WHAT YOU CAN'T SEE CAN HURT YOU:

IMPLICATING ORGANIZATIONAL KNOWLEDGE IN FIRM FAILURE

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ABSTRACT

How do managers hasten firm failure through the decisions and strategic moves they make? Organizational mortality research spans fields from economics and sociology to strategy, yet overlooks implications that managers contribute to failure. As knowledge influences performance, I propose that knowledge patterns mediate mortality explanations, and managers' sociocognitive systems explain the effects of these patterns on failure. This approach provides a managerial context within which to integrate disparate perspectives on mortality.

Keywords: Organizational knowledge, failure, mortality, social cognition, attention, interpretation, embeddedness

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"But in this world nothing can be said to be certain, except death and taxes." (Franklin, 1789). This paper does not concern itself with the issue of corporate taxation policy.

INTRODUCTION

Death has been a constant occupation of researchers seeking to understand decline of social structures, institutions and firms (Hambrick & D'Aveni, 1988; Singh, House & Tucker, 1986; Whetten, 1980). Mortality literature has developed over the last three decades primarily from three scholarly domains: economics, sociology, and strategic management. Economists have examined deterministically firms' exit from markets as byproducts of equilibrating events. Strategic management researchers have treated mortality as failed performance in terms of profits and growth, while sociologists (and organization theorists) have focused on answering the questions of why so many forms of organizations exist, persist and eventually desist. These fields of study remain little connected theoretically on the topic of mortality. Within the realm of organizations and management, the predominant share of literature on mortality emerges from the ecological and evolutionary camps of organization theory (Singh, et. al., 1986a), with few exceptions implicating managers in the demise of firms (Hambrick & D Aveni, 1988; Wiseman & Bromiley, 1996).

Yet, strategic management literature is largely focused on questions of whether and how managers make a difference. Managers are viewed as the architects of growth and performance of the firm (Barney, 1991; Cyert & March, [1963] 1992; Penrose, 1959; Simon, [1945] 1997), but firm failure is largely taken as exogenous (Singh, et. al., 1986a; Stinchcombe, 1965; Whetten, 1980). Certainly, understanding their contributions towards failure provides an

important and little understood facet for both normative theory and management practice. This paper begins to answer the question: How do managers contribute to firm failure?

Exploring strategic management literature for explanations of failure reveals opportunity for developing a more complex, elaborated understanding of the phenomenon. Firms have traditionally been viewed by strategists as mechanistic or heuristic in pursuit of advantages in their environments that lead to profits and growth (Nelson & Winter, 1982). These advantages may be organizational in that they address boundary formation, defense and expansion. They may be competitive as they address position and performance versus other firms vying for customers and resources. More recently, a cognitive perspective of strategy has emerged that emphasizes the social construction of managers' realities (Berger & Luckman, 1966; Weick, 1995). As Daft and Weick (1984) suggest, firms are complex social systems that process information from the environment … and then base organizational action on that information. By focusing research attention on managers contributions to organizational death, I argue that firms are socially-constructed systems that exist constantly at risk [varying in degree] of failure.

Organizational systems are brittle and impermanent relative to society-level pressures of environments and markets. Following this logic from a strategic management perspective, the primary role of managers is the prevention of firm failure through action in response to or anticipation of their environments. Knowledge is one of the most crucial organizational resources for which managers coordinate production and utilization in order to interpret environmental conditions. As I will explain later, knowledge is a cognitively-constructed resource that serves as an essential determinant of strategic action. The paradox of this role definition is that firms (and firm members) depend on their managers to identify and formulate responses to crucial stimuli and cues in the environment, but these same managers are

cognitively and socially constrained in their abilities to recognize, interpret, and act on environmental stimuli, particularly in ambiguous and dynamic settings (Weick, 1995). Access to novel knowledge provides a mechanism for managers to attenuate the negative effects of environmental change through innovation, strategic adaptation and resource investment. Failure by the managers to maintain the production and utilization of organizational knowledge may leave the firm adversely positioned in the face of change and may even amplify the effects of external ambiguity. Thus, social cognition may provide a poignant explanation to the conditions and processes underlying organization mortality.[i]

