The Use of Organizational Culture and Structure to Guide Strategic Behavior: An Information Processing Perspective

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ABSTRACT

This article presents a descriptive model explaining the roles and relationships of organizational culture and organizational structure in guiding employee behavior toward strategic objectives. Using an information-processing view, we propose that organizational culture and structure direct the behavior of employees through the reduction of uncertainty and equivocality. Furthermore, we propose that differing levels of both cultural and structural influences are implemented in different organizational types based on the level of skill, originality, and training required of the tasks being performed by members of the organization, and based on the geographical dispersion of the employees themselves. We present the concept of the "cosmopolis," which is an organization rich in both cultural and structural elements. Implications for both research and managerial practice are discussed.

Introduction

Individuals arrive at organizations with variant motivations, experiences, and values. These natural individual differences tend to direct behavior in numerous, often divergent directions. If an organization is to direct behavior toward the accomplishment of a strategic mission, and is to present itself to stakeholders as a unified form, mechanisms must be created for reducing this variability among individuals and focusing employee efforts on the accomplishment of strategic goals.

Organizational structure has long been described as a mechanism through which effort is integrated through the coordination and control of activities (Child, 1977; Weber, 1946; Burns & Stalker, 1961; Mintzberg, 1979), and symbolic management, or the management of organizational culture, has more recently been described as a mechanism that directs behavior through shared values, norms, and goals (Pfeffer, 1981; Louis 1985; Schein, 1985; Weick, 1987; Denison, 1990; Chatman & Jehn, 1994). However, each mechanism is unique in its impact on individual behavior, and therefore, the effects of each should be analyzed separately and then synthesized for a deeper understanding of the functional roles of structural and cultural forces in the workplace.

We believe that a model clarifying the relationship between organizational culture and organizational structure in directing employee effort toward strategic goals is needed. In developing such a model to synthesize these two forces, we will take the perspective that organizations are essentially information processing entities that develop different mechanisms in attempts to reduce uncertainty and equivocality in achieving effectiveness (Daft & Lengel, 1986; Galbraith, 1973; Knight & McDaniel, 1979). Effectiveness is obtained when employees enact behaviors in a consistent manner to achieve strategic goals of the firm. Uncertainty exists when there is a gap

between the amount of information possessed and that which is required to perform a task (Galbraith, 1977), while equivocality means that there is ambiguity, confusion, or poor understanding about a situation of which there may exist multiple and conflicting interpretations (Weick, 1979). The primary question that this article attempts to answer is: Under what conditions are culture, structure, both, or neither effective mechanisms for managing information requirements of the organization and directing employee behavior toward

accomplishing strategic goals? Specifically, the reasons that such a model is needed are:

1) A unified typology of organizations describing their impact on the control of behavior based on cultural and structural mechanisms is needed. While various organization types have been identified and defined, among them mechanistic, organic (Burns & Stalker, 1961), bureaucracy, machine bureaucracy, professional bureaucracy, adhocracy, divisionalized form (Mintzberg, 1979), clan (Wilkins & Ouchi, 1983), and network organizations (Quinn, Anderson, & Finkelstein, 1996), a comprehensive model is needed to present a range of fundamental organization types, with each type being a point on a multidimensional scale, but which clearly portrays the "gray" areas between specific organizational types.

2) Existing organizational typology models do not adequately describe how many of today's organizations that are increasingly geographically dispersed, due to technological advances such as wide area networks (WANs), internet, and wireless communication, manage information demands and control strategic behavior of employees .

3) Existing organizational typology models do not describe organizations, that aside from being geographically dispersed, must employ individuals who are often lacking in basic education and skills, and for whom most traditional training techniques may be inadequate. This source of uncertainty is increasingly characteristic of many mass service organizations today.

We will discuss and differentiate organizational structure and organizational culture as information processing mechanisms, and develop a model describing their roles in reducing uncertainty and equivocality so that employees can successfully direct their behaviors toward achieving organizational goals. In the literature, task complexity has been recognized as an important source of uncertainty and equivocality in organizations (Daft & Lengel, 1986; Galbraith, 1973; Van de Ven, Delbecq, & Koenig, 1976). In addition, we propose that geographical dispersion of organizational units increases informational requirements by augmenting the amount of information needed to operate effectively in different global environments, and by increasing the ambiguity of available information and the number of different interpretations to which this

i nformation is subject. Therefore, our model will consider the information processing requirements of tasks as well as the dispersal of this information across employees who must work interdependently to accomplish the goals of the organization.

In developing our model, we will first discuss structure and culture as mechanisms for managing information demands of organizations and directing employee behavior. Next, we will identify the conditions of task complexity and geographical dispersion under which structural and cultural mechanisms are effective for reducing uncertainty and equivocality. Then, we will present our model which describes different organizational types based on different combinations of structure and culture that are required to manage information requirements presented by varying levels of task complexity and geographical dispersion. In addition, we will provide examples of different organizations that illustrate these types. Lastly, we will conclude by considering some implications for future research and managerial practice.

