

# Strategic Management and the Performance of Public Organizations: Testing Venerable Ideas against Recent Theories

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## ABSTRACT

Miles and Snow, among others, argue that strategy content is an important influence on organizational performance. Their typology, applied recently to public organizations in the United Kingdom, divides strategic actors into four general types: prospectors, defenders, analyzers, and reactors. This article begins by integrating work on strategy content or strategic management into the O'Toole-Meier formal theory of public management. This study shows that strategy content is a subset of generally accepted management functions in public organizations. The article then proceeds to test the strategic management concepts in a large, multiyear sample of public organizations. The results show that strategy can be separated out from other elements of management for a distinguishable assessment of its impact on organizational performance. Unlike the predictions of Miles and Snow and the empirical findings of Boyne and Walker, however, we find that the defender strategy is the most effective for the primary mission of the organization and that the prospector and reactor strategies work best in regard to the goals of the more politically powerful elements of the organization's environment.

Systematic evidence has accumulated in recent years that public management makes a difference in a variety of ways when programs are implemented (for recent coverage, see Ingraham and Lynn 2004; also Lynn et al. 2001). Particularly salient in this regard have

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been the performance-related impacts of public management, which have now begun to receive substantial attention (Andrews et al. 2005; Brewer 2005; Chun and Rainey 2005; Donahue et al. 2004; Martin and Smith 2005; Meier and O'Toole 2001, 2003; O'Toole and Meier 2003, 2004a, 2004b). Management appears to shape performance when conducted from multiple levels, directed internally at operations, targeted at various parts of the program's environment, and executed with particular skill or adroitness.

Although myriad managerial influences on performance have been identified and some have been estimated, existing research constitutes only the initial efforts of what must be a broader and more ambitious analytical and empirical argosy. A considerable portion of the work completed thus far, for example, relies on reports of managerial behaviors in fairly specific, time-bound snapshots. These studies are useful but tend, of necessity, to tap tactical managerial moves rather than the broader and more elusive strategic elements of management (with certain exceptions, to be noted shortly). Management theory, however, offers a powerful rationale for considering the strategic dimension, suggesting that multiple elements of public management (including strategic stance) must be considered in any comprehensive examination of the management-and-performance question. This article adds to the earlier analyses of several aspects of managerial effort, particularly tactical moves and managerial quality, a systematic treatment of "strategy content" and its performance-related results.

The argument proceeds in five parts. First, we discuss the importance of organizational strategy for the study of public management. Second, based on our contention that strategy content is a discretionary managerial function, we introduce a general management model that has been used productively in a variety of studies of public management. Third, strategy content is incorporated into the general model to illustrate that this venerable idea is consistent with most contemporary approaches to public management. Fourth, strategy content is operationalized and tested using a data set of several hundred public organizations over a 6-year time period. Finally, we discuss the meaning of our findings for public management theory and its empirical study.

### **THE VENERABLE IDEA: STRATEGY CONTENT AND ORGANIZATIONAL PERFORMANCE**

The idea that strategy content influences organizational performance is a central element of generic management theory. Strategy content can be defined broadly as the way an organization seeks to align itself with the environment (Donaldson 1995; Miles and Snow 1978). Strategy can be characterized as senior managers' response to the constraints and opportunities that they face. The better the fit that an organization achieves with external circumstances, the more likely it is to win financial and political support and thereby improve its performance. In the 1960s and 1970s, the view that private organizations were prisoners of market forces and thereby "compelled" to adopt the single strategy that fit their economic circumstances began to erode. Major management theories such as those of Chandler (1962) and Child (1972) emphasized that private firms can exercise strategic choice, even in the face of external constraints. They can, for example, specialize in a single market or operate in a variety of markets, seek a competitive edge through low cost or high quality, and attempt to protect or enhance their share of the market.

This line of reasoning culminated in Miles and Snow (1978), one of the seminal works in the field of strategic management. They consolidated existing research by developing a typology of strategy content that contained four "ideal types." *Prospectors* are organizations

that “almost continually search for market opportunities, and . . . regularly experiment with potential responses to emerging environmental trends” (29). These organizations often pioneer the development of new products and services. *Defenders* are organizations that take a conservative view of new products’ development. They typically compete on price and quality rather than on new products or markets and “devote primary attention to improving the efficiency of their existing operations” (29); in short, they seek better performance on a limited number of core products and services. *Analyzers* represent an intermediate category, sharing elements of both prospector and defender. Analyzers are rarely “first movers” but, instead, “watch their competitors closely for new ideas, and . . . rapidly adopt those which appear to be most promising” (29). *Reactors* are organizations in which top managers frequently perceive change and uncertainty in their organizational environments but typically lack an actual strategy. A reactor “seldom makes adjustment of any sort until forced to do so by environmental pressures” (29). Miles and Snow argue that these strategic orientations are enduring, likely to change only slowly and gradually, and distinct from short-term tactical moves.

The central contention of Miles and Snow (1978) is that prospectors, defenders, and analyzers perform better than reactors, a finding supported in a number of private sector studies (e.g., Conant et al. 1990; Hawes and Crittenden 1984; Shortell and Zajac 1990). Some empirical evaluations of the Miles and Snow framework distinguish between the performance of prospectors and defenders. The study by Evans and Green (2000) of Chapter 11 bankruptcy notes that prospectors are more likely than defenders to achieve business turnaround. Hambrick (1983) concludes that prospectors outperform defenders on market share changes but that this pattern is reversed for return on investment. The analysis of US hospitals by Zajac and Shortell (1989) found that the performance of defenders fell behind other generic strategy types when the environment called for a more proactive approach. Woodside et al. (1999) conclude that prospectors outperform defenders, who in turn outperform reactors. The evidence on the private sector, thus, provides some clues that the relative effectiveness of different strategies may be contingent on the environmental context, the current level of performance, and the dimensions of performance that are analyzed.

Boyne and Walker (2004) recently evaluated the relevance of the Miles and Snow (1978) framework to public organizations. They criticize most prior research on strategy content for placing organizations in mutually exclusive boxes and assuming that each organization has only a single strategic stance, that is, for example, just a prospector or a defender. Boyne and Walker (2004) argue that organizations’ strategies are messy and complex rather than neat and simple. A mix of strategies is likely to be pursued at the same time, so it is inappropriate to categorize organizations as belonging solely to a single type (e.g., reactor or prospector). This logic also implies that the “analyzer” category is redundant because all organizations are both prospectors and defenders to some extent (although the balance will vary with the priority attached to these stances and that attached to a reactor strategy).