This paper advances research on organization mortality by introducing a sociocognitive model of firm failure through production errors in the accumulation of strategic organizational knowledge. Drawing on cognitive perspectives of the firm as a system of interpretation (Daft & Weick, 1984; Hargadon & Fanelli, 2002) and system embeddedness (Birkinshaw, Nobel & Ridderstråle, 2002; Granovetter, 1985; Winter, 1987), I explore the role of the manager in pursuing novel knowledge that implicates future actions, and the mortal result that detrimental patterns of knowledge production may convey. Important to the perspective presented here, managers are assumed to be neither purposefully corrupt nor intentionally careless in the production of this knowledge. Rather, their cognitive and social constraints inhibit acquisition of desirable or useful knowledge despite their best efforts. I focus in particular on the dominant management coalition of the firm: the top management team (Hambrick & Mason, 1984). I focus strictly on strategic actions of managers as these actions exhibit long-term and lasting impact on firm performance and survival. While other members of the firm will interact with other organizations, institutions and individuals in the environment, only the top management team is positioned to set the firm's vision, determine appropriate strategies and goals, design the

structures necessary for accomplishing the goals, and secure and allocate resources in support of the firm's strategies.

The next section provides more clarity regarding our current understanding of organizational mortality. Following the theoretical bases presented above, I present the model in two parts: sociocognitive antecedents of firm failure, and structural antecedents of failure. For purposes of developing a theoretically causal link between cognitive processes of the top management team and mortality, I focus not on typologies of knowledge but rather treat organizational knowledge as an underlying condition of the firm. Organizational knowledge is neither physical nor discrete, but rather intangible and ephemeral in its existence, produced as required for specific circumstances or actions (Hargadon & Fanelli, 2002). This model is concerned with exposing ways in which the crucial components of this organizational condition may ultimately signal greater likelihood of firm failure. The relationship between sociocognitive elements of a firm and the firm's future state is of theoretical interest here. Questions regarding the anticipated impact of the proposed antecedents on mortality and the measurability of representative variables are empirical ones left for future study.

SHADES OF MORTALITY

Economists, sociologists, and management researchers have all contributed to mortality literature, developing dramatically varied explanations of firm failure. Economists have remained deterministic in its perspective of mortality (Wiseman & Bromiley, 1996; Nelson & Winter, 1982; Schumpeter, 1934). Mortality occurs because of the influence of exogenous forces that contribute to depletion of sustainable capital or rent-producing resources. Sociology and

strategic management researchers have also focused primarily on exogenous factors of failure with a more limited perspective on endogenous influences. Sociologists have approached the phenomenon primarily from the selection (Amburgey, Kelly & Barnett, 1993; Singh, et. al., 1986a) and adaptation perspectives (Whetten, 1980), while strategists have focused on resources and management response to risk (Barney, 1991; Penrose, 1959; Hambrick & D'Aveni, 1988).

Thornhill and Amit (2003) catalogue the state of mortality research in an effort to introduce the role of the manager in producing failure. Their research explores 44 studies that examine mortality at the population level, firm level and through a multilevel approach. Of these, on average more than 23 reflect exogenous sources of mortality and nine reflect endogenous sources, while only seven address sources related to managerial capabilities or resources. Despite strong evidence that managers and their production of resources strongly influences performance, theory and evidence relating these factors to mortality remains limited.

Connecting mortality with managerial resources and response to environmental conditions requires a clearer examination of the sociocognitive system that produces knowledge. This reasoning comes from the assumption that production of novel knowledge imposes constraints on the strategic moves made by managers. Knowledge is assumed to affect different forms of organizations through dramatically different causal linkages. Similarly, research has shown that mortality may be categorized according to firm attributes. Traditionally, this categorization has focused on age or some variant such as stage of lifecycle (Amburgey, et. al., 1993; Carroll & Swaminathan, 2000). While likely correlated with temporal conditions of the firm in some instances, the influence of knowledge on firm performance is more causally linked to structural and social considerations of the organization (Berger & Luckman, 1966; Reagans & McEvily, 2003). Thus, examining mortality as a reflection of the changing social structural

nature of firms and such influences on performance provides a better beginning to implicating knowledge in the failure of firms.

Exogenous sources of mortality

Firm failure resulting from uncertainty regarding externalities is perhaps the most studied context of the organizational mortality domain. Led primarily by organization theorists, exogenous sources of failure appear under two conditions: Shifts in environment fabric that are beyond any firm response, and shifts that transpire more quickly than a firm may be able to respond. The former falls squarely into selection-based theory (Carroll & Delacroix, 1982; Singh, et. al., 1986a), while the latter emerges from discussions of structural inertia (Hannan & Freeman, 1987) and threat rigidity (Staw, Sandelands & Dutton, 1982). More recent theory integrates these perspectives to understand mortality as an outcome of resource and spatial competition (Dobrev, Kim & Hannan, 2001).