Organizational Structure as an Information Processing and Behavioral Control Mechanism

Three fundamental mechanisms for reducing variability and instability of social systems were cited by Katz and Kahn (1966): (1) environmental pressures or task requirements in relation to needs, (2) shared values and expectations, and (3) rule enforcement. If we add centralization (i.e., a system where supervisors maintain consistency via actually making all decisions or by auditing/controlling all decision-making) to these three, four elemental control mechanisms result:

1) *centralization (of decision making),*

2) *formalization (rule enforcement),*

3) *output control (acceptance of only adequate task outcomes), and*

4) *shared values and expectations.*

The first three mechanisms encompass structural elements, and the fourth is essentially culture, which will be discussed later. Structure has been further identified by Mintzberg (1979) as the standardization of: (1) work processes - where the contents of the work are specified or programmed, (2) output - where the results and dimensions of the work product are specified, and (3) skills - where the kinds of training required to perform work are specified. Along with standardization, according to Mintzberg, direct supervision exists where one individual takes responsibility for the work of others and monitors their performance. For the purpose of this article, organizational structure will be defined using elements of definitions developed by Mintzberg, Burns and Stalker, and Katz and Kahn. Structure is the degree of:

> *centralization of decision-making, formalization of rules, authority, communication, and compensation, standardization of work processes and skills, and/or control of output by acceptance of only adequate outcomes.*

Organizations vary in the degree to which these mechanisms are used to control behavior. Specifically, Burns and Stalker (1961) distinguishe the mechanistic organization from the organic one. High use of the above devices represents a

formalized and conspicuous type of control and has been described as a mechanistic process (Burns & Stalker, 1961). The mechanistic organization is hypothesized to be suitable for situations of high stability. In an information processing view, mechanistic organizations are comprised mostly of task situations that process routine information (i.e., that which is repetitive, changes slowly over time, fits into a clearly recognizable pattern, and is easily understood) (Knight & McDaniel, 1979). The technology involved in converting inputs into outputs in such tasks is highly analyzable and low in variety (Perrow, 1967). Other characteristics of the mechanistic organization include specialized differentiation of tasks where the functionaries tend to pursue the technical improvement of their task, and are held accountable for the task performance. Employees tend to work with specific job descriptions and fall into a formalized hierarchy of control, authority, and communication, and the majority of communication occurs in a vertical format where instructions and decisions are issued by the manager. Long term membership in the organization is secured by the employee by obedience to the manager and loyalty to the concern, and greater prestige is attached to local (internal rather than external) knowledge, experience, and skill. Rules, regulations, and standard operating procedures are appropriate for managing the low levels of uncertainty and equivocality in mechanistic organizations (Daft & Lengel, 1986; Knight & McDaniel, 1979). Therefore, in an information-processing view of organizations, mechanistic structures are most appropriate for organizations in which task complexity is low (i.e., the extent to which tasks involve the processing of routine information and require a low level of skill, limited originality, high repetition, high uniformity, and little training among employees).

As task complexity increases, reliance on structural mechanisms to control behavior may not always be sufficient. Task uncertainty and information processing requirements increase when tasks that individual employees must perform become more complex and interdependence between individuals performing such tasks increases (Galbraith, 1973). Burns and Stalker (1961) describe organic organizations as those that face dynamic conditions which constantly produce new problems and unpredictable requirements for action. In an information processing view, organic organizations are comprised mostly of task situations that process nonroutine information (i.e., that which lacks a pattern, has a high degree of uncertainty, is unfamiliar, and is difficult to understand) (Knight & McDaniel, 1979). The technology involved in converting

inputs into outputs in such tasks is not easily analyzable and high in variety (Perrow, 1967). Organic organizations are characterized by tasks that require special knowledge and experience, as well as continuous adjustment and redefinition through interaction with others. Frequent meetings which allow people to exchange perspectives, hammer out definitions and solutions to problems, resolve conflicts, and develop shared interpretations used to direct future activities are necessary (Daft & Lengel, 1986). Complex search procedures need to be undertaken by employees to decrease levels of uncertainty and equivocality (Knight & McDaniel, 1979). In addition, a network structure of control, authority, and communication, rather

than hierarchy, is appropriate for organic organizations in recognition that knowledge may exist anywhere in the organization, not just at the top. Lateral rather than vertical communication, commitment to the task and emerging technical requirements, and the importance of attachment to external professional affiliations further characterize the organic organization. In an information processing view of firms, organic structures are most appropriate for organizations in which task complexity is high (i.e., the extent to which tasks involve the processing of nonroutine information and require a high level of skill, originality, experience, use of complex search procedures, high experimentation, and advanced training among employees).

Geographical dispersion of employees across multiple locations may add complexity to interdependence requirements. Daft and Lengel (1986) proposed that interdepartmental relations and environmental adaptation (along with task technology) are two major sources of organizational uncertainty and equivocality. With regard to interdepartmental relations, dispersed subunits may be highly differentiated from each other (i.e., they have different time horizons, goals, frames of reference, and jargon), which contributes to wide differences in experience, cognitions, goals, values, and priorities between employees in the different subunits. Communication across departments may be complex and ambiguous, and shared interpretations of problems and events may be difficult to achieve. These conditions are exascerbated if such subunits also are highly interdependent for accomplishing their tasks. With regard to environmental adaptation, if the external environment of the firm is perceived as hostile, rapidly changing, and/or highly competitive, and cause and effect relationships in the environment are unanalyzable, uncertainty and equivocality are produced. In the case of both interdepartmental relations and external environment adaptation, geographical dispersion of organizational units increases the uncertainty and equivocality in processing information. Problems arise with the use of traditional structural mechanisms when employees are geographically dispersed. Decision-making often cannot be centralized, rules cannot always be enforced, and output cannot always be controlled. Frequent group meetings of employees that allow the forging of shared perspectives and the resolution of conflict are not possible across units that are highly geographically dispersed. Although helpful, electronic communication technologies may not be sufficient to meet information processing requirements across dispersed units, especially among those that are highly differentiated and/or highly interdependent. In such situations, cultural mechanisms may be more effective in reducing information uncertainty and equivocality and guiding strategic behavior among employees.