This modified version of the Miles and Snow (1978) model of strategy content has subsequently been tested on English local authorities. Andrews et al. (2006) examine the relationship between strategy and organizational performance in a multivariate model that also controls for external constraints (the prosperity of the local population and the diversity of their service needs). Their measures of prospecting, defending, and reacting are based on Likert scale survey responses from senior and middle managers in a sample of

120 organizations. The empirical results reveal a hierarchy of strategy types: the impact of prospecting is positive, defending neutral, and reacting negative. Thus, controlling for the presence of other strategic stances in an organization, prospecting is the best option and reacting is the worst.

This evidence is consistent with the view that strategy matters not only in the private sector but also in the public sector. Whether the prospectors-beat-defenders-beat-reactors result can be generalized to other public organizations is less clear. Local authorities in England have been strongly encouraged by their primary stakeholder (UK central government) to pursue innovation in recent years. Perhaps, this policy context makes a difference to the success of different strategic stances. Also, Andrews et al. (2006) examine only one aggregate measure of performance. Perhaps, as the private sector evidence suggests, the relative effectiveness of prospecting and defending varies across dimensions of performance. Finally, strategy is the only aspect of public management that is included in the Andrews et al. (2005) study. Does the “hierarchy of strategies” persist when other management variables, such as leadership quality, stability and networking, are held constant? This article presents new empirical evidence that illuminates these issues.

### THE MODEL

Miles and Snow (1978, 29) contend that managers adopt one of four strategic stances on the basis of which any number of specific organizational (tactical) decisions are to be approached. As such, strategy is essentially a choice by management to establish a consistent response to problems or environmental challenges. Because they represent consistent management decisions, the various strategy content patterns can be incorporated into more general models of management, including the O’Toole-Meier management model.

In their research agenda focusing on understanding the relationship among public management, institutional arrangements, and public program performance, O’Toole and Meier (1999) begin with the following:

$$O_t = \beta_1(S + M_1)O_{t-1} + \beta_2(X_t/S)(M_3/M_4) + \varepsilon_t, \quad (1)$$

where  $O$  is some measure of outcome;  $S$  is a measure of stability;  $M$  denotes management, which can be divided into three parts;  $M_1$  is management’s contribution to organizational stability through additions to hierarchy/structure as well as regular operations;  $M_3$  is management’s efforts to exploit the environment of the organization;  $M_4$  is management’s effort to buffer the unit from environmental shocks;  $X$  is a vector of environmental forces;  $\varepsilon$  is an error term; the other subscripts denote time periods; and  $\beta_1$  and  $\beta_2$  are estimable parameters.

The model incorporates three basic principles in regard to public management and organizations. First, organizations are autoregressive systems. Because organizations create processes and operating procedures that are designed to reproduce the same outputs over time, the best predictor of what an organization will do tomorrow is what it does today. The autoregressive component is captured by the lagged dependent variable, thus requiring time series or panel data for estimation purposes. The autoregressive estimation means that the impact of any variables including management is dynamic and distributed over time. Small management actions, as a result, can have a dramatic impact over a period of years. Empirical studies consistently demonstrate the importance of the inertial nature of organizations; past performance is always the most significant factor in any of the models in which it appears (see Meier and O’Toole 2003; O’Toole and Meier 2003).

Second, the model is nonlinear rather than strictly additive. At times, factors interact in a multiplicative manner; at times, the interaction is with a reciprocal function; and at other times, terms add together and then interact with another factor to generate their overall impact on organization performance. These hypothesized reciprocal effects were derived from the massive case study literature but generally had not been tested empirically before this research agenda began several years ago.

Third, the model is contingent to reflect the view that what works regarding management is dependent on a variety of other factors. Among the most interesting contingencies are those involving stability. The stability term can be considered one end of a continuum, with fluid arrays on the opposite pole. Structurally, this parallels the distinction between stable hierarchies and more fluid institutional arrangements, such as networks of interdependent units. As the stability variable moves toward zero, the model estimates how management affects programs in settings marked by great and unpredictable changes over time.

In the model, *S* can be considered a composite of the various kinds of stability in an organizational setting. Stability means constancy in the design, functioning, and direction of an administrative system over time. Five types of stability were identified in an earlier study: structural stability, mission stability, production or technology stability, procedural stability, and personnel stability (O'Toole and Meier 2003). That analysis investigated the impact of personnel stability on the performance of administrative systems and developed empirical evidence of its positive contribution.

The model contains three broad functions of management. They are efforts to manage the internal operations of the organization ( $M_1$ ), efforts to exploit opportunities in the environment ( $M_3$ ), and efforts to limit the negative impact of environmental changes ( $M_4$ ). The latter two functions in the second, environmental, portion of the model are often combined as  $M_2$ —defined as the ratio of  $M_3$  to  $M_4$ .<sup>1</sup>

The objective in presenting the original formal model, and the impetus behind this research agenda, is the idea that it is crucial to be precise about exactly how management might relate to performance and how it might interact with other factors to affect performance. For any theoretical endeavor, it is less important to be correct in the initial arguments than to be precise in what is being said (O'Toole and Meier 1999). An unfalsifiable theory is of little use in a scientific effort to understand phenomena, including such a complex and important phenomenon as public management.

## INCORPORATING STRATEGY CONTENT INTO THE MODEL

The base model conceptualizes management broadly; within each of the managerial terms, a number of more concrete managerial subfunctions and behaviors can be encompassed. In earlier works aimed at testing parts of the model, certain measures were developed to tap aspects of these terms, and these are carried forward into the current investigation. In addition, here we develop a dimension that is evident in the model but thus far has been unexplored in this research program through empirical work: the strategic aspect.

