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# A comparative study of state health agency configurations and the communication patterns of their leaders.

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# A COMPARATIVE STUDY OF STATE HEALTH AGENCY CONFIGURATIONS AND THE COMMUNICATION PATTERNS OF THEIR LEADERS

by

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A DISSERTATION

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ABSTRACT OF DISSERTATION
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Title A Comparative Study of State Health Agency Configurations and the Communication Patterns of Their Leaders

This study tested the hypothesis that the way state health department leaders address the strategic issues they face is closely related to the organizational configurations of the agencies they manage. Twenty-nine U.S. state health departments comprised the sample of agencies studied.

The basic organizational configurations were determined by using cluster analysis based on variables developed by Miller and Friesen (1984). Five distinct organizational configurations emerged. The management concepts used by state health leaders in their public communications were then content analyzed. Based on the average frequency of key word usage, the same cluster analysis technique was used to group the 29 leaders into 5 subgroups. A cross-level model was developed and used to explore the relationships between health agency configurations and their leaders' communication patterns.

The study's first major finding was that meaningful configurations of both agencies and leaders could be established. Second, the agency leaders studied apparently lacked a common managerial lexicon, which may have contributed to the lack of correlation between the two sets of configurations. If validated by suggested future research, the latter finding may have serious implications and be an impediment to improving the nation's public health outcomes.

## DEDICATION

This study is dedicated to my father, Dr. William F. Ford, who provided the impetus for pursuing this goal and the constant encouragement and support that enabled me to complete this work in a timely and effective manner. Without his love and dedication, none of this would have been possible.

## ACKNOWLEDGEMENTS

An undertaking of this magnitude is always difficult. It often causes consternation among the principles and is not remembered fondly. Gratefully, and fully realizing my good fortune, the collegiality and spirit of joyous exploration that epitomized this project is attributed to my chairmen–Drs. W. Jack Duncan and Peter M. Ginter. Their intellectual mentoring, organizational acumen, and personal support were more than I could have hoped for.

The rest of the committee added to the positive synergy and made this project my proudest professional achievement. Dr. Stuart Capper's sage insights into the inner workings of state health agencies enabled this project to proceed when I was certain it had reached an impasse. Dr. Rick Shewchuk's incomparable methodological skills, patience with innumerable questions (often via late night phone calls), and stress counseling carried me through the last 3 months of the project. And last, but far from least, Dr. Donna Slovensky taught me how to be a good colleague and the value of multiple revisions.

In addition to my committee, many other people played an integral role in this project. The 12 raters who scored all of my subjects–twice!–deserve special recognition and thanks. The many administrative staff members at the state agencies who said, "That's going to be really hard to get," and got it anyway made this paper possible. Special thanks go to the administrative assistants at UAB, Shirley Lindsey and Lisa Wilson, for managing all that other stuff that the Graduate School has to have before they let you graduate.

The staff of the Graduate School also warrants special recognition: Dr. Julia Austin, whose command of the grammar and style guides in unmatched; Lee Griner, for assuring me that we can straighten out all of these format issues; and Randy Seay, for administering a long list of forms, the memory of which still frightens me.

Finally, a special thanks goes to my family: My father, who kept this paper from becoming my answer to *War and Peace* through editing; my mother, who cheerfully made many of the editorial changes to this document where they counted–on the computer; my loving wife, who entered over 300 bibliography citations and always understood how important this project was to me; and lastly, my dog Sophie, who for some reason now brings me her leash when my wife asks, "Are you done yet?"

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# CHAPTER 1

# INTRODUCTION

## Background of the Problem

This study was designed to test the hypothesis that the way state health agency leaders address strategic issues is closely related to the organizational configurations of the agencies they manage. The study had three phases and used 29 state health agencies and their leaders as subject pairs. First, the agencies were classified into five configurations based on their strategic paradigms. Next, the personal communications of agency leaders were content analyzed to form a second set of five leader configurations. Finally, a cross-level model was used to examine the relationship, qualitatively, between the health agency configurations and their leaders' strategic thinking patterns.

## Relevance

Two important contributions to strategy and public health research resulted from this project. First, it added to the body of strategy research dedicated to configurations and integrated several earlier explanatory models. In addition, the research added to the understanding of state-level public health systems and the key management concepts addressed by their leaders. From this exploration of the complex relationships between health agencies' configurations and the strategic thinking of their senior managers, future researchers will be in a better position to explain the fit between such individuals and the health organizations they manage.

## Theoretical Framework

This research integrated critical elements from two theories germane to strategy research–configuration (Miller & Friesen, 1984) and sensemaking (Weick, 1977). Configuration research attempts to classify organizations into similar groups by using a taxonomy based on empirical data. Sensemaking describes how individuals perceive, interact with, and affect the organizations in which they work. Presumably, the greater an individual's ability to understand and influence an organization, the more closely that individual and organization should be aligned. Therefore, studying organization leaders' communications presented the best opportunity to test the hypothesis.

## Sample Description

The sample was composed of information from 29 state health agencies and their leaders. The agency-level information was then used to evaluate the various configuration patterns of those agencies. In addition, personal communications (testimony, speeches, and letters) from the agency leaders who led the organizations during 1999 were used to assess the cognitive similarities among health agency leaders, based on the management concepts they espoused.

## Plan of Work

Chapter 2 presents a literature review of organizational configuration studies, managerial sensemaking models, and research related to state health agency dynamics. Chapter 3 presents a synthesized cross-level model that clarifies the interactive relationships between organizational configurations and health leaders' cognitive managerial pat-

terns. The qualitative and statistical methods used to explore the relationships are set forth in Chapter 4. The results of applying the model to the state health agency setting are presented in Chapter 5. Finally, Chapter 6 presents the study's conclusions, limitations, and suggestions for future research.

# CHAPTER 2

# LITERATURE REVIEW

Three bodies of literature were used to develop an integrated model of state health department leaders' strategic thinking and their respective organizational configurations. Configuration theory provides an empirical link to the analysis of organizational taxonomies. Sensemaking is examined to better understand how leaders interpret and act in their organization's configuration. The third body of literature addresses states' health agencies and their leaders. This integrated review provided the basis for developing a synthesized and dynamic model of state health agencies that measures similarities and differences across the organizational and individual levels. The new model is referred to as a *cross-level model.*

## Organizational Configurations and Taxonomies

There have been two approaches to classifying organizations: typologies and taxonomies. Typologies normatively describe how corporations, businesses, or other purposeful concerns pursue their desired ends on the basis of a single dimension. The taxonomic approach involves selecting a set of organizations and empirically deriving a method of classification.

Typologies are defined as "conceptually derived interrelated sets of ideas" (Doty & Glick, 1994, p. 232). Organizational attributes are hypothesized a priori, and unique combinations are formed to build a set of predicted types. The empirical effectiveness of

such typologies (McKelvey, 1975; Meyer, Tsui, & Hinings, 1993; Miller & Friesen, 1986a, 1986b; Shortell & Zajac, 1990) and their value to theory development have been debated extensively (Doty & Glick, 1994; Hambrick, 1984; Sutton & Staw, 1995; Weick, 1995b). Existing typologies such as Miles and Snow's (1978) competitive strategies or Porter's (1980) generic strategies have been used to study a variety of settings including health care (Shortell & Zajac, 1990).

Rich (1992) stated that a taxonomy "is more than a simple classification of items into separate groups: It is a specific classification scheme that expresses the overall similarity between organisms in a hierarchical fashion" (p. 761). Previous configuration research has used financial measures such as net profit or return on investment to array the derived groups, usually from most to least successful. The most important feature of any configuration is determining the intended purpose of the organizations being analyzed (Fleishman & Quaintance, 1984; Law, Wong, & Mobley, 1999).

One limitation of the works by Miller and Friesen (1984) and Reeves (1996) is that many of their measures were derived indirectly from case studies. By using case studies, they circumvented their inability to gather measures directly from for profit companies. D. Miller (1996) stated that "for all its promise, the literature on configurations remains underdeveloped, and my *SMJ* [*Strategic Management Journal*] piece represented a very preliminary and tentative attempt to further it along" (p. 506).

The value of using taxonomies and configurations in qualitative research is evident in several respects. One sign of this value is indicated by *The Academy of Management Journal's* Special Issue dedicated to the configuration approach (Meyer et al., 1993). The enduring worth of configurations research is also manifested in D. Miller's

(1986) paper on the subject, which won the *Strategic Management Journal's* best paper prize in 1995 (Bettis, 1996), nearly a decade after its publication.

A theoretical development piece by Maranville (1999) used a single case study to explore some of the issues related to nonprofit human services organizations. The taxonomy the author derived is loosely based on the environmental determinism framework suggested by Hrebiniak and Joyce (1985), which is a typology in its own right. Maranville's findings support the concept that nonprofit organizations are capable of engaging the environment and influencing it. Even in a situation in which strategic planning was not employed, "the spontaneous mode of strategic management," (Maranville, paragraph 5) the organization was capable of engaging in fundraising activities. A second issue relevant to this research is that the value of planning lies not in the plan itself, but in the strategic thinking that it stimulates. Finally, the Maranville study demonstrated that even within a single organization, the configurations of strategy and structure could vary greatly over time in what is often described as a "deterministic environment" (Pfeffer & Salancik, 1978).

Bazzoli, Shortell, Dubbs, Chan, and Kralovec (1999) provided an ideal vehicle for discussing developments since Reeves' (1996) work. Their analysis yielded three constructs—differentiation, integration, and centralization—which will be explored in the variable identification portion of this research. Bazzoli et al. drew on multiple theories to explain the strategy-structure dimensions of their research, ranging from industrial organization economics to organization theory. However, no attempt was made to synthesize the theories into a single paradigm.

## Sensemaking

Sensemaking is the shared set of references a group of individuals has regarding their environment. It is composed of the common elements of individuals' understandings, enactments, and their environments. The sensemaking and enactment paradigms suggested by Weick (1995a) are useful for the theoretical understanding they bring to the model. Therefore, a brief discussion of the theoretical use and the methodological aspects of the sensemaking is provided.

### *Theoretical Base*

Sensemaking attempts to explain how managers of organizations interact with their environments. Groups of people engage in sensemaking, whereas individuals enact their environment. The difference is in the level of observation (Drazin, Glynn, & Kazanjian, 1999). The organizational perspective developed by Daft and Weick (1984) is used and described in Chapter 3, Model Development. This discussion focuses on the individual aspects of enactment.

The critical element of enactment is that "people created their own environments and these environments then constrained their actions" (Weick, 1995a, p. 31). The problem becomes how to describe the environments and constraints that people perceive. In the forward to Huff's (1990) book, *Mapping Strategic Thought*, Weick discussed how managers enact the environment in their own minds:

> Humans live in two worlds–the world of events and things (the territory) and the world of words about events and things (the map). . . . The distinction between a map and a territory has typically had a cautionary ring, warning people not to treat nouns as anything but a crude static rendering of a much more complex changing territory. What is interesting about problems of strategic mapping in managerial life is that the distinction between map and territory sometimes disappears. . . .

> Managers sometimes blur the distinction because strategic thinking is a right-brain activity. (pp. 2-3)

The reference to a complex changing territory is descriptive of an open system.

*Previous Research*

A content analysis approach to research, rather than direct observation, may be used because the individuals being studied are not readily accessible for one or more reasons. The use of content analysis has declined in recent years because of its labor intensity (Krippendorf, 1980). However, the procedure has been steadily increasing as computer programs have become more proficient at interpreting human speech and symbols (Simon, 1996).

## Public Health Organizations

The history of public health in the United States is long, and the success achieved has been remarkable. Advances such as securing safe water and elimination of smallpox and polio have increased the quality and length of life in the United States dramatically during the 20th century. However, new epidemics such as AIDS arise, while old and nearly forgotten problems, such as tuberculosis make dramatic returns. Yet, the organizational goals of public health agencies have been quite diverse.

For example, the 1988 Institute of Medicine (IOM) report, *The Future of Public Health*, stated

> This study was undertaken to address the growing perception among the IOM membership and others concerned with the health of the public that this nation has lost sight of its public health goals and has allowed the system of public health activities to fall into disarray. . . . Unfortunately, the findings of this committee confirm the concerns that led to this study. (p. 1)

The publication of this report generated a substantial amount of interest in the way state health agencies were perceived and evaluated (Miller, Moore, & Richards, 1993; Scutchfield, Beversdof, Hiltabiddle, & Violante, 1997).

The IOM (1988) report's statement that "this nation has lost sight of its public health goals" speaks to the strategic thinking of the agency leaders as a group. Further, the assertion that "the system of public health activities has fallen into disarray" indicates that the organizations are ineffectively structured. These three points, that (a) studying health agencies is important, (b) the strategic issues are critical, and (c) the systems experience periods of rapid change, indicate the need for further research. The IOM report served as a baseline and identified important facets of the public health system that should be examined.

*The Institute of Medicine's (IOM) 1988 Report*

Overall, the IOM's view of public health in 1988 was not positive. In particular, it pointed to the inactivity of public health agencies, at both federal and local levels, to take a proactive stance in dealing with the HIV/AIDS problem that was reaching crisis proportions. Beyond those afflicted with the virus, the HIV/AIDS crisis was affecting other areas of public health interest. The safety of the blood supply and routine medical procedures caused great uncertainty among health care providers because of the epidemic. Further, progress on traditional public health concerns such as injuries, drug use, and teen pregnancy seemed to have ceased or begun to slow during the late 1980s. It was under the cloud of these issues that the IOM committee made its recommendations.

All of the IOM committee's 1988 recommendations flow from a single concept that "the mission of public health [is] fulfilling society's interest in assuring conditions in which people can be healthy" (p. 140). As a result of that goal, every state health agency needs to engage in three core functions: assessment, policy development, and assurance.

The structural-organizational aspects of state agencies warranted singular attention. Although the IOM committee recognized that any type of structure would be ineffective without good leadership, it offered four specific suggestions for necessary structural components: (a) a department of health that groups all health-related activities in one agency; (b) an independent health council; (c) a director that serves in the governor's cabinet, has professional or academic credentialing, and serves a tenured term of office; and (d) a mechanism whereby the state sets standards for community-level public health agencies. These structural attributes are dimensions that can be measured to determine the various configurations present among the 50 states.

In the section titled "Strategies for Building Capacity," under the subheading of political activities, the IOM (1988) report also recommended that leaders accept two specific responsibilities: (a) to educate other public officials on the rationale for strategies advocated and pursued by the health department and (b) to cultivate alliances with the private sector. Stating the first duty another way, leaders should make their strategic mental maps available to a broad audience. The second responsibility charges the leaders to see beyond the boundaries of their own agencies, into the broader environment, and to marshal support from it.

Despite the inestimable value of *The Future of Public Health* (IOM, 1988) as a case study and catalyst for change, the IOM report was not without limitations. The re-

port's findings were based on case studies of just six health departments: California, Mississippi, New Jersey, South Dakota, Washington DC, and West Virginia. The primary advantage of studying a small number of departments is that the depth of understanding gained was substantial. The drawback was that in studying just six such disparate organizations, the researchers were bound to find radically different configurations. In fact, the committee purposely sought out as much variance as possible. Therefore, the conclusions they drew, based on a sample of six, should be viewed cautiously.

The inference drawn from the IOM (1988) study, that the whole of the United States public health system is in disarray, also has two potential flaws. First, the underlying but implied idea, that there is just one best way to solve similar or even identical problems, is contrary to most contemporary management thinking. Second, the committee's inability to see structural similarities in multifaceted systems is indicative of the limited scope of its research. Perhaps, had they visited numerous local health departments, rather than one or two as they typically did, the underlying structure of the statewide organization would have become apparent and the disarray would have seemed less pronounced. For example, in Mississippi, one of the states reviewed, the public health officials stated that they were "proud of the fact that one could visit any county health department in the state and basically see the same menu of services and standards of care" (Bender, 1997, p. 124).

The IOM's (1988) report also made recommendations in terms of the health department's previously mentioned core functions–assessment, policy development, and assurance. A subsequent survey of the leadership of the agencies by the Association of State and Territorial Health Officers (ASTHO) found that the officers, by and large,

agreed with the IOM's findings (Scott, Tierney, & Waters, 1990). Despite the IOM's findings and the agency leaders' concurrence with its recommendations, by 1996, progress was either marginal or, worse, receding (Scutchfield, Beversdof et al., 1997).

*Previous Research*

Numerous authors have recognized the value of the IOM report. However, only seven significant pieces of research directly attempted to measure the progress made on a nationwide basis since the initial report (Table 1). Of the seven studies identified, three studied local health departments (LHD; Centers for Disease Control, 1994; Handler & Turnock, 1996; Scutchfield, Hiltabiddle, Rawding, & Violante, 1997). The primary value of the LHD surveys to this study is in illustrating the important, yet neglected, status of the policy development area of public health. Another study (Wall, 1998) measured the relationship between the states and LHDs primarily on the basis of revenue and funding.

The Wall (1998) research is also valuable in that it shows configurations varying in organizational relationships other than commonly used geographic and demographic characteristics. In particular, two dimensions, local control and local revenue, were used to form a matrix for examining state health department similarities. For example, Wisconsin and Texas occupy the quadrant of high local control and high local revenue. These two states are very different in many significant demographic characteristics. Further, Texas is in the opposite quadrant from Florida, a state that is similar in terms of total population, immigration issues, and the presence of large urban centers. Therefore, other organizational configurations may be more informative than geographic typing.

**Table 1**

*Nationwide Studies of Public Health Agencies Based on the 1988 Institute of Medicine (IOM) Report*

| Author(s), Year | Sample and Method | Relevant Finding |
|---|---|---|
| Scott, Tierney, and Waters, 1990 | 50 state and 6 territorial health officials surveyed in 1989. Findings based on 50 states returned. | Measured policy development: 100% agreed that it is a core function; 72% had a mechanism in place; and 24% were in the process of implementing. |
| Centers for Disease Control and Prevention, 1994 | LHD officials from six selected states (AL, MD, MS, NJ, SC, and WI) surveyed. Response of 94% or $n = 370$. | Measured the perceived adequacy of performance on the three core functions and ten health practices. 53% of the LHDs had policy development but only 29% felt performance was adequate. Development of plans and policies was the least prevalent practice (38%) and the least adequate (21%). |
| Handler and Turnock, 1996 | Stratified sample of 317 LHDs. 11 states excluded for either lacking LHDs or inclusion in 1994 CDC survey. | Compared agency effectiveness with organizational characteristics. The lowest single item was self-reported as being *develop plans and policies* (24%). General findings are that larger agencies and agencies led by women are more effective. |
| Stoto, Abel, and Dievler, 1996 | A series of meetings with experts from the CDC, Robert Wood Johnson, Schools of Public Health, LHDs, and State directors. | Affirmed the initial IOM findings and concentrated on the importance of managed care partnerships with both state and LHD. Highlighted the need for state and local directors to have statutory authority to form alliances, partnerships, and beneficial arrangements with managed care organizations. |
| Scutchfield, Beversdof, Hiltabiddle, and Violante, 1997 | Replication of Scott et al.'s 1990 survey in 1996. 89% response rate. | Found a marked decline of systems for policy development, from 72% to 49%, although 100% continued to agree that it is an important function. |
| Scutchfield, Hiltabiddle, Rawding, and Violante, 1997 | A replication of Scott et al.'s 1990 survey using LHDs as the focus in 1996. | Found improved presence of policy development functions at the LHD level (16% in 1989 vs. 41% in 1996). This trend is opposite to the state-level findings in the survey immediately above. |
| Wall, 1998 | Studied 13 states through Census Bureau statistics and NACCHO data. Used various years as available. | Highlighted the changing role of public health away from the direct provision of services to more population-based efforts for many, but not all, of the states studied. Mapped the 13 states studied in two dimensions, local control of health expenditures and local share of health department revenue. |

Note. LHD = local health department; CDC = Centers for Disease Control and Prevention; NACCHO = National Association of Community Health Officers.

The remaining three articles (Scott et al., 1990; Scutchfield, Beversdof et al., 1997; Scutchfield, Hiltabiddle et al., 1997) are more directly related to the IOM report and public health at the state level. Scott et al. (1990) were the first to conduct a complete census based on the IOM's vision of how public health should be structured. Their findings are most informative when compared with the later replication by Scutchfield, Beversdof et al. (1997). Among the three core functions, assessment and assurance remained largely unchanged in the 7 years between the two surveys. However, policy development declined dramatically from 72% to 49% among state health agencies over the 7-year period. This implies that a formal strategy function was absent in approximately half of the states. Unfortunately, the Scutchfield, Hiltabiddle, et al. (1997) study was conducted in a blind fashion to comply with institutional review board policies. Therefore, it is impossible to determine which states most recently engaged in formal strategic planning. Nevertheless, it raises the issue that nearly every leader considers policy development important, but progressively fewer agencies are actually doing it.

One possible explanation for the declining use of policy development is that the rapidly changing environment has outstripped the ability of agencies to plan effectively. That "we live in a complex, interconnected global society in which there are many threats to, and opportunities to improve, the public's health" (Stoto et al., 1996, p. 9) cannot be underestimated. The most recent reassessment of the impact of *The Future of Public Health* (IOM, 1988) was conducted by the IOM itself, using a series of discussions among a panel of experts. Their findings supported the initial findings, expanded upon them, and identified the importance of building alliances with other actors in the community, particularly managed care organizations.

The expansion of the aforementioned three core functions to include the 10 essential practices originated in the Centers for Disease Control and Prevention (CDC; Roper, Baker, Dyal, & Nicola, 1992), but has been strongly advocated by Turnock and Handler (1997) as a measurement device. Further, Handler and Turnock (1996) created a framework (Figure 1) for measuring the presence of key elements in public health systems. Theirs is a two-level model that considers the broader mission and functions, which are driven by strategic thinking, and the interaction with the specific organizational practices and outputs. Therefore, it is consistent with both the disciplinary base of this study (i.e., strategy as a discipline) and the other strategy models considered in the next chapter.

In reviewing the research conducted on the 50 state health agencies since the initial 1988 IOM report, three things become apparent. First, public health is a very complex set of systems, composed of various complex subsystems. Second, there is a desire among practitioners and academicians to better understand and improve the public health mechanisms of the 50 United States and the District of Columbia. Finally, the theoretical literature is consistent with the previously reviewed strategy literature in most respects. Therefore, this context provides an ideal setting for studying configurations and leader sensemaking.

## Summary

One of the most fruitful applications of sensemaking and configuration theories may be in trying to better understand managerial cognition models in relation to organizational characteristics (Frank & Fahrbach, 1999). In addition, the methods for configuring a set of organizations into discreet groups and drawing mental models of

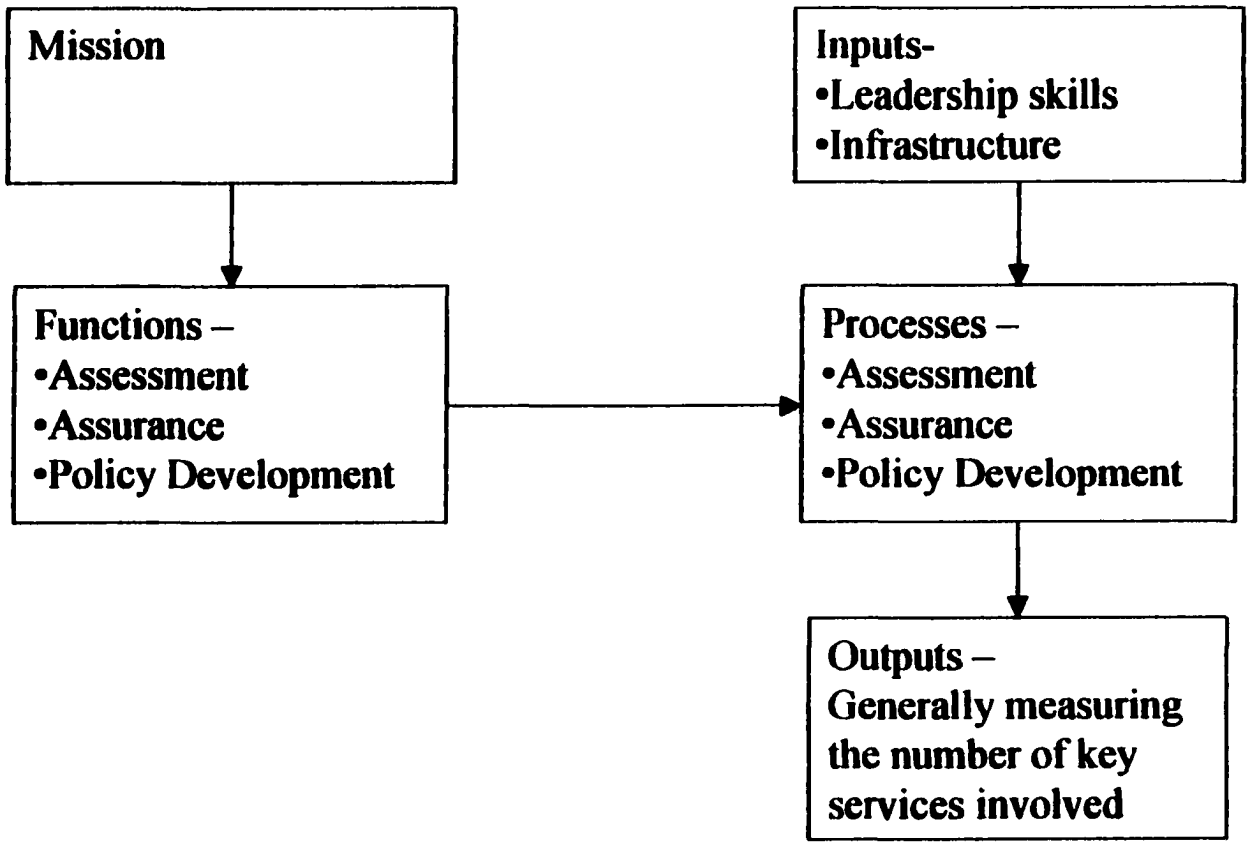


*Figure 1*. Public health model of performance. Republished with permission of the Journal of Public Health Policy. Handler, A. S. and Turnock, B. J. (1196) Local health department effectiveness in addressing the core functions of public health: Essential ingredients. Journal of Public Health Policy 17(4), 460-483.

their leaders have reached a level of sophistication where the two measures can be meaningfully compared on a qualitative basis. The state-level public health agency provides an ideal setting for studying both phenomena because the organizational information is readily available and the leaders frequently make public addresses regarding their thoughts. What is lacking is a framework or model that clearly depicts the constructs and relationships. The model developed for this study is presented in the next chapter.