Organizational Culture as an Information Processing and Behavioral Control Mechanism

Organizational culture is often defined in terms of shared meanings -- patterns of beliefs, rituals, symbols, and myths that evolve over time, serving to reduce human variability and control and shape employee behavior in organizations (Peters & Waterman, 1982; Wilkins & Ouchi, 1983; Lorsch, 1986; Weick, 1987; Denison, 1990).

The development of organizational culture is a natural sociodynamic process which occurs regardless of the intent of executive leadership, although it may be influenced by management (Schein, 1985). While organizations may develop a relatively homogeneous culture (Peters & Waterman, 1982), unique and divergent sub-cultures may evolve for separate departments or sub-groups within the organization (Gregory, 1983).

Researchers have demonstrated an appreciation for the function of culture as social glue. According to Smircich (1983), culture conveys to employees a sense of identity, facilitates the generation of commitment to something larger than the self, and enhances social system stability, as well as guiding and shaping behavior. Culture emerges at many levels to solve problems posed by life situations and generates learned ways of coping with experiences (Gregory, 1983; Krefting & Frost, 1985). By providing frameworks for solving problems and interpreting events in everyday life, culture reduces the number of variables with which individuals must deal to levels more consistent with human information-processing capabilities (Krefting & Frost, 1985).

One of the distinctive features of organizational information processing is employee sharing of information and coming to similar interpretations about it in order to make decisions and solve problems (Daft & Lengel, 1986). These shared interpretations are critical for addressing the disagreement and diversity that characterize organizational life. Similarly, Schein (1985) defines organizational culture as a coping mechanism which employees use to help deal with problems of external adaptation and internal integration. Sims and Lorenzi (1992) define organizational culture as a type of consensual schema that helps individual employees cognitively process and evaluate information in similar ways. Therefore, even if employees are widely dispersed among multiple locations, these consensual schema provide organizational members with a common set of heuristics that guides decision making and task performance. Thus, culture may serve as a mechanism to reduce equivocality by providing shared interpretations that will guide employee behavior in organizations. In return for providing employees with reduced anxiety, stress, and uncertainty regarding their roles and how to interpret events both inside and outside the organization, the organization achieves increased consistency in behavior towards strategic goals. For the purpose of this article, organizational culture will be defined as:

> *consensual schema shared among employees in an organization, resulting in and from a pattern of basic assumptions and norms enhancing individual and organizational stability, manifested in shared meanings, communicated by stories, myths, and practices, and resulting in certain behavior patterns which are unique to the organization.*

As indicated earlier, geographical dispersion of employees presents special challenges for the organization in processing information for organizational action, especially under conditions of high differentiation and interdependence. It is proposed that traditional mechanisms of organizational structure may not be as effective as cultural systems in reducing equivocality and uncertainty under these circumstances. Stated

alternatively, strong cultural systems can reduce the need for a highly structured environment to induce desired attitudes and practices (Louis, 1985; Weick, 1987). On the other hand, in some of today's widely dispersed organizations, simple information processing tasks that require a high level of uniformity of behavior are performed in the different subunits which are not highly interdependent (Daft & Lengel, 1986). Under these circumstances, structural mechanisms may be more useful (and culture less effective) for controlling behavior. In the next section, we will examine different conditions under which varying levels of structure and culture may be more suitable for managing information demands and regulating employee behavior. Specifically, we will take into account the complexity of tasks to be performed and the geographical dispersal of employees as important variables to consider in developing a model of the structural and cultural forces in guiding strategic action among organizational members.

A Model of Culture and Structure as Information Processing Mechanisms for Guiding Strategic Behavior

To summarize the preceding arguments, different organizations face differing problems with regard to managing information uncertainty and equivocality in order to process information most effectively. An organization with employees primarily performing complex tasks possesses challenges that are different from those of an organization with employees performing tasks of high simplicity and repetition. Likewise, an organization with geographically dispersed employees possesses challenges that are different from those

of an organization with employees functioning in close physical proximity to one another, especially if dispersed units are highly interdependent and/or highly differentiated from each other. Both complex tasks and dispersal of employees increase task uncertainty and equivocality and make information processing more difficult. The less effectively the organization processes information, the less likely employees will behave consistently towards the achievement of strategic goals.

While structure and culture may serve certain overlapping functions in terms of their effects in reducing task uncertainty and equivocality, enhancing information processing, and therefore controlling employee behavior, it does not follow that one mechanism is necessarily a substitute for the other. In other words, the presence of one does not necessarily cause the other to become unnecessary. That is, some organizations may be both highly structured and possess strong cultures, each mechanism addressing different aspects of task complexity and geographical dispersion. On the other hand, some organizations may appear to have neither substantial structure nor culture. In these cases, other mechanisms of reducing uncertainty might be more effective.