Each of the three types of strategy content depicted earlier can be incorporated into the base model with relative ease. Defending (symbolically:  $SC_d$ ) is the decision of the organization to focus on efficiency in its core tasks. Such a strategy might include withdrawing

<sup>1</sup> In an other work, O'Toole and Meier distinguish among managing outward ( $M_2$ ), downward ( $M_1$ ), and upward ( $M_u$ ). See Meier et al. (2006) and O'Toole et al. (2005), as well as the coverage below.

from activities unrelated to the core task and stressing to the organizational members the need to become more effective or efficient on a small number (perhaps only one) of clearly expressed goals (Miles and Snow 1978, 48). Because many public organizations have their core tasks defined by political sovereigns (Wilson 1989), the “goals and efficiency”-related aspects of defending are likely to be more important than any actual repositioning.<sup>2</sup> A large aspect of defending, then, is part of  $M_1$ , internal management. By stressing efficiency in core tasks, management signals to organizational employees the types of activities and results that are valued (see Barnard 1938). Although defending might also enter into the environmental portion of the model, either by buffering the environment to avoid challenges to the core tasks or seeking opportunities to exploit that involve the core task, its primary emphasis can be expected to emerge in internal management and will be treated as such here.

Prospectors ( $SC_p$ ), in contrast, are focused on the environment; they seek new opportunities that can be used to good advantage by the organization (Miles and Snow 1978, 66). Prospecting quite logically fits into  $M_2$ ; specifically, a prospector is likely to have a large  $M_3$  term—that is, an orientation to exploiting environmental opportunities. Reactors ( $SC_r$ ), in contrast, do not seek to either defend core processes or exploit opportunities; instead, they simply react after events transpire. Reacting is also clearly an environmental management strategy; however, it is one that seeks neither to exploit nor to buffer as an emphasis, but rather to respond to exploitative or buffering moves by external parties themselves. Accordingly, reacting can be associated with an  $M_3/M_4$  ratio near unity. An  $M_3/M_4$  ratio of 1 does not mean the reactor has no priorities in terms of environmental initiatives. Reactors in many cases cede their environmental strategy to regulators (or organizations that create rules and procedures for the reacting organization) who then set the organization’s priorities.

This discussion of strategy content illustrates that the strategies are not mutually exclusive; and indeed, empirical efforts have generally found an overlap among the strategies (for evidence from private organizations, see Conant et al. 1990, and for public organizations, Andrews et al. 2005, 2006; see below as well). Prospectors seek opportunities, but they will certainly not avoid some of these merely because they fall into their core goal set; hence, prospecting can contain an element of defending. Similarly, defenders might be quite innovative in pursuing their core goals (i.e., in prospecting of a certain type) while ignoring other types of opportunities. Even reactors might mimic prospectors or defenders in some situations, depending on the cues from their regulator. By ceding control over their agenda to the regulator, managers adopting this strategy might look like defenders and perhaps even prospectors—if that is what the regulator is currently demanding. They may, however, lack the skills and values to switch successfully to one of these other strategic stances (Boyne and Walker 2004).

## **SAMPLE AND MEASURES**

The theoretical approach we are using places heavy demands on a data set, especially when strategy content is to be incorporated into an existing framework. Our task is facilitated by using the Texas school district data set, an empirical source with a significant number of well-developed managerial concepts that has been used by a large number of public

2 This point does not mean that public organizations do not chase salient issues with the potential for political support—witness the large set of US agencies that now contend that they perform homeland security functions.

management scholars (Fernandez 2005; Goerdel 2006; Gonzalez Juenke 2005; Hicklin 2004; Hill 2005; Pitts 2005).

Our data are drawn from two sources. In 2000 and 2002, Meier and O'Toole surveyed the 1,000+ Texas school district superintendents on management styles, goals, and time allocations. Their return rates were 55% in 2000 and 60% in 2002.<sup>3</sup> Pooling 6 years (2000–2005) of data on performance and control variables produces a total of 3,041 cases for analysis. Missing data on individual items reduce this number somewhat in individual equations. All nonsurvey data were from the Texas Education Agency.

All management studies need to be set in context to permit comparisons across investigations. Although schools and school districts are the most common public organizations in the United States, they have some distinct characteristics. School districts are highly professionalized with elaborate certification processes for various occupations. The organizations themselves are decentralized with substantial discretion vested at the street (classroom) level. Despite this common structure, districts themselves are highly diverse. They range from urban to rural, rich to poor, and homogeneous to heterogeneous, as one would expect given that Texas contains 8% of all school districts in the United States.

School districts in the United States are generally independent<sup>4</sup> local governments with their own taxing powers; all districts in the sample are organized in this way. The state of Texas, the locus from which our sample is drawn, operates a relatively decentralized system, with most authority residing with the local school districts. Each district determines its own curriculum and makes all its own personnel decisions.

## **Management Measures**

### ***Strategy Content***

We tap the strategy content of school districts by asking the districts' top managers about their perspectives on the crucial distinguishing features of the types. The measures used are designed to capture an important portion of top managers' strategic approaches. They are not perfect but do provide reasonable operational meanings for the complex perspectives apparent in managerial and organizational decision making.

A defender ( $SC_d$ ) is a manager who focuses the organization on its key tasks and seeks to be more efficient/effective in those tasks. The superintendents were asked to rate the priority given to five different tasks (improving Texas Assessment of Academic Skills [TAAS] scores, focusing on college-bound students, emphasizing vocational education, improving bilingual education, and supporting extracurricular activities). Although all these goals have some support, the primary method of assessing school district performance and the most salient of the goals is performance on the TAAS, a standardized academic skills test.<sup>5</sup> Superintendents were also asked to rate seven factors in terms of

3 Districts responding to the surveys were no different from nonrespondents on key variables such as enrollment, enrollment growth, students' race, ethnicity and poverty, or test scores.

4 Independent means that the school district is not subordinate to another unit such as a city. Independent districts have their own elected board, have the ability to tax and set budgets, and acquire bonding authority by a vote of the residents.