# CHAPTER 3

# MODEL DEVELOPMENT

## Overview

This chapter develops a framework that allows the relevant public health management concepts and relationships to be identified. One of the strengths of configuration theory is its ability to synthesize elements of other theories–including sensemaking. Further, because the strategy field is characterized by periods of rapid change (Prahalad & Hamel, 1994), it is logical to assume there are existing models within the strategy literature that can be incorporated under a configuration and sensemaking rubric.

The first section of this chapter identifies models relevant to organizational configurations and managerial cognition. Second, a proposed cross-level model that measures and compares state health organizations and their leaders' sensemaking is described. Potential methodologies and variables are also drawn from the literature as it is considered. Finally, the specific propositions to be examined and the core hypothesis to be tested are provided. The actual variables used to test the parts of the model under consideration are explained in the methodology chapter.

## Previous Models

There are numerous existing models developed by social scientists that attempt to either describe organizations or the mental maps of their leaders. What was lacking was a model that integrates both elements. Therefore, a method for logically building such a

model was required. The first step was to identify models that dealt with the organizational and individual levels separately. The second phase examined models that have elements of both organizational and individual characteristics. In particular, the nature and character of the relationships between constructs was examined. Third, an explanatory framework that focused on the whole of strategic management to clarify the relationships in that context was incorporated. Finally, a model drawn from the public health context was integrated into the general model to yield the framework proposed in this research.

The models used were (a) Daft and Weick's (1984) model of organizations as interpreting systems; (b) Dutton, Fahey, and Narayanan's (1983) strategic issue diagnosis, inputs, processes, and outputs model; (c) Thomas and McDaniel's (1990) cross-level model of strategic issue interpretation; and (d) Ginter and White's (1982) social learning theory of strategic management. A brief review of each model's salient features is provided, and the relevant portions are highlighted for inclusion in the derived model.

*Daft and Weick's (1984) Model*

Daft and Weick (1984) provided an excellent starting point for understanding organizations' interpretations of the environment (Figure 2). Their study also provides a direct link to the sensemaking literature described in the previous chapter, which has been the basis of other recent models (Snyder & Cummings, 1998). The first underlying assumption of Daft and Weick's model is that systems are open. The second key factor in the selection of Daft and Weick's (1984) model is its direct link to Weick's previous (1977) and

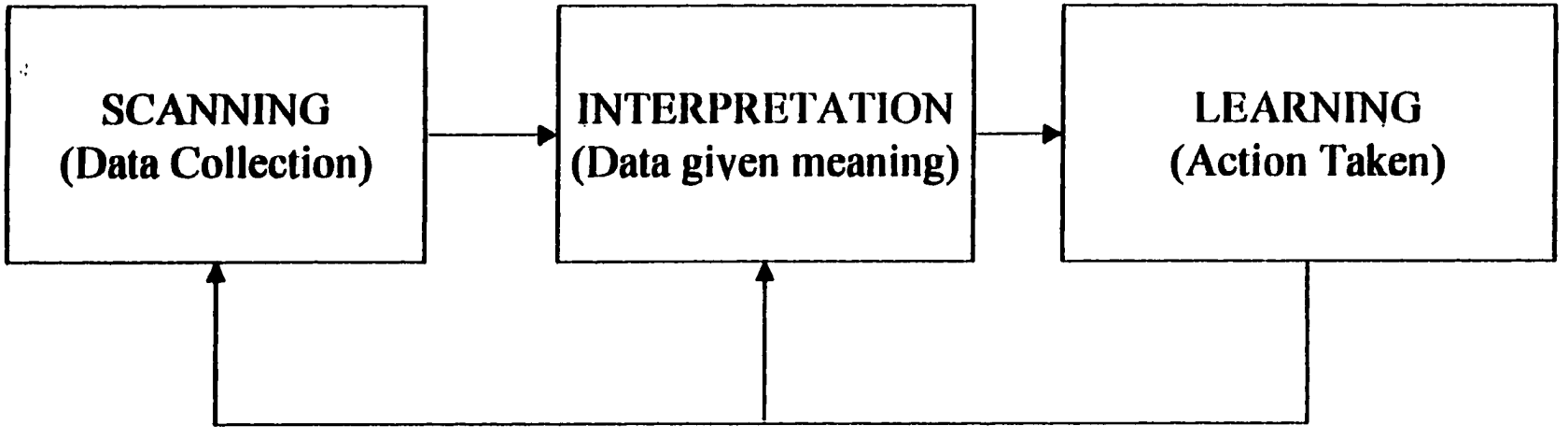


*Figure 2.* **Model of organizations as interpreting systems. Republished with permission of the Academy of Management. Daft, R. L. and Weick, K. E (1984) Toward a model of organizations as interpretation systems. *Academy of Management Review*, 9(2), 284-295.**

subsequent (1995a) works on sensemaking and enactment. Although Weick's initial description of enactment is not an exact replica of the later definitions, it does explore environmental dynamism and the organization's ability to alter its environment. The dynamic relation is depicted by an arrow from the learning concept back to scanning, thus creating a feedback loop.

In the model in Figure 2, two insights contribute to the derived model presented later in this chapter. The first is that the entire system is built in a recursive fashion. By being recursive, causation flows in only one direction. This feature is refuted in Weick's (1995a) later work on enactment "where people create their own environments and these environments then constrain their actions" (p. 31). The direction of causality, thus, flows both ways simultaneously: from the environment to the individual and vice versa. The deficiency in Daft and Weick's (1984) earlier model is rectified in the derived model. The other delimitation that Daft and Weick placed on their model is that they were applying it solely to organizations, although they indicated that the process is analogous to what occurs in individuals.

One reason for limiting the model to organizations is related to the methodology they proposed as useful in verifying their model. Daft and Weick (1984) suggested a typological approach to classifying organizations. There are two major dimensions in their system, the organization's ability to analyze the environment and the organization's willingness to intrude into the environment for answers to strategic questions. The four cells that are formed by the dimensions of the Daft and Weick model are further refined based on scanning characteristics, interpretation processes, and strategy and decision-making criteria. Within the strategy criterion, they suggested the use of Miles and Snow's (1978)

strategy typology as an indicator. The other measures suggested are usually binary and, therefore, require more than one element to identify a cell. However, there are four orthogonal Miles and Snow types, with one being unique to each cell. Therefore, these types could serve as a measure, accurately reflecting the entire matrix. For this reason, a slightly less restrictive approach such as an empirically derived taxonomy may provide more information about the organizations being studied. In addition, it would be advantageous to also consider a model dedicated to the individual level of analysis because it is the collective outcome of managerial interpretations that creates the organization's views.

*Dutton, Fahey, and Narayanan's (1983) Model*

By focusing on strategic issues, Dutton et al. (1983) considered the individual manager. They did this by defining strategic issues "as an emerging development which in the judgment of some strategic decision maker is likely to have a significant impact on the organization's present or future strategies" (p. 308). Although they speak in the plural with respect to managers, in most business decisions the responsibility and authority usually resides in an individual, particularly in the case of strategic decisions. As Daft and Weick (1984) did, Dutton et al. used a recursive model (Figure 3).

Within the loop are three concepts: inputs, process, and outputs. This structure is similar to the structure in the previous model. The inputs construct contains a dimension of cognitive mapping, which will be discussed later with respect to the methods. Political issues are described as significantly modifying the way managers attempt to fulfill their own duties within the organization (Narayanan & Fahey, 1982). The implication of this is

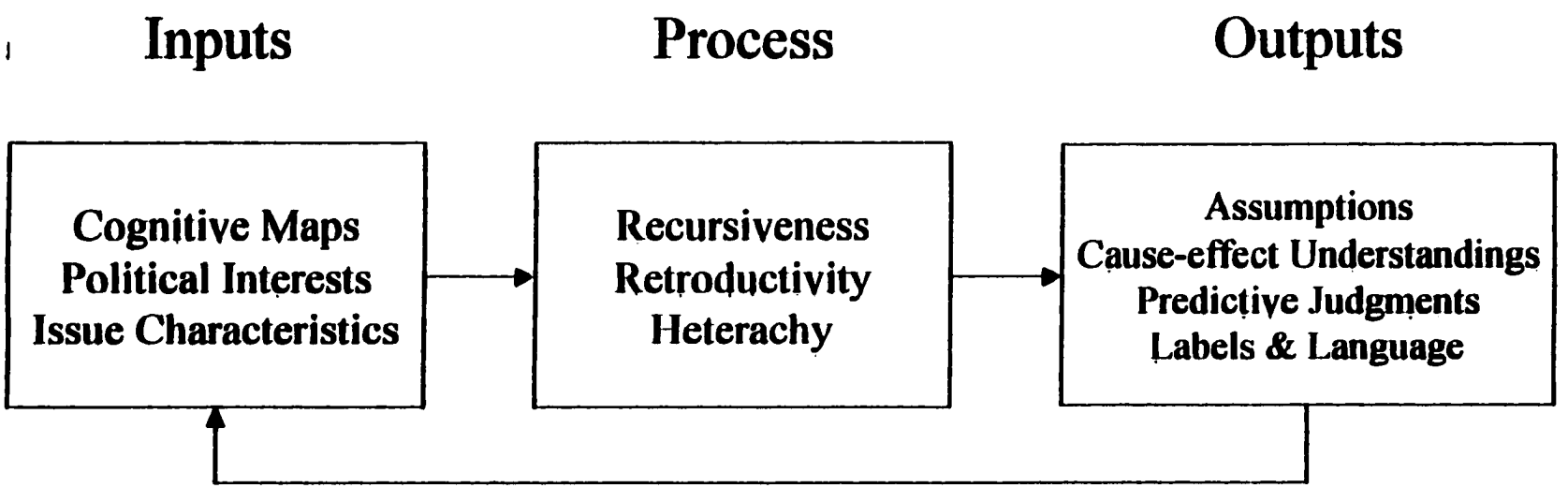


*Figure 3*. Strategic issue diagnosis model. Republished with permission of Wiley Publishers. Dutton, J. E., Fahey, L., and Narayanan, V. K (1983). Toward understanding strategic issues diagnosis. *Strategic Management Journal*, 4, 307-323.

that individuals will attempt to put forward their own mental maps as the best options for the organization. The managers' methods may be further modified by the issue's characteristics. Uncertainty may also create alternative causal paths, and time constraints may require managers to make more assumptions. Both of these variables might be reflected in the mapping of thoughts.

The process construct is described as being recursive. Unlike Daft and Weick (1984), Dutton et al. (1983) provided some additional explanation. They described a rapid succession of judgment revisions between the cognitive mapping and labeling functions. This is essentially a reciprocal relationship, from a research standpoint, because empirical study at this level of unconscious behavior is probably not possible. Nevertheless, the "outputs emerge from the interactions of multiple organizational actors with differing cognitive maps, political interests, and issue related data" (Dutton et al., 1983, p. 314).

Three outputs of the process phase of issue diagnosis are related to strategy content: assumptions, cause-effect understanding, and predictive judgment. These aspects of the model can be captured by using communication content analysis. However, it may not be possible to discern which terms used by a leader are assumptions. The point is moot, to a certain extent, for two reasons. First, if the necessary information is not available at the time the decision is required, then assumptions are all that managers have to make decisions with anyway. Second, even faulty assumptions can lead to positive outcomes, and it may be more important for the leader to act with confidence rather than do nothing (Mintzberg, 1999; Weick, 1995a). Part of this philosophy is captured in the labels and language of the outputs construct.

Dutton et al. (1983) pointed out that language and labels have not been adequately studied, and they paid particular attention to use of labels. Although they never addressed metaphors directly, it is not an unreasonable extension of the discussion. It may also be easier to identify metaphors and their intended cause-effect implications than labels, which may be ambiguous. For example, the labels *conservative* and *liberal* can be positive, negative, or neutral, depending on an individual's political philosophy. Therefore, in addition to looking for meaningful and clear labeling, it may be beneficial to include metaphor variables in the methodology.

Dutton et al. (1983) did not make explicit recommendations on how to operationalize their model. They did, however, use the term *cognitive mapping*, which is a content analysis technique that has been used in other strategic management studies. Therefore, the proposed content analysis approach to cognitive labeling is consistent with their recommendation. Considered together with Daft and Weick's (1984) model, there is a great deal to be gained from Dutton et al.'s work.

The foregoing models have two features in common that are particularly useful. They both take input-process-output views of cognition. Second, they both have feedback loops. Therefore, the parallel nature of organizational and individual processes is captured. The next steps required are to find a means of relating the two sets of constructs, solving the recursiveness problems inherent in both, and placing the derived model in a public health context.

*Thomas and McDaniel's (1990) Model*

The model developed by Thomas and McDaniel (1990) is relevant to the derived model and the proposed research methodology in several ways (Figure 4). First, it takes a step toward integrating the two previous models. In fact, the authors used both Daft and Weick's (1984) and Dutton et al.'s (1983) research in developing their own model. However, it does not fully integrate the two models into a single schema. Second, their research is empirical, and the context is in a health care setting. Finally, Thomas and McDaniel (1990) studied the cross-level nature of organizational and managerial cognition.

Despite the several positive aspects of the review and model provided by Thomas and McDaniel (1990), the research had some limitations for this study's purposes. First, they considered the labels *opportunity* and *threat*. Although the nature of these labels is obvious, it seems unlikely that managers engaged in a planning exercise would confine themselves to just these two terms. Further, it is possible that situations may be considered in more depth than the binary fashion those terms defines. Opportunities and threats may form a continuum with a neutral or unknown value at the center.

The importance of the problem may also be reflected in the amount of information an organization gathers. Thomas and McDaniel (1990) referred to this as "variable usage" (p. 289). Using this dimension alone as a proxy for the entire organization's configuration, although adequate for their purposes, would not satisfy the proposed research needs.

The abbreviation of the organizational configuration construct is also reflected in other aspects of the Thomas and McDaniel (1990) model. That the organizational context

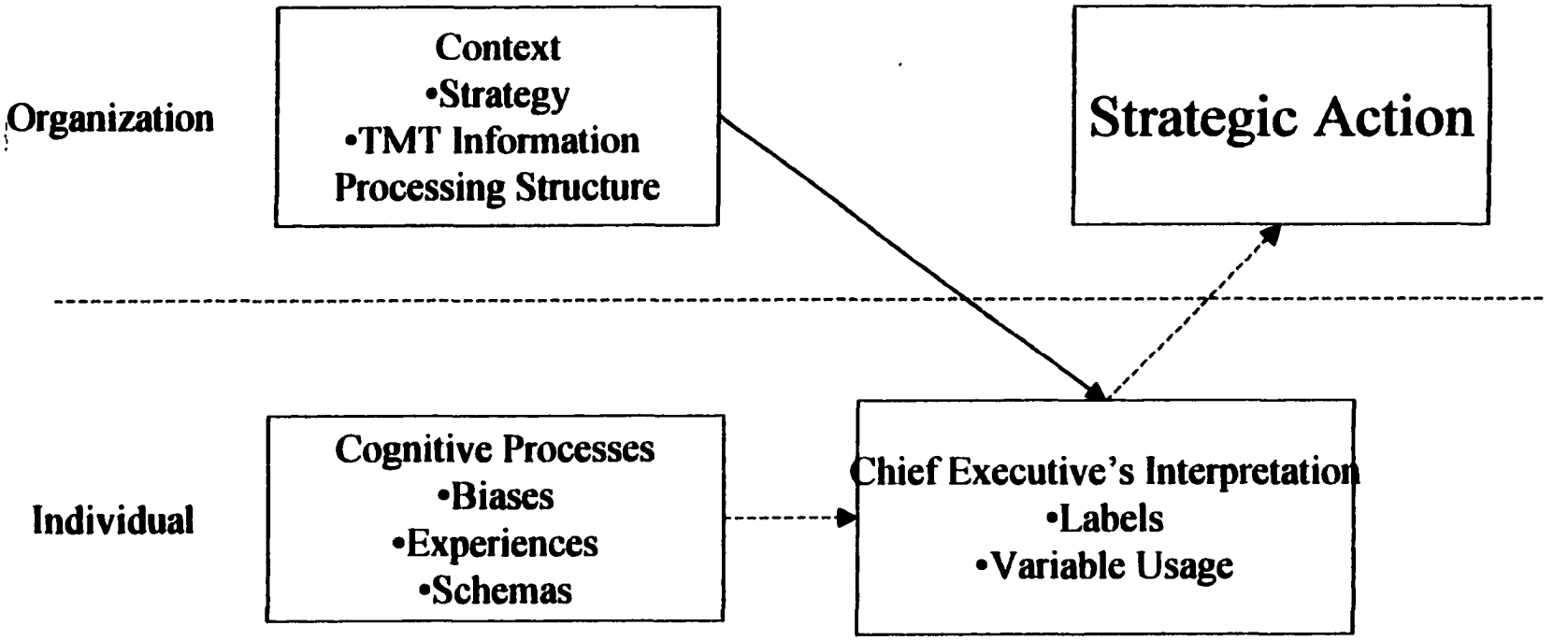


*Figure 4.* A cross-level model of strategic issues interpretation. Republished with permission of the Academy of Management. Thomas, K. W. and McDaniel, R. R., Jr.(1990) Interpreting strategic issues: Effects of strategy and the information-processing structure of top management teams. *Academy of Management Journal*, 33, 286-306.

is unrelated to individuals' cognitive processes seems unlikely. The absence of a relationship from context to the cognitive process reflects this belief. Further, assuming that the chief executive's interpretation should immediately translate into strategic action in the organization is also unlikely, even in the smallest entrepreneurial endeavor, much less in a setting with layers of management. Therefore, despite the fact that the model does address the cross-level issue, it does not incorporate the aspects of the first two models, beginning with organizational and individual inputs and encompassing both entities' outputs. The Thomas and McDaniel model does not incorporate any type of feedback loop nor reciprocal relationships.

*Ginter and White's (1982) Model*

The Ginter and White (1982) model provided a critical link from the organizational, individual, and cross-level perspectives described in the previous three sections (Figure 5). First, it directly relates to various aspects of strategic planning and implementation in a detailed fashion. Second, it is a general model that aids in expanding the previous model back toward the more normative frameworks of Daft and Weick (1984) and Dutton et al. (1983).

Ginter and White (1982) related elements of their model to the proposed model in three instances. First, they synthesized other theories into an integrated framework. As mentioned at the outset of this proposal, one of the key strengths of configuration theory is that it allows such synthesis to occur. Next, Ginter and White suggested "that it is primarily through their actions that people produce the environmental conditions that affect their behaviors in a reciprocal fashion" (p. 255). The reciprocal nature of management

environment interaction is consistent with the open-systems perspective. Third, they stated "that effective top managers well may develop unique cognitive abilities and a strategic management perspective, that is, a certain way of thinking" (p. 257). That certain way of thinking is strategic thinking or a managerial sensemaking.

The authors related their learning theory to strategic management through a stimulus-organism-behavior-consequence (SOBC) framework. This too may be incorporated into the cross-level model proposed, but rather than having a single level of SOBC, the organism can be broken out and its behavior examined more closely. Further, that behavior may then be measured against the organizational behavior and consequences. Finally, those consequences may filter back through the environment and reframe the stimulus to complete the feedback loop.

These four models have all contributed to the development of the cross-level model of strategic thinking that is presented below. As the derived model is explained, each of the contributing models' features will be recognized. After the cross-level model is described, it will be applied in a public health context.

### *The Synthesized Cross-Level Model*

The cross-level model of strategic thinking is an abbreviation of the general model because it examines only a single individual at one time. This is portrayed in the model by the horizontal division between the organization and individual (Figure 6). A more general model would look like a company's organizational chart, with each individual's box representing the inputs, processes, and outputs below the line, and with some modification of the organization to allow for functional departments. However,

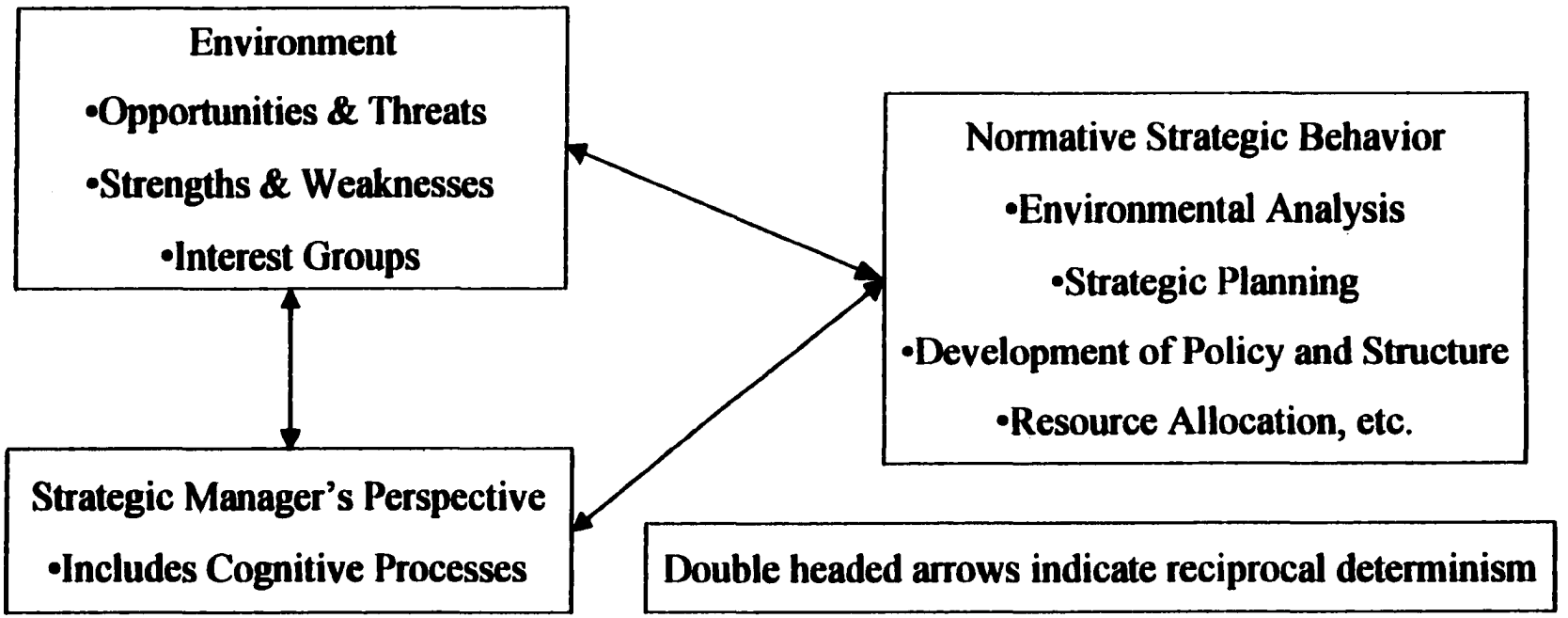


*Figure 5.* Social learning theory of strategic management. Republished with permission of the Academy of Management. Ginter, P. M and White, D. D. (1982). A social learning approach to strategic management: Toward a theoretical foundation. Academy of Management Review, 7, 253-261.

empirically testing that model would be problematic at best. Therefore, the most direct means of testing the model is to examine the organization as a whole and its leader, who will presumably have the most direct impact on strategy and action.

The assumption that the top leader will have the greatest impact on the organization does not include the assertion that the organization will behave in exactly the fashion that the leader wants in an immediate time frame. In large corporations with cumbersome hierarchies, this caveat seems particularly relevant, as is often the case in the chosen context–state health departments. It is this reasoning that led Brown and Eisenhardt (1998) to write their best selling book, *Competing on the Edge*. They specifically recommended a compartmental approach to organizational structure that allows for patching different departments together, taking them apart quickly, and repatching them together in a different pattern. Returning to the main point, organizations have a certain amount of momentum that probably explains a lot of the variance in the arrows labeled 1, 2, and 3 (Figure 6). These arrows were not the main focus of the proposed research but merely warrant some mention.

