institution tends to do more of what it does well, to expand in areas we have expertise.
Domain creation $\bar{X} = 3.3$	This institution establishes new domains of activity.

Appendix continues on the following page.

*Unless otherwise noted in item description, all means are based on a scale in which 1 = strongly disagree and 5 = strongly agree.

Appendix, continued

Variable	Item
Adaptive Strategy, continued	
Product diversity $\bar{X}$ = 3.5*	We are making our academic programs more diverse.
Market diversity $\bar{X}$ = 3.1	We are changing the composition of our student body, making it more diverse.
Boundary span $\bar{X}$ = 3.9	We are increasing the investment of the college in functions that deal with external people (admissions, development, government relations, and others).
Interpretive Strategy	
Distinctive purpose $\bar{X}$ = 4.0	There is a general sense that this institution has a distinctive purpose to fulfill.
Less pluralism $\bar{X}$ = 3.0	Special interest groups within the institution are becoming more vocal (inversely scored).
Less conflict $\bar{X}$ = 2.8	Conflict is increasing within this institution (inversely scored)
Defender $\bar{X}$ = 2.5	This institution tries to insulate itself from its environment.
Domain defense $\bar{X}$ = 4.0	Our top administrators educate important outsiders about the value of the institution in order to improve its legitimacy in their eyes.
Change image $\bar{X}$ = 0.29	The most likely response of this institution to changes in the outside world is to change the institution's image through communication. (Response shows the proportion of individuals who checked this approach as most likely for their institution.)
Institutional Structure	
Loose coupling $\bar{X}$ = 3.0	The activities of the various units in this institution are loosely coordinated or loosely coupled.
Public/private $\bar{X}$ = 1.67	1 = public, 2 = private
Small size $\bar{X}$ = .56	1 = 2500 or fewer students (n = 407 respondents) 0 = all others
Medium size $\bar{X}$ = .35	1 = 2501 - 10,000 students (n = 262 respondents) 0 = all others

*Unless otherwise noted in item description, all means are based on a scale in which 1 = strongly disagree and 5 = strongly agree.