5 An anonymous reviewer suggested that a focus on the TAAS test might be a change from an emphasis on process to an emphasis on performance and thus might indicate prospector-like behavior. The Texas performance system, however, was established in 1986, and so, by the start of this study, the performance system had been in place 14 years. Stressing a goal established 14 years earlier is hardly innovative and more consistent with defender behavior than prospecting.

their influence on decisions, including efficiency. We created a measure of defender strategy with a scale that taps the importance of TAAS and also the stress on efficiency.<sup>6</sup>

Reactors ( $SC_r$ ) essentially have no strategy in regard to the environment but rather wait until something happens. In many cases, both cues from the environment and decisions about what to do in response to these cues can be taken from regulatory agencies, in this case the Texas Education Agency. Superintendents were asked to rank seven factors in regard to their influence on policies adopted by the district (parents, the school board, desire for efficiency, etc.) including the Texas Education Agency. The actual measure was the ranking given the Texas Education Agency with highest ranking assigned a value of 7.<sup>7</sup>

Prospectors ( $SC_p$ ) are managers who seek opportunities to exploit the environment. We expect prospectors to both value change and to take action. To tap the change orientation, we use the superintendent's agreement (four-point scale) with the statement "A superintendent should advocate major changes in school policies." To incorporate the action component, we use additional information about our  $M_2$  measure, discussed below, which deals with the frequency that superintendents interact with key stakeholders in the environment. Prospectors are expected to be more aggressive in these environmental efforts, so we asked the superintendents which party—the top manager or the external actor—initiated the most recent contact involving the specific environmental actor in question. Managers were queried in this fashion regarding each of seven different environmental actors—local business leaders, parent groups, teachers' associations, other superintendents, state legislators, the Texas Education Agency, and federal education officials. Prospectors are more likely to initiate contacts as they aggressively seek opportunities to exploit. The prospector measure is an index that combines the number of times the interaction was initiated by the superintendent (for an alternative interpretation see Goerdel 2006) with the superintendent's endorsement of change.<sup>8</sup> Such behavior should be considered initiating behavior rather than reacting behavior because the superintendent does not wait for stakeholders to contact him or her but rather takes the initiative in such interactions. By including a behavior element in this measure, it also ties the measure to *activities* by the superintendent rather than simply tapping an attitudinal preference that may or may not result in any activity.

### **Managerial Networking**

This measure ( $M_2$ ) is intended to get at the reported behavior of school district top managers as they interact with the important parties in the district's environment. Because school districts operate within a network of other organizations and actors who influence their students, resources, programs, goals, and reputation, the extent to which a superintendent

6 The TAAS measure gives the highest ranking goal a measure of 5, the next highest 4, and so on. The score for the TAAS is then divided by the average score for the other four goals. Because the respondents omitted some ranks and coded some ties, the measure is not merely a linear transformation of the ranks. The efficiency measure is a scale from 1 = most important to 7 = least important. The indicators are essentially uncorrelated with each other.

7 At the suggestion of an anonymous reviewer, we tried using the school board as the institution that drives reactors. When we did, the regressions produced 10 insignificant relationships out of 10. One might also think that reactors might respond to all elements of the environment and a more general measure might be valuable, but because the question asks for rank order, using all seven items creates a set of perfectly collinear variables. In addition, TEA was ranked as most important by 57.8% of the superintendents, far greater than those who ranked the school board (15.6%), parents (4.8%), or teachers associations (0.2%) as number one.

8 The change measure by itself is never significant when placed in the model by itself. The initiation measure by itself is significant and positive for high-end indicators.



manages in the school district's interdependent environment is related to school district performance (Meier and O'Toole 2001, 2003).

To measure the behavioral networking activity of school superintendents, Meier and O'Toole (2001) selected four sets of actors from the organization's environment: local business leaders, other school superintendents, state legislators, and the Texas Education Agency. In their mail survey, they asked each superintendent how often he or she interacted with each actor, on a six-point scale ranging from daily to never. Assuming that superintendents with a networking managerial approach should interact more frequently with all four actors than would a superintendent with an approach focused on internal management, a composite network management-style scale was created via factor analysis. All four items loaded positively on the first factor, producing an eigenvalue of 1.82; no other factors were statistically significant. Factor scores from this analysis were then used as a measure of managerial networking, with higher scores indicating a greater networking orientation.<sup>9</sup>

*Managerial quality* ( $M_q$ ) is a notoriously difficult concept to measure. Meier and O'Toole (2002) validated a measure based on the residual from a model explaining salaries of district superintendents. The salary-setting process in Texas school districts approximates a competitive labor market with full information. As a result, management skills should be positively rewarded by the market. To isolate this quality component, they predict logged superintendent salaries with 11 variables measuring job size, human-capital factors, personal characteristics, and prior school district outputs similar to common salary models in the literature (see Ehrenberg et al. 1988).<sup>10</sup> We replicated that analysis for the years 2000–2005.

The resulting model predicts 81% of the variance in salaries, thus comparing favorably to other models in the literature (and explaining 3% more than did the original Meier and O'Toole estimation). The objective was to remove as many “nonquality” factors as possible from the superintendent's salary. The remaining residuals were then standardized (converted to a mean of 0 and a standard deviation [SD] of 1) for use in the subsequent analysis as a rough indicator of management quality. This measure is clearly a messy one,

9 The networking measure is from the 2000 survey, whereas the prospecting measure is from the 2002 survey. This was done to reduce the potential overlap between the two concepts; the prospecting measures were asked only on the 2002 survey. Because not all respondents in the 2000 survey also responded to the 2002 survey, we coded the missing prospector values as equal to the mean. This coding means the imputed missing values will have no influence on the relationships in the regression but at the same time allow us to retain as many cases as possible. Using a network measure based on the 2002 survey produced generally similar results (this occurred whether the analysis used a network measure based on four nodes or seven nodes). The measures developed for initiating and for managerial networking, therefore, tap quite different features of managerial action. The former, as measured in this analysis, includes only the self-initiation aspect of managers' external efforts; the latter includes only the extent and frequency of managers' networking behavior and ignores the question of who initiates the interactions (see Goerdel 2006). This distinction is essential to avoid confusing attention to the networked environment, which could be defensive or reactive in nature, with efforts to exploit new opportunities. Both measures are included in the analyses that follow.

10 District characteristics included as predictors are the district's total budget, tax rate, and average revenue per student; these district characteristics are logged. Four human-capital characteristics are included: experience as a superintendent, tenure in the current job, age, and possession of a doctorate. Personal characteristics included are whether the superintendent is female, black, or Latino. The adjustment for prior year's test scores is also included because we think managerial quality is affected by prior performance, and quality then affects future performance. Over time, in other words, there is reciprocal correlation. The adjustment for this endogeneity is handled via an instrumental variables technique. Six student characteristics and district resources are used as instruments; the purged measure of prior performance is then included in the model.

since the residual contains all factors not included in the model. The impact of this measurement error, however, attenuates any relationships between a quality measure and other variables such as organizational outputs.<sup>11</sup>

### ***Managing Upward***

In addition to managing in the environment and also on the internal operations of the organization, public managers also have to deal with political sovereigns. Previous work (O'Toole et al. 2005) has revealed that interactions between the superintendent and the school board are fundamentally different from interactions with other environmental actors. Interactions with the school board as an oversight body fit what Moore (1995) describes as managing upward. The measure ( $M_u$ ) is a six-point scale on the reported frequency of interactions with the school board, with responses ranging from daily to never.