The main focus of this research was the relationship between organizational configurations and chief executives' revealed cognitive labels, as defined by the nonrecursive arrow (Arrow 7 in Figure 6). The reciprocal relationship indicated by the double-headed arrow is similar to the loop defined by Arrows 4, 5, 6, and 7, which cycles through the organizational configuration (the green-shaded box that encompasses organizational context and behavior) and the chief executive's revealed cognitive maps (the red-shaded box encompassing chief executives' interpretation and cause-effect understanding) constructs. It should also be noted that this creates a system similar to Ginter and White's (1982)

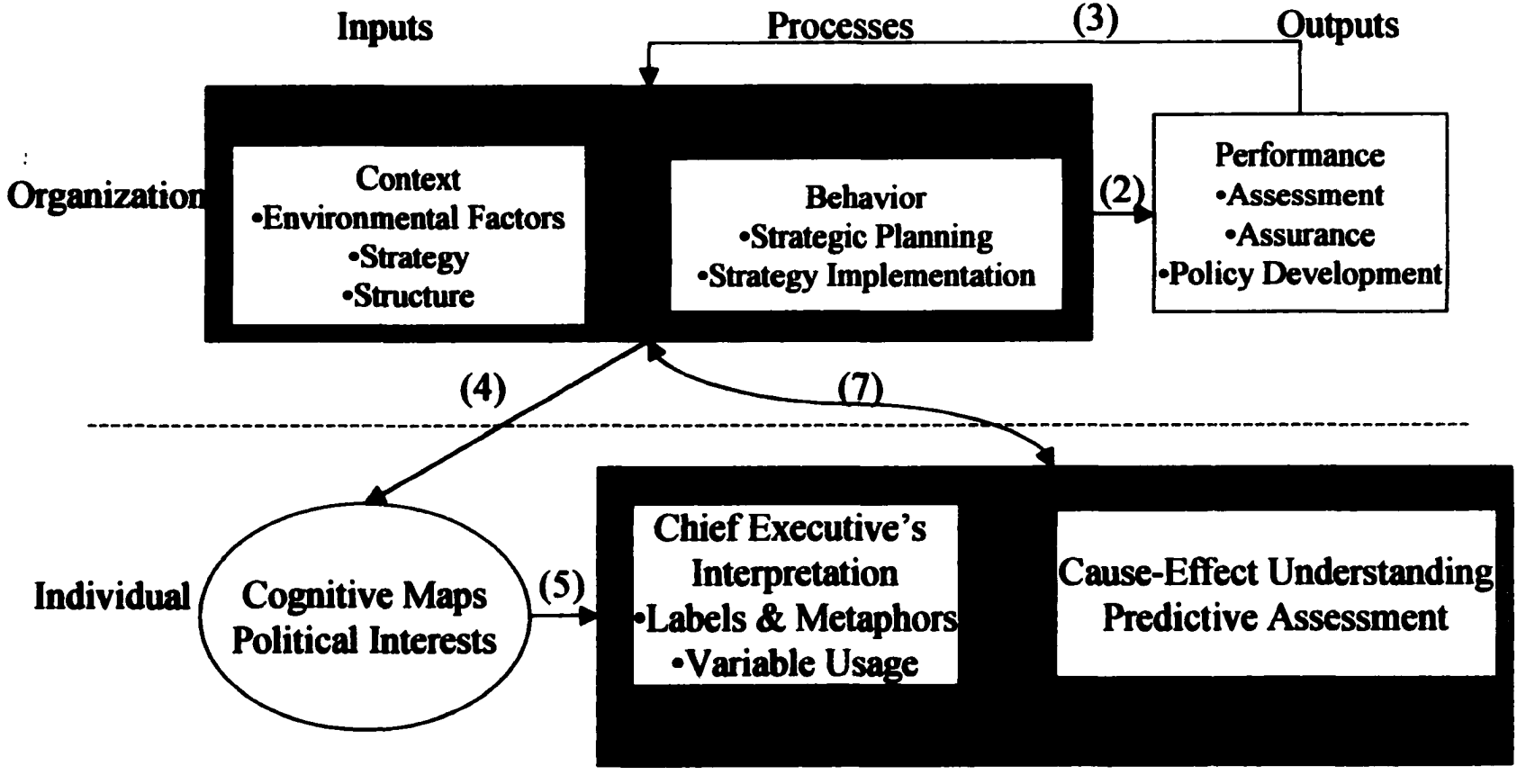


*Figure 6*. **Cross-level model of strategic thinking of state health agency leaders.**

SOBC learning approach. The reciprocal relationship designated by the double-headed arrow labeled (7) is of particular interest.

The relationship between an individual's cognitive interpretation and labeling may be nonrecursive. However, the revisions probably happen at such a high rate and with such constancy that the observable relationship between the configuration and interpretation appears reciprocal. That the individual's cognitive label set represents latent constructs is reflected in the oval shape of the construct. This is not to say that construct is not measurable. Directly surveying the leaders and using Q-sorting techniques would allow this construct to be examined using multidimensional scaling. That was beyond the scope of this research, but is an ideal area for future research.

Now, the constructs themselves need to be more fully elaborated. Starting with the organizational level of the model, the first phase of the proposed research, the configuration section is composed of two other constructs. In typical classifications of strategy research, studies are investigating either content or processes. By taking a configuration approach, both can be examined simultaneously. The content aspect is labeled *context* and the process facet is *behavior*.

Within the context construct, elements of the environment, strategy, and structure are considered. The environment can be described as containing threats, opportunities, or both (Ginter, Duncan, & Swayne, 1998). Alternative approaches that may yield continuous measures are environmental munificence or some measure of complexity. Regarding strategy, several different typologies are available. But within this study's context, public health measures of mission statements arrayed against other agencies may enrich the analysis, particularly in light of the normative mission statements for public health pro-

posed by the IOM (1988; Stoto et al., 1996). Structure is a seemingly straightforward proposition, but as Simon (1996) indicated, there may be a nonlinear measure that has greater explanatory power. Further, there are other structural differences across health agencies that will be considered in the variables portion of the methods section. All of these aspects of organizational context modify the behavior of a company or agency.

As indicated in the model, the behavior construct is process oriented. Therefore, strategic planning and implementation are logical elements of the construct. Measures of planning and implementation can be based on the presence or absence of plans, the futurity of existing plans, and the ongoing evaluation of those plans. The IOM (1988) report on healthy communities specifically pointed to the need for health agencies to plan for and engage in more alliances with managed care providers. The underlying assumption of better planning is better outputs.

The outputs of individual cells of the model were not studied in this research. However, to simplify future projects and general understanding, the concept warrants some discussion. In the Thomas and McDaniel (1990) model, processes lead to action. Although this is an oversimplification, it captures the essence of the paradigm. Further, in the public health model of performance (Turnock, 1999), the outputs that are measured determine how much of the process occurs. Therefore, it is logical that those performance measures should be adopted into this model. In addition, if the information is readily available in an objective format, rather than a survey of perceptions, it should be gathered for further analysis.

The Handler and Turnock (1996) public health model of performance is ideal for explaining the outputs at the organizational level in this context, but is of limited utility in studying strategy. Nor does it address the individual leader's strategic thinking.

On the individual plane of the cross-level model of strategic thinking are one independent construct and one construct that synthesizes the process and output elements. The independent construct is cognitive mapping and political interest. These are inherent to the individual although subject to change in the presence of changing organizational configurations. Nevertheless, as mentioned previously, this is an area for later research.

The synthesized construct of the individual level represents the second phase of the research–classifying of state health officials' revealed mental labels. It is composed of two subconstructs: (a) chief executives' interpretations and (b) the cause-effect understanding. Within interpretation are two other components: assigning labels or developing metaphors regarding particular issues in an organization and variable usage. Taken together, these concepts identify how much information is interpreted and how it is mentally mapped. Humans have a finite ability to process information (G. Miller, 1956; Simon, 1996). Therefore, as the quantity of information goes beyond our bounds of assimilation, it is possible that humans will use metaphors as a sort of cognitive shorthand. Thus, the two elements of the construct are intertwined. Further, metaphors are particularly useful because they often contain cause-effect relationships that lead directly to the next construct.

Managers, indeed all people, process the items they have labeled and try to establish cause-effect relationships on which to base their behavior. Even if there is no concrete evidence that a given action will yield the desired results, some form of predictive

assessment occurs. This, taken together with the labels and metaphors, makes it possible to draw maps that represent an individual's thinking on the inputs, processes, and outputs that might come into play in any given environment. Drawing and grouping these representations among the state health leaders is the goal the second phase of this research sought to achieve.

The final step in evaluating the model is to compare the health agencies' organizational configurations with the individual leaders' mental labels. Given the model that was developed, three general research questions were examined.

## Questions Explored Via the Cross-Level Model

The following general questions were examined:

1. Configuration issue: Can the state health agencies be grouped meaningfully on the basis of their environments, structures and strategies?

2. Leadership sensemaking issue: Can health agency leaders be grouped meaningfully on the basis of manifest cognitive variables contained in their personal communications?

3. Can configurations and sensemaking then be correlated positively to each other? (i.e., Does membership in a agency groupings correspond to groupings based on leaders' communications?) This question represents the core hypothesis addressed in this study.

# CHAPTER 4

## RESEARCH DESIGN AND METHODS

There were four phases to the research.

First, the sample of agencies and individuals to be studied were identified.

Next, the agency configurations were described, and a set of archetypal agencies were empirically derived (Miller & Friesen, 1984; Reeves, 1996). The variables that describe each dimension are defined in this section. In addition, the statistical approach is discussed.

The third part of the research studied the manifest management concepts the leaders used, by analyzing the content of their published communications. A series of empirically driven techniques were used to narrow the number of concepts to those that were key in the documents. However, after empirically narrowing the number of terms, numerous nonmanagement terms remained. Therefore, experts familiar with both public health and management were asked to identify the management terms from among the derived key terms. These terms were then subjected to the same type of analysis as the configurations.

Finally, this dissertation conjointly examined the results of the second and third sections to determine whether leaders who use the same sets of terms manage similar organizational configurations. This represents the core hypothesis to be tested.

## Sample Identification

The study had two sets of subjects: the state health agencies and the leaders who managed those agencies during 1999. One difficulty in studying public health is that the functions reside in a variety of departments within each state's government. Therefore, a method for identifying the correct department within each state was necessary. The selection criterion employed in this research was to select the cabinet-level leader that had public health in her or his agency.

Another difficulty in studying state organizations is clarifying the nomenclature of agency names and leadership titles. The states give any number of names to the agencies that oversee public health, ranging from Department of Health (the most common) to Human Resources. The leaders are labeled as director, secretary, commissioner, state health officer, and administrator. Most of the titles are meaningful because they make subtle distinctions about how the leader is selected or the extent of their duties. For example, secretaries are typically appointed by the governor, serve at the governor's pleasure, and oversee an agency with widely varying functions. Alternatively, a state's health commission may appoint a commissioner to a set term of office. To alleviate confusion, the terms *department of health* and *leader*, or some synonym, were used in the general discussion, and the specific titles were used in particular instances.

The potential population of organizations was limited to agencies from the 50 United States. United States territories were omitted because of the varying degree of federal involvement in their programs and the lack of English in many of their documents. The District of Columbia was also omitted because it represents just one city and has extensive federal oversight.

Focusing on the state health departments and their leaders provided advantages in each phase of the research. In the development of organizational-level groupings, direct reviews of strategic plans, budgets, and other management reports were possible because of the public nature of health departments. Previous taxonomy research has relied primarily on inferences drawn from case studies of private organizations (D. Miller, 1976; Miller & Friesen, 1984; Reeves, 1996). Case studies of private organizations are potentially exposed to two forms of bias: case writer bias and absence of poorly performing organizations. The case writer problem manifests itself in companies being more favorably or more negatively portrayed than they actually were in terms of strategy and performance. Poorly managed companies often fail, resulting in the loss of subjects that do not perform profitably. The net effect of these two biases is to inflate the means and reduce the variance in the scores of previous research (Reeves). The use of state agencies minimized both biases because their managerial documents are directly observable, thus eliminating case writer bias. Further, state agencies typically do not go out of existence because of poor management, competitive pressure, changing environmental conditions, and so on. Therefore, studying public agencies reduced the loss of potential subjects and inflation of mean scores.

## Data Sources

The third part of the research involved classifying leaders on the basis of concepts contained in their testimony, speeches, and personal correspondence. Those sources were content analyzed to identify management variables and their importance to each subject. The advantage of studying public officials was that they are frequently called upon to re-

port their agencies' progress, plans, and budgetary needs in public forums. This public reporting phenomenon is relatively rare in the corporate sector, particularly among privately owned companies.

## Agency Configuration Analysis

As stated previously, the configuration analysis section of this research replicates and extends the work done by Miller and Friesen (1984) and Reeves (1996). The previous studies' variables have been altered in two respects. First, the cues to scorers for each variable were tailored to the selected setting–state health departments. Second, the scoring of the two organizational dimension variables was combined in a nonlinear method as suggested by Simon (Anderson, 1999; Daft, 1992; Daft & Lengel, 1986).

The remainder of the research dedicated to the configuration analysis is discussed in five sections. First, the variables are defined. Next, the variable scoring methodology is developed. Third, the data sources are described. Fourth, interrater reliability is addressed. Finally, the enabling propositions, the core hypothesis and the means of testing them are described.

### *The Variables*

Part of this research replicates previous work; therefore, comparable criteria for variable selection were employed. Reeves (1996) identified four criteria for selecting variables:

> 1. Variables had to have been found important in previous theoretical or empirical studies. They were chosen to be theoretically and, if possible, observationally meaningful (Bagozzi, 1979). Variables had to be of substantial importance in describing the association between the organization, the environment, the organiza-

> tional context, or the strategy-making qualities of the organization in past research. Choosing variables based on previous research anchors the research in the management literature and gives the reader a basis upon which to judge the usefulness of the findings.
>
> 2. Variables were chosen which had been found to be conceptually distinct and have face validity in earlier research.
>
> 3. The entire set of variables had to include a broad span of environmental, organizational/structural, and strategy-making dimensions. Breadth and richness in variables was sought in an effort to avoid the criticism made of general organizational research that studies are too narrow or too simplistic.
>
> 4. Variables had to be measurable. Because most of the variables were taken from planning and reporting documents, it was possible to measure all the variables used by Miller (Miller, 1976) and Miller and Friesen (1984), although some states had to be excluded. (p. 45)

Variables common to both Miller and Friesen (1984) and Reeves (1996) were retained where possible. In the interest of parsimony and statistical power, variables that failed to differentiate organizations in previous research were either eliminated or combined with similar measures.

Three of the four categories originally used by Miller and Friesen (1984) and Reeves (1996) correspond to the categories found in the literature and were used in this research. One category, financial measures of success, was not used because it did not have any direct counterpart in the health agency setting. The success measures were the dependent variables because they were used to order the derived groupings of organizations.

Three sets of independent variables labeled environmental, agency-structure, and strategy-making are listed below. A complete list of variables, definitions, examples, and a scoring sheet used by the raters is contained in Appendix A.

*The environmental variables.* There are three environmental variables:

1. *Dynamism* in the environment is shown by the amount and unpredictability of changes in such things as technology, customer desires, and competition in the industry sector.

2. *Heterogeneity* in the environment is shown by differences in services or department purposes, competitive tactics, client needs, service-distribution channels, etc. in the industry sector, and the resulting differences required in marketing, administration, or delivery-production systems or a combination of these.

3. *Munificence* appears in the environment as steady funding, regulatory discretion, adequate work force, sufficient materials, and favorable demographic trends. The complementary term used by Miller and Friesen (1984) is hostility and can be thought of as the lower anchor on the scale (Mintzberg, 1979).

*The organization/structure variables.* There are 11 organizational and structural variables:

4. *Scanning* denotes the search by the agency for threats or opportunities in the environment external to the agency. Scores were based on (a) the amount of search for changes in competition, technology, client preferences-needs, and administrative behavior of other agencies, and (b) the number of agency members involved in scanning. The greater the amount of search and the greater number of participants, the higher the score.

5. *Delegation of operating authority* involves the amount of authority and responsibility for day-to-day operations transferred from top managers to lower- and middle-level managers and workers or a combination of these. Operations include such

things as service-production planning and scheduling, equipment replacement and inventory purchases, hiring lower-level personnel, adjusting basic services-products to meet competition or customer needs, and other activities having to do with the ongoing activities of the agency, but not pertaining to long-term or strategic activities.

6. *Centralization of strategy-making power* denotes the distribution of power in making decisions of a long-term, strategic nature: those decisions that affect the entire agency and must depend upon a variety of functional areas, those decisions that affect the performance of the agency or are important to the success or failure of the agency, those decisions that define the agency's relationship to its environment, or those decisions that provide direction for or put constraints on administrative and operating activities throughout the agency. Centralization is high if top managers make the most of the strategic decisions with a minimum of consultation with lower-level people, and low if lower- or middle-level managers or workers determine strategy whether by default or by intent.

7. *Resource availability* concerns the amounts of available labor, materials, capital, facilities, or other resources necessary or a combination of these for the agency to function. This category should be differentiated from munificence. Munificence can be interpreted as relating to issues outside the organization's control, some of which may be funding but primarily other issues. With respect to capital, the question would be what is the cost of capital? An agency receives a high score on this variable if these resources are abundant and relatively inexpensive.

8. *Management tenure* measures the amount of time the top manager has held positions at the organization. Scores are the actual average tenure of the most important

top strategists or executives-managers. This variable was modified from the work by Reeves to reflect only the top leader and to simplify scoring.

9. *Controls* are those systems that measure trends or outcomes pertaining to agency performance. Agencies that emphasize controls such as management information systems, employee appraisals, management by objective, budgeting, cost accounting, or quality control would receive high scores on controls.

10. *Internal communication systems* involves the openness and fidelity with which information flows throughout the agency. Agencies score high on this variable when relevant information reaches those who must make decisions quickly and accurately, and when communication flows top-down, bottom-up, and laterally in the agency.

11. *Agency differentiation* concerns the degree of difference between units or divisions in an agency in terms of overall goals, administrative, marketing, or operating methods, behavioral styles, or management style. The more disparate the units or division, the higher the score on this variable.

12. *Technocratization* measures the percentage of staff with professional qualifications. The higher the percentage, the higher the score.

13-14. *Spatial complexity* measures the breadth and depth of the agency that the leader has to control. This is continuous variable ($y$) created by taking the log of the number hierarchical levels ($n$) using the average span of control for the widest level of the hierarchy as the base ($s$). Expressed as an equation: $y = \log_s n$. To calculate the number of hierarchal levels, one starts from the office reporting to the governor and counts down to the lowest level identified. To determine the average span, one finds the hier-

archal level that has the most positions in total and divides that number by the number of oversight positions in the hierarchal level immediately above to get an average span.

*The strategy-making variables.* There are seven strategy-making variables:

15. *Innovation* measures the amount of innovation used by the agency in terms of number and novelty of new services/products or approaches. Higher scores denote higher innovation.

16. *Adaptiveness–proactiveness* concerns the agency's responsiveness to external environmental conditions, the appropriateness of decisions made concerning the conditions, and the degree to which the agency attempts to shape its environment by the introduction of new technologies, services, products, or administrative techniques. Highly adaptive proactive agencies make appropriate decisions in response to environmental factors such as competitive pressures, regulatory pressures, and demographic changes, for example, while agencies that merely react to things in their environments are given low scores.

17. *Integration of decisions* involves the degree to which actions in one unit or division of an agency complement or support those of other units or divisions. In highly integrated agencies, a concerted, coordinated strategy would be found, whereas in a poorly integrated agency, conflicting or mutually inhibiting strategies manifested by fragmented or clashing actions would be found.

18. *Conscious strategic analysis* reflects the amount of time and thought devoted by decision makers to problems and responses to problems. If little time or effort is spent and strategic decisions appear to be made intuitively, or if managers appear to have un-

clear goals and strategies, a low score is given. Conversely, when there appears to be analysis of issues manifested by such things as time delays for strategic decisions, numerous or regular meetings or both, written reports, staff analysis, or commitment to explicit strategies, a high score is given.

19. *Multiplexity* addresses the range of factors used by top managers in making strategic decisions. In a multiplex agency, the managers consider financial, marketing, production, delivery, administrative, demographic, and other factors when making a strategic decision, and a high score results. If the agency focuses on one factor only when making such decisions, a low score is given.

20. *Futurity of decision* concerns the time frame used by the agency in planning strategies and operations. A time frame as long as 5 years warrants a high score, whereas decisions based on the current crises warrant a low score.

21. *Precedents* denote the degree to which an agency does not rethink its strategies and the way in which strategies will be attained. An agency whose strategies are tied to precedent would receive a high score on these variables, while an agency that often rethinks strategies would receive a low score.

Although not an exact replication of the variables used by Miller and Friesen (1984) and Reeves (1996), the foregoing wording is a close approximation relevant to health agencies.

Adapting the variables to the selected setting, public health agencies, is a contribution to the current framework. Further, refinements to the variables were made in the trial scoring and selection of data sources done by the primary researcher.

*Variable Scoring*

At least two, and generally three, experienced raters scored each state's agency. Rater training is discussed in the interrater reliability section. A complete set of rater instructions and scoring sheets appears in Appendix A.

Variables were coded or created in three ways: (a) continuous, (b) combined to form new measures, or (c) on a 7-point scale. There was only one continuous variable: tenure of the leader measured in months. As referred to in the literature review, two of the organizational variables, span and depth of structure, were combined in a logarithmic relationship. The tenure and organizational structure variables are objective measures and were compiled by the primary investigator. The remaining variables were scored on a scale from 1 to 7 by multiple raters.

Within the scale, values of 1 represent agencies that were much lower in a characteristic than other agencies, and 7 indicates that the agency had much more of the characteristic than other organizations. The 7-point scale was used instead of a more traditional 5-point scale for two reasons. First, it allowed for finer gradation of attributes by the rater. Second, the longer the scale, the less severe the biases were in the estimations (Byrne, 1998), notwithstanding that maximum likelihood estimations are reasonably robust regardless of departures from normality (Marcoulides, 1998). The problem of bias related to scale length was further reduced by averaging the scores of raters to create a 13-point scale composed of the original 7 points and the potential halves. Variable scoring is only as accurate as the data sources.

*Data Sources*

A large and varied amount of information was gathered in the course of this research. The first part of this section discusses the advantages of using actual working documents rather than case studies. The second part describes the method of gathering information.

Unlike previous studies, this research drew on organizations' actual strategic plans, annual reports, leaders' speeches and correspondence, and other internal documents. There are several advantages to using these sources, rather than case studies as has been done in previous research. The primary benefit is the reduction of some forms of bias.

In gathering information for case studies, authors typically interview numerous individuals who may be seeking to sway the author to their point of view. Further, management may grant access only to employees who are likely to portray the organization and its leadership favorably. Former employees may have other issues with a company that negatively affects their perceptions. Even if an author is critical of subjects' input, discerning the truth may be difficult.

In addition to the bias others introduce, authors may bring their own preconceptions into studies. For example, students are interested in studying well-known companies. Therefore, authors actively seek to study organizations that will be popular with the potential readership. Authors may also be influenced by their own functional backgrounds, further distorting the presentation of evidence. The net effect of this phenomenon is that successful companies are disproportionately represented. The problem is further aggravated by disincentives to study failed businesses. In addition to the lack of in-

terest, finding individuals who witnessed and are willing to discuss a business failure is more difficult. This is particularly true if litigation regarding the failure is taking place.

Cumulatively, the effects of subject, author, and survival biases may lead to slanted perceptions of the businesses that are studied in case writing. Therefore, it was desirable to find a setting where objective information was available, no single author was relied upon for interpretation, and organizations that performed poorly did not go out of existence. State health agencies met these criteria.

Aside from the reduction of biases, studying state health agencies provided other advantages for conducting configuration research. First, state agencies produce a substantial amount of reports available to the public. Second, there were an adequate number of organizations to allow for statistical analysis. Finally, and perhaps most critical, the importance of strategic planning for health agencies has been promulgated for a number of years, beginning with the IOM (1988) report.

The amounts of information available from each state varied greatly. Some states had strategic plans, mission statements, budgets, annual reports, leader' speeches, Healthy People 2010 goals, and other relevant documents available directly on their Internet sites. Other states had far smaller amounts of formal reporting. A complete list of documents used in all phases of this research are listed in Appendix B.

The first step in gathering information from a state agency was to visit its web site. Most states lacked enough information on the Internet to complete either phase of the proposed research. Therefore, when listed on the site, the public relations officer was contacted via e-mail. The items specifically requested were strategic plans, budgets, annual reports, Healthy People 2000 and 2010 goals, organization charts, and other relevant

materials. With respect to the agency leaders, information containing biographies, speeches, testimony, and open forum letters were requested for use in the content analysis phase. Correspondence, both electronic and through the U.S. post office was also very successful in gathering agency-level information. However, it failed to capture much of the needed leadership-related material.

The third method for collecting the needed materials involved telephone calls to the various directors' assistants. This method produced a substantial amount of data. In addition to numerous speeches used in the content analysis phase, several drafts of agency plans and other documents were also available. Ultimately, 41 states provided adequate information to be included in the configuration phase, and 34 state agency leaders' communications had been sufficiently documented in the public record to be analyzed. However, only 29 states provided both sets of data.

*Interrater Reliability*

Prior configuration research has achieved high levels of interrater reliability. However, replication of the original researchers' findings would be difficult. Previous work relied on a limited number of raters who may have developed idiosyncratic conventions on some variables. To overcome this limitation and reduce the sizable burden that qualitative research places on individual scorers, numerous raters were used.

In fact, 12 raters were used to score the state agencies in a 1-day session. All raters had at least a master's degree in a health-related profession (Master of Health Administration, Master of Public Health, or health-focused Master of Business Administration) and were working toward or had a doctorate degree. A week before the session,

each rater was given copies of the unpublished article "Strategic Configurations in Health Service Organizations" (Reeves, Duncan, & Ginter, 2000), the scoring sheet, and a practice state agency. The primary researcher met with each scorer individually to review practice scoring and answer any questions. All of the practice scores were discarded to eliminate any influence bias, and some minor clarifications were made to the scoring sheet.

Because all scoring was intended to be relative, each scorer reviewed three randomly selected states before actually scoring them. As an initial measure of reliability, the reviewers were given one of three test states to analyze so that multiple rater comparisons could be made at that point. By using an intraclass correlation coefficient, it is possible to determine the amount of agreement among raters (Cronbach's alpha) and the significance of the correlation (Nichols, 1998, $F$ statistic). The three sets of raters all had alpha's greater than .60 (.6023, .6060, and .8390). The $F$ statistics for the average intraclass correlation were all significant at the $p < .05$ level (.029, .0053, and .001, respectively). Pedhazer and Schmelkin (1991) pointed out that standards of reliability vary, depending on the nature of the research. Nevertheless, their examples of adequate explanatory power fall between the .5 for exploratory research and .7 where high amounts of agreement are required. Therefore, alphas greater than .6 for each set of raters were deemed adequate for the purpose of this study, which was largely exploratory. Further, this procedure produces a measure of absolute agreement, which is a higher expectation than the adjacency of scores used in previous work (Miller & Friesen, 1984; Reeves et al., 2000). Therefore, given that the statistics on the test states were reliable, especially

under the stringent test assumptions and because a second round of training and discussion took place after the initial test, the remainder of the sample was scored.