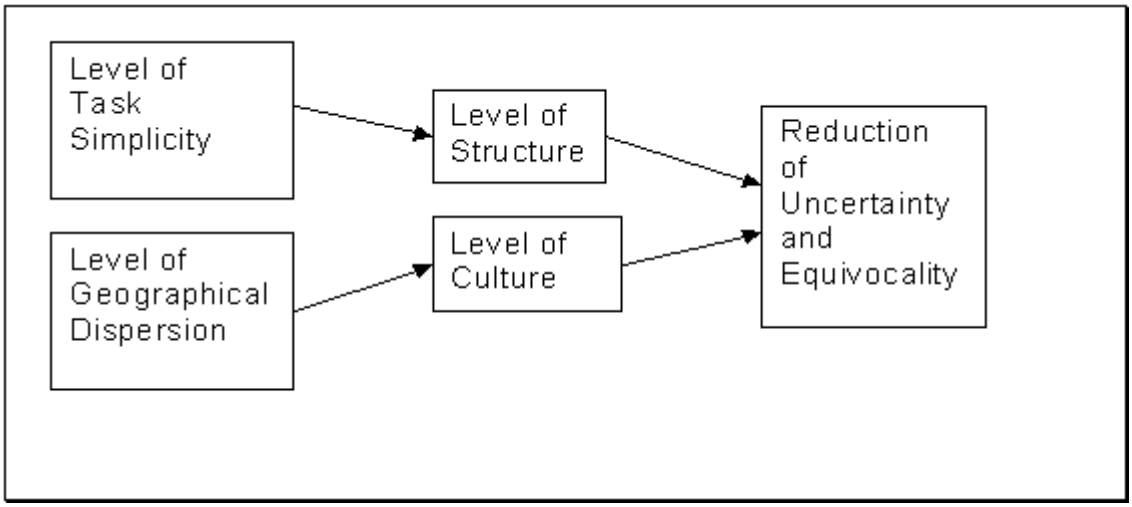
Based on the above discussion, we present the following two propositions:

Proposition 1. *Structure is a more effective mechanism for reducing uncertainty and equivocality than culture for tasks involving low skill, limited originality, high repetition, and requiring little training (i.e. task simplicity).*

Proposition 2. *Culture is a more effective mechanism for reducing uncertainty and equivocality than structure in situations where face-to-face communication is limited, and the physical dispersion of employees is great.*

Figure 1 presents the logic of the approach advanced in this article, namely that the mechanisms for reducing uncertainty and equivocality (i.e., organizational culture and structure) depend on two major variables: simplicity/complexity of tasks and geographic dispersion of employees. These variables largely, although not entirely, determine the level of information processing requirements of contemporary organizations. Organizations with characteristics of predominantly high simplicity (i.e., high percentages of employees performing tasks of low skill, limited originality, high repetition, and requiring little training) process information and thus guide employee strategic behavior most effectively through high levels of structure. Likewise, organizations in which highly complex tasks are being performed do not process information effectively through high levels of structure. In these cases, structural mechanisms may not provide for sufficient amount and richness of information to complete tasks effectively (Daft & Lengel, 1986). Further, organizations with characteristics of high geographic dispersion of employees process information most effectively through high levels of culture, but those organizations with lower dispersion (geographically closer employees) do not. An organizational culture may develop in these latter organizations, but it is not necessary or could be counterproductive for the purposes of reducing uncertainty and equivocality.

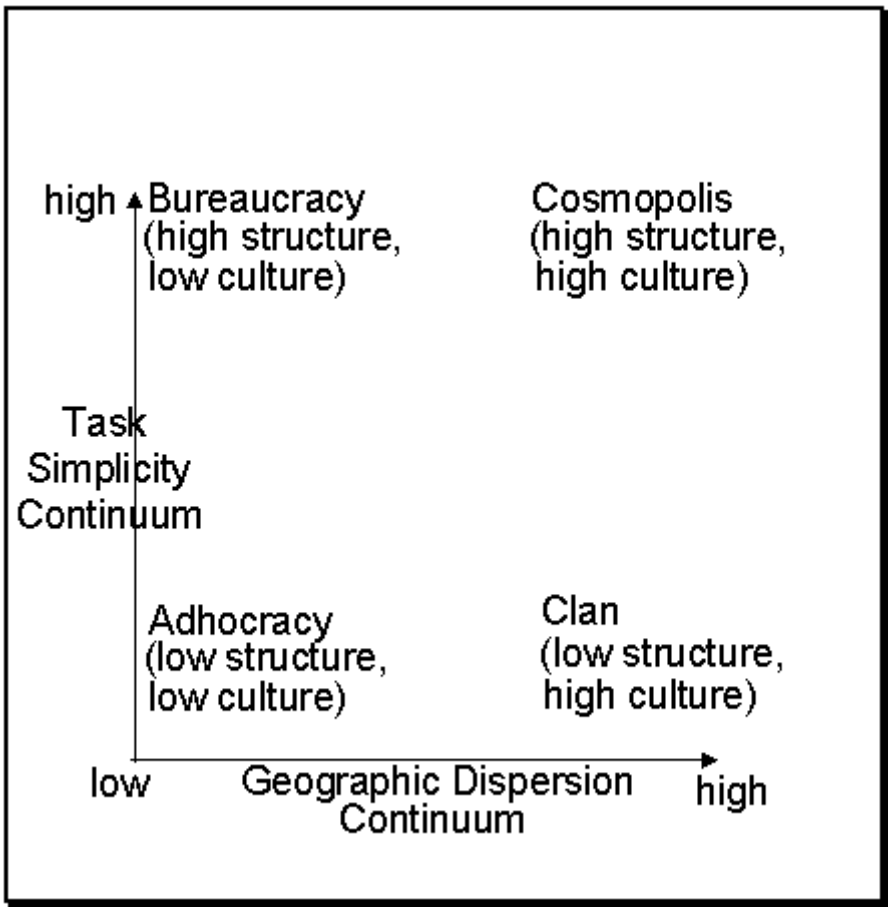
Figure 1
Organizational Structure and Culture as Information Processing Mechanisms



Any given organization possesses characteristics of both task simplicity/complexity and a range of geographic dispersion. Based on these variables, different organizational types can be classified according to the level of both structure and culture they possess for information processing requirements. In Figure 2, the relationship between task

simplicity and geographic dispersion are charted on 'X' and 'Y' axes, where the geographic dispersion of employees is represented along the 'X' axis, and task simplicity is located along the 'Y' axis. Different organizational types are represented at different points on the intersection of these axes.