### ***Stability***

O'Toole and Meier (2003) have developed and validated two aspects of personnel stability. They note in their study, however, that these measures are as much management measures as they are structural ones, so we interpret both as aspects of management ( $M$ ). *Managerial stability* ( $S_m$ ) seeks to measure constancy in top leadership; it is simply the number of years the superintendent has been employed by the district *in any capacity*.<sup>12</sup> *Workforce stability* ( $S_w$ ) moves this concept down to the street level. It is measured as the percentage of teachers employed by the district during the preceding year who continue to work for the district. For both measures, then, higher scores mean more stability. Data on managerial stability were obtained from the survey respondents; data on teacher stability were provided by the Texas Education Agency. Although these measures were initially designed as stability features, we consider them here as aspects of management: specifically, what is usually referred to as personnel management. Although not totally under the control of school district leaders, these variables are susceptible to influence by the individuals who make decisions about how such organizations are run.

### **Performance Indicators**

Although virtually all programs have multiple goals and thus are subject to multiple performance indicators, some objectives are defined as more important by the political environment than are others (O'Toole and Meier 2004a). This study incorporates 10 different performance indicators in an effort to determine how public management affects a variety of organizational outcomes.

Although each performance indicator is salient to some portion of the educational environment, the most noticeable by far is the overall student pass rate on the TAAS and its successor the Texas Assessment of Knowledge and Skills (TAKS). The TAAS/TAKS is a standardized, criterion-based test that all students in grades 3 through 8 and 11 have to

11  $M_1$  and  $M_2$  conceptually include both quantity (activity) and quality components. Nevertheless, the quality measure likely reflects  $M_1$  more than  $M_2$ , although the ability to network in the environment should also have a quality dimension.

12 The measure as a result taps both stability and capacity—the latter in the sense of knowledge about the organization.

take. The grade 11 exam is a high-stakes test, and students are required to pass it to receive a regular diploma from the state of Texas. TAAS/TAKS scores are used to rank districts, and the examination results are without question the most visible indicator of performance used to assess the quality of schools. Our measure is the percentage of students in a district who passed all (reading, writing, and math) sections of the TAAS.

Four other TAAS/TAKS measures were also useful as performance indicators. The state accountability system assesses performance of subgroups of students, and districts must perform well on all these indicators to attain various state rankings. TAAS/TAKS scores for Anglo, black, Latino, and low-income students were included as measures of performance.<sup>13</sup>

Many parents and policy makers are also concerned with the performance of school districts regarding college-bound students. Three measures of college-bound student performance were used—average ACT score, average SAT score, and the percentage of students who score above 1,100 on the SAT (or its ACT equivalent). Texas is one of a few states where both the ACT and the SAT are taken by sufficient numbers to provide reliable indicators of both. As with statewide samples where there is no correlation between these scores and the number of students taking them if the proportion of tested students is more than 30% of the total eligible to be tested (Smith 2003), Texas scores are generally uncorrelated with the percentage of students taking the exams.

The final two measures of performance might be termed bottom-end indicators—attendance rates and dropout rates. High attendance rates are valued for two reasons. Students are unlikely to learn if they are not in class, and state aid is allocated to the school district based, in part, on average daily attendance. Attendance, as a result, is a good indicator of low-end performance by these organizations; the measure is simply the average percentage of students who are not absent. Dropout rates, although conceded to contain a great deal of error, are frequently also used to evaluate the performance of school districts.<sup>14</sup> The official state measure of dropouts is the annual percentage of students who leave school from eighth grade onward.

## **Control Variables**

Any assessment of public program performance must control for both task difficulty and program resources. For school districts, neither of these types of elements is under the substantial control of the districts themselves, and therefore, they can be considered key parts of the vector of environmental forces. Fortunately, a well-developed literature on educational production functions (Hanushek 1996; Hedges and Greenwald 1996) can be used for guidance. Eight variables, all commonly used, are included in our analysis—three measures of task difficulty and five measures of resources.

Schools and school districts clearly vary in how difficult it is to educate their students. Some districts have homogeneous student populations from upper middle class backgrounds.

13 The various pass rates do not correlate as highly as one might imagine. The intercorrelations between the Anglo, black, and Latino pass rates are all in the neighborhood of 0.6, thus suggesting the overlap is only a bit more than one third.

14 School districts often have annual student turnover of 20% or greater. School districts do not necessarily know where students have gone unless they receive a request for a transcript. In addition, school districts have few incentives to find out why any given student has not returned for a new academic year.

Students such as these are quite likely to do well in school regardless of what the school does (see Burtless 1996). Other districts with a large number of poor students and a highly diverse student body will find it more difficult to attain high levels of performance because the schools will have to make up for a less supportive home environment and deal with more complex and more varied learning problems (Jencks and Phillips 1998). Our three measures of task difficulty are the percentages of students who are black, Latino, and poor. The last-mentioned variable is measured by the percentage who are eligible for free or reduced-price school lunch. All three measures should be negatively related to performance.

Although the linkage between resources and performance in schools has been controversial (see Hanushek 1996; Hedges and Greenwald 1996), a growing literature of well-designed longitudinal studies confirms that like other organizations, schools with more resources generally fare better (Wenglinsky 1997). Five measures of resources are included. The average teacher salary, per-student instructional spending, and class size are directly tied to monetary resources. The average years of teaching experience and the percentage of teachers who are not certified are related to the human resources of the school district. Class size and noncertified teachers should be negatively related to student performance; teacher experience and teacher salaries should be positively related to performance. The appropriate sign for percent state aid is not clear.

**ADJUSTMENTS TO THE MODEL**

The public management model depicted in equation (1) is highly complex and unlikely ever to be comprehensively studied in a single research article. At the same time, testing portions of the model, sometimes through partial specifications, has been a productive enterprise that has permitted the development of management concepts and some examination of the linkages among management, structural features, and performance. This article continues that effort by reducing the overall model to a simpler one amenable to direct testing.