Having gathered the data in one session, rather than iteratively, the overall test for interrater reliability used by Miller and Friesen (1984) and Reeves (1996) was performed post hoc. The overall Kappa statistic was .865 and significant at $p < .001$. This level of agreement also far exceeded the standard .60 value for kappa statistic that indicates a high degree of interrater reliability. Allowing for differences of two or less, the raters were in agreement 92.01% of the time (Table 2).

Only two states, Kansas and Montana, failed to have a kappa statistic greater than .60. Those two states were subsequently rescored and achieved an acceptable level of agreement. Further, only three variables had agreement differences in more than five states. Given the overall high level of agreement, these differences were not reconciled but were viewed cautiously in the interpretation section.

*Taxonomy Development Method*

The taxonomy of state organizations was derived through cluster analysis, an iterative partitioning method. Aldenderfer and Blashfield (1984) describe the process: "K-means passes, also referred to as the 'nearest centroid sorting pass' and the 'reassignment pass,' simply involve the reassignment of cases to the cluster with the nearest centroid" (p. 47). The number of clusters generated is determined a priori in this method.

Every possible set of clusters from two to eight was considered. Beyond eight groupings, only clusters containing a single agency could be disaggregated. The configuration that yielded five clusters was selected for four reasons. First, it maximized the

number of clusters with multiple members and eliminated any outliers or singleton clusters. Second, the distribution of variables that separated the clusters was relatively balanced.

Table 2

*Differences Between Raters by Variable*

| Variable | Difference = 0 | Difference = 1 | Difference = 2 | Difference > 2 |
|---|---|---|---|---|
| Dynamism | 16 | 14 | 10 | 1 |
| Heterogeneity | 15 | 12 | 11 | 3 |
| Munificence | 14 | 17 | 8 | 2 |
| Scanning | 14 | 14 | 6 | 7 |
| Delegation | 16 | 13 | 8 | 4 |
| Centralization | 11 | 18 | 7 | 5 |
| Resource | 16 | 19 | 4 | 2 |
| Control | 39 | 1 | 1 | 0 |
| Communication | 14 | 15 | 6 | 6 |
| Differentiation | 12 | 18 | 8 | 3 |
| Technocratization | 20 | 12 | 6 | 3 |
| Innovation | 19 | 14 | 5 | 3 |
| Adaptiveness | 37 | 2 | 0 | 2 |
| Integration | 41 | 0 | 0 | 0 |
| Conscious analysis | 13 | 13 | 7 | 8 |
| Multiplexity | 13 | 17 | 9 | 2 |
| Futurity | 8 | 16 | 13 | 4 |
| Precedents | 11 | 23 | 3 | 4 |
| Total | 329 | 238 | 112 | 59 |
| Percentage | 44.58% | 32.25% | 15.18% | 7.99% |
| Cumulative % | | 76.83% | 92.01% | 100.00% |

In other words, one cluster did not have all the extreme values, and the remaining clusters were determined by individual variables. Third, the variables that grouped together in a cluster had face validity. For example, the variables centralization of strategy-making

power and delegation of operating authority, when extreme, were generally signed in opposite directions. Though these two constructs need not always be related inversely, it is the logical paradigm. Fourth, the *F* statistics for the five-cluster solution, although heuristic, were as good or better than any other configuration. The results of this analysis are discussed in the next chapter.

## Content Analysis

The content analysis portion of this research was done empirically. The first step required that simple lists of frequently used words be identified from the entire set of documents and that the meaningless words (articles, prepositions, etc.) be eliminated. Second, a more refined set of key words was developed by using an algorithm that compared each individual leader's word list with the consolidated word list (less that individual's own contribution). The next step required that only the key words related to management be retained to determine group membership. The reason for this stipulation is that the organizational-level configurations were based solely on management concepts. Therefore, raters with expertise in both public health and management were asked to identify key words that reflect management concepts. Finally, the leaders were classified through a K-means cluster analysis based on the identified words.

As stated above, the development of a list of key words essentially had two parts. The first set of steps were empirically driven and served to reduce the number of words and abbreviations present in the original lists from 8,637 to 45. The second phase used expert raters to identify the subset of management-related concepts.

*Empirically Derived Key Words*

Many of the personal correspondence items were gathered in an electronic format. Those gathered in a paper format were scanned and translated into electronic text. Word-Smith Tools (Scott, 1997) was used for the initial document cleaning and words lists screening. The empirical reduction process had four steps. First, word lists based on each subject's documents were created. Next, a complementary word list from the remaining subject's documents was compiled to create a reference corpus. Then, each individual's list was compared with the master list (less their own documents) to identify "key words." To be accepted into the final empirical list, a word had to appear in at least two leaders' documents.

A brief description of how key words are calculated is warranted and provided by Scott (1997):

> The "key words" are calculated by comparing the frequency of each word in the smaller of the two wordlists with the frequency of the same word in the reference wordlist. All words, which appear in the smaller list, are considered. . . .
>
> To compute the "keyness" of an item, the program therefore computes its frequency in the small wordlist, the number of running words in the small wordlist, its frequency in the reference corpus, the number of running words in the reference corpus, and cross-tabulates these.
>
> Statistical tests include: the classic Chi-square test of significance with Yates correction for a 2 X 2 table, Ted Dunning's Log Likelihood test, which gives a better estimate of keyness, especially when contrasting long texts or a whole genre against your reference corpus [the latter was used for this reason].
>
> A word will get into the listing here if it is unusually frequent (or unusually infrequent) in comparison with what one would expect on the basis of the larger wordlist.
>
> Unusually *in*frequent key-words are called "negative key-words" (p. 53).

This process yielded 268 words (Appendix C).

Next, the consolidated list of terms was compared with the individual lists to build a database of key-word frequency by subject. Combining multiple forms of the same root word into a single term further reduced the list. The number of terms was still too large for meaningful analysis, and not every term was used by multiple subjects. Therefore, the rule that a term had to be used by at least two leaders was introduced, with the result that the list was further reduced to 45 terms (Appendix D). These steps left one theoretical concern–not every term was directly related to management concepts.

*Selecting Managerial Terms*

In order to establish the face validity of managerial terms, two added steps were required. First, experts with backgrounds in both administration and health services had to be identified. Second, interrater reliability had to be established among the experts. Completing these steps yielded the final list of terms to be used in grouping the leaders.

The experts who were used to select the final list of management terms do research and teach in a variety of health administration programs. The raters possessed experience in public health policy, business administration, and health-related professions. Given the number of raters and the diversity of their administration backgrounds, the level of face validity of the management variables can be approximated by the amount of interrater reliability.

As in the configuration-scoring phase, Cronbach's alpha was used to measure the level and significance of interrater reliability. The overall alpha statistic was .858 and significant at the $p < .001$ level. Given the high level of agreement among raters, the 19

management terms that were identified by at least two of the raters were used in the cluster analysis of leaders' communications.

The configuration of leaders, based on their personal communications, used the same statistical approach as the grouping of states–K-means cluster analysis. Again, a number of different cluster possibilities were considered. On the basis of the same selection criteria, five was considered the optimal number of clusters. Completing this phase of the research allowed for the comparison of the health departments' organizational configurations and the grouping based on their leaders' communications.

## Comparison of Organizational and Leadership Configurations

With both leaders and their organizations grouped, it became possible to compare the two sets of configurations. Because the observations were gathered in pairs, a correlation test was used to gain a better understanding of the relationships. Because rankings were grouped rather than unique, several standard correlation tests could not be used. One test that is robust within these limitations is Friedman's test for multiple measurements on a series of subjects. The null hypothesis is that the results of the organizational and individual configuration methods are the same. An alternative test that uses a more conventional hypothesis and is also robust within the previously mentioned limitations is Fischer's exact test. Under this test, the null hypothesis is that the groupings of state organizations and leader configurations are not related. Therefore, the alternative hypothesis is a that a significant correlation exists. By using these tests and the results of the previous two phases of the research, it was then possible to consider the primary hypothesis.

## The Core Hypothesis

The general hypothesis of this study was that a configuration of state health agencies could be meaningfully related to the concepts identified in a content analysis of their leaders' personal communications. These are formally stated bellow:

Null hypothesis: There is no significant correlation between the agency archetypes and the leadership communications configurations.

Alternative hypothesis: There is a significant correlation between the agency archetypes and the leadership communication configurations.

The general hypothesis requires that two preliminary enabling propositions be fulfilled. First, from the variables originally suggested by D. Miller (1976), further refined by Miller and Friesen (1984), and adapted into the health care setting by Reeves (1996), a taxonomy of state health agencies had to be developed. However, no assertion of success or failure was made in this research. Instead, environmental, structural, and strategically meaningful characteristics related to each configuration were explored. The following section of results then considered the second enabling proposition–that the content of the leaders' personal communications would identify groups of like-minded leaders. Finally, the organizational configurations and leaders groupings were compared and are discussed in the Results chapter.

# CHAPTER 5

# RESULTS

The results are organized along the same lines as the methods sections. The information gathering process yielded 41 usable packages of information for the configuration analysis and 34 sets of personal communications. Twenty-nine states produced information that could be compared.

## Configuration Analysis of Organizations

Table 3 shows the means, standard deviations, the minimum, the maximum values, and the cluster analysis *F* statistic for all agency configuration variables. All variables were scored on a 7-point scale except for tenure, hierarchy, span of control, and the log of hierarchy with a base of span.

By comparing the descriptive statistic of this study to the previous research of Miller and Friesen (1984) and Reeves (1996), several observations can be made. The majority of scores' ($M = 13$) fall above those of Miller and Friesen and below those of Reeves. One possible explanation for this is the changing nature of the environment as strategic planning has evolved significantly since Miller and Friesen's study, resulting in the elevated levels of most variables. With respect to Reeves' work, the lower scores could be attributed to not experiencing a subject-bias toward successful organizations, or it may be due to slower rates of change and adoption in the public versus the private sector. More than likely, it is some combination of the two.

Table 3

*Variable Means and Standard Deviations for Configuration*

| Variable | *M* | *SD* | Minimum | Maximum | *F* statistic[a] |
|---|---|---|---|---|---|
| Dynamism | 4.6 | 1.26 | 1.5 | 7.0 | 3.15* |
| Heterogeneity | 4.2 | 0.9 | 30.0 | 6.5 | 2.95* |
| Munificence | 4.5 | 1.27 | 1.5 | 6.5 | 3.97* |
| Scanning | 4.7 | 1.2 | 2.0 | 6.5 | 7.66** |
| Delegation | 4.8 | 1.4 | 2.0 | 6.5 | 7.02** |
| Centralization | 4.5 | 1.3 | 2.0 | 7.0 | 8.42** |
| Resource | 4.41 | 1.3 | 2.0 | 7.0 | 4.48** |
| Tenure | 34.0 | 35.0 | 0.0 | 135.0 | 2.82* |
| Control | 5.0 | 1.1 | 2.0 | 7.0 | 4.74** |
| Communication | 4.5 | 1.0 | 1.0 | 7.0 | 3.34* |
| Differentiation | 4.2 | 0.8 | 2.5 | 6.0 | 0.78 |
| Technocratization | 4.6 | 1.5 | 2.0 | 7.0 | 1.65 |
| Hierarchy (*n*) | 4.2 | 1.5 | 2.0 | 9.0 | |
| Span (*s*) | 5.4 | 2.1 | 2.6 | 12.0 | |
| $\log_s n$ | 0.91 | 0.33 | 0.3 | 1.6 | 3.85* |
| Innovation | 4.1 | 0.95 | 2.0 | 6.0 | 10.19** |
| Adaptiveness | 4.8 | 1.1 | 2.0 | 6.5 | 4.04* |
| Integration | 4.5 | 0.95 | 2.0 | 6.0 | 3.55* |
| Consciousness of analysis | 5.0 | 1.3 | 1.5 | 6.5 | 0.4 |
| Multiplexity | 4.8 | 0.8 | 3.0 | 6.5 | 1.50 |
| Futurity | 5.2 | 1.2 | 2.0 | 7.0 | 0.72 |
| Precedents | 4.2 | 1.2 | 2.0 | 6.0 | 4.44** |

[a]The *F* test should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters.
*$p < .05$; **$p < .01$.

The specific variables that were lower in this study than in either previous work further support the idea of slow adaptation. The relatively low heterogeneity and innovation variables, for example, suggest that public agencies may engage in fewer activities that result in significant differentiation or change. In addition, the variables' low standard deviations, 0.90 and 0.95, respectively, indicate that most state health agencies are similar in this respect. Nevertheless, a small amount of variance in innovation is capable of dif-

ferentiating a state greatly, as evidenced by its having the highest F-statistic of any measure.

Concomitant with the theme of slow adaptation are the variables that scored higher than in either previous study. The relatively high scoring on precedents, environmental munificence, and technocratization are indicative of slow, incremental change. The reliance on precedents prohibits making quantum changes in a configuration theory framework. When the environment provides relatively well for an organization's needs, there is less adaptive evolution. Further, the market for highly skilled health agency managers is relatively limited, thus reducing potential job mobility. This is particularly true in state government settings because, in addition to unique skills, a specific knowledge of local issues and the political setting is also important. Therefore, turnover in the upper echelons, excepting the top position, is relatively low, reducing the influx of new ideas associated with new leadership.

By considering that the *F* statistics serve as an indicator of relative importance, some other inferences can be made. The four variables, in descending order, with the highest scores were innovation, centralization, scanning, and delegation. Agencies that desire to innovate actively scan their environment, decentralize their key functions, and delegate decision-making authority to local leaders. After the most critical issues were identified, the agency configurations were described in the order of significance of the variables.

## Configurations Based on Organizations

In the past, state health agencies have either been considered so idiosyncratic as to defy classification or have been dichotomized into super- or freestanding agencies (IOM, 1988). Neither of these approaches allows for meaningful consideration of how one agency may compare with another. The analysis done in this project, based on environmental, organizational structure, and strategy-making variables, provides a first look into which state agencies share meaningful attributes. Refer to Appendix E for Tables of Variables by State and Configuration.

The variables with the highest *F* statistics not only served to differentiate the clusters, they also loaded very positively into one particular group. Therefore, that cluster, labeled Strategically Structured Agencies, serves as a starting point in the description of clusters. Subsequent groups are taken in order of their scores on the four most significant variables.

### *Configuration 1: Strategically Structured Agencies*

Fourteen of the organizations, or about half, were classified as Strategically Structured Agencies. This group exhibited a relatively low standard deviation (*SD* = 0.385) of distances from the cluster's center (see Table 4), indicating that the members were more similar to one another than members in some other smaller clusters. With respect to the individual variables, the Strategically Structured Agencies scored the highest and positively on four items and second on one other (see Appendix F). On the other hand, the group only had one extreme negative variable–centralization. The cluster is labeled

Table 4

*State Configuration Groups and Distances From Centers*

| Cluster | State | Distance from center | *M* | *SD* |
|---|---|---|---|---|
| Cluster 1–Strategically Structured Agencies | | | 3.495 | 0.385 |
| | Indiana | 3.019 | | |
| | Montana | 3.082 | | |
| | Connecticut | 3.086 | | |
| | New Jersey | 3.102 | | |
| | Virginia | 3.191 | | |
| | Arkansas | 3.451 | | |
| | Georgia | 3.487 | | |
| | New Hampshire | 3.524 | | |
| | Alabama | 3.589 | | |
| | Minnesota | 3.628 | | |
| | Arizona | 3.707 | | |
| | Mississippi | 3.728 | | |
| | Idaho | 3.970 | | |
| | Alaska | 4.369 | | |
| Cluster 2–Strategy Minded Agencies | | | 3.449 | 0.826 |
| | Ohio | 2.466 | | |
| | Louisiana | 2.913 | | |
| | Florida | 3.474 | | |
| | Oregon | 3.773 | | |
| | New York | 4.619 | | |
| Cluster 3—Complex Problems and Chaotic Environments | | | 3.171 | 0.676 |
| | Kentucky | 2.583 | | |
| | Texas | 2.773 | | |
| | California | 2.974 | | |
| | Wisconsin | 3.221 | | |
| | North Carolina | 4.304 | | |
| Cluster 4—Centralized and Stable | | | 2.577 | |
| | Rhode Island | 2.577 | | |
| | Vermont | 2.577 | | |
| Cluster 5–Scarce Resources and Slow Change | | | 3.338 | 0.239 |
| | New Mexico | 3.070 | | |
| | Oklahoma | 3.418 | | |
| | Iowa | 3.527 | | |

Strategically Structured because of the members' high scores on the scale of Structure Variables.

*Main features of Strategically Structured Agencies.* Indiana was the state that most typified this cluster, being closest to the center. Idaho and Alaska were least like the other states in the group. The environments these agencies inhabit are relatively munificent (munificence, average score = 5.0) with the exceptions of Idaho and Arizona. [1] The relatively low environmental munificence coupled with a heavy reliance on precedents is why Idaho is less typical of the configuration than other members. By constantly scanning (average score = 5.5) their environment, these agencies may be superior at identifying resources and mitigating potential threats. To further support their scanning activities, they have emphasized the development of internal communication systems (average score = 5.0).

Their strategic emphasis on structural variables is also reflected in the relationships between top management and other organizational elements. The positive score on delegation of operating authority (average score = 5.6) and negative score on centralization of strategy-making power (average score = 3.6) indicate that local and functional managers are allowed to operate and plan with a significant degree of autonomy. Further supporting the strategic structure of these agencies is their emphasis on conscious strategic analysis (average score = 5.2) and the lack of reliance on precedents (average score = 4.1). This cluster had the second highest scores on these two variables, although

[1] Average scores are based on a 1-7 scale with 4 meaning *similar to other organizations*, 1 indicating *much less than other agencies*, and 7 denoting *much more than other entities*.

Alaska had a very low score on conscious analysis (2.5), causing it to be the least similar to the rest of the cluster.

*Examples.* Perhaps the best example of an organization that is restructuring itself strategically is Arkansas. In the beginning of 2000, Arkansas turned its entire organizational structure on its head. Based on information gathered through agency-wide meetings (internal communication system), the organization moved from a central to a local-led model of public health delivery (negative centralization of strategy-making power and positive delegation of operating authority).

Under the new model, scanning occurs at the local level. In order to support the regional agencies, the Shared Services Divisions now report to the regional offices. Again, the need for effective internal communications is critical. Further, this simplified organization structure is similar to those, identified below, that promote a strategic-minded approach to public health.

*Configuration 2: Strategy-Minded Agencies*

The Strategy-Minded Configuration has five members, or 17% of the total states evaluated. The group is called Strategy Minded to indicate the many strategy-making variables that helped define the cohort. The configuration had the largest amount of variation ($SD = 0.826$), indicating a low degree of similarity among group members. In terms of the variables that defined the group, it scored the highest on 7 of the 20 variables, lowest on 4 variables, and second on several other relevant variables.

*Main features of the Strategy-Minded Agencies.* Organizations in this cluster see themselves as having different environments from other agencies (heterogeneity, average score = 5.1). Therefore, to meet these unusual environments they need to differentiate (average score = 4.7) their agencies. In order to achieve this, they must be innovative (average score = 5.4), adaptive-proactive (average score = 5.5), and not reliant on precedent (average score = 2.7) in their planning activities. Further supporting these efforts is a high level of conscious analysis (average score = 5.4) and emphasis on control (average score = 5.8).

The type of organizational structure needed to implement the strategically minded approach is flat (hierarchy, average score = 3.6) and broad (span = 6.5). New York, in particular, had a very short structure (hierarchy = 2) and a broad span of control (span = 12), causing it to be further from the cluster center. This strong commitment to change, however, may come at a price in that strategy-minded leaders also had the lowest tenure (average tenure = 12.8 months) of any configuration.

*Examples.* Compounding the difficulty of managing internal challenges are unusual or unique external environments (heterogeneity). Florida, which scored a five on heterogeneity and a seven on dynamism, faced a situation in which the population has grown between 20% and 80% each decade since 1920 (Brooks, 1999). Further, a large amount of this growth came through immigration of elderly persons, low-income individuals, and people from other countries. In addition, the state's subtropical climate and large standing bodies of water create health threats not present in most other parts of the country.

Despite these limitations, or perhaps because of them, Florida is very adaptive and willing to innovate. The state received national recognition for the success of its KidCare program in 1999 (Brooks, 2000). Using creative advertisements and taking an interagency approach, the team won the Davis Productivity Award for their unprecedented program. The team approach may also have benefited from the flat hierarchy that Florida uses to organize its divisions. This flat and wide organizational structure differentiates the Strategy-Minded Agencies from those labeled as having Complex Solutions and Chaotic Environments.

*Configuration 3: Complex Solutions and Chaotic Environments*

There are five states in this configuration, constituting about 17% of the sample. This cluster is so labeled to highlight the large amounts of anticipated change in the environment and the complex structures that are being used to manage it. It is worth noting that the two most populous states, California and Texas, are both part of this group and face many similar challenges. The measure of within-group dissimilarity is fairly high (*SD* = 0.676), but the absolute distances from the center are relatively low. Therefore, one outlier, North Carolina, at a distance of 4.304 from the center and more than 1 *SD* from the next nearest state is least similar to the other group members. The variables that define this cluster are dynamism (average score = 5.6), futurity of decisions (average score = 5.6), spatial complexity (average score = 1.4)[2], and, to a lesser degree, munificence (average score = 4.0) and resource availability (average score = 3.6).

[2] The average score for this variable is derived from two other variables as described in Appendix A.

*Main features of Complex Solutions and Chaotic Environment.* Their environments are driving the state agencies in this configuration. The combination of high amounts of dynamism and relatively low resource availability present a problematic situation. One strategy-making variable that may be contributing to the perception of dynamism is the high level of futurity (average score = 5.8) in their planning processes.

The way they appear to be dealing with these adverse environments is by creating elaborate agency structures. This is reflected in the spatial complexity variable, which is the log of the number of hierarchical levels (average score = 6.0) with a base equal to the average span of control (average score = 3.6). Essentially, these are tall, heavily layered organizational structures with narrow spans of control.

*Examples.* The Texas Department of Health's strategic plan (The Strategic Planning Steering Committee, 1998) pointed to the effect of environmental dynamism, stating, "The role and scope of public sector social services are being reshaped by shifts in citizen expectations of government" (p. 13). The California Department of Health Services was also seeking to "deal effectively with rapidly changing circumstances" (Belshé, 1998, p. 1). These statements are representative of the general tone of the planning documents in this cluster.

One possible explanation for why the perceptions of the environment are problematic in this cohort is the degree of futurity. California and Texas both make mention of the changing demographics of their communities. Texas, in particular, is looking at trends up to the year 2030. By the year 2008, it is projected that no one race will constitute a simple majority in that state (The Strategic Planning Steering Committee, 1998).

Because the lack of health insurance disproportionately affects minorities, their concerns are well founded.

On the positive side, this configuration is among the most rigorous in their consciousness of strategic analysis, with the exception of North Carolina. For example, in Kentucky, the plan took 5 years to develop and was, in effect, "written by 2,500 Kentuckians" (Stumbo, 1998, p. 5).

Commensurate with the amount of planning was the size and complexity of these agencies. On average, they had six levels of management (hierarchy) starting with the leaders, and the mean span of control was only 4.5 positions per manager. Another aspect of having tall organizational structures is the necessity of delegating authority to various layers below the leader (delegation, average score = 5.4). These agencies scored high on this variable, as indicated in California: "Our dedicated workforce is on the front lines of public health each day. Our success depends upon their . . . initiative to solve problems" (Belshé, 1998, p. 6). This organizational structure is a stark contrast to that used in the next configuration.

*Configuration 4: Centralized and Stable*

Only two agencies (7%) reside in this cluster. Because there were only two states in this configuration, only the distance measure is meaningful because the standard deviation is always zero. However, the relatively short distance from the cluster center (2.577) indicates a high degree of similarity. The long tenure of Rhode Island's (5 years) and Vermont's (11.5 years) leaders is well above the average, which is less than 3 years. In addition, both states are highly centralized (average score = 6.8). These organizations rely

heavily on precedents (average score = 5.3) and inhabit environments lacking dynamism (average score = 2.8). Because of the seniority of these states' leaders (tenure), the centralization of their organizations, and the secure surroundings (dynamism), this group is labeled Centralized and Stable.

*Main features of the Centralized and Stable.* In addition to the variables mentioned above, this group scored high on integration of decisions (average score = 5.0), resource availability (average score = 6.3), reliance on precedents (average score = 5.3), multiplexity of decision-making (average score = 5.5), and technocratization of leadership (average score = 5.8). Besides dynamism, these states also scored low on delegation of operating authority (average score = 3.0).

*Examples.* It is not surprising that Rhode Island and Vermont's health agencies should be highly centralized. Rhode Island's small geographic area and population lend themselves to such an organizational design. Vermont is larger, but not so large that a central agency cannot respond to problems. The primarily rural and suburban distribution of people does not create large enough population centers to warrant sizable local agencies.

The high degree of centralization may contribute to the group's extreme scores on some other variables. For example, the absence of local agencies makes the delegation of operating authority (average score = 3.0) something of a moot point. On the other hand, being centralized probably facilitates the integration of decisions (average score = 5.0). Having a smaller centralized agency may also require a relatively higher percentage of

professionally trained health administrators, resulting in a high score on technocratization (average score = 5.8).

There are two simple explanations for the high score on precedents. First, the group's leadership has been successful, hence their long tenure and their inclination to continue what is working for them. Second, past results are used for benchmarking, a form of control (average score = 5.0). Vermont's entire year 2000-budget request was based on funds needed to make progress in the reduction of critical health problems such as infant mortality and vehicular injury (Hogan, 1999). These two explanations are not mutually exclusive; in fact, some combination of them is what probably makes such long tenures possible.