Figure 2
Typology of Organizations Based on Organizational Structure and Culture



The X Axis - Geographic Dispersion Continuum

The location of an organization along the X axis is an indicator of the geographic dispersion of the employees as well as the strength of culture. Organizations where shared values, beliefs, and interpretations have little impact on the reduction of uncertainty and equivocality would be located closest to the point of origin, whereas organizations in which cultural processes are likely to help employees in coping with uncertainty and equivocality would be located furthest from the point of origin. The determinant of where to plot any specific organization on this axis is based on a concentration-dispersion scale, with the most concentrated organizations being located at the point of origin.

Concentrated organizations possess a working environment where individuals operate in close physical proximity to one another. Direct and immediate supervision, as well as unstructured and ad hoc meetings, are sufficient to process information. Dispersed organizations, on the other hand, have numerous operating units in varied locations due to the nature of their strategic demands (e.g., globally distributed inputs, such as raw materials, throughputs, such as distribution channels, and outputs, such as customers). It is not often possible for the organization's executive decision-makers to have the opportunity for a firsthand view of all of the outcomes of their strategies, and therefore, must depend on consensual values and shared interpretations of information as the basis for action.

The concentration-dispersion continuum is not to be confused with centralized-decentralized operating structures. The concentration-dispersion continuum is a measure of the relative geographical dispersion of employees in the organization, whereas the centralized-decentralized operating structure refers to the relative dispersion of power for decision-making, and as a measure of organizational structure, is an important aspect of behavioral control, but is unrelated to the physical location of the employees (Mintzberg, 1979). Centralization-decentralization is an indicator of the structure of the organization, and this factor is subsumed by the model's Y axis, described next.

The Y Axis - Task Simplicity/Complexity Continuum

The location of an organization along the Y axis is an indicator of the average task simplicity in the organization and the extent to which structure helps employees process information in taking organizational action. Organizations in which structure is not effective in reducing uncertainty and equivocality are located closest to the point of origin, whereas organizations in which structure is appropriate for addressing information processing needs are located furthest from the point of origin. The determinant of where to plot any specific organization on this axis is based on a simplicity-complexity scale. Organizations with the greatest percentage of jobs involving complex tasks are located closer to the point of origin. Organizations with more jobs involving simple tasks are located further from the point of origin.

Most organizations having high percentages of simple tasks operate in environments of relative stability of government, demand for their products or services, competition, labor, and market demands in terms of creativity, flexibility, and novelty. Organizations with high percentages of complex tasks, on the other hand, operate in environments of rapid, constant, and unexpected change. The economic environment is unstable, competition is fierce, and the emergence of new competition and new developments in the field are commonplace.

Next, a typology of organizations that vary on the above dimensions is described. In addition, description of organizations that exemplify particular types will be presented.

Organizational Typologies

Based on the model's two continua, four distinct organizational typologies result. A true *adhocracy* (Mintzberg, 1979) would be located at the point of origin in Figure 2,

and would represent an organization with a minimum of both organizational structure and organizational culture. A *bureaucracy* (Weber, 1946; Burns & Stalker, 1961) would be located at the point furthest along the Y axis. A *clan* (Wilkins & Ouchi, 1983) would be located furthest along the X axis, and the organization type with pervasive culture AND structure will heretofore be referred to as a "*cosmopolis*." More detailed descriptions of each of these four types follow.

Bureaucracy - High Task Simplicity, Low Geographical Dispersion

A "bureaucracy" has been described as an organization possessing a mechanistic management system (Burns & Stalker, 1961). Weber (1946) used the term bureaucracy to describe an organization ordered by rules, laws, and regulations, and hierarchies of management. The management of the modern bureaucracy is based on written documents, such as standard operating procedures, which are more or less stable, exhaustive, and which can be learned with relatively limited training (Weber, 1946; Mintzberg, 1979). Behavior in such an organization is relatively formal and employee tasks are specialized and routinized (i.e., high in task simplicity).

Organizations having a pure bureaucratic structure tend to be old, large, regulated and have relatively stable environments (Mintzberg, 1979). Actual examples of such organizations are difficult to identify because it is so rare for any modern organization to be operating in such a static environment. For that reason, the best contemporary examples of bureaucracies tend to be divisions within larger organizations that have created relatively stable environments for these divisions, such as various governmental operations, like the Internal Revenue Service (IRS). The majority of employees working for the IRS perform tasks that require low levels of skill, limited originality, high repetition, and little training. Stakeholders demand high replicability of the IRS's services, and most employees do similar tasks in centrally located processing centers with little need to interact with each other across centers. Consistent with our model, task simplicity and low geographical dispersion of subunits (which are not interdependent) produce little information uncertainty or equivocality. Under these conditions, structural mechanisms such as direct supervision, rules, regulations, procedures, and policies are effective information processing devices.

While organizational culture may develop in bureaucracies like the IRS, it is proposed here that symbolic management does not function to reduce information uncertainty and equivocality for employees in such organizations. Shared values and interpretations are not needed since structural devices are adequate to manage the information processing requirements necessary for directing strategic behavior.

Bureaucracies, however, are ineffective systems when tasks become more complex and employee subunits more widely dispersed (Wilkins & Ouchi, 1983). As these two variables change, different systems of control are needed.