First, because all the public organizations in this study are school districts, we are going to assume that the major structural/stability factors (other than the management-related personnel stability measures) are essentially constant and can be dropped from the model, thus resulting in the following equation:

$$O_t = \beta_1(M_1)O_{t-1} + \beta_2(X_t)(M_3/M_4) + \varepsilon_t. \tag{2}$$

We then drop the autoregressive term in the model to avoid missing significant long-term relationships simply because the lagged dependent variable can overwhelm small but significant influences:

$$O_t = \beta_1(M_1) + \beta_2(X_t)(M_3/M_4) + \varepsilon_t. \tag{3}$$

We simplify further by moving from an interactive model in the second term to one that is linear. This step eliminates a portion of the relationships that are anticipated by the full model. The simplification is justified, however, to focus attention on the relationships of particular interest in this investigation. The nonlinearities theorized regarding the relationship between external management, on the one hand, and the opportunities and constraints in the organizational environment, on the other hand, have been analyzed more carefully in an earlier study (Meier and O’Toole 2003; for an empirical examination of additional

nonlinearities sketched in the model, see O’Toole and Meier 2004a). The nonlinear version of equation (3) is as follows:

$$O_t = \beta_1(M_1) + \beta_2(X_t) + \beta_3(M_3/M_4) + \varepsilon_t. \tag{4}$$

We then decompose  $M_1$  and  $M_2$  (which is the ratio of  $M_3/M_4$ ) into previously validated measures of management—managerial networking ( $M_2$ ), management quality ( $M_q$ ), managing upward ( $M_u$ ), managerial stability ( $S_m$ ), and workforce stability ( $S_w$ ):

$$O_t = \beta_2(X_t) + \beta_3(M_2) + \beta_4(M_q) + \beta_5(M_u) + \beta_6(S_m) + \beta_7(S_w) + \varepsilon_t. \tag{5}$$

To this more specific version we then add the measures of strategy content to the equation: prospecting ( $SC_p$ ), defending ( $SC_d$ ), and reacting ( $SC_r$ ):

$$O_t = \beta_2(X_t) + \beta_3(M_2) + \beta_4(M_q) + \beta_5(M_u) + \beta_6(S_m) + \beta_7(S_w) + \beta_8(SC_p) + \beta_9(SC_d) + \beta_{10}(SC_r) + \varepsilon_t. \tag{6}$$

The result is a straightforward linear model that incorporates strategy content into the general model of public management. This model is a useful first step in verifying the utility of strategy content in a general model of management. If strategy matters in this simplified assessment, future research can turn to the various contingencies and nonlinearities likely to be present in different circumstances.

**FINDINGS**

The explicit inclusion of strategy content to the core of the model means that the specification now contains eight management variables, thus raising the question as to how the various measures are related to each other. Table 1 provides a correlation matrix of the eight variables. The striking aspect of the table is how unrelated the various measures of management are to each other. The highest positive correlation (+0.36) is between managing upward and managerial networking. Although that relationship in and of itself is only moderate (together, the measures share less than 13% common variation), other work demonstrates that managing upward is a distinctly different concept from managing in the network (O’Toole et al. 2005). Even prospecting, which is conceptually linked to the managerial networking variable (albeit at two different time periods), is only weakly correlated with the networking variable ( $r = 0.04$ ). The correlations among the strategy

**Table 1**  
Correlations among Management Measures

	$M_2$	$M_u$	$S_w$	$S_m$	$M_q$	$SC_d$	$SC_r$
School board contact	0.36	×	×	×	×	×	×
Personnel stability	-0.03	0.04	×	×	×	×	×
Management stability	-0.07	-0.05	-0.08	×	×	×	×
Management quality	0.01	0.01	0.05	-0.03	×	×	×
Defenders	0.04	-0.01	0.04	-0.05	0.05	×	×
Reactors	-0.04	-0.12	0.02	0.01	0.05	-0.02	×
Prospectors	0.04	-0.11	-0.04	-0.05	0.03	0.02	-0.12

Code:  $M_2$ , management networking;  $M_u$ , managing upward, school board contact;  $S_w$ , personnel (worker) stability;  $S_m$ , management stability;  $M_q$ , management quality;  $SC_d$ , defender strategy;  $SC_r$ , reactor strategy;  $SC_p$ , prospector strategy.

**Table 2**  
The Impact of Management and Management Strategy on Organizational Performance

Independent Variables	Dependent Variable = Student Exam Pass Rates		
	Slope	<i>t</i>	<i>p</i>
Managerial strategy			
Defender	0.3766	2.84	0.0046
Reactor	0.1437	1.14	0.2551
Prospector	0.0163	0.15	0.8814
Management			
Managerial networking	0.4697	3.36	0.0008
School board contact	-0.5997	3.84	0.0001
Management quality	0.6944	5.08	0.0001
Management experience	0.0421	3.01	0.0026
Personnel stability	0.1401	7.70	0.0001
Control variables			
Teacher's salaries (thousands)	0.4086	6.07	0.0001
Class size	-0.2554	2.49	0.0129
Teacher experience	0.1703	2.44	0.0145
Noncertified teachers	-0.0981	3.94	0.0001
Instructional funds	-0.2080	1.01	0.3147
Percent black students	-0.1967	14.24	0.0001
Percent Latino students	-0.0614	7.29	0.0001
Low-income students	-0.2027	17.66	0.0001

*R*<sup>2</sup>: 0.72, standard error: 6.93, *F*: 373.81, number of cases: 3,041.  
Dummy variables for individual years not reported.

content measures are especially weak (none over -0.12), a pattern confirming that the strategic actions are not mutually exclusive (Boyne and Walker 2004) and that various combinations of strategy types can be present in a single organization.

Table 2 presents the regression results with the overall TAAS/TAKS pass rate as the dependent variable. The results for strategy content represent a departure from findings in other empirical settings. The predicted pattern from previous research (i.e., prospectors most effective, defenders next effective, and reactors least effective) does not hold for this set of organizations. Prospecting is not significantly related to this measure of performance, and defending has a strong positive relationship (reacting has a positive but nonsignificant relationship). Because putting a high priority on the TAAS/TAKS is a fairly common strategy in Texas school districts, the variation for this measure is modest. A two-SD change in the defender variable results in slightly less than a one-point change in the TAAS/TAKS overall (the maximum impact over full range of the data is about three points, which is a modest gain, but one worth pursuing).<sup>15</sup>

Why might the strategy of being a defender matter more in the present case? The answer, we believe, lies in a recognition that the impact of strategy content, generally speaking, is contingent on context. Some public organizations operate in settings where the reliable production of outcomes on the core task is valued exceedingly highly and is crucial

<sup>15</sup> Because our concern is the impact of strategy content, we discuss the results for the other five managerial variables in this analysis only briefly. These relationships may differ slightly from previously published relationships because data set now contains performance indicators for 2003, 2004, and 2005.