Rhode Island, on the other hand, had a lower score than Vermont on resource availability (score = 5.5). One possible explanation is that Rhode Island's Department of Health experienced a sharp decrease in percentage of state funding, from 66% in 1990 to 44% in 1999. The overall effect of changes in funding and other factors resulted in a 13.7% drop in total funds from 1998 to 1999 (Nolan, 1999). This contrasted sharply with Vermont, where the tobacco settlement and other factors combined to create a 3.1% increase in annual funding for the fiscal year 2000 (Hogan, 1999). Regardless of their resource availability, these agencies were far better positioned than the final group, the Scarce Resources and Slow Change States.

*Configuration 5: Scarce Resources and Slow Change*

The Scarce Resources and Slow Change configuration comprised three (10 %) of the sample states, found primarily in the western part of the country. The cluster is rela-

tively compact ($SD = 0.239$) although not particularly close to the center ($M = 3.338$). These states had the lowest mean score on 15 out of a possible 20 variables (see Appendix F). The environmental variables were all below average, indicating slow change and relatively hostile settings. The Scarce Resources and Slow Change states also had the lowest average score on seven structural variables (scanning, centralization, resource availability, control, communication, differentiation, and technocratization). Iowa, which was furthest from the cluster center, scored the lowest on four of these variables within the group, indicating that it was structured poorly. On the strategy-making scale, the group had the lowest score on five items (innovation, adaptiveness, integration, consciousness of analysis, and multiplexity of decision-making). The label Scarce Resources and Slow Change was selected because without sufficient means or strategic thinking, citizens in these communities are likely to face the same public health issues for extended periods of time without relief.

*Main features of Scarce Resources and Slow Change*. The Scarce Resources and Slow Change states appear to inhabit environments that are not very dynamic, nor do they supply a great deal of support. Moreover, if their environments did contain significant threats or opportunities, it is unlikely they would be able to detect it. This cluster had the lowest average score on scanning (2.8). Therefore, it is possible that the lack of resources (average score = 2.8) is self-imposed, to a certain extent. Further, the resources that are at the agencies' disposal may not be put to optimal use because of the lack of controls (average score = 3.0). One possible explanation is the lack of public health ex-

pertise among the top management, as reflected in their score on technocratization (average score = 2.8).

The absence of healthcare-related professionals may also affect the Scarce Resources and Slow Change states' scores on strategy-making variables. Members of this cluster do not seem to seek out the opinions of key stakeholders, as evidenced by a low average score on multiplexity (average score = 4.0). The lack of information probably inhibits their ability to engage in meaningful conscious strategic analysis (average score = 4.3). Therefore, without analysis, innovation (average score = 2.5) is impossible, and reliance on precedents (average score = 5.0) is necessary.

*Examples.* Scanning in the Scarce Resources and Slow Change states was most obvious by its absence. Although other state agencies, such as Kentucky, were making consumer, provider, and legislator involvement a key component of their visions, this cluster of states made only passing references to filling consumer needs. Dr. Nida (1999), the Commissioner of Health in Oklahoma, made explicit reference to this phenomenon, saying, "To adequately address the emerging challenges of the future, our public health system must have a broader constituency" (p. 1).

Besides their inability to build external relationships, these agencies also had trouble communicating internally, as indicated by low scores on communication and integration of decision-making. A survey of Iowa Department of Public Health Employees indicated that "staff shared the concern with nonstaff over communication and information, it was their second most frequently cited item" (Gleason, 1999, p. 7). Respondents to the survey also "expressed frequent and considerable frustration with mismanagement:

inconsistent direction, lack of trust and support, moving deadlines, etc." (Gleason, p. 7) These concerns are consistent with low scores on items such as control and consciousness of analysis.

All of these other concerns, however, were secondary in light of the perceived lack of funding (the single most cited problem in the Iowa survey). The raters gave this configuration a 2.5 on munificence and 2.8 on resource availability, out of a possible 7, by far the lowest among any group. Taking the lack of resources and overall poor management together, these states are facing far more serious problems than most others. Nevertheless, the leaders who run these agencies are taking divergent approaches to solving their problems, as is evident in the next section.

## Comparison of Organizational Configurations

Arraying organizational configurations has traditionally been done using financial outcome measures (D. Miller, 1976; Miller and Friesen, 1984; Reeves, 1996). However, measuring state health agencies' effectiveness is far too complex to be reduced to a few discrete financial variables. Therefore, agency configurations are compared and contrasted based on the measures identified in this study.

In strategy terms, the configuration labeled Strategy-Minded Agencies has progressed the furthest into the organizational planning paradigm. This is reflected in their emphasis on analysis, planning, innovation, and the ability to adapt. At the other end of the spectrum are the agencies labeled Scarce Resources and Slow Change. These states had the lowest average scores on several strategy-making variables including conscious

analysis, innovation, and adaptive capacity. With these two configurations used as anchors, the others are considered.

The configuration engaging in the second highest form of strategy making are the Strategically Structured Agencies. Using the Arkansas example again, it appears that some members of this cohort are restructuring themselves to evolve into Strategy-Minded Agencies. On the other hand, there has been a trend in the past for public health agencies to lose significant divisions, such as those administering Medicaid programs, during times of financial stress (IOM, 1988). Therefore, it is possible that some of these states are regressing into a smaller, less dynamic organizational form.

The Centralized and Stable configuration is generally composed of smaller agencies, engaging in fewer public health activities. One way of viewing these agencies is that they have matured. Not unlike cash cows in other industries, these agencies perform a valuable function relatively well and require little maintenance. For example, in Vermont, the majority of residents' health needs are probably met through the private insurance market, leaving the state health agency to focus primarily on assessment functions rather than assurance or policy development. However, larger states with more diverse populations may not fare well under this model.

State agencies facing dynamic and environments and building large public health infrastructures are labeled Complex Solutions and Chaotic Environments. This appears to be the second least desirable configuration from a strategy perspective. Although there is a great deal of futurity in their limited scanning, the heavy reliance on precedents inhibits analysis and, in turn, their ability to innovate. Further, by attempting to match their organizational structure rather than their strategies to the environment, they may be slowing

their ability to adapt. Given their already limited resources and low environmental munificence, in the future these agencies may desire the slow change that characterizes the lower end of the continuum–the Scarce Resources and Slow Change configuration. Therefore, from the strategy perspective, the continuum of agency configurations from most to least desirable is (a) Strategy-Minded Agencies, (b) Strategically Structured Agencies, (c) Centralized and Stable, (d) Complex Solutions and Complex Environments, and (e) Scarce Resources and Slow Change.

## Content Analysis of Leaders' Communications

The variables used in the content analysis phase of the research were based on key word counts as a percentage of the subject's entire text. Several terms used in content analysis are defined. Meaningful words and phrases are called *tokens*. The use of phrases as tokens was kept to a minimum in this research. *Lemmas* are suffixes that modify words into plurals, past tense, and other parts of grammar. *Collocates* are words that appear within a specified range of the word under consideration (generally, seven words either before or after the object term). Certain health care phrases such as *managed care* and *Centers for Disease Control and Prevention* were parsed into their common initials (MC and CDC, respectively) to eliminate any confounding with other tokens of interest. Table 5 shows the tokens studied, the number of leaders who used the term, the total number of times the word appears in all texts, the word usage as a percentage of total words, standard deviations, the maximum number of times an individual used the term, and the cluster analysis *F* statistic. No management-related token appeared in every state leader's text. The only meaningful token that did appear in every text was the word ***health***.

Table 5

*Key Words and Statistics*

| Token[a] | Count of leaders using term | Token count | Percentage of all words used | *SD* | Maximum per individual | *F*[b] |
|---|---|---|---|---|---|---|
| Budget(s) | 16 | 236 | 0.13% | 27.19 | 147 | 4.91** |
| Center | 16 | 97 | 0.05% | 5.2 | 25 | 22.23** |
| Cost(s) | 19 | 328 | 0.18% | 30.54 | 165 | 1.86 |
| Employ(ment) | 14 | 100 | 0.05% | 8.88 | 47 | 3.20* |
| Fund(s) | 19 | 513 | 0.28% | 44.69 | 230 | 4.97** |
| Law | 13 | 98 | 0.05% | 10.56 | 54 | 1.30 |
| Local | 20 | 230 | 0.12% | 13.87 | 47 | 2.60 |
| Management | 14 | 79 | 0.04% | 4.88 | 17 | .49 |
| Money | 12 | 152 | 0.08% | 16.39 | 87 | 1.1 |
| Plan(s)(ing) | 23 | 274 | 0.15% | 14.06 | 63 | 155.35** |
| Program(s) | 23 | 892 | 0.48% | 78.67 | 425 | 1.94 |
| Public | 25 | 889 | 0.48% | 44.61 | 157 | 1.33 |
| Quality | 18 | 160 | 0.09% | 7.84 | 30 | 22.89** |
| Rate(s) | 17 | 301 | 0.16% | 17.17 | 56 | 4.15* |
| Resource(s) | 24 | 150 | 0.08% | 8.74 | 45 | 2.24 |
| Service(s) | 25 | 506 | 0.27% | 36.24 | 173 | 4.82** |
| Staff(ing) | 15 | 187 | 0.10% | 18.37 | 96 | 6.95** |
| Strategy(ic)(ies) | 10 | 82 | 0.04% | 5.86 | 26 | 13.93** |
| Work | 28 | 415 | 0.22% | 36.04 | 194 | 2.98* |
| Total | | 5689 | 3.05% | | | |

[a]The parentheses indicate alternative word forms (lemmas) that were summed.
[b]The *F* test should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters.
*$p < .05$; **$p < .01$

The four words or tokens (in descending order) that contributed most to separating the clusters were *planning*, *quality*, *center*, and *strategy*. The terms *management*, *money*, *law*, *public*, *cost*, and *program* did not significantly contribute to the separation of clusters.

## Configurations Based on Content

### *Configuration 1: Strategic Planners*

Two agency leaders were classified as strategic planners. One aspect of the K-means cluster analysis algorithm is that a cluster with two members has both members equidistant from the center (see Table 6). Therefore, no assertion can be made as to which leader's comments most embodies the cluster. Nevertheless, the tokens and absence of tokens that define the cluster are of interest. The two states, Indiana and Kentucky, tended to focus on 5 terms and completely lacked 10 others (see Appendix G). Because of the relatively high use of the terms *planning* and *strategy*, this cluster is labeled Strategic Planners.

*Main features of Strategic Planners.* This cluster made frequent use of the terms *planning* and *strategy*. In addition, tokens such as *resources*, *staff*, and *local* were used with greater frequency than in other leaders' documents. Some terms that were lacking from these leaders' personal communications were *funding*, *quality*, and *service*.

*Examples.* Dr. Feldman (1999), Commissioner of the Indiana State Department of Health, described his planning philosophy in some detail:

> Most organizations do some kind of long-range or strategic planning. However, most strategic planning processes are poorly conceptualized and poorly executed. The process is often not very creative and it is tactical rather than strategic in nature and rarely impacts upon the day-to-day decisions made in the organization. To be successful, a strategic planning process should provide criteria to make day-to-day organizational decisions and should provide a template against which all such decisions can be evaluated. (p. 1)

Table 6

*Configuration Groups and Distances from Center*

| Configuration State | Distance from center | *M* | *SD* |
|---|---|---|---|
| Cluster 1–Strategic Planners | | 3.593 | 0.000 |
| Indiana | 3.593 | | |
| Kentucky | 3.593 | | |
| Cluster 2–Service Oriented | | 3.792 | 0.000 |
| Virginia | 3.792 | | |
| New York | 3.792 | | |
| Cluster 3–Cost Conscious | | 3.259 | 0.737 |
| New Jersey | 2.620 | | |
| Idaho | 2.677 | | |
| Mississippi | 2.910 | | |
| Florida | 2.962 | | |
| Louisiana | 4.116 | | |
| Vermont | 4.270 | | |
| Cluster 4–Outcome-Oriented Planners | | 2.686 | 1.403 |
| Minnesota | 1.171 | | |
| Texas | 1.615 | | |
| Iowa | 1.754 | | |
| New Mexico | 1.817 | | |
| Alabama | 2.417 | | |
| Connecticut | 2.433 | | |
| Oklahoma | 2.472 | | |
| Arizona | 2.578 | | |
| North Carolina | 3.313 | | |
| Oregon | 3.678 | | |
| New Hampshire | 6.299 | | |
| Cluster 5–Employee Oriented | | 3.235 | 0.897 |
| Ohio | 2.268 | | |
| Arkansas | 2.360 | | |
| Georgia | 2.649 | | |
| Rhode Island | 2.673 | | |
| California | 3.461 | | |
| Wisconsin | 3.485 | | |
| Montana | 4.445 | | |
| Alaska | 4.537 | | |

In contrast to Feldman's description of what strategic planning should be, Leach (1998) illustrated how many agencies do plan:

> Five years ago, the planning was pretty much limited to developing a budget–a spending plan–for the state and local health departments in response to state and federal mandates. It worked, but it lacked a long-range vision of where public health in Kentucky should be with all of the changes in our population, its behavior, the practice of medicine, and fiscal realities. (p. 1)

As well as any, these two passages convey an understanding of how strategic planning differs from tactical or budget-based planning. Further, the absence of certain terms such as funding and employees may indicate that functional planning is being left to finance and human resources departments, respectively. Dr. Leach specifically addressed this by saying that Kentucky's strategic plan "is not an implementation plan; it is a guide for all health organizations to use as a guide to their specific implementation plans" (p. 1). Because of this highly developed understanding of strategy, these leaders are characterized as strategic planners.

*Configuration 2: Service Oriented*

The Service Oriented configuration has two members–New York and Virginia. Three terms served to separate this cluster from other possible sets. The states' leaders totally failed to use six terms. As in the previous group, the distances from the cluster center indicate that these two states are not as similar as those in some larger clusters. The group is labeled Service Oriented to highlight the emphasis on the terms *quality* and *service*.

*Main features of service oriented leaders*. Three significant tokens defined this cluster. The most important was the term *quality*. In Virginia it appeared nine times, more

than all of the other identified phrases combined. The term *services*, although it was used only three times, was important in distinguishing New York from other states.

*Examples.* As the terms *services* and *quality* suggest, these leaders appear to be focused on the direct provision of care. In New York, the term *service* was directly related to breast cancer screening. Novella (2000a) stated "Cancer maps can do many things. They can show us the pattern of cancer incidence across the State, help health officials plan services and programs, and suggest more areas for research" (paragraph 29). With respect to quality, Novella's (2000b) remarks were aimed at a specific surgeon whose privileges were being revoked.

The quality focus was also present in Virginia, but this time regarding a broader range of health care providers. As Commissioner Gordon (1997) described,

> This year [1997], 'quality' emerged as the touchstone for much of our work. This year, we established 'The Center for Quality Health Care Services and Consumer Protection.' The center ensures Virginians receive safe and quality care from hospitals, nursing homes, home health organizations and other health care providers. (paragraph 2)

The focus on direct provision of care is closely related to these two terms.

*Configuration 3: Cost Conscious*

The third configuration of leaders, based on the content of their communications, had six members. The mean distance from center and standard deviation indicate the members are fairly diverse on the items that define the cluster. Three significant tokens–*funding*, *budgets*, and *public*–most influenced this group's membership and suggested its characterization as cost conscious. Few terms were completely absent from the sample.

*Main features of cost conscious leaders.* The three terms that significantly defined this group were *funding*, *budgets*, and *public*. A fourth word, *costs*, also appeared more often in this group than others, but not at a significant level. Several other terms were used numerous times; therefore, some caution in is necessary in characterizing this group.

*Examples.* Idaho's former Director of the Department of Health and Welfare provided a wealth of information through her testimony and was the only subject to use every token at least once (Caballero, 1996, 1997, 1998). A variety of funding and budget issues addressed were commensurate with the large volume of information. Based on collocates, the primary items related to budgeting (147 instances) were Medicaid (21 collocates), growth (21 collocates), and enhancements (13 co-occurrences). *Fund*, *funds*, and *funding* provide a good example of lemmas. Taken together, the three token forms appeared 230 times in the Caballero's speeches. In nearly every instance of using the word *fund*, the term *general* preceded it. *Funds* (79 occurrences) also appeared frequently with *general* (16 occasions), but was more often associated with *federal* (25 co-occurrences) and *matched* (16 co-occurrences). A typical statement appears thus:

> The request is for a $3,749,700, one-time General Fund appropriation that is matched by $1,866,600 in federal funds. This funding will allow the Department to meet reporting requirements that came with state and federal welfare reforms. (Caballero, 1998, p. 5)

The focus on funds coming from federal sources or from grants was relatively consistent among the states in this configuration.

Complementary to the term *funds* is the term *budget*. Although fund usually indicates a resource, the word *budget* was typically associated with a cost center. David Hood (1999), of Louisiana's Department of Health, illustrated this point when saying,

> It was also necessary to curtail Medicaid expenditures for a savings of $66 million . . . to bring the budget into balance. Other sources of funds are required to ensure that deeper cuts, especially in Medicaid, are not necessary. (p. 1)

Whereas monetary interests were primarily related to state-level issues, actual programs were generally associated with local communities.

The Cost Conscious leaders also recognized the role of community-based efforts to deal with public-health issues. As Kurtz (2000) described several programs, "In each case, the Department's role was to involve the public, and let the public truly share in making local decisions" (p. 5). In addition to mentioning local programs, they were also interested in funding these programs. Brooks (1999) of Florida discussed a program to reduce health access disparities: "We have asked the governor and Legislature to provide $10,000,000 to the Department of Health for grants to local communities" (p. 4). Therefore, even when discussing specific programs, budgets and funding continue to be significant concerns of these leaders.

*Configuration 4: Outcome-Oriented Planners*

There are 11 state leaders in this configuration, constituting about 38% of the sample. The mean distance was the lowest ($M$ =2.686) and the standard deviation for this group was the largest among the sample at 1.403, indicating that this cluster is relatively homogenous. Minnesota was the most typical–closest to the center of the cluster. New Hampshire was the least typical and was one complete deviation further away from the center than the next furthest member. There were five tokens that appeared at the extremes and determined this cluster's membership. The cluster is labeled to highlight its focus on rates, which are generally outcome related, and planning.

*Main features of Outcome-Oriented Planners.* The positively disproportionate use of the tokens *rate* and *rates* distinguished this group from other clusters. Other terms such as *planning*, *resources*, *work*, and *local* were also used frequently, but less than would be expected compared with other configurations. Nevertheless, these leaders did use the terms frequently, and they deserved consideration.

*Examples.* The focus on rates, or measures of public health efficiency and effectiveness, is very interesting. Among the state leaders who mentioned rates only once or twice, no two identified the same measure. The rates identified included immunization (Arizona), insurance (Iowa), employment (New Hampshire), low-birth weight, and heart disease rates (Oklahoma). Archer (1999a, 1999b), from Texas, used the term *rate(s)* 16 times in various contexts including tuberculosis, suicide, communicable diseases, Medicaid reimbursement, obesity, asthma, diabetic complications, infant mortality, and death rates. Other states introduced other meaningful rates. Oregon's leadership identified fluoridation and managed care coverage rates as critical measures (Oregon Department of Human Services, 1999). Dr. Burton (1999), from North Carolina, further divided the infant mortality rate to include sudden infant death syndrome (SIDS) rates and also discussed HIV-positive rates. Alabama's leader (Williamson, 1999) focused primarily on infant-mortality rates, but also introduced seat belt usage rates, child restraint usage rates, and homicide rates as being important public-health measures. In addition to several of the rates already identified, Minnesota's leader cited teen-pregnancy rates, smoking rates, and private insurance coverage rates (Malcolm, 1999a, 1999b, 1999c, 1999d, 2000a,

2000b, 2000c). The use of rates by this cohort was the most important token for distinguishing this group's members.

Another significant token separating this configuration from the others was *work*. This term is used in a variety of ways that are not comparable. Many times the term is merely a verb indicating progress, whereas in other instances it indicates success. For example, "The Alabama Department of Public Health continues to work toward providing quality healthcare for Alabamians" (Williamson, 1999, p. 1), or "We know these programs work," referring to needle exchange programs (Burton, 1999, p. 6). The use of the term to indicate employment is the exception rather than the rule. Therefore, the value of the token *work* as a variable should be viewed with caution.

The last significant term that helped define this group was *planning*. Similar to the Strategic Planners, these leaders made regular use of the token *planning*, although it was not as central as the terms *rates* to their overall messages. Nevertheless, the focus on *rates* and *planning* indicates a strong management element in these agencies.

*Configuration 5: Employee Oriented*

Eight states, composing 28% of the total sample, made up the Employee-Oriented configuration. The average distance from the cluster's center was fairly small ($M$ = 3.235), indicating the group's members were fairly similar. Ohio was the most typical and Alaska the least based on their distances from the cluster's center. The dispersion of subjects within the cluster was average for a large cluster ($SD$ = 0.897). Three significant variables positively contributed to separating this group from the others. The configura-

tion is labeled to indicate the importance of both agency and general workforce employment in the leaders' documents.

*Main features of the Employee Oriented.* The three significant tokens that differentiated this configuration were variations of *employ*, *work*, and *service*. As noted in the previous section, *work* had too wide a variety of meanings to be useful. The variations on *employ* also tended to be somewhat confounded between agency employees and general employment in the community. However, unlike work, both of these concepts have meaning relevant to public health administration. The final term, *service*, was also significant in the Service-Oriented configuration and has similar implications in this cluster.

*Examples.* Commissioner Horne (1999), of the Georgia Department of Human Resources, provided excellent examples of both meanings of *employ*. The first example relates to the value of employment in the community: "Our Division of Rehabilitation Services has made significant improvements in training and finding employment for people with disabilities" (Horne, p. 3). A second quote illustrates the need to have leadership among staff members:

> In the old days people invested in employees by nurturing talent and ability from the inside. We have a large talent pool of qualified employees in DHR, but what we don't have is a mechanism for developing and promoting leadership. (Horne, 1999, p. 8)

Notice that both examples allude to a third concept of training. Despite the potential confounding effect of this token, it does have a component that focuses on individuals.

These leaders also displayed the focus on individuals in the heavy use of the term *services*. Boozman (1999), from Arkansas, stated that,

> Since the 60s our clinical services have grown as we have provided direct care to fill gaps in access to care for under-served and high-risk populations. Today, we provide a hefty share of prenatal care, children's physical assessments, immunizations and family planning services. (p. 1)

When the individual focus of the terms *employ* and *services* are considered, this configuration may have many traits in common with the Service-Oriented cluster. Still, the larger question lingers: Do the configurations of leaders meaningfully relate to their organizations' strategic configurations?

## Comparison of Leader Configurations

Outcome-Oriented leaders appear to have achieved the greatest fluency in their chosen language. Their average distance from center was considerably lower than that of the other configurations. The focus on rates of disease and planning may be concepts that are easily understood and adopted by this group's members. One possible explanation for this phenomenon is that the terms are similar to the medical vocabulary that many leaders already possess. Seven of the 11 leaders in this configuration were medical doctors (MDs) or Doctors of Osteopathy (DOs). No other group had MDs constitute more than half their membership.

The Employee-Oriented configuration can be contrasted with the previous group in a variety of way. First, focusing on processes (employees and services) rather than outcomes (rates) may reflect significant philosophical differences. The process-driven organizations may take a total quality approach to management, contrasted with the Outcome-Oriented leaders who have adopted a management by objective (MBO) philosophy. The ease of implementation and maintenance of the latter system may be more desirable for leaders lacking formal administrative training. The difference in leadership back-

grounds may reflect this, because a larger percentage of the leaders in the Employee-Oriented configuration possess management experience or training than leaders in the previous group.

The idea of functional background affecting leaders' lexicons is further supported in the Cost Conscious configuration. One Cost Conscious leader was a certified public accountant (Idaho), another was a lawyer who specialized in tax law (New Jersey), and two others were professional public administrators (Louisiana and Vermont). The states this group of leaders represent are budget driven; therefore, it is logical that people with those skills should fill those positions.

The last two configurations, Strategic Planners and Service Oriented, each had two members. Both leaders in the Service-Oriented group had both MDs and Master of Public Health degrees, lending further credence to the importance of functional background. The final cluster, Strategic Planners, has geographic proximity in common. It is possible that Kentucky's leadership is trying to emulate the work done by Indiana. For reasons such as this, it is important to consider organizations and leaders together.

## Comparison of Organization and Leader Configurations

Because of the information available in both sets of data, the core hypothesis was tested using two different methods. The first test is Friedman's test for multiple measures for a series of subjects, and the second test is a Fischer's exact test for consistency in a five-by-five table. The first test, Friedman's, tested the null hypothesis that the two sets of measures came from the same population. An alternative test, Fischer's exact, assumes

that the groups are different, and significant results would indicate a positive relationship between the two types of configurations.

The Friedman test was first used because, unlike other correlation tests, the rankings do not have to be singular. In other words, more than one subject can have the same ranking. The test was originally designed for epidemiology studies of multiple treatments. In this instance, the different measures are the two analyses.

The results of the test were significant at $p < .05$. Therefore, the null hypothesis that the effects of each set of measures are the same is rejected. Nevertheless, this test is not as robust as other tests such as Fischer's exact.

Two reasons that other correlation coefficients could not be used were the small and empty cell counts in the five-by-five matrix the two sets of configurations create. Therefore, a statistic based on probabilities, rather than counts, was needed. Fischer's test provided just such a vehicle.

The results of the test were insignificant (test = .730). Therefore, the null hypothesis of independence between samples cannot be rejected. In other words, measures of the leaders and their organizations do not correlate significantly.

Taken together, these tests refute the primary hypothesis of this study that leaders and their organizations would reflect one another based on management issues. Several conclusions were drawn based on this research. Further, there is a need to mention several limitations and potential areas of future research. The next chapter addresses these issues.