Adhocracy - High Task Complexity, Low Geographical Dispersion

The term "adhocracy" was used by Mintzberg (1979) to describe a highly organic, unordered organization. In Figure 2, the adhocracy has low simplicity (i.e., high task complexity) and low geographical dispersion. In this type, neither organizational

structure nor organizational culture is effective in reducing uncertainty and equivocality. The tasks performed in this organizational type require high levels of skill and creativity, are highly variable and unanalyzable in technology, and require many years of training and/or experience for encumbents to perform effectively. In the process of this training and experience, individuals are inculcated with a set of professional norms and values that provide guidelines for their behavior. In other words, external professional culture becomes the mechanism by which uncertainty and equivocality are reduced among these workers.

Members of an adhocracy generally perform complex work and tend to possess horizontal job specialization based on the formal training which usually occurs outside of and previous to membership in the organization. While there is a tendency to group these specialists into functional units for "housekeeping" purposes, employees are often deployed in small market-based project teams to do their work. Geographical dispersion is low, so substantial face-to-face communication exists throughout all levels of the organization. The adhocracy is designed to be flexible and to be adaptable to rapidly changing environments. Of all possible organizational configurations, the adhocracy shows the least reverence for the classic principles of management, especially unity of command (Mintzberg, 1979).

Organic forms of organizations, such as the adhocracy, tend to be congruent with the "cosmopolitan" individual, one who attaches importance and prestige more so to affiliations and professional expertise valid in the industrial, technical, and commercial milieux external to the organization (Merton, 1949; Gouldner, 1957; Burns & Stalker, 1961). Due to this individual's affiliations with and self-esteem arising from cultures outside of the organization, and extensive training and indoctrination within the profession, a strong need for organizational culture to help process information and guide actions toward strategic objectives does not exist. Likewise, organizational standards do not benefit information processing in this firm (and may have a negative impact) because of the varying and unpredictable demands of the complex tasks being performed in a dynamic environment.

The National Institutes of Health (NIH) is a good example of an adhocracy. The laboratories of the NIH primarily employ scientists and physicians who possess high skill and substantial professional training in tasks requiring high originality and complex search procedures to solve problems and make decisions. Such employees bring into the workplace their own set of values and norms inculcated from long years of medical and scientific training and professional indoctrination undertaken before entering the organization. It is possible that the development of an internal organizational culture would be a reflection and reinforcement of these external values and norms. On the other hand, if an internal culture developed counter to professional norms and values, it is unlikely that this culture would reduce the uncertainty and equivocality in their scientific work. With regard to structural mechanisms, these could impede the research lab from achieving its mission because the tasks that must be accomplished are quite complex and require substantial creativity and decision autonomy. Lastly, since the

physicians and scientists working in a research laboratory are in close physical proximity to their colleagues, they can partake in face-to-face communication with fellow employees, if necessary, to develop shared interpretations of information that will guide their decisions and actions (Weick, 1987). Therefore, neither organizational structure nor culture are beneficial for managing information processing at the NIH. In this adhocracy, uncertainty and equivocality are minimized by reference to the internal and professional cultural values and norms of the scientists and physicians who are employed there.

Clan - High Task Complexity, High Geographical Dispersion

The "clan" addresses information processing requirements quite differently than the bureaucracy and adhocracy. In Figure 2, the clan organization has a high percentage of tasks that are complex (i.e., low task sinmplicity) and high geographical dispersion of employees. In this type, a strong organizational culture is effective in reducing uncertainty and equivocality. The tasks performed in this organizational type require high levels of skill, are highly variable and unanalyzable in technology, and usually require some training and/or experience for encumbents to perform effectively. Employees are usually scattered over a wide geographical range in order to provide their services immediately to a local area. Since management cannot resort to close monitoring of each individual's performance, a strong culture develops to fulfill the information requirements needed for this type of organization.

Through socialization and reinforcement processes, the organizational culture of a clan provides employees with a general set of expectations to use in solving problems, making decisions, and working toward task accomplishment. The goal of these processes is to align employee objectives to those of the organization.

Goal congruence does not necessarily connote that clans require a sharing of all goals, but rather conveys the notion that in the long term, employees believe that they will be dealt with equitably, and thus they accept the organization's goals, values, and expectations. Clans operate by hiring inexperienced recruits, training them intensively to perform complex tasks that are of central value to the organization, socializing them to accept the organization's views and objectives as their own, and compensating them based on nonperformance criteria such as seniority and number of dependents (Wilkins & Ouchi, 1983). Clans are characterized by strict selection processes, long-term employment through encouraging employees to pursue a variety of career paths, and promotion from within.

The clan often does not allow for the close monitoring of each employee's performance because of geographical dispersion. This situation results in the necessity for an adhesion mechanism which functions to create a cohesiveness despite the physical separation of employees. This is especially important in organizations where the dispersed subunits are performing highly differentiated tasks and are highly dependent on each other to accomplish major organizational goals. Strong organizational culture serves this purpose through the shared perspectives it provides for managing information. Structure could not be as effective in serving this purpose due to all of the

nuances, complexities, and interdependencies of tasks that characterize work in these organizations which cannot be anticipated by management in advance.

A good example of a clan organization is the U.S. Forest Rangers. This organization faces situations with manifold nuances at every occurrence, and in fact, where too much structure could result in important and perhaps catastrophic subtleties being overlooked. Given that high levels of structure are most suitable in stable environments with relatively simple tasks, and a forest fire presents anything but a stable environment with simple tasks, structure may not be the appropriate device for managing the uncertainty and equivocality faced by forest rangers and may even be detrimental to their performance in emergency situations. Since forest rangers are dispersed over wide geographical (and sometimes remote) areas, they often cannot engage in face-to-face communication with fellow employees and administrators, especially during a crisis. Rangers often do not come into the organization with extensive training or experience as do the research scientists at NIH, but obtain such skills while on the job. Part of this training includes extensive socialization into the culture of the U.S. Forest Service, in which rangers internalize important organizational goals and values that focus on controlling fires to preserve woodland, wildlife and human habitation. Such goals and values serve to reduce the uncertainty and equivocality rangers face when carrying out complex tasks in an unpredictable environment where they are often isolated from other employees. Therefore, it is proposed in this clan organization that a strong culture rather than extensive structure will be more effective in managing information processing requirements to achieve strategic goals.