**Table 3**  
Impact of Management and Management Strategy on Subsets of Students

Performance Measure	Dependent Variable = Pass Rate for			
	Blacks	Latinos	Whites	Low Income
Income				
Defenders	-0.4366	0.2092	0.3211*	0.5838*
Reactors	-0.3407	-0.1009	0.3349*	0.0058
Prospectors	-0.7322*	0.0654	-0.0094	-0.0065
Managerial networking	0.6181	0.2110	0.5462*	0.4908*
School board contact	-0.3815	-0.3486	-0.5567*	-0.5870*
Personnel stability	0.3011*	0.1475*	0.1158*	0.1285*
Management stability	0.0696*	0.0901*	0.0329*	0.0830*
Management quality	1.1055*	0.6988*	0.4106*	0.6524*
$R^2$	0.51	0.56	0.61	0.65
Standard error	12.75	10.39	6.95	8.32
$F$	97.54	174.35	225.29	271.31
$N$	1,960	2,862	3,012	3,024

All equations control for teacher's salaries; per-student instructional funds; class size; teacher experience; percentage of teachers not certified; percentage of black, Latino, and low-income students; and yearly dummy variables.  
\*Significant  $p < 0.05$ , two-tailed test.

in terms of the political and financial stakeholders. In such contexts, prospecting may be a relative, and quite risky, luxury (note the impact on black student scores as displayed in table 3). The risk of prospecting may fall not only upon the organization and its performance but also upon the career prospects and reputation of superintendents. Some prospecting moves may end in failure and thereby jeopardize the tenure of supervisors in their existing role and reduce their attractiveness in the job market. Unlike the governing units examined in prior studies, the Texas school districts operate under an accountability system that essentially establishes the TAAS/TAKS exam as the sine qua non for the organizations in question. In such circumstances, focusing efficiently on core tasks can be a rational strategy. Prospecting, seeking out opportunities, in such a situation would seem to be an effective strategy only once core tasks are well in hand.<sup>16</sup>

The other management variables perform as expected, given past research. Managerial networking is positively related to performance, as is management quality, management stability, and workforce stability; managing upward, that is, contact with the school board, has a negative relationship, replicating earlier results (O'Toole et al. 2005). The one anomaly among the controls is the lack of significance for instructional funding, but this result reflects the collinearity between this variable and teachers' salaries and class size. Significant relationships for the other control variables are in line with prior expectations.

The state of Texas assesses school districts not just on overall performance but also on the performance of subgroups of students. Table 3 presents the regression results for black students, Latino students, Anglo students, and low-income students. Again here, defending is the best-producing management strategy; it is significantly related to higher test scores for Anglo and low-income students. Prospecting again has no positive impact on any of the TAAS/TAKS scores and is actually negatively related to black pass rates. Reacting,

<sup>16</sup> This line of reasoning suggests that the impact of prospecting is contingent on current performance, a hypothesis that does not appear in Miles and Snow. They only suggest that prospecting might be contingent on resources.

**Table 4**  
The Influence of Management and Management Strategy on High- and Low-End Performance Indicators

	1,110+	SAT	ACT	Attend	Dropout
Defenders	-0.1771	-1.778	-0.0489	0.0203	-0.1043
Reactors	0.6466*	3.038*	0.0444	0.0109	0.0831
Prospectors	0.4299*	3.676*	-0.0028	0.0192	-0.0299
Management networking	0.6874*	6.438*	0.1023*	0.0318*	-0.2345*
School board contact	-0.1090	-4.023*	-0.0018	-0.0791*	0.2434*
Personnel stability	-0.0529	-0.200	0.0030	0.0126*	0.0158
Management stability	0.0116	0.317*	0.0057*	-0.0010	0.0096
Management quality	0.6550*	5.176*	0.0102	0.0784*	-0.3421*
R <sup>2</sup>	0.31	0.32	0.42	0.21	0.30
Standard error	9.65	62.10	1.24	0.73	3.66
F	58.42	48.19	89.80	37.57	57.27
N	2,777	2,150	2,617	3,042	2,896

All equations control for teacher’s salaries; per-student instructional funds; class size; teacher experience; percentage of teachers not certified; percentage of black, Latino, and low-income students; and yearly dummy variables.

\*Significant  $p < 0.05$ , two-tailed test.

however, produces a single significant positive impact for Anglo students. Overall, the impact of strategy on these various performance indicators is substantially less and less consistent than the other management variables (see in particular management quality and the two stability measures).

Shifting attention from the TAAS/TAKS exam to high- (college bound) and low-end (attendance and dropouts) performance indicators suggests that the optimal management strategy might well be contingent not merely on the context but also on the performance indicator. The first three columns of table 4 show the results for high college board scores, SAT scores, and ACT scores. In explaining these results, defending no longer matters. In contrast, prospecting and reacting are now the strategies of choice. Both are associated with high board scores and higher mean scores on the SAT; and in addition, reacting is associated with higher mean scores on the ACT. The impacts of the reactor and prospector coefficients are approximately the same size.

The low-end performance indicators show still another pattern for strategy content. None of the strategy content measures are related to either attendance or dropouts. Although both these measures are more difficult to affect than test scores, the other management measures do have some positive influences. Management quality is associated with significant gains in attendance and significant reductions in dropouts. The same can be said for managerial networking.

**IMPLICATIONS**

For those who would trivialize the importance of public management for performance, as well as those who would assume that public management itself may be consequential but can be captured by a relatively simple and straightforward operational measure, the results reported in this article should be instructive. In the 10 estimations involving 80 management-related coefficients and controlling for a substantial set of opportunities and constraints in the settings of the public organizations in question, fully 45 of these management coefficients are related to performance. If one ignores for the moment the impacts of



strategy content (or, putting the point differently, if one controls for strategy content), a majority of the remaining management measures contribute to improved performance. More specifically, in 36 cases of the 50 nonstrategy management measures for the 10 estimations, the coefficient is related to performance in statistically significant fashions. All are in the expected directions.<sup>17</sup> Given these results, it would be rather difficult to maintain that public management is not a critical contributor to program performance.