# CHAPTER 6

# CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND AREAS OF FUTURE RESEARCH

## Conclusions

The primary objective of this study was to test the hypothesis that the state health agency leaders' communication patterns are closely related to the organizational configurations of the agencies they manage. The study was exploratory in nature and qualitative in design. The first stage of the research involved gathering data about the 50 state health agencies and using configuration theory to group them into meaningful subsets. Following configuration-modeling protocols, agencies were grouped into five meaningful subsets based on commonalties in their environments, organizational structures, and strategic planning. Useful data were not available in the case of nine state agencies, resulting in a configuration sample of 41 subjects.

The second phase of the research was a content analysis of the personal communications of senior health agency leaders for the 34 states from which sufficient information was available to cluster them into meaningful subgroups. Applying sensemaking theoretical concepts produced five subsets of the leaders, based on managerial wording similarities in their personal communications. A significant and unexpected finding of this phase of the research was that the agency leaders appear to lack a common managerial lexicon in their communications addressing the public health issues they face.

The third and final phase of this research involved testing the core hypothesis. To accomplish that task, it was first necessary to develop a cross-level model of strategic thinking of state health leaders. The model advances existing strategy theory by synthesizing the leading configuration and sensemaking models currently recognized in management literature. The empirical testing of the hypothesis, via the model, was conducted by using Friedman's test and Fischer's exact test. Pairing the 41 agencies' information with the 34 leaders' communications yielded a testable-paired dataset of only 29 of the 50 states.

The results of the forgoing tests failed to reject the null hypothesis, namely, that there is not an empirically verifiable correlation between the strategic agency configurations and the communication patterns of the current leaders who manage them. It should be noted that the failure to reject the null hypothesis might well be attributable to a number of limitations in both the available data and the constraints this imposed on the research executed.

## Implications

The lack of fit between organizational and leadership configurations has important ramifications for understanding states' public health performance. From the organizational perspective, the question of who state health agency stakeholders should try to influence and what form that action should take become critical. Attempting to make change through the state health officers, the individual level, will require a better understanding of the lexicons these leaders rely on.

In the private sector it is generally believed that organizations that have better fit, both within organizational elements and between the organization and its environment, will experience greater success. The findings in this study indicate that the fit between organizational types and leadership configurations is lacking. There are two possible approaches to increasing the fit between state health officers and the organizations they lead.

The first possible way to improve fit would be to work with the leaders themselves. However, because of the short tenures most state health officers enjoy, many forms of long-term training are not feasible. An alternative is to establish either coaching or mentoring programs for new leaders. The effectiveness of such programs is uncertain, and some form of organized study would need to be undertaken.

A second approach to altering the leadership-organizational fit is to focus on the highest tier of professional civil servants, thus changing the organization. The goal of these programs would be to increase the capacity for strategic thinking at the upper and middle management levels. Ultimately, the goal would be to build a culture committed to the vision, mission, and goals of the organization. Implementing, maintaining, and monitoring this type of program may be more viable in the long term than the focus on individual leaders.

One reason that focusing on the state health officers may not be as promising as other approaches is the lack of a common lexicon. The Outcome-Oriented leaders were the largest group and had the highest degree of similarity. Therefore, attempting to develop any consensus among these individuals should begin with the use of terms related to outcomes and plans that improve outcomes. The prevalence of MDs in this group, and

throughout the leadership of state agencies, indicates that the medical background of these individuals continues to dominate their vocabulary.

Considering the implications of this research from a perspective outside the state health organization or individual leader levels, developing any national policies or reporting conventions will be very difficult. Even if the leaders eventually settle on an outcome-based lexicon, the outcomes that each state seeks to improve will be different. Therefore, some common measures will have to be agreed upon before meaningful comparison can begin.

## Limitations

It would be premature, based on the forgoing findings, to conclude that there is not a meaningful relationship between the strategic sensemaking patterns of health agency leaders and their varying organizational configurations. In fact, the aforementioned deficiencies in the dataset imposed a number of methodological and empirical constraints on the study, which may be contributed to the failure to reject the null hypothesis and affirm the model's interactive implications. The major limitations include the following: (a) sample size constraints, (b) lack of access to longitudinal agency and leadership databases, and (c) the apparent absence of a common management lexicon among the health agency leaders. Each of those limitations is discussed below.

### *Sample Size Limitations*

It was possible to develop a useful database of only 29 states that had both adequate agency configuration and leadership communication information available. The

resulting small sample size, in turn, precluded the use of such standard statistical procedures as factor analysis, multidimensional scaling, and chi-squared tests. It may have also adversely affected the results of the Friedman and Fischer's exact tests, which confirmed the null hypothesis.

*Lack of Longitudinal Databases*

This study was restricted to a cross-sectional analysis comparing 1999 leadership communications with current agency configuration data. Logically, the current configuration of any given agency is a product of the actions of various leaders' activities over an extended period of time. As a result, the current communication and sensemaking activities of 1999's leaders may not fully affect their agency configurations until some time in the future. And the current configuration of an agency may be the result of the enactment of previous leaders' sensemaking and communications.

*Lack of a Common Agency Managerial Lexicon*

An unanticipated limitation and significant finding of the study concerned the apparent lack of a common managerial lexicon among state health agency leaders. Unlike other managerial peer groups, a review of the 29 agency leaders' biographies revealed a wide range of differences in their educational, work experience, and managerial training backgrounds. For example, 14 of the 29 leaders were MDs, one was a certified public accountant, and a number of them were apparently politicians. Moreover, even among the physicians, only a few of them had public health training or experience. Many of the leaders also lacked the professional or academic training in public health recommended

by the IOM (1988). This unusually diverse mix of backgrounds may help explain the absence of a common managerial lexicon among them and their widely divergent sensemaking approaches.

## Areas of Future Research

The forgoing discussion of the study's conclusions and limitations provides some obvious points of departure for areas of future research in the strategy discipline, as it relates to the public health sector. The main areas of potential interest flow directly from the limitations discussed above (i.e., small sample size; the need for longitudinal data, and better information concerning the sensemaking patterns of health agency leaders).

### *Improving Sample Size*

On the configuration data front, a more resource-intense search or a federally mandated response protocol would help to expand the configuration sample to a census of all 50 states. It might also produce a deeper and more comprehensive data set. Further, outcome measures that could be used to rank state agency effectiveness might then be added to the configuration grouping variables, producing an ipsative ranking that could be tested against leadership dimensions. In addition, the sample of sensemaking leadership data clearly needs to be both widened and deepened. Widening the database, of course, would involve gaining meaningful data from the leaders of all 50 state agencies. Deepening it, on the other hand, would require a much more intense effort to capture the sensemaking patterns of agency leaders, perhaps via some form of direct interview process.

*Longitudinal Expansion of the Database*

In addition to widening and deepening the database to include agencies and leaders of all 50 states, the findings would be more meaningfully testable if longitudinal data could be added to the cross-sectional information base of the study. As noted earlier, considering that the average agency leader's tenure is only about 3 years, the enactment processes of a given agency may reflect the impact of a number of leaders' actions over time. Alternatively, a longitudinal study of this design might show that short-term leaders are not able to overcome the bureaucratic momentum depicted in the top half of the cross-level model developed in chapter 3. A longitudinal application of the model would also allow for the use of lagged health outcome measures, reflecting the fact it takes even an aggressive leader time to change an agency's and a community's behavior.

*Improved Leadership Sensemaking Analysis*

Although unanticipated, a major public health management issue uncovered in this study is the apparent lack of a common managerial lexicon among current state health agency leaders. This lack of a common vocabulary may stem from the diverse and often inappropriate educational and experiential backgrounds of the 1999 cadre of top agency leaders reviewed in this study. These deficiencies may be compounded by leaders' short tenures and limited opportunities to become more competent public health administrators through on-the-job experience.

To clarify the importance of these apparently critical issues, future studies should begin by gathering more and better information regarding the cognitive maps, backgrounds, and political interests of health agency leaders. Such information, of course,

could then be used to provide improved inputs to the individual tier of the cross-level model. Once these limitations have been addressed, through these proposed avenues of future research, a better understanding of organizational configurations and their leaders' strategic sensemaking interactions is likely to emerge.

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# APPENDIX A

# RATER INSTRUCTIONS AND SCORING SHEET

State: _____

Name: _____

Date: _____

Following are (1) the descriptions of all the variables upon which each agency needs to be rated, (2) a set of statements to help you think about each variable. Variables are to be rated in comparison to health agencies in other states. All of the statements may be applicable, none of them may be applicable, or some may apply. The statements are only to get you thinking about the variable, but you can probably think up much better statements yourself use your judgment and your knowledge of health care agencies in general. If there is absolutely no information on a particular variables, just leave it blank.

**The Environmental Variables**

1. Dynamism in the environment is shown by the amount and unpredictability of changes in such things as technology, client needs, and competition in the industry sector.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- Technology or services provision methods in the industry sector is changing rapidly.
- New technology is vital to this agency's success.
- The number and demographic make-up of citizens in the community changes.
- Clients' needs change all the time.
- Clients don't know what they want.
- There are numerous direct competitors for this agency either within the government for resources or in the private sector for revenue.
- If the material makes no reference to the environment, rate it a (4) about the same.

2. Heterogeneity in the environment is shown by differences in services or department purposes, competitive tactics, client needs, service/distribution channels, etc. in the industry sector, and the resulting differences required in marketing; administration, and/or delivery/production systems.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- The marketing effort differentiates this agency from its competitors.
- Much attention is paid to advertising and distribution.
- The products/services of this agency are unique.
- The brand names of the agency are a tremendous asset.
- The firm differentiates its products from the competitor's via marketing prowess.
- The distribution system is a big competitive advantage for this agency.
- This category is often not clearly addressed in the information available. The underlying assumption would then be that it is similar to other agencies (scored 4).

3. Munificence appears in the environment as steady funding, regulatory discretion, adequate work force, sufficient materials, and favorable demographic trends. The complementary term used by Miller and Friesen (1984) is Hostility and can be thought of as the lower anchor on the scale (Mintzberg, 1979).

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- There are an adequate supply of trained healthcare workers.
- The workforce is well trained.
- Projected demographic trends will favorably affect this agency.
- Unions are not a problem in the industry sector.
- Climate of cooperation is high.
- Lack of information should be scored a (4) about the same as other agencies.

**The Agency/Structure Variables**

4. Scanning denotes the search by the agency for threats or opportunities in the environment external to the agency. Scores will be based on (a) the amount of search for changes in competition, technology, client preferences/needs, and administrative behavior of other agencies, and (b) the number of agency members involved in scanning. The greater the amount of search and the greater number of participants, the higher the score.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- Clients (citizens) are often consulted about their preferences and reactions (this is often in the form of a town meeting or focus groups).
- Stakeholders are often consulted about their preferences and reactions (Bhambri, 1988).
- This agency is seldom surprised by a stakeholder's actions.
- This agency makes its own products or services obsolete prematurely.
- There is a policy which encourages scanning of the environment by all members of the agency.
- Lack of reference to scanning should be interpreted as the lack of the variable and scored low.

5. Delegation of Operating Authority involves the amount of authority and responsibility for day-to-day operations transferred from top managers to lower- and middle-level managers and/or workers. Operations include such things as service/production planning and scheduling, equipment replacement and inventory purchases, hiring lower-level personnel, adjusting basic services/products to meet competition and/or customer needs, and other activities having to do with the ongoing activities of the agency, but not pertaining to long-term or strategic activities.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- Local and county health departments operate as a subsidiary of the state agency. There are differing degrees to this relationship ranging from no local agencies to partnership designs, and completely state controlled. (Information on state/local health department relations can be found in the student reports).
- Workers feel that they contribute to the success of the overall agency.
- The formal hierarchy can be ignored when making operating decisions.
- Responsibility for performance and strategies rests with a state commission of health.

6. Centralization of Strategy-making Power denotes the distribution of power in making decisions of a long-term, strategic nature: those decisions that affect the entire agency and must depend upon a variety of functional areas, those decisions that affect the performance of the agency or are important to the success/failure of the agency, those decisions that define the agency's relationship to its environment, or those decisions that provide direction for or put constraints on administrative and operating activities throughout the agency. Centralization is high if top managers make most of the strategic decisions with a minimum of consultation with lower-level people, and low if lower- or middle-level managers or workers determine strategy whether by default or by intent.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- The management style in this agency is highly authoritarian in comparison to other agencies.
- Power is centralized at the top of this agency.
- There is more top-down communication than bottom-up communication.
- Strategic direction always comes from top management.
- Lower levels of management have very little impact on agency policies.
- "Head-office" or "up-stairs" corporate planning staffs are large and powerful.
- Lower-level workers are never asked for input on strategic directions for this agency.
- Lack of information should be scored as about the same as other agencies (4).

7. Resource Availability concerns the amounts of available labor, materials, capital, facilities, and/or other resources necessary for the agency to function. This category should be differentiated from munificence. Munificence can be interpreted as relating to issues outside the organization's control, some of which may be funding but primarily other issues. With respect to capital the question would be what is the cost of capital. An agency receives a high score on this variable if these resources are abundant and relatively inexpensive.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- Agency is able to secure grants from Federal agencies, private foundations, and retain revenue.
- The legislature is supportive with funding. Regular increases, commensurate with the rate of inflation, indicate that things are fairly static, thus a score of (4) would be appropriate.
- Reorganization to cut administrative expenses or reductions in funding may indicate environmental hostility and a low score.
- Facilities are modern and in good repair.
- The agency is able to issue bonds and has a good rating.
- The state government is willing to fund new programs.
- This agency operated at a surplus in recent years.
- The high cost of labor or materials is never mentioned and relations with workers are good.
- Specific resources are never described as "scarce" or "unavailable" for this agency.
- Lack of information should be interpreted as meaning this agency is (4) "about the same as other agencies."

8. Management Tenure measures the amount of time top managers have held positions at the agency. Scores are the actual average tenure of the most important top strategists or managers.

This variable will be continuously measured in months through March 2000.

9. Controls are those systems that measure trends or outcomes pertaining to agency performance. Agencies that emphasize controls such as management information systems, employee appraisals, management by objective, budgeting, cost accounting, or quality control would receive high scores on controls.

If all of the following statements are very true, the agency probably rates a high score (7) relative to other agencies. If all the statements are false, the agency rates a low score (1) relative to other agencies. A score of 4 represents "about the same as other agencies."

- Failure to refer to controls should result in a low score.
- Outcome based measures are used to evaluate programs.
- This agency has a Management By Objective policy, Quality Assurance, Continuous quality improvement, or some other improvement plan in place.
- Our quality controls are very sophisticated.
- Much emphasis is placed on cost controls and budgets.
- Information and budgeting systems are very sophisticated and complex.
- There is a strong emphasis on formal information systems.
- This agency has distinct goals that relate to Healthy People 2000.

10. Internal Communication Systems involves the openness and fidelity with which information flows throughout the agency. Agencies score high on this variable when relevant information reaches those who must make decisions quickly and accurately, and when communication flows top-down, bottom-up, and laterally in the agency.

If all of the following statements are very true, the agency rates a relatively high score (7) on internal communication systems all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- Mission statements mention the value of open communication.
- Leaders have not lost touch with their operations.
- Top managers make sure that all levels of the agency know what is going on in the agency.
- Managers practice "management by walking around"
- Managers have open door policies.
- "Town hall" type meetings are frequently held.
- There is a great deal of communication across different functional areas or divisions.
- Lack of information should be scored, bout the same (4).

11. Agency Differentiation concerns the degree of difference between units or divisions in an agency in terms of overall goals, administrative, marketing, or operating methods, behavioral styles, or management style. The more disparate the units or division, the higher the score on this variable.

If all of the following statements are very true, the agency rates a high score (7) on agency differentiation. If all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- Managers in the department of public health (or financial service, Medicaid, disease control, etc.) are far more influential than financial service (or public health, Medicaid, disease control, etc.).
- The agency has been losing promising managers in public health (or financial service, Medicaid, disease control, etc.) to competitors.
- The finance and accounting functions dominate those of operations and marketing.
- Service provision departments have much more power compared with marketing, finance and support departments.
- Medicaid departments have much more influence on strategy than other departments.
- Lack of information should be interpreted as about the same (4).

12. Technocratization measures the percent of staff with professional qualifications. The higher the percent, the higher the score.

If all of the following statements are very true, the agency probably rates a high score (7) on technocratization. If all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- The agency is run by people with terminal degrees in public health.
- The agency is run by people with terminal degrees in medicine and some degree in public health or health administration.
- The majority of the managers in this agency have more than five years public health experience.
- Low scores would be indicated by managers without any formal training or lack of experience.
- Mid-range scores may have agencies run by physicians with administrative experience but no public health background.
- The state has laws that require the agency director or their staff to have professional degrees.
- A lack of information should be scored (4) about the same.

13-14. Spatial Complexity measures the breadth and depth of the agency that the leader has to control.

This is another continuous variable (y) created by taking the log of the number hierarchical levels (n) using the average span of control for the widest level of the hierarchy as the base (s). Expressed as an equation: $y = \log_s n$. To calculate the number of hierarchal levels start from the office reporting to the governor and count down to the lowest level identified. To determine the average span, find the hierarchal level that has the most positions in total and divide that number by the number of oversight positions in the hierarchal level immediately above to get an average span.

**The Strategy-making Variables**

15. Innovation measures the amount of innovation used by the agency in terms of number and novelty of new services/products or approaches. Higher scores denote higher innovation.

Use the same responses, with 1 representing "completely false," 4 representing "about the same as other agencies," and 7 representing "very true."

- Agency is not driven by State statutes.
- Significant new products/services are frequent in this agency.
- Obsolete services are eliminated.
- The agency spends a great deal on R&D compared to other agencies.
- The rate of innovation is increasing.
- The agency's products/services are as technologically advanced than those in the private sector.
- Failure to mention innovation indicates the lack thereof and should be given a low score.

16. Adaptiveness/Proactiveness concerns the agency's responsiveness to external environmental conditions, the appropriateness of decisions made concerning the conditions, and the degree to which the agency attempts to shape its environment by the introduction of new technologies, services, products, or administrative techniques. Highly adaptive/proactive agencies make appropriate decisions in response to environmental factors such as competitive pressures, regulatory pressures, demographic changes, for example, while agencies that merely react to things in their environments are given low scores.

If all of the following statements are very true, the agency probably rates a high score (7) on adaptiveness/procativeness compared to other agencies. If all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- Significant new public health challenges are addressed quickly by this agency.
- The agency is moving into new ways of providing for public health needs.
- The agency's clients usually receive services from the private sector with agency support.
- A high percentage of the product/service line has been introduced/modified over the last five years.
- Managers are seldom puzzled by client or stakeholder behavior.
- Lack of reference to proactiveness should be given a low score.

17. Integration of Decisions involves the degree to which actions in one unit or division of an agency complement or support those of other units or divisions. In highly integrated agencies, a concerted, coordinated strategy would be found, while in a poorly integrated agency, conflicting or mutually inhibiting strategies manifested by fragmented or clashing actions would be found.

If all of the following statements are very true, the agency probably rates a high score (7) on integration. If all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- There is open and intensive communication among the different functional areas.
- Interdepartmental feuds or difficulties in coordination are seldom a problem.
- The firm is split into divisions based on type of market or geographic region.
- Agency-wide decisions are made by cross-functional teams.
- Policy departments have much more influence on strategy than operations units.
- This agency operates extensively in areas of government that are related to one another.
- Interdepartmental conflict is rare.
- Lack of information about decision process should indicate a low level of integration.

18. Conscious Strategic Analysis reflects the amount of time and thought devoted by decision makers to problems and responses to problems. If little time or effort is spent and strategic decisions appear to be made intuitively, or if managers appear to have unclear goals and strategies, a low score is given. Conversely, when there appears to be analysis of issues manifest by such things as time delays for strategic decisions, numerous and/or regular meetings or discussions, written reports, staff analysis, or commitment to explicit strategies, a high score is given.

If all of the following statements are very true, the agency rates a, relatively, high score (7) on strategic analysis. If all the statements are false, the agency rates a low score (1). A score of 4 represents "about the same as other agencies."

- Head office corporate planning staffs are large and powerful.
- Marketing research is carried out extensively.
- Important decisions take a long time to make.
- Everyone in the agency knows what is in the strategic plan.
- Specialized staff groups help in the expansion of this agency.
- Information and budgeting systems are very sophisticated and complex, yet facilitate the budgetary process.
- Lack of strategy information should be considered an absence of planning and given a low score.

19. Multiplexity addresses the range of factors used by top managers in making strategic decisions. In a multiplex agency, the managers consider financial, marketing, production, delivery, administrative, demographic, and other factors when making a strategic decision, and a high score results. If the agency focuses on one factor only when making such decisions, a low score is given.

Use the same scoring, 1 through 7.

- Operations departments are no more influential than financial departments in setting agency goals.
- Legal and financial staff plays an important role in implementing strategies.
- Top managers rely on input from all functional areas when making strategic decisions.
- Managers have access to many outside sources of information, as well as our internal sources of information.
- Lack of information should be given a score of (4) about the same as other agencies.

20. Futurity of Decision concerns the time frame used by the agency in planning strategies and operations. A time frame as long as 5 years warrants a high score, while decisions based on the current crises warrant a low score.

Use the same 1 through 7 scoring mechanism: 7 means "very true," 1 means "very false," and 4 means "about the same as other agencies."

- Goals of health improvement and disease reduction are more important than those of growth and profitability.
- Goals of long-run public health dominate those of short-term financing.
- This agency is in the business for the "long haul."
- This agency has a long-term strategic plan.
- The agency's vision, mission, and goal statements reflect strategic thinking (Ginter, 1985).
- Annual goals are based on long-term goals (Kukalis, 1991).
- Ongoing evaluation of strategies is performed (Kukalis, 1991; Ginter, 1985)
- Lack of information should be given a low score.

21. Precedents denotes the degree to which an agency does not rethink its strategies and the way in which strategies will be attained. An agency whose strategies are tied to precedent would receive a high score on these variables while an agency that often rethinks strategies would receive a low score.

Again, 7 represents "very true," 1 represents "very false," and 4 represents "about the same as other agencies."

- The most important thing this agency has going for it is its history.
- Plans are based solely on previous years budgets.
- The agency seldom moves into new areas of business.
- The agency is large and well established.
- Top management hates to change strategies.
- Lack of information should be given a HIGH score.

RATER _____ NAME OF STATE _____

On all variables, a score of 1 will represent a low score, meaning that, in the experience of the rater, most agencies score higher than this agency on this variable. A score of 7 will represent the opposite, and a score of 4 implies that this agency is about average in comparison to other agencies.