Environmental changes that occur with great rapidity (ex., some nation-state transformations; technology introductions) may sweep aside organizational forms in order to introduce new forms. The process of imprinting, in which forms initiated at a given point in time share common characteristics and structures, provides one means of selection. Organizations that emerge in the same set of periods face equally likely risk of failure as they progress through their lifecycles. In this way, age is a relevant predictor of exogenous failure. Theoretical perspectives have suggested higher rates of failure at all stages of organizational lifecycles, so-called liabilities of newness (Freeman, Carroll & Hannan, 1983; Stinchcombe, 1965), adolescence (Brüderl & Schüssler, 1990; Fichman & Levinthal, 1988; Schüssler, 1987) and maturity

(Hambrick & D'Aveni, 1988; Staw, et. al., 1982). The studies above have proven inconclusive over time, suggesting the more nuanced and contingent forces may be operating beneath these lifecycle dynamics.

Exogenous sources of mortality include other externalities, too. Firm failure may result en masse from conditions of competition and dynamic environmental conditions, according to ecologists and evolutionists (Aldrich, 1979, 1999; Singh, et. al., 1986a). Ecology suggests that density dependence impacts the future of firms. Disbanding rates decrease at first with increases in density, but then begin to increase rapidly as density continues past a point of optimal balance (Hannan & Freeman, 1977, 1984, 1988). Contrastingly, evolutionary perspectives conclude that environmental forces pose greater threats to firms than competition. Dynamic environments (Dess & Beard, 1984) may lead to conscious exits from markets (Anderson & Tushman, 2001; Burgelman 1994), and in the extreme can cause failure (Hambrick & D'Aveni. 1988). Exogenous sources have supported arguably the most elaborated and best developed range of perspectives on mortality. The proliferation of exogenous explanations led to counterarguments as well, positions that built on earlier literature citing internal mechanisms as sources of failure (Cyert & March, [1963] 1992; Nelson & Winter, 1982; Penrose, 1959).

Endogenous sources of mortality

Failure sometimes emerges from the actions of firms. Dramatic change, financial instability, governance structures and firm demographics have all been associated with mortality outcomes. Managers are also thought to affect failure processes through their decisions and actions to allocate resources (Thornhill & Amit, 2003). Thus, several endogenous conditions

may influence these decision-making processes. Scarce resources may limit the extent of managerial action. Causal ambiguity may lead firms to act in improper directions. Or, managerial misinterpretation of environmental signals may lead to inappropriate strategic moves. All of these categories of malformed decisions can lead to organizational decline.

Declining conditions in a firm pose unique challenges for managers (D'Aveni, 1989; Hambrick & D'Aveni, 1988; Whetten, 1980). These conditions increase failure risk, managerial vacillations, and purposeful rigidity. First, ambiguous environments and firm decline increase the risks facing managers simultaneously beyond manageable limits (Hambrick & D'Aveni, 1988). Exceeding risk thresholds leads managers to reinforce existing beliefs and persist with their commitments to given paths of action -- or even increase them (Wiseman & Bromiley, 1996).

Summary

While acknowledging managers' influence on their firms' mortality is an intuitive performance relationship, understanding the processual mechanisms that underlie this influence requires more sophisticated examination. Management and mortality are complex phenomena of organizations, and in many ways they share a causally ambiguous relationship. Managers are viewed as the architects of growth and performance of the firm (Barney, 1991; Cyert & March [1963] 1992; Penrose 1959; Simon, [1945] 1997), but firm failure is largely taken as exogenous (Singh, House & Tucker, 1986; Stinchcombe, 1965; Whetten, 1980). Strategy formulation and action results from largely unstructured decision processes that hinge on managers' abilities to collect, interpret and disseminate knowledge (Mintzberg, Raisinghani & Theoret, 1976; Nutt, 1984; Weick, 1995). These knowledge coordinating mechanisms required by managers to guide

strategy formulation, exploit advantages and prevent mortality may best be viewed as a sociocognitive system of the firm, in keeping with the knowledge processing perspectives of cognition scholars (Daft & Weick, 1984; Walsh & Ungson, 1991; Weick, 1995; Krippendorf, 1975).