Cosmopolis - High Task Simplicity, High Geographical Dispersion

The term "cosmopolis" is being introduced in this article to refer to an organization with geographically dispersed employees, a high percentage of employees performing relatively simple tasks, and which possesses strong and pervasive structure and culture. The structure and culture coexist in this organization for essential purposes. The structure exists because numerous jobs in such large organizations entail tasks involving limited creativity and skill (high task simplicity), and high replicability in the delivery of the organization's products and/or services is necessary to serve the organization's stakeholders. The strong culture exists because organizational units are highly geographically dispersed, and although standards can adequately specify acceptable job performance under normal conditions, standards cannot anticipate unusual circumstances that require an employee to make a decision without proximate supervisory assistance. In other words, information needs in usual task situations can be managed by structural mechanisms, but sometimes occasions arise when employees must make decisions and solve problems for which the structure has not accounted and no supervision is immediately available for reference due to geographical dispersion. In these situations, cultural values and norms provide additional guidance in interpreting equivocal information and directing strategic action.

While some divisions and departments of different organizations are periodically faced with the conditions described above, certain organizations are confronted with such occurrences much more frequently than others, and therefore, will often possess characteristic systems of both structure and culture to manage these circumstances. The frequency of peculiar situations is particularly common in certain service businesses or businesses with important service components. The presence of both strong and pervasive culture and structure is therefore compatible with the mission of such organizations and their needs for managing information processing requirements.

Organizations of the cosmopolis form include service-oriented companies such as McDonald's Corporation, Marriott International, and Wal-Mart. Additionally, manufacturing organizations with a major service component, such as Maytag, are very close to the definition of the cosmopolis. Examining McDonald's Corporation more closely, it is widely known that it provides a highly standardized product thousands of times daily, requiring employees to perform many individualized simple tasks in an interdependent fashion. Structural mechanisms are adequate for managing information needs in simple tasks. However, McDonald's has multiple subunits located around the world, and its cultural values of quality, service, and cleanliness are needed to guide these widely dispersed employees toward strategic goals.

Another example of a cosmopolis is that of Marriott International. In this lodging organization, a high percentage of employees perform tasks requiring limited skill, originality, and training (i.e., relatively simplistic tasks). For example, detailed standards usually exist regarding the subtasks a room attendant (i.e. maid) should perform in servicing a guest room, such as use of cleaning supplies and other materials, how much time the entire cleaning task should consume, etc. While this task involves slight variations from room to room, it is overall a relatively simple one, though it sometimes may be arduous and repetitious. Furthermore, many hotel managers control this behavior through output control via periodically inspecting the rooms following cleaning. These typical activities of the room attendant are contrasted with the less typical situations of the guest arriving at the room while the room attendant is cleaning it and requesting additional supplies, or the guest meeting the room attendant in the corridor and requesting additional services or information regarding the city in which the hotel is located. Simple standards and training can neither identify all of these potential unusual situations, nor instruct the room attendant on a precise method and demeanor with which such situations should be handled because the room attendants are widely dispersed throughout the hotel and the hotel chain. If the room attendant has been indoctrinated in a culture espousing the virtues and rewards of prompt and personable service, however, the employee will be more likely to use these values and norms to reduce uncertainty and equivocality produced by these unique decision situations. As a result, the employee is likely to exhibit behavior consistent with the cultural values and norms of service. Cognitively, the behavior is shaped by the belief that prompt and pleasant service is considered to be good performance, and by support from management of the strategic valence of such behavior.

The use of the term "cosmopolis" in this article to describe organizations with pronounced culture and structure is consistent with Merton's (1949), Gouldner’s (1957),

and Burns and Stalker's (1961) use of the term "cosmopolitan" to refer to individuals who attach prestige to affiliations external to the organization. However, while the “cosmopolis” does not necessarily attract the “cosmopolitan” individual, the employees of the “cosmopolis” consistently receive prestige within their industry as a reward for being a part of such an organization, rather than for being a member of an external professional society. In other words, organization members may in effect become “cosmopolitans” within the constraints of their industries through membership in the “cosmopolis.” This situation is evidenced by the fact that while members of cosmopolis organizations are often members of professional associations related to their industries, they are often introduced, formally or informally, at association functions as being a part of the specific cosmopolis, and thus gain instant credibility for their cosmopolis membership. As further testimony to this position, many such organizations have powerful "alumni" networks of former

employees, either formal or informal, who wish to continue their association with the cosmopolis even after their actual employment with the cosmopolis has ended.

Other Organizational Types

In number, few organizations would actually fall at the extreme four corners of the presented typology. Rather, most organizations would fall closer to the center. Other organization types discussed in the management literature that have not been identified here include the professional bureaucracy and the divisionalized form (Mintzberg, 1979). These organization types generally would be located in the middle to upper part of the model in Figure 2 due to moderate to high task simplicity. These organizations tend to be structure-driven; however, they do not tend to be as mechanistic as the pure machine bureaucracy with more extreme task simplicity, located at the uppermost end of the Y-axis. In addition, to the extent that the professional or divisionalized organization's employees are geographically widely dispersed, these organizations would fall closer to the right rather than the left side of the model.