Circle the value that you think best represents the characteristic for this agency compared to other agencies according to the following.

| This agency has much more of this characteristic 7 6 | This agency is about the same as other agencies 5 4 3 | This agency has much less of this characteristic 2 1 |
|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. Dynamism | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. Heterogeneity | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Munificence / Hostility | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. Scanning | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. Delegation of Operating Authority | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. Centralization of Strategy-making Power | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. Resource Availability | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. Management Tenure _____ (number of months) | | | | | | | |
| 9. Controls | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. Internal Communication Systems | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. Agency Differentiation | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. Technocratization | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13. Spatial complexity: No. of hierarchal levels _____. Largest span ___ ÷ # of depts. ___ = (14)___ | | | | | | | |
| 15. Innovation | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. Adaptiveness/Proactiveness | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 17. Integration of Decisions | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 18. Conscious Strategic Analysis | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 19. Multiplexity | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 20. Futurity of Decisions | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 21. Precedents | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# APPENDIX B

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# APPENDIX C

# INITIAL KEY WORD LISTS

ABUSE
ACCESS
ACTIVITIES
ADMINISTRATOR
ADOLESCENTS
AFRICAN
AGENCY
AGENDAS
AGENT
AGENTS
AIDS
AMENDMENT
AMERICANS
ASSESSMENT
ASSISTANCE
ASTHMA
ATTACK
AWARDS
BASIC
BECAUSE
BEHAVIOR
BELIEVE
BIOLOGIC
BIOLOGICAL
BIOTERRORISM
BIOTERRORIST
BIRTHS
BLOCK
BOARD
BOARDS
BORDER
BREAST
BUDGET
BUREAU
BUSINESS
CAMPAIGN
CANCER
CARD
CARDIOVASCULAR
CARE
CAREGIVERS
CASE
CASELOAD
CASES
CASH
CAUSING
CENTER
CENTURY
CHAPTER
CHARITY
CHEMICAL
CHILD
CHILDCARE
CHLAMYDIA
CHOICES
CITY
CLINIC
CLINICAL
CLINICS
CODE
CODES
COLLEGES
COLORECTAL
COMMISSIONER
COMMONWEALTH
COMMUNICATION
CONFERENCE
CONFERENCES
CONSUMER

CONSUMERS
CONTINUUM
CONTROL
COST
COUNTIES
COUNTY
COVERAGE
CREATE
CULTURAL
CULTURALLY
DECISION
DECREASED
DEFINES
DHS
DIABETES
DISABILITIES
DISEASE
DISEASES
DISPARITIES
DISTRICT
DIVISION
DUTIES
EDUCATION
EFFORTS
ELEVATED
EMPLOYEES
EMPLOYMENT
ENDOWMENTS
EQUITY
ESSENTIAL
ETHNIC
FAMILIES
FARMERS
FATALITIES
FEDERAL
FEVER
FIREARM
FIREARMS
FIRMS
FLUORIDE
FOOD
FRAUD
FUND
FUNDING
FUNDS
FUTURE
GENERAL
GOALS
GONORRHEA
GREAT
GUN
GUNS
HEALTH
HEALTHCARE
HELMET
HELMETS
HELP
HIGHER
HIV
HMO
HMOS
HOME
HOMES
HOSPITALS
IMMUNIZATION
IMMUNIZATIONS
IMPROVEMENT
INCIDENCE
INCREASE

INFANT
INFECTION
INFLUENZA
INFRASTRUCTURE
INITIATIVE
INITIATIVES
INSURANCE
INVESTMENTS
IRRADIATION
KIDS
KID'S
LABORATORIES
LABORATORY
LAST
LAW
LAWS
LEGISLATORS
LESS
LEVEL
LEVELS
LOCAL
LUNG
MALARIA
MANAGED
MANAGEMENT
MAP
MAPS
MEDICAID
MEDICAL
MEDICARE
MENTAL
MINORITIES
MINORITY
MONEY
MORTALITY
MOSQUITOES
MOTORCYCLE
NATIONAL
NATIONALLY
NEEDLE
NONEXISTENT
NURSE
OBJECTIVES
OPPORTUNITIES
PARENTS
PARTICIPANTS
PATIENT
PATIENTS
PATIENT'S
PATTERN
PERCENT
PERFORMANCE
PERSONS
PHYSICIANS
PLACEMENT
PLAN
PLANNING
POLIO
POPULATION
POPULATIONS
PREMIUM
PRIORITIES
PROGRAM
PROPOSED
PUBLIC
QUALITY
RACIAL
RATE
RATES

REAFFIRMS
RECORDS
REDIRECTION
REFLECTS
REFORM
RELIANCE
RELIANT
REPORT
REQUEST
RESEARCH
RESIDENTS
RESOURCES
RESULTED
RESULTS
RETARDATION
REVENUE
REVISED
SECRETARY
SECTION
SELF
SENIOR
SENIORS
SERVICES
SEXUALLY
SLIDE
SMOKING
SPENDING
STATUS
STD
STRATEGIC
SUBSTANCE
SUICIDE
SUPPORT
SURVEILLANCE
SYPHILIS
TERM
TERRITORIAL
TERRORIST
THERAPY
THINK
TOBACCO
TRADITIONAL
TRANSITION
TRANSMITTED
TREATMENT
TUBERCULOSIS
UNCOMPENSATED
UNINSURED
UNIT
UNITS
USAGE
UTILIZATION
VACCINE
VAGUE
VIRUS
WEBSITE
WEEK
WELFARE
WEST
WILL
WILLING

# APPENDIX D

# EMPIRICALLY DERIVED KEY WORD LIST

Short Wordlist:
Please read the following list of Key Words drawn from the speeches of State Health Department Leaders.
Circle the words that you believe are related to management issues. Alternatively, eliminate the words that you believe to be medical or healthcare terms. Please return to Eric Ford.

| | | |
|---|---|---|
| access | HIV | planning |
| budget | individual | population |
| cancer | insurance | prevent |
| care | insured | program |
| center | law | public |
| child | local | quality |
| cost | managed care | rates |
| drug | management | resource |
| drugs | Medicaid | service |
| employ | medical | staff |
| family | Medicare | strategy |
| food | mental | tobacco |
| fund | money | treatment |
| health | infant mortality | welfare |
| healthcare | patient | work |

# APPENDIX E

## AGENCY VARIABLES BY STATE AND CONFIGURATION

## INDIVIDUAL STATE'S SCORES AND TOTAL STATISTICS

| State | Cluster | Dynamism | Heterogeneity | Munificence | Scanning | Delegation | Centralization | Resource | Tenure | Control | Communication | Differentiation | Technocratization | Hierarchy | Span | Innovation | Adaptiveness | Integration | Analysis | Multiplexity | Futurity | Precedents | LogSpan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 1 | 4.5 | 4.0 | 4.5 | 5.0 | 5.0 | 4.0 | 5.0 | 88 | 5.0 | 4.5 | 2.5 | 6.0 | 5.5 | 6.50 | 4.0 | 5.0 | 4.0 | 4.5 | 4.0 | 5.0 | 6.0 | 0.91 |
| Alaska | 1 | 4.0 | 4.5 | 5.0 | 5.0 | 6.0 | 4.0 | 5.5 | 63 | 4.5 | 4.5 | 5.5 | 3.5 | 3.0 | 10.00 | 3.5 | 4.0 | 4.0 | 2.5 | 3.0 | 2.0 | 4.0 | 0.48 |
| Arizona | 1 | 5.5 | 3.5 | 3.0 | 5.0 | 6.5 | 3.0 | 3.0 | 6 | 3.5 | 4.5 | 3.5 | 4.0 | 3.0 | 5.14 | 3.5 | 4.5 | 3.5 | 4.5 | 4.5 | 4.0 | 5.0 | 0.67 |
| Arkansas | 1 | 5.5 | 5.0 | 3.5 | 5.0 | 6.5 | 3.5 | 4.5 | 13 | 4.5 | 7.0 | 4.0 | 4.5 | 5.0 | 5.43 | 4.5 | 5.5 | 5.0 | 6.5 | 4.5 | 4.0 | 5.0 | 0.95 |
| California | 5 | 6.0 | 3.5 | 3.5 | 3.0 | 5.5 | 6.5 | 3.0 | 8 | 5.0 | 3.5 | 4.0 | 5.5 | 9.0 | 3.91 | 5.0 | 4.0 | 4.5 | 6.0 | 5.5 | 5.5 | 6.0 | 1.61 |
| Connecticut | 1 | 5.5 | 5.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.5 | 10 | 5.5 | 4.5 | 5.5 | 5.0 | 7.0 | 4.50 | 3.5 | 6.0 | 5.0 | 5.5 | 5.5 | 5.0 | 4.5 | 1.29 |
| Florida | 4 | 7.0 | 5.0 | 5.0 | 5.5 | 3.5 | 5.0 | 5.0 | 18 | 6.0 | 4.0 | 5.0 | 3.5 | 5.0 | 3.45 | 6.0 | 6.0 | 5.5 | 6.0 | 6.5 | 7.0 | 2.5 | 1.30 |
| Georgia | 1 | 3.0 | 3.5 | 4.0 | 5.5 | 5.0 | 3.5 | 2.5 | 9 | 4.5 | 4.5 | 4.0 | 3.0 | 4.0 | 4.30 | 3.5 | 3.0 | 5.5 | 4.5 | 4.5 | 5.0 | 4.0 | 0.95 |
| Idaho | 1 | 6.0 | 6.0 | 4.0 | 6.5 | 6.0 | 3.0 | 3.5 | 12 | 5.0 | 5.0 | 5.0 | 3.0 | 4.0 | 5.50 | 4.0 | 3.5 | 5.0 | 6.5 | 5.0 | 7.0 | 5.0 | 0.81 |
| Indiana | 1 | 3.0 | 3.0 | 6.0 | 6.0 | 6.5 | 2.0 | 4.5 | 39 | 5.0 | 4.5 | 4.0 | 6.0 | 4.0 | 4.50 | 4.5 | 5.5 | 4.5 | 6.5 | 5.5 | 5.0 | 4.5 | 0.92 |
| Iowa | 3 | 3.0 | 3.0 | 1.5 | 2.0 | 3.0 | 6.0 | 2.5 | 12 | 2.0 | 1.0 | 4.0 | 2.0 | 5.0 | 6.20 | 2.0 | 2.0 | 2.0 | 4.5 | 4.0 | 6.0 | 5.5 | 0.88 |
| Kentucky | 5 | 5.5 | 4.0 | 4.5 | 4.5 | 6.0 | 4.0 | 4.0 | 6 | 4.0 | 4.5 | 4.0 | 5.5 | 4.0 | 2.58 | 4.0 | 5.5 | 4.0 | 5.5 | 4.5 | 5.0 | 3.0 | 1.46 |
| Louisiana | 4 | 4.5 | 4.5 | 3.0 | 4.0 | 3.5 | 5.5 | 5.0 | 27 | 7.0 | 4.0 | 6.0 | 5.0 | 3.0 | 5.50 | 6.0 | 6.5 | 5.5 | 6.0 | 4.5 | 6.0 | 2.0 | 0.64 |
| Minnesota | 1 | 5.5 | 3.5 | 6.0 | 6.0 | 5.5 | 3.0 | 6.0 | 15 | 6.5 | 5.5 | 5.0 | 5.5 | 4.0 | 5.14 | 5.0 | 6.5 | 5.0 | 6.5 | 5.5 | 6.5 | 2.5 | 0.85 |
| Mississippi | 1 | 4.0 | 4.0 | 5.5 | 4.0 | 5.5 | 3.5 | 5.0 | 123 | 6.0 | 5.0 | 4.0 | 6.5 | 4.0 | 4.50 | 4.5 | 4.5 | 5.0 | 5.5 | 4.5 | 6.5 | 4.0 | 0.92 |
| Montana | 1 | 5.0 | 4.0 | 5.0 | 6.0 | 5.0 | 3.0 | 3.0 | 39 | 5.0 | 5.0 | 4.0 | 2.0 | 3.0 | 6.00 | 4.0 | 5.0 | 6.0 | 6.0 | 5.0 | 5.0 | 3.0 | 0.61 |
| N. C. | 5 | 4.8 | 4.5 | 4.0 | 2.0 | 5.8 | 4.3 | 3.5 | 39 | 6.0 | 3.5 | 4.0 | 4.3 | 4.0 | 9.00 | 3.5 | 3.0 | 3.3 | 1.5 | 4.5 | 5.0 | 6.0 | 0.63 |
| N. H. | 1 | 3.0 | 3.0 | 6.0 | 5.0 | 5.5 | 5.5 | 6.0 | 13 | 5.5 | 5.0 | 3.5 | 6.0 | 4.0 | 4.60 | 3.0 | 5.5 | 5.0 | 6.5 | 5.5 | 5.5 | 4.0 | 0.91 |
| N. J. | 1 | 5.0 | 5.0 | 5.5 | 6.5 | 5.0 | 4.0 | 6.0 | 9 | 6.0 | 5.0 | 4.5 | 4.0 | 3.0 | 2.60 | 4.5 | 5.0 | 5.0 | 3.5 | 5.5 | 4.5 | 2.5 | 1.15 |
| N. M. | 3 | 3.5 | 3.5 | 3.5 | 3.0 | 2.0 | 6.5 | 4.0 | 63 | 4.5 | 4.5 | 4.0 | 2.5 | 3.0 | 6.00 | 2.5 | 3.0 | 3.0 | 5.5 | 4.0 | 5.0 | 4.5 | 0.61 |
| New York | 4 | 3.0 | 5.0 | 5.0 | 4.0 | 2.0 | 6.5 | 6.0 | 10 | 5.0 | 3.0 | 3.0 | 6.5 | 2.0 | 12.00 | 5.0 | 5.5 | 3.0 | 5.0 | 4.0 | 4.0 | 3.0 | 0.28 |
| Ohio | 4 | 4.0 | 4.5 | 4.5 | 5.0 | 3.0 | 4.0 | 4.0 | 9 | 6.5 | 5.0 | 4.0 | 6.0 | 5.0 | 6.67 | 5.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.5 | 2.0 | 0.85 |

| State | Cluster | Dynamism | Heterogeneity | Munificence | Scanning | Delegation | Centralization | Resource | Tenure | Control | Communication | Differentiation | Technocratization | Hierarchy | Span | Innovation | Adaptiveness | Integration | Analysis | Multiplexity | Futurity | Precedents | LogSpan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oklahoma | 3 | 4.0 | 3.0 | 2.5 | 3.5 | 6.0 | 4.0 | 2.0 | 63 | 2.5 | 4.0 | 3.5 | 4.0 | 3.5 | 5.00 | 3.0 | 3.5 | 4.0 | 3.0 | 4.0 | 2.5 | 5.0 | 0.78 |
| Oregon | 4 | 5.8 | 6.5 | 5.0 | 4.8 | 5.8 | 5.0 | 4.5 | 0 | 4.5 | 5.5 | 5.5 | 3.8 | 3.0 | 4.83 | 4.3 | 5.0 | 6.0 | 5.0 | 5.0 | 5.8 | 4.0 | 0.70 |
| R. I. | 2 | 4.0 | 4.0 | 3.0 | 4.5 | 3.0 | 6.5 | 5.5 | 60 | 4.0 | 5.0 | 4.0 | 6.0 | 3.0 | 3.40 | 3.5 | 5.0 | 5.0 | 4.5 | 6.0 | 5.0 | 5.0 | 0.90 |
| Texas | 5 | 6.5 | 3.0 | 4.0 | 4.5 | 5.5 | 4.5 | 4.5 | 31 | 5.5 | 4.0 | 4.0 | 6.0 | 7.0 | 3.47 | 3.5 | 6.0 | 4.5 | 6.5 | 5.0 | 6.5 | 5.0 | 1.56 |
| Vermont | 2 | 1.5 | 4.0 | 6.5 | 4.0 | 3.0 | 7.0 | 7.0 | 135 | 6.0 | 4.5 | 4.0 | 5.5 | 3.0 | 6.00 | 4.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | 0.61 |
| Virginia | 1 | 4.5 | 3.5 | 6.5 | 5.0 | 5.0 | 4.0 | 5.5 | 10 | 5.0 | 5.0 | 4.0 | 7.0 | 3.0 | 4.78 | 5.0 | 5.5 | 3.5 | 3.5 | 4.5 | 5.0 | 3.5 | 0.70 |
| Wisconsin | 5 | 5.0 | 5.0 | 3.5 | 5.5 | 4.0 | 4.0 | 3.0 | 56 | 5.5 | 4.5 | 4.0 | 2.5 | 6.0 | 3.63 | 4.5 | 5.0 | 4.5 | 4.0 | 3.5 | 6.0 | 4.0 | 1.39 |
| | Mean | 4.55 | 4.16 | 4.47 | 4.70 | 4.81 | 4.46 | 4.41 | 34.0 | 5.02 | 4.48 | 4.21 | 4.64 | 4.21 | 5.35 | 4.11 | 4.78 | 4.49 | 5.03 | 4.76 | 5.16 | 4.16 | 0.91 |
| | *SD* | 1.26 | 0.91 | 1.27 | 1.19 | 1.36 | 1.30 | 1.27 | 35.0 | 1.12 | 1.00 | 0.77 | 1.46 | 1.54 | 2.07 | 0.95 | 1.13 | 0.95 | 1.31 | 0.76 | 1.15 | 1.20 | 0.33 |
| | Min. | 1.50 | 3.00 | 1.50 | 2.00 | 2.00 | 2.00 | 2.00 | 0.0 | 2.00 | 1.00 | 2.50 | 2.00 | 2.00 | 2.58 | 2.00 | 2.00 | 2.00 | 1.50 | 3.00 | 2.00 | 2.00 | 0.28 |
| | Max. | 7.00 | 6.50 | 6.50 | 6.50 | 6.50 | 7.00 | 7.00 | 135 | 7.00 | 7.00 | 6.00 | 7.00 | 9.00 | 12.0 | 6.00 | 6.50 | 6.00 | 6.50 | 6.50 | 7.00 | 6.00 | 1.61 |

## CONFIGURATION MEMBERSHIP AND STATISTICS

| State | Cluster | Dynamism | Heterogeneity | Munificence | Scanning | Delegation | Centralization | Resource | Tenure | Control | Communication | Differentiation | Technocratization | Hierarchy | Span | Innovation | Adaptiveness | Integration | Analysis | Multiplexity | Futurity | Precedents | LogSpan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Strategically Structured** | | | | | | | | | | | | | | | | | | | | | | | |
| Alabama | 1 | 4.5 | 4.0 | 4.5 | 5.0 | 5.0 | 4.0 | 5.0 | 88 | 5.0 | 4.5 | 2.5 | 6.0 | 5.5 | 6.5 | 4.0 | 5.0 | 4.0 | 4.5 | 4.0 | 5.0 | 6.0 | 0.9 |
| Alaska | 1 | 4.0 | 4.5 | 5.0 | 5.0 | 6.0 | 4.0 | 5.5 | 63 | 4.5 | 4.5 | 5.5 | 3.5 | 3.0 | 10.0 | 3.5 | 4.0 | 4.0 | 2.5 | 3.0 | 2.0 | 4.0 | 0.5 |
| Arizona | 1 | 5.5 | 3.5 | 3.0 | 5.0 | 6.5 | 3.0 | 3.0 | 6 | 3.5 | 4.5 | 3.5 | 4.0 | 3.0 | 5.1 | 3.5 | 4.5 | 3.5 | 4.5 | 4.5 | 4.0 | 5.0 | 0.7 |
| Arkansas | 1 | 5.5 | 5.0 | 3.5 | 5.0 | 6.5 | 3.5 | 4.5 | 13 | 4.5 | 7.0 | 4.0 | 4.5 | 5.0 | 5.4 | 4.5 | 5.5 | 5.0 | 6.5 | 4.5 | 4.0 | 5.0 | 1.0 |
| CT | 1 | 5.5 | 5.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.5 | 10 | 5.5 | 4.5 | 5.5 | 5.0 | 7.0 | 4.5 | 3.5 | 6.0 | 5.0 | 5.5 | 5.5 | 5.0 | 4.5 | 1.3 |
| Georgia | 1 | 3.0 | 3.5 | 4.0 | 5.5 | 5.0 | 3.5 | 2.5 | 9 | 4.5 | 4.5 | 4.0 | 3.0 | 4.0 | 4.3 | 3.5 | 3.0 | 5.5 | 4.5 | 4.5 | 5.0 | 4.0 | 1.0 |
| Idaho | 1 | 6.0 | 6.0 | 4.0 | 6.5 | 6.0 | 3.0 | 3.5 | 12 | 5.0 | 5.0 | 5.0 | 3.0 | 4.0 | 5.5 | 4.0 | 3.5 | 5.0 | 6.5 | 5.0 | 7.0 | 5.0 | 0.8 |
| Indiana | 1 | 3.0 | 3.0 | 6.0 | 6.0 | 6.5 | 2.0 | 4.5 | 39 | 5.0 | 4.5 | 4.0 | 6.0 | 4.0 | 4.5 | 4.5 | 5.5 | 4.5 | 6.5 | 5.5 | 5.0 | 4.5 | 0.9 |
| Minnesota | 1 | 5.5 | 3.5 | 6.0 | 6.0 | 5.5 | 3.0 | 6.0 | 15 | 6.5 | 5.5 | 5.0 | 5.5 | 4.0 | 5.1 | 5.0 | 6.5 | 5.0 | 6.5 | 5.5 | 6.5 | 2.5 | 0.8 |
| Mississippi | 1 | 4.0 | 4.0 | 5.5 | 4.0 | 5.5 | 3.5 | 5.0 | 123 | 6.0 | 5.0 | 4.0 | 6.5 | 4.0 | 4.5 | 4.5 | 4.5 | 5.0 | 5.5 | 4.5 | 6.5 | 4.0 | 0.9 |
| Montana | 1 | 5.0 | 4.0 | 5.0 | 6.0 | 5.0 | 3.0 | 3.0 | 39 | 5.0 | 5.0 | 4.0 | 2.0 | 3.0 | 6.0 | 4.0 | 5.0 | 6.0 | 6.0 | 5.0 | 5.0 | 3.0 | 0.6 |
| N. H. | 1 | 3.0 | 3.0 | 6.0 | 5.0 | 5.5 | 5.5 | 6.0 | 13 | 5.5 | 5.0 | 3.5 | 6.0 | 4.0 | 4.6 | 3.0 | 5.5 | 5.0 | 6.5 | 5.5 | 5.5 | 4.0 | 0.9 |
| N. J. | 1 | 5.0 | 5.0 | 5.5 | 6.5 | 5.0 | 4.0 | 6.0 | 9 | 6.0 | 5.0 | 4.5 | 4.0 | 3.0 | 2.6 | 4.5 | 5.0 | 5.0 | 3.5 | 5.5 | 4.5 | 2.5 | 1.1 |
| Virginia | 1 | 4.5 | 3.5 | 6.5 | 5.0 | 5.0 | 4.0 | 5.5 | 10 | 5.0 | 5.0 | 4.0 | 7.0 | 3.0 | 4.8 | 5.0 | 5.5 | 3.5 | 3.5 | 4.5 | 5.0 | 3.5 | 0.7 |
| | Mean | 4.6 | 4.1 | 5.0 | 5.5 | 5.6 | 3.6 | 4.6 | 32.1 | 5.1 | 5.0 | 4.2 | 4.7 | 4.0 | 5.2 | 4.1 | 4.9 | 4.7 | 5.2 | 4.8 | 5.0 | 4.1 | 0.9 |
| | *SD* | 1.0 | 0.9 | 1.1 | 0.7 | 0.6 | 0.8 | 1.2 | 36 | 0.8 | 0.7 | 0.8 | 1.5 | 1.2 | 1.6 | 0.6 | 1.0 | 0.7 | 1.4 | 0.7 | 1.2 | 1.0 | 0.2 |
| | Min. | 3.0 | 3.0 | 3.0 | 4.0 | 5.0 | 2.0 | 2.5 | 6 | 3.5 | 4.5 | 2.5 | 2.0 | 3.0 | 2.6 | 3.0 | 3.0 | 3.5 | 2.5 | 3.0 | 2.0 | 2.5 | 0.5 |
| | Max. | 6.0 | 6.0 | 6.5 | 6.5 | 6.5 | 5.5 | 6.0 | 123 | 6.5 | 7.0 | 5.5 | 7.0 | 7.0 | 10.0 | 5.0 | 6.5 | 6.0 | 6.5 | 5.5 | 7.0 | 6.0 | 1.3 |

| State | Cluster | Dynamism | Heterogeneity | Munificence | Scanning | Delegation | Centralization | Resource | Tenure | Control | Communication | Differentiation | Technocratization | Hierarchy | Span | Innovation | Adaptiveness | Integration | Analysis | Multiplexity | Futurity | Precedents | LogSpan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Centralized and Stable** | | | | | | | | | | | | | | | | | | | | | | | |
| R. I. | 2 | 4.0 | 4.0 | 3.0 | 4.5 | 3.0 | 6.5 | 5.5 | 60 | 4.0 | 5.0 | 4.0 | 6.0 | 3.0 | 3.4 | 3.5 | 5.0 | 5.0 | 4.5 | 6.0 | 5.0 | 5.0 | 0.9 |
| Vermont | 2 | 1.5 | 4.0 | 6.5 | 4.0 | 3.0 | 7.0 | 7.0 | 135 | 6.0 | 4.5 | 4.0 | 5.5 | 3.0 | 6.0 | 4.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | 0.6 |
| Mean | | 2.8 | 4.0 | 4.8 | 4.3 | 3.0 | 6.8 | 6.3 | 97.5 | 5.0 | 4.8 | 4.0 | 5.8 | 3.0 | 4.7 | 3.8 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.3 | 0.8 |
| *SD* | | 1.8 | 0.0 | 2.5 | 0.4 | 0.0 | 0.4 | 1.1 | 53.0 | 1.4 | 0.4 | 0.0 | 0.4 | 0.0 | 1.8 | 0.4 | 0.0 | 0.0 | 0.7 | 0.7 | 0.0 | 0.4 | 0.2 |
| Min. | | 1.5 | 4.0 | 3.0 | 4.0 | 3.0 | 6.5 | 5.5 | 60 | 4.0 | 4.5 | 4.0 | 5.5 | 3.0 | 3.4 | 3.5 | 5.0 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 | 0.6 |
| Max. | | 4.0 | 4.0 | 6.5 | 4.5 | 3.0 | 7.0 | 7.0 | 135 | 6.0 | 5.0 | 4.0 | 6.0 | 3.0 | 6.0 | 4.0 | 5.0 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 | 0.9 |
| **Scarce Resources and Slow Change** | | | | | | | | | | | | | | | | | | | | | | | |
| Iowa | 3 | 3.0 | 3.0 | 1.5 | 2.0 | 3.0 | 6.0 | 2.5 | 12 | 2.0 | 1.0 | 4.0 | 2.0 | 5.0 | 6.2 | 2.0 | 2.0 | 2.0 | 4.5 | 4.0 | 6.0 | 5.5 | 0.9 |
| N. M. | 3 | 3.5 | 3.5 | 3.5 | 3.0 | 2.0 | 6.5 | 4.0 | 63 | 4.5 | 4.5 | 4.0 | 2.5 | 3.0 | 6.0 | 2.5 | 3.0 | 3.0 | 5.5 | 4.0 | 5.0 | 4.5 | 0.6 |
| Oklahoma | 3 | 4.0 | 3.0 | 2.5 | 3.5 | 6.0 | 4.0 | 2.0 | 63 | 2.5 | 4.0 | 3.5 | 4.0 | 3.5 | 5.0 | 3.0 | 3.5 | 4.0 | 3.0 | 4.0 | 2.5 | 5.0 | 0.8 |
| Mean | | 3.5 | 3.2 | 2.5 | 2.8 | 3.7 | 5.5 | 2.8 | 46.0 | 3.0 | 3.2 | 3.8 | 2.8 | 3.8 | 5.7 | 2.5 | 2.8 | 3.0 | 4.3 | 4.0 | 4.5 | 5.0 | 0.8 |
| *SD* | | 0.5 | 0.3 | 1.0 | 0.8 | 2.1 | 1.3 | 1.0 | 29.4 | 1.3 | 1.9 | 0.3 | 1.0 | 1.0 | 0.6 | 0.5 | 0.8 | 1.0 | 1.3 | 0.0 | 1.8 | 0.5 | 0.1 |
| Min. | | 3.0 | 3.0 | 1.5 | 2.0 | 2.0 | 4.0 | 2.0 | 12.0 | 2.0 | 1.0 | 3.5 | 2.0 | 3.0 | 5.0 | 2.0 | 2.0 | 2.0 | 3.0 | 4.0 | 2.5 | 4.5 | 0.6 |
| Max. | | 4.0 | 3.5 | 3.5 | 3.5 | 6.0 | 6.5 | 4.0 | 63.0 | 4.5 | 4.5 | 4.0 | 4.0 | 5.0 | 6.2 | 3.0 | 3.5 | 4.0 | 5.5 | 4.0 | 6.0 | 5.5 | 0.9 |