SOCIOCOGNITIVE SYSTEM OF THE FIRM

In facing strategic problems and opportunities of firm growth, managers recombine existing knowledge structures, and supplement these stores with the combined and individual cognitive capabilities of their members to produce novel knowledge. New knowledge is, thus, the product of organizational capability to produce patterns combining existing knowledge with emergent schemata that address external stimuli (Smith, Collins & Clark, 2005). This process has been depicted as the union of innovation and learning in order to emphasize the joint and severable importance of individual knowledge structures and the organizational culture that enables the creation of novel knowledge (Hargadon & Fanelli, 2002). Novel knowledge emerges from the combination of latent knowledge held by the individual and empirical knowledge, which exists as an organization-level construct. Latent knowledge is the set of schemata developed from prior experiences, cognitive maps, and perceptions that individuals hold uniquely. Empirical knowledge exists in the artifacts of the physical surroundings in an organization, and in an ideal state provides the source from which managers develop their latent schemata. These ideal types of knowledge provide inputs to the knowledge creation process (Hargadon & Fanelli, 2002).

This combinatorial process occurs within the sociocognitive system of the organization (Figure 1). This system draws upon managers' individual cognitive structures, interactions within their environments, and the externalities that offer stimuli and resources to the knowledge creation process. The system may be decomposed into four subsystems (belief systems, attention structures, intrusion strategies, and memory), all of which impact the nature and pattern of knowledge production that ultimately leads to managerial decisions and strategic moves of the firm.

Insert Figure 1 about here

I explore each of these subsystems below in the context of knowledge creation and contributions to likelihood of mortality. First, however, the perspective proposed here considers broader, holistic implications of the sociocognitive system. Knowledge creation within a firm focuses on developing advantage in the marketplace. So, managerial processes of cognitive combination and development lead to decisions that enact strategic moves by the organization and in its environment, and influence future firm performance (Nahapiet & Ghoshal, 1998). By producing knowledge to support decision-making, managers commit their organizations to paths for which the destinations are often unidentifiable. The knowledge embraced in these decisions may, at the time, be viewed as high-quality and flawless. However, the ambiguous outcomes of these decisions may later show the same knowledge to have been flawed, misguided or problematic. Managers may fail in determining useful patterns of knowledge production, but

remain convinced that the knowledge they produce and utilize is adequately aligned with and descriptive of the intended task environments. Rindova and Fombrun (1999) discuss this alignment as a closed system of interdependence between material and interpretational domains of action enacted by, and as the source of advantage creation for the firm. Misalignment of human capital such as managers' knowledge, values and beliefs with physical resources of the firm leads to disconnects between strategic projection and strategic investment, "breaking" the closed system. When systems such as these are disrupted through misalignment, the effects of exogenous forces are amplified, leading to greater separation of subsystems and potentially system failure (Terreberry, 1966). For the firm, this disconnect ultimately results loss of advantage as repetition of actions without adequate perception of environmental change leads to rigidity in actions, inappropriate responses, managerial blindspots and other management miscues. Thus, flaws in management capability to produce and allocate scarce resources such as knowledge across material resources lead to value loss and competitive inferiority, which will strongly relate to the likelihood of future failure.

A firm fails when managers fail to take actions appropriate to the situation, a logical extension of organizational interpretation that depends significantly on the acquisition of knowledge in support of action (Daft & Weick, 1984; Hargadon & Fanelli, 2002). That is, managers in the course of making decisions, choosing and implementing strategic actions, and interacting with other internal and external stakeholders search for, create and integrate knowledge. The quality of resulting actions determines in large part the effectiveness and desirability of performance outcomes. In summary, organizational knowledge provides a critical conduit through which the forces of mortality (exogenous and endogenous) run to generate firm failure.

Proposition 1. Organizational knowledge created through the managerial sociocognitive system fully mediates the relationships between exogenous and endogenous sources of mortality and likelihood of firm failure.