Just as importantly, the findings reported here amount to vivid evidence that “management” is not some simple, undifferentiable, easy-to-capture notion. Eight separate measures of aspects of management are included in these analyses. They capture directional aspects of managerial effort, management quality, managerially shaped human resources features, and managerial (and organizational) strategy. These are essentially uncorrelated. It is not possible to tap management overall by any one of these measures; it is not possible to generate a management measure via data reduction; and inclusion of all aspects of management in performance estimations clearly adds value to the findings.

This set of conclusions does not mean that we have captured the full set of managerial influences. For one thing, we have tapped management largely at the apex of the organization rather than as it operates throughout. Some managerial elements are surely still omitted; internal management, for example, is thus far captured at best indirectly and partially. Still, the pattern of (non)relationship across the eight measures validates empirically the perspectives that public management is a multifaceted, variegated set of functions; “effective managers” are not so easily distinguishable as a breed or cluster, since different managers are likely to contribute via various combinations of managerial elements; and explanations of performance that seek to tap management influences via simple or shorthand indicators are bound to be underspecified and are likely to understate managerial influences.

The findings demonstrate that managerial strategies are also relevant to public organizational performance. Again, as a general summary, nine of the 30 coefficients associated with prospecting, defending, and reacting are significant in the performance equations reported in tables 2–4. This broad conclusion should not be surprising, since analysts rarely doubt that strategic management has organizational consequences regarding results. The evidence is notable, nevertheless, because so many control and other management measures are already included in the estimations.

Perhaps more interestingly yet, the findings on strategy content are rather different from those to be anticipated from earlier work. Even the most suggestive venerable ideas need to be examined systematically in light of the empirical settings to which they purportedly apply. One plausible explanation for the differences between these findings and the earlier empirical work in the public sector may have to do with regime differences at the political level (Lynn et al. 2001)—between one (United Kingdom) system with strong encouragements toward subnational innovation, and the one analyzed here, with unambiguous encouragements and incentives for scoring well on a measure of core production.

For the several hundred organizations examined here over a 6-year period, there is little evidence of a one-size-fits-all pattern—whether it be the prospectors-outperform-defenders-who-outperform-reactors idea in the earlier literature or another clear ordering of strategies in terms of overall effectiveness. The evidence reported here even contains some raw material that would support a reactive approach. Reacting may help on certain

17 We expect managerial interaction upward with the school board to be negatively related to performance (see O’Toole et al. 2005).

measures of higher end achievement. A reactor strategy, focusing as it does on allowing external controllers to drive organizational response, might permit stronger or more advantaged elements in the environment to leverage organizational resources for their own goals. Since the relatively privileged stakeholders in a school district setting are the ones who have or care about college-bound aspirations and achievement, these more powerful actors may be able to preempt managerial choices on occasion in the presence of reactive strategy.<sup>18</sup>

Beyond this point, the empirical findings on strategy become more intriguing. Defending trumps prospecting for performance on the most salient performance metric for these school districts, as well as for two subgroups of students on the state's standardized achievement test. The pattern suggests that prospecting is not the ideal approach in a regulated context where scoring on the core task is far and away the performance accomplishment that is most valued and most noted, and where failure to achieve on this dimension cannot be compensated for by innovative performance of other sorts. The stick-to-the-knitting strategy exhibited by defenders produces performance results where they matter.

This point does not mean that prospecting is pointless, only that it is likely to produce results on criteria of other sorts. High-end achievement, in particular, benefits from prospecting. Initiating ventures into the environment, perhaps even more than reacting to environmental pressure, may sensitize managers to the preferences and perspectives of the more powerful stakeholders. Here, the manager is not merely acting as a resultant of forces, for prospecting clearly means taking initiative. Taking the initiative may be the first step in a process that ultimately generates performance results for those already mobilized. Alternatively, prospecting may be a strategy that is favored by those who generally explore new or innovative possibilities going beyond today's regulatory demands.

Taken as a whole, these variegated patterns indicate at least two dimensions of contingency. The most productive public management strategy would seem to depend on organizational context and the relevant schedule of goals, as well as on the performance standard in question. These findings suggest the importance of analyzing the impact of strategy content across a range of organizational circumstances as well as the importance of examining performance on multiple indicators. For this study offers evidence that the venerable idea of a one-best-way available to public managers seeking a way to optimize strategy is a chimera, and perhaps, some adaptive metastrategy based on environmental and organizational contingencies makes sense. The purported superiority of prospecting—a theme that generally resonates with much recent celebrating of the entrepreneurial, risk-taking manager—is a context-specific finding. Prospectors do best when opportunities and incentives create room for managers to maneuver and to explore new paths and new technologies. Where protecting and perfecting a core technology is of overriding interest, defending is likely to be best.

Just as beauty is in the eye of the beholder, furthermore, performance is in the criterion of the analyst. Defending may beat prospecting in some respects while simultaneously, and just as convincingly, losing on others. A complete picture of how strategy content matters must, therefore, examine not only different sorts of public organizations

18 Alternatively, these relationships might be the result of superintendents' seeking political support from portions of their environment (see O'Toole and Meier 2004a).

and situations but also different elements of production. For rare is the public agency that is not tasked with multiple responsibilities.

Strategy content matters; as a venerable idea, this one succeeds. But how it matters must be grounded in theory-building efforts and empirical investigations that are context general rather than context specific. Doing so requires considering the range of settings and goal clusters of interest to public programs, as well as the range of performance measures that tap the full set of impacts of governance systems. In addition, it will be important for future research to extend our work by incorporating other elements of the Miles and Snow model. To what extent is the impact of different strategies contingent on the internal structures and processes of organizations? An answer to this question is likely to require comprehensive information on how organizations develop and implement their strategies, and measures of structural characteristics such as centralization and formalization.

One study does not a general and validated theory make. Much more work, including systematic empirical study, is needed before we can, with confidence, suggest matches between the standards and circumstances of public organizations and the ideal type or mix of strategy content. Recent theories provide a start. But much more work remains.

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