| State | Cluster | Dynamism | Heterogeneity | Munificence | Scanning | Delegation | Centralization | Resource | Tenure | Control | Communication | Differentiation | Technocratization | Hierarchy | Span | Innovation | Adaptiveness | Integration | Analysis | Multiplexity | Futurity | Precedents | LogSpan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Strategy Minded** | | | | | | | | | | | | | | | | | | | | | | | |
| Florida | 4 | 7.0 | 5.0 | 5.0 | 5.5 | 3.5 | 5.0 | 5.0 | 18 | 6.0 | 4.0 | 5.0 | 3.5 | 5.0 | 3.5 | 6.0 | 6.0 | 5.5 | 6.0 | 6.5 | 7.0 | 2.5 | 1.3 |
| Louisiana | 4 | 4.5 | 4.5 | 3.0 | 4.0 | 3.5 | 5.5 | 5.0 | 27 | 7.0 | 4.0 | 6.0 | 5.0 | 3.0 | 5.5 | 6.0 | 6.5 | 5.5 | 6.0 | 4.5 | 6.0 | 2.0 | 0.6 |
| New York | 4 | 3.0 | 5.0 | 5.0 | 4.0 | 2.0 | 6.5 | 6.0 | 10 | 5.0 | 3.0 | 3.0 | 6.5 | 2.0 | 12.0 | 5.0 | 5.5 | 3.0 | 5.0 | 4.0 | 4.0 | 3.0 | 0.3 |
| Ohio | 4 | 4.0 | 4.5 | 4.5 | 5.0 | 3.0 | 4.0 | 4.0 | 9 | 6.5 | 5.0 | 4.0 | 6.0 | 5.0 | 6.7 | 5.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.5 | 2.0 | 0.8 |
| Oregon | 4 | 5.8 | 6.5 | 5.0 | 4.8 | 5.8 | 5.0 | 4.5 | 0 | 4.5 | 5.5 | 5.5 | 3.8 | 3.0 | 4.8 | 4.3 | 5.0 | 6.0 | 5.0 | 5.0 | 5.8 | 4.0 | 0.7 |
| | Mean | 4.9 | 5.1 | 4.5 | 4.7 | 3.6 | 5.2 | 4.9 | 12.8 | 5.8 | 4.3 | 4.7 | 5.0 | 3.6 | 6.5 | 5.4 | 5.5 | 4.9 | 5.4 | 5.0 | 5.7 | 2.7 | 0.8 |
| | *SD* | 1.6 | 0.8 | 0.9 | 0.7 | 1.4 | 0.9 | 0.7 | 10.2 | 1.0 | 1.0 | 1.2 | 1.3 | 1.3 | 3.3 | 0.7 | 0.8 | 1.2 | 0.5 | 0.9 | 1.1 | 0.8 | 0.4 |
| | Min. | 3.0 | 4.5 | 3.0 | 4.0 | 2.0 | 4.0 | 4.0 | 0.0 | 4.5 | 3.0 | 3.0 | 3.5 | 2.0 | 3.5 | 4.3 | 4.5 | 3.0 | 5.0 | 4.0 | 4.0 | 2.0 | 0.3 |
| | Max. | 7.0 | 6.5 | 5.0 | 5.5 | 5.8 | 6.5 | 6.0 | 27.0 | 7.0 | 5.5 | 6.0 | 6.5 | 5.0 | 12.0 | 6.0 | 6.5 | 6.0 | 6.0 | 6.5 | 7.0 | 4.0 | 1.3 |
| **Complex Solutions and Chaotic Environments** | | | | | | | | | | | | | | | | | | | | | | | |
| California | 5 | 6.0 | 3.5 | 3.5 | 3.0 | 5.5 | 6.5 | 3.0 | 8 | 5.0 | 3.5 | 4.0 | 5.5 | 9.0 | 3.9 | 5.0 | 4.0 | 4.5 | 6.0 | 5.5 | 5.5 | 6.0 | 1.6 |
| Kentucky | 5 | 5.5 | 4.0 | 4.5 | 4.5 | 6.0 | 4.0 | 4.0 | 6 | 4.0 | 4.5 | 4.0 | 5.5 | 4.0 | 2.6 | 4.0 | 5.5 | 4.0 | 5.5 | 4.5 | 5.0 | 3.0 | 1.5 |
| N. C. | 5 | 4.8 | 4.5 | 4.0 | 2.0 | 5.8 | 4.3 | 3.5 | 39 | 6.0 | 3.5 | 4.0 | 4.3 | 4.0 | 9.0 | 3.5 | 3.0 | 3.3 | 1.5 | 4.5 | 5.0 | 6.0 | 0.6 |
| Texas | 5 | 6.5 | 3.0 | 4.0 | 4.5 | 5.5 | 4.5 | 4.5 | 31 | 5.5 | 4.0 | 4.0 | 6.0 | 7.0 | 3.5 | 3.5 | 6.0 | 4.5 | 6.5 | 5.0 | 6.5 | 5.0 | 1.6 |
| Wisconsin | 5 | 5.0 | 5.0 | 3.5 | 5.5 | 4.0 | 4.0 | 3.0 | 56 | 5.5 | 4.5 | 4.0 | 2.5 | 6.0 | 3.6 | 4.5 | 5.0 | 4.5 | 4.0 | 3.5 | 6.0 | 4.0 | 1.4 |
| | Mean | 5.6 | 4.0 | 3.9 | 3.9 | 5.4 | 4.7 | 3.6 | 28.0 | 5.2 | 4.0 | 4.0 | 4.8 | 6.0 | 4.5 | 4.1 | 4.7 | 4.2 | 4.7 | 4.6 | 5.6 | 4.8 | 1.3 |
| | *SD* | 0.7 | 0.8 | 0.4 | 1.4 | 0.8 | 1.1 | 0.7 | 21 | 0.8 | 0.5 | 0 | 1.4 | 2.1 | 2.6 | 0.7 | 1.2 | 0.5 | 2 | 0.7 | 0.7 | 1.3 | 0.4 |
| | Min. | 4.8 | 3.0 | 3.5 | 2.0 | 4.0 | 4.0 | 3.0 | 6 | 4.0 | 3.5 | 4.0 | 2.5 | 4.0 | 2.6 | 3.5 | 3.0 | 3.3 | 1.5 | 3.5 | 5.0 | 3.0 | 0.6 |
| | Max. | 6.5 | 5.0 | 4.5 | 5.5 | 6.0 | 6.5 | 4.5 | 56 | 6.0 | 4.5 | 4.0 | 6.0 | 9.0 | 9.0 | 5.0 | 6.0 | 4.5 | 6.5 | 5.5 | 6.5 | 6.0 | 1.6 |

# APPENDIX F

## FINAL CLUSTER CENTERS BY VARIABLES

Final Cluster Centers for Agency Variables

| Variable[a] | Configuration | | | | |
|---|---|---|---|---|---|
| | Strategically Structured | Central & Stable | Scarce Resource States | Strategy Minded | Complex |
| Adaptive/Proactive | .31 | .36 | -1.31 | .75 | .13 |
| Centralization of Strategy-making Power | -.76 | 1.83 | .81 | .57 | .12 |
| Internal Communication | .44 | .22 | -1.48 | -.27 | -.59 |
| Controls | .17 | .07 | -1.68 | .77 | .25 |
| Delegation of Operating Authority | .76 | -1.16 | -.67 | -.74 | .60 |
| Dynamism | .08 | -1.41 | -.80 | .31 | .88 |
| Innovation | .19 | -.10 | -1.22 | 1.34 | .21 |
| Integration of Decisions | .25 | .52 | -1.37 | .43 | -.27 |
| Munificence | .53 | .29 | -1.60 | .08 | -.42 |
| Precedents | -.13 | .83 | .62 | -1.31 | .45 |
| Resource Availability | .26 | 1.62 | -1.22 | .50 | -.58 |
| Scanning | .70 | -.22 | -1.30 | .09 | -.49 |
| Tenure | .03 | 2.12 | .47 | -.59 | -.10 |
| Consciousness of Analysis | .25 | .12 | -.35 | .40 | -.09 |
| Differentiation | -.09 | -.35 | -.54 | .48 | -.35 |
| Futurity of Decisions | .03 | .03 | -.31 | .48 | .44 |
| Heterogeneity | -.01 | -.13 | -1.07 | 1.10 | -.13 |
| Spatial Complexity of Structure | -.01 | -.38 | -.33 | -.41 | 1.51 |
| Multiplexity of Decisions | .20 | .88 | -.55 | .40 | .02 |
| Technocratization | .27 | .98 | -1.01 | .44 | .30 |

[a] All variables are based on z-scores derived from the original scores

Final Cluster Centers for Configurations Based on Key Words

| | Configuration | | | | |
|---|---|---|---|---|---|
| Token[a] (lemmas) | Employee Oriented | Service Oriented | Cost Conscious | Strategic Planners | Outcome Oriented |
| Budget | -0.51 | -0.02 | -0.14 | 1.43 | -0.43 |
| Center | 3.29 | -0.32 | -0.44 | -0.05 | -0.27 |
| Cost(s) | -0.71 | -0.26 | -0.71 | 0.72 | 0.44 |
| Employ(ment)(ees) | -0.50 | 0.98 | -0.50 | -0.30 | -0.37 |
| Fund(ing) | -0.60 | -0.02 | -0.60 | 1.42 | -0.34 |
| Law | 0.80 | -0.40 | -0.44 | -0.13 | 0.07 |
| Local | 0.23 | 0.18 | 0.79 | -0.22 | -0.45 |
| Management | -0.49 | 0.40 | -0.49 | 0.22 | -0.07 |
| Money | -0.41 | -0.29 | -0.41 | -0.03 | 0.60 |
| Plan(ning) | -0.07 | -0.14 | 3.90 | -0.24 | -0.31 |
| Program(s) | 0.74 | 0.36 | -1.17 | 0.34 | -0.43 |
| Public | -0.34 | 0.23 | -0.06 | -0.75 | 0.04 |
| Quality | 3.54 | -0.19 | -0.43 | -0.18 | -0.19 |
| Rates | -0.66 | -0.60 | -0.66 | -0.10 | 0.85 |
| Resources | 0.02 | 0.12 | 1.95 | 0.25 | -0.28 |
| Services | 1.78 | 0.61 | -0.69 | -0.24 | -0.56 |
| Staff | -0.69 | 0.38 | 1.40 | -0.26 | -0.54 |
| Strategy(ic) | -0.28 | -0.07 | 3.34 | -0.15 | -0.27 |
| Work | 0.17 | 0.84 | -0.26 | -0.10 | -0.55 |

[a] All variables are based on z-scores derived from the original scores

# APPENDIX G

## KEY WORD FREQUENCY BY STATE AND CONFIGURATION

## Key Word Counts and Statistics by State

| | Cluster | Budget | Center | Cost | Employ | Fund | Law | Local | Manage | Money | Planning | Program | Public | Quality | Rates | Resource | Service | Staff | Strategic | Work | Total Tokens |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 5 | 2 | 8 | 16 | 10 | 12 | 3 | 6 | 1 | 3 | 19 | 42 | 39 | 9 | 56 | 3 | 19 | 1 | 0 | 6 | 8343 |
| Alaska | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 4 | 2 | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 528 |
| Arkansas | 1 | 4 | 8 | 9 | 7 | 14 | 0 | 20 | 1 | 4 | 17 | 84 | 155 | 11 | 8 | 9 | 57 | 24 | 5 | 29 | 10978 |
| Arizona | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 419 |
| California | 1 | 2 | 0 | 0 | 1 | 2 | 1 | 6 | 0 | 0 | 1 | 7 | 39 | 0 | 0 | 1 | 12 | 1 | 0 | 1 | 1611 |
| Connecticut | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 9 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 2482 |
| Florida | 3 | 2 | 4 | 8 | 0 | 5 | 0 | 4 | 0 | 0 | 2 | 17 | 3 | 3 | 1 | 1 | 6 | 0 | 0 | 2 | 1993 |
| Georgia | 1 | 20 | 4 | 6 | 8 | 34 | 0 | 9 | 11 | 2 | 11 | 42 | 13 | 7 | 0 | 12 | 92 | 13 | 1 | 17 | 8544 |
| Iowa | 5 | 0 | 1 | 9 | 0 | 3 | 0 | 2 | 1 | 2 | 1 | 6 | 20 | 4 | 1 | 3 | 0 | 1 | 0 | 4 | 3237 |
| Idaho | 3 | 147 | 4 | 165 | 47 | 230 | 54 | 46 | 17 | 87 | 63 | 425 | 68 | 22 | 56 | 12 | 173 | 96 | 17 | 194 | 58437 |
| Indiana | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 9 | 1 | 363 |
| Kentucky | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 6 | 0 | 0 | 5 | 1 | 1 | 4 | 1 | 612 |
| Louisiana | 3 | 14 | 2 | 3 | 1 | 26 | 3 | 1 | 2 | 0 | 4 | 19 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 4 | 1833 |
| Minnesota | 5 | 4 | 6 | 23 | 3 | 31 | 2 | 33 | 1 | 13 | 29 | 24 | 157 | 9 | 35 | 11 | 9 | 3 | 3 | 42 | 19559 |
| Mississippi | 3 | 2 | 25 | 17 | 0 | 89 | 4 | 47 | 5 | 1 | 39 | 37 | 103 | 0 | 24 | 45 | 14 | 18 | 6 | 4 | 15971 |
| Montana | 1 | 4 | 0 | 1 | 6 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 10 | 988 |
| N. C. | 5 | 0 | 0 | 30 | 2 | 4 | 0 | 0 | 16 | 20 | 4 | 32 | 20 | 18 | 20 | 8 | 4 | 0 | 0 | 4 | 5226 |
| N. H. | 5 | 9 | 0 | 5 | 1 | 14 | 1 | 0 | 4 | 0 | 1 | 4 | 0 | 1 | 1 | 2 | 3 | 0 | 0 | 11 | 1871 |
| N. J. | 3 | 15 | 7 | 10 | 0 | 15 | 3 | 3 | 4 | 9 | 11 | 64 | 44 | 19 | 29 | 5 | 48 | 5 | 0 | 5 | 10459 |
| N. M. | 5 | 0 | 10 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 2 | 12 | 6 | 8 | 0 | 2 | 16 | 0 | 0 | 2 | 929 |
| New York | 2 | 0 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 6 | 5 | 2 | 41 | 2 | 3 | 3 | 0 | 3 | 5067 |
| Ohio | 1 | 6 | 8 | 7 | 3 | 23 | 0 | 34 | 12 | 1 | 18 | 35 | 102 | 30 | 2 | 15 | 18 | 18 | 26 | 33 | 10160 |
| Oklahoma | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 870 |
| Oregon | 5 | 1 | 2 | 13 | 1 | 6 | 22 | 3 | 0 | 2 | 6 | 3 | 25 | 0 | 7 | 3 | 2 | 0 | 0 | 7 | 3367 |
| R. I. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 342 |

| | Cluster | Budget | Center | Cost | Employ | Fund | Law | Local | Manage | Money | Planning | Program | Public | Quality | Rates | Resource | Service | Staff | Strategic | Work | Total Tokens |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Texas** | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 2 | 8 | 2 | 10 | 39 | 5 | 16 | 2 | 1 | 0 | 0 | 9 | 9655 |
| **Virginia** | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 9 | 0 | 0 | 1 | 0 | 0 | 2 | 457 |
| **Vermont** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 1 | 335 |
| **Wisconsin** | 1 | 0 | 0 | 3 | 8 | 2 | 0 | 1 | 0 | 0 | 10 | 12 | 6 | 0 | 0 | 0 | 13 | 0 | 6 | 13 | 1584 |
| **Total** | | 236 | 97 | 328 | 100 | 513 | 98 | 230 | 79 | 152 | 274 | 892 | 889 | 160 | 301 | 150 | 506 | 187 | 82 | 415 | 0 186220 |
| **Mean** | | 8.1 | 3.3 | 11.3 | 3.4 | 17.7 | 3.4 | 7.9 | 2.7 | 5.2 | 9.4 | 30.8 | 30.7 | 5.5 | 10.4 | 5.2 | 17.4 | 6.4 | 2.8 | 14.3 | 6421.4 |
| ***SD*** | | 27.2 | 5.2 | 30.5 | 8.9 | 44.7 | 10.6 | 13.9 | 4.9 | 16.4 | 14.1 | 78.7 | 44.6 | 7.8 | 17.2 | 8.7 | 36.2 | 18.4 | 5.9 | 36.0 | 11222.7 |
| **Minimum** | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 335.0 |
| **Maximum** | | 147.0 | 25.0 | 165.0 | 47.0 | 230.0 | 54.0 | 47.0 | 17.0 | 87.0 | 63.0 | 425.0 | 157.0 | 30.0 | 56.0 | 45.0 | 173.0 | 96.0 | 26.0 | 194.0 | 58437.0 |

**Key Word Counts by Leader Configuration**

| | Budget | Center | Cost | Employ | Fund | Law | Local | Manage | Money | Planning | Program | Public | Quality | Rates | Resource | Service | Staff | Strategic | Work |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alaska | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 4 | 2 | 1 | 0 | 2 | 3 | 1 | 0 | 4 |
| Arkansas | 4 | 8 | 9 | 7 | 14 | 0 | 20 | 1 | 4 | 17 | 84 | 155 | 11 | 8 | 9 | 57 | 24 | 5 | 29 |
| California | 2 | 0 | 0 | 1 | 2 | 1 | 6 | 0 | 0 | 1 | 7 | 39 | 0 | 0 | 1 | 12 | 1 | 0 | 1 |
| Georgia | 20 | 4 | 6 | 8 | 34 | 0 | 9 | 11 | 2 | 11 | 42 | 13 | 7 | 0 | 12 | 92 | 13 | 1 | 17 |
| Montana | 4 | 0 | 1 | 6 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 10 |
| Ohio | 6 | 8 | 7 | 3 | 23 | 0 | 34 | 12 | 1 | 18 | 35 | 102 | 30 | 2 | 15 | 18 | 18 | 26 | 33 |
| R. I. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| Wisconsin | 0 | 0 | 3 | 8 | 2 | 0 | 1 | 0 | 0 | 10 | 12 | 6 | 0 | 0 | 0 | 13 | 0 | 6 | 13 |
| Mean | 4.5 | 2.5 | 3.3 | 4.4 | 9.6 | 0.1 | 9.1 | 3.3 | 0.9 | 7.5 | 23.3 | 40.0 | 6.1 | 1.3 | 5.1 | 24.8 | 7.3 | 4.8 | 13.6 |
| *SD* | 6.7 | 3.7 | 3.6 | 3.2 | 12.8 | 0.4 | 12.1 | 5.1 | 1.5 | 7.5 | 29.1 | 57.8 | 10.5 | 2.8 | 6.0 | 32.7 | 9.6 | 8.9 | 12.1 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 |
| Maximum | 20.0 | 8.0 | 9.0 | 8.0 | 34.0 | 1.0 | 34.0 | 12.0 | 4.0 | 18.0 | 84.0 | 155.0 | 30.0 | 8.0 | 15.0 | 92.0 | 24.0 | 26.0 | 33.0 |
| New York | 0 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 6 | 5 | 2 | 41 | 2 | 3 | 3 | 0 | 3 |
| Virginia | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 9 | 0 | 0 | 1 | 0 | 0 | 2 |
| Mean | 0.0 | 2.5 | 0.5 | 0.0 | 0.5 | 1.0 | 0.0 | 0.0 | 0.0 | 2.5 | 3.0 | 3.0 | 5.5 | 20.5 | 1.0 | 2.0 | 1.5 | 0.0 | 2.5 |
| *SD* | 0.0 | 0.7 | 0.7 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 4.2 | 2.8 | 4.9 | 29.0 | 1.4 | 1.4 | 2.1 | 0.0 | 0.7 |
| Minimum | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 2.0 |
| Maximum | 0.0 | 3.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 4.0 | 6.0 | 5.0 | 9.0 | 41.0 | 2.0 | 3.0 | 3.0 | 0.0 | 3.0 |
| Florida | 2 | 4 | 8 | 0 | 5 | 0 | 4 | 0 | 0 | 2 | 17 | 3 | 3 | 1 | 1 | 6 | 0 | 0 | 2 |
| Idaho | 147 | 4 | 165 | 47 | 230 | 54 | 46 | 17 | 87 | 63 | 425 | 68 | 22 | 56 | 12 | 173 | 96 | 17 | 194 |
| Louisiana | 14 | 2 | 3 | 1 | 26 | 3 | 1 | 2 | 0 | 4 | 19 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 4 |

| | Budget | Center | Cost | Employ | Fund | Law | Local | Manage | Money | Planning | Program | Public | Quality | Rules | Resource | Service | Staff | Strategic | Work |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mississippi | 2 | 25 | 17 | 0 | 89 | 4 | 47 | 5 | 1 | 39 | 37 | 103 | 0 | 24 | 45 | 14 | 18 | 6 | 4 |
| N. J. | 15 | 7 | 10 | 0 | 15 | 3 | 3 | 4 | 9 | 11 | 64 | 44 | 19 | 29 | 5 | 48 | 5 | 0 | 5 |
| Vermon | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 1 |
| Mean | 30.5 | 7.0 | 33.8 | 8.0 | 60.8 | 10.7 | 16.8 | 4.7 | 16.2 | 19.8 | 93.7 | 36.3 | 7.5 | 18.5 | 11.0 | 40.5 | 19.8 | 4.7 | 35.0 |
| *SD* | 57.4 | 9.1 | 64.5 | 19.1 | 88.9 | 21.3 | 23.0 | 6.4 | 34.9 | 25.6 | 163.8 | 43.0 | 10.2 | 22.4 | 17.2 | 67.3 | 38.0 | 6.6 | 77.9 |
| Minimum | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| Maximum | 147.0 | 25.0 | 165.0 | 47.0 | 230.0 | 54.0 | 47.0 | 17.0 | 87.0 | 63.0 | 425.0 | 103.0 | 22.0 | 56.0 | 45.0 | 173.0 | 96.0 | 17.0 | 194.0 |
| Indiana | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 9 | 1 |
| Kentucky | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 6 | 0 | 0 | 5 | 1 | 1 | 4 | 1 |
| Mean | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 13.0 | 0.0 | 3.5 | 0.0 | 0.0 | 2.5 | 0.5 | 1.0 | 6.5 | 1.0 |
| *SD* | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 5.7 | 0.0 | 3.5 | 0.0 | 0.0 | 3.5 | 0.7 | 0.0 | 3.5 | 0.0 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 9.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 4.0 | 1.0 |
| Maximum | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 17.0 | 0.0 | 6.0 | 0.0 | 0.0 | 5.0 | 1.0 | 1.0 | 9.0 | 1.0 |
| Alabama | 2 | 8 | 16 | 10 | 12 | 3 | 6 | 1 | 3 | 19 | 42 | 39 | 9 | 56 | 3 | 19 | 1 | 0 | 6 |
| Arizona | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| CT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 9 | 1 | 0 | 1 | 5 | 0 | 0 | 0 |
| Iowa | 0 | 1 | 9 | 0 | 3 | 0 | 2 | 1 | 2 | 1 | 6 | 20 | 4 | 1 | 3 | 0 | 1 | 0 | 4 |
| Minnesota | 4 | 6 | 23 | 3 | 31 | 2 | 33 | 1 | 13 | 29 | 24 | 157 | 9 | 35 | 11 | 9 | 3 | 3 | 42 |
| N. C. | 0 | 0 | 30 | 2 | 4 | 0 | 0 | 16 | 20 | 4 | 32 | 20 | 18 | 20 | 8 | 4 | 0 | 0 | 4 |
| N. H. | 9 | 0 | 5 | 1 | 14 | 1 | 0 | 4 | 0 | 1 | 4 | 0 | 1 | 1 | 2 | 3 | 0 | 0 | 11 |
| N. M. | 0 | 10 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 2 | 12 | 6 | 8 | 0 | 2 | 16 | 0 | 0 | 2 |
| Oklahoma | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 2 | 1 | 0 | 0 | 0 | 2 |
| Oregon | 1 | 2 | 13 | 1 | 6 | 22 | 3 | 0 | 2 | 6 | 3 | 25 | 0 | 7 | 3 | 2 | 0 | 0 | 7 |

| | Texas | Budget | Center | Cost | Employ | Fund | Law | Local | Manage | Money | Planning | Program | Public | Quality | Rates | Resource | Service | Staff | Strategic | Work |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 2 | 8 | 2 | 10 | 39 | 5 | 16 | 2 | 1 | 0 | 0 | 9 |
| 1 | Mean | 1.5 | 2.7 | 8.9 | 1.5 | 6.4 | 2.8 | 4.8 | 2.3 | 4.4 | 5.8 | 12.5 | 30.7 | 5.0 | 12.6 | 3.3 | 5.5 | 0.5 | 0.3 | 8.1 |
| | *SD.* | 2.8 | 3.6 | 10.4 | 3.0 | 9.6 | 6.4 | 9.6 | 4.7 | 6.6 | 9.4 | 14.0 | 43.8 | 5.6 | 18.2 | 3.3 | 6.5 | 0.9 | 0.9 | 11.7 |
| | Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Maximum | 9.0 | 10.0 | 30.0 | 10.0 | 31.0 | 22.0 | 33.0 | 16.0 | 20.0 | 29.0 | 42.0 | 157.0 | 18.0 | 56.0 | 11.0 | 19.0 | 3.0 | 3.0 | 42.0 |

**GRADUATE SCHOOL**
**UNIVERSITY OF ALABAMA AT BIRMINGHAM**
**DISSERTATION APPROVAL FORM**
**DOCTOR OF PHILOSOPHY**

**Name of Candidate** Eric W. Ford

**Graduate Program** Administration-Health Services

**Title of Dissertation** A Comparative Study of State Health Agency Configurations and the Communication Patterns of Their Leaders

**I certify that I have read this document and examined the student regarding its content. In my opinion, this dissertation conforms to acceptable standards of scholarly presentation and is adequate in scope and quality, and the attainments of this student are such that he may be recommended for the degree of Doctor of Philosophy.**

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