Other organization types discussed in the literature include the network forms of organizations, and have various names including infinitely flat, inverted, spider web, and starburst (Quinn, Anderson, & Finkelstein, 1996). These organization types generally would be located in the middle to bottom part of the model, and to the right, due to low to moderate levels of task simplicity and moderate levels of employee dispersion. These organizations tend to be culture-rich as compared to adhocracies and bureaucracies, appear to be quite reactive to symbolic management, and possess varying degrees of structure, mostly focused on communication technology. In addition, network forms of organizations with strong cultures and producing products and services involving complex, interdependent tasks (i.e., tasks of low simplicity) manage information needs without great amounts of structure.

Implications For Future Research And Practice

This article proposed a descriptive model for understanding the roles and relationships of organizational culture and structure in managing information uncertainty and

equivocality such that employees might take effective action to accomplish strategic goals. A typology of organizations was developed by focusing on the dimensions of task simplicity/complexity and geographical dispersion of employees as important determinants of the use of structural versus cultural mechanisms of control. Assuming that organizations are information processing systems that must deal with varying levels of task uncertainty and equivocality, focusing on task simplicity and employee dispersion as the bases for understanding information processing needs seems justified. However, other variables contributing to uncertainty and equivocality may as well have been considered, such as pressures from the environment or trust levels among employees in the organization. Future theorizing may expand our understanding of the determinants and effectiveness of varying levels of cultural and structural control. In addition, consideration of the implications of a mismatch of either culture or structure for the various organization types is necessary. An organization which possesses an imbalance of structure and/or culture given its task simplicity/complexity and geographical dispersion may create even more uncertainty and confusion among employees.

Specifically, with regard to the adhocracy type, problems may arise when too much structure or culture different from the professional values and beliefs of the employees is imposed. For example, a hospital administration may attempt to develop a structure focusing on cost savings which may conflict with the professional values and beliefs of quality patient care among the medical staff (i.e. their professional culture). Such a conflict could result in dissonance among the staff, and might have the result of increasing rather than reducing uncertainty and equivocality. Under these circumstances, actions taken by the employees may not advance the strategic goals of the organization.

Alternatively, problems of inconsistent strategic behavior may arise in the bureaucracy when too little

structure is developed. Likewise, the imposing of the bureaucratic organizational form on any organization type other than one with conditions of low geographical dispersion and high task simplicity (e.g., the clan with its high dispersion and low simplicity) may likely undermine effective employee action. This is due to the inability of structural mechanisms to provide the appropriate amount and richness of information needed by employees to solve problems and make decisions (Daft & Lengel, 1986).

In the cosmopolis, problems may arise when management neglects the need to use both structural and cultural mechanisms where appropriate (e.g., attempting to develop policies and procedures to handle all unique problems without consideration of the possibilities of symbolic management). If there is too much reliance on structural mechanisms, employees may limit their actions to following rules, procedures, and policies in those situations where unique demands arise that are better served by judgment and interpretation of organizational values. On the other hand, there may be too much inconsistency and unpredictability of behavior if cultural mechanisms primarily are used to manage information processing needs in such organizations. The

informational requirements of mostly simple tasks and the need to provide replicability of products and services are met more efficiently and effectively through structural mechanisms.

An important implication of the model is the need for management to recognize that changes in task simplicity/complexity and geographical dispersion require changes in organizational design and cultural systems. To illustrate this problem, consider the recent and rapid growth of some real estate organizations because of the widespread availability of Wall Street funds in the form of real estate investment trusts (REITs) and real estate mortgage investment conduits (REMICs). Due to their hunger for quick acquisitions, most of these companies now operate real estate units that are widely dispersed, rather than being located within a limited geographic region as had been done in the past with most real estate enterprises. Further, as in the past, a high percentage of employees are performing tasks of high simplicity. Until recently, these organizations would be best run as bureaucracies with a high level of structural control. Now, due to the high dispersion, these organizations should be operating as cosmopolises, with an increasing need to develop strong cultures. It would be an interesting empirical question to assess whether managers of such organizations have begun implementing cultural systems as specified by our model. With such rapid growth in the real estate industry, and the general recognition that culture takes a long time to develop (Schein, 1985), it is unlikely that many of these organizations have developed the organizational cultures necessary to guide employee action in servicing a diversity of clients, tenants, guests, and other patrons.

As an example, how will hotel REITs and REMICs maintain consistency and quality of product and service given a lack of a fully developed culture? One answer to this question may lie in the level of analysis. While the organizational types and examples presented herein were generally relatively macro in nature, effective implementation/change of structure and/or culture may occur at a more micro or subunit level. Presumably, management can affect such change of structure (Mintzberg, 1979) and culture (Schein, 1985) at the subunit level until major change at the macro level is achieved.

Conclusions

This article has presented a general model in an attempt to explain the relationship between organizational culture and organizational structure in managing information uncertainty and equivocality such that employees take consistent and effective action toward the achievement of strategic goals. In doing so, we presented different organizational types with variations in levels of culture and structure based on task simplicity/complexity and geographical dispersion of employees. In other words, we hypothesized that differing levels of both cultural and structural influences are implemented in different organizational types based on the level of skill, originality, and training required of the tasks being performed by members of the organization, and based on the geographical dispersion of the employees themselves. Future research needs to empirically examine the proposed relationships within the model, especially as

organizations undergo changes in information requirements. In addition, it needs to be assessed whether organizations that have structural and cultural elements that are congruent with the types as proposed in the model outperform those in which there is a mismatch in the levels of structure and culture.

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