DECOMPOSING THE SOCIOCOGNITIVE SYSTEM

Managerial sociocognitive systems consist of four primary mechanisms for decision making and strategic action: belief systems, attention structures, organization intrusiveness and memory (Daft & Weick, 1984; Fiske & Taylor, 1991; Hambrick, 1982). Collectively, they enable managers to detect salient stimuli regarding changes in the environment, evaluate the impact of these stimuli, devise responses in the form of scripts for action and enact strategic moves based upon these responses (Fiske & Taylor, 1991; Hargadon & Fanelli, 2002). The sociocognitive system provides a foundation on which to examine the intricate complexity of performance of organizations (Daft & Weick, 1984) and, in particular, to understand how managerial cognition may increase likelihood of organizational failure.

Management Belief Systems and Firm Failure

Beliefs and values constitute important facets of individual cognitive function. They influence the events and stimuli to which individuals attend, the range of response alternatives considered, and the speed of information processing (Fiske & Taylor, 1991; Hoffman & Ocasio, 2001; Ocasio, 1997). For managers situated in the social settings of their organizations, these fundamental cognitive elements become more complex belief systems, comprising experiences, latent knowledge structures conveying prior beliefs and interpretations, and values that reflect

the managers' individual perceptions of the firm's interpretations and influence construction of future beliefs. Consistent with prior literature, I make the assumption that strategic-level managers acting in small teams are responsible for interpreting externalities and plotting appropriate strategic moves to maintain or gain competitive advantage on behalf of the firms (Daft & Weick, 1984). Consequently, the belief systems of these managers are consequential in the performance and survival of the firms.

Managerial belief systems directly impact the creation of new knowledge. Other researchers have linked knowledge that is held primarily tacitly within the organization (Nonaka, 1994) to the aggregate experience and demographics of the management team (Smith, et. al.,2005). These factors define the knowledge creating capability of the organization, which suggests that cognitive processes are at work in the organization and that they mature with time. These processes are held individually by strategic-level managers and are therefore subject to framing according to the beliefs and values these managers hold. Where Smith and colleagues view the relationship between managerial characteristics and knowledge creating capability as monotonically increasing, I suggest that knowledge creating capability peaks when the collection of strategic managers' belief system is neither too homogeneous nor heterogeneous.

When beliefs held by management are consistent across individual, novel knowledge produced is tightly linked to existing latent knowledge structures of the managers and is thus less likely to produce knowledge that is distinctly novel and that has the potential for effecting significant moves by the organization. Actions will follow a path of familiarity that may lead ultimately to patterns of rigidity and path dependence reflected in both exogenous and endogenous sources of mortality. When beliefs vary dramatically across managers such as may exist in newly-founded organizations or firms recently restructured, knowledge creation becomes

difficult. Heterogeneity of beliefs can hamper consensus decision-making processes, can limit the novelty of knowledge produced, and can become an obstacle to successful implementation of actions once decided upon. These deterrents to strategic moves may account for mortality conditions such as liability of newness, where newly acquainted managers cannot develop coherent organizational knowledge creation capabilities. They may also account for inability to respond to stimuli to which the managers attend. Diversity of beliefs leads to diverse acquisition of empirical knowledge through the search and scanning routines discussed below, and may result in novel knowledge produced that is difficult to incorporate into existing knowledge structures of the organization.

Proposition 2a. As homogeneity of belief systems among managers in a top management team increases, the less varied organizational knowledge becomes, leading to increased likelihood of mortality.

Proposition 2b. As heterogeneity of belief systems among managers in a top management team increases, the more varied organizational knowledge becomes, leading to increased likelihood of mortality.

Attention Structures and Firm Failure

Managers attend to events in their environments that are regarded as salient threats to or opportunities for increasing competitive advantage (Ocasio, 1997; Simon, [1945] 1997). The nature of the attending process has been discussed in prior literature as a diagnosis of stimuli (Mintzberg, et. al., 1976), evaluation of alignment between firm and industry expectations (Hoffman & Ocasio, 2001), and situational dependence (Ocasio, 1997). Ocasio (1997) defines attention as “noticing, encoding, interpreting and focusing of time and effort by organizational

decision-makers on: (a) issues … and (b) answers." The central focus of all these perspectives is that structure and situatedness managers' attention in the social setting of the firm etermines the issues and priorities on which they concentrate decision-making resources and from which they take action. Consequently, this screening process serves as a significant variable in the ultimate performance of organizations.

Simplifying complexity. Attention structures may be framed along several cognitive dimensions. The likelihood of solution availabity (Cohen, March & Olsen, 1972; Mintzberg, et. al., 1976), emotional attachment (Fiske & Taylor, 1991), cultural consistency (Ocasio, 1997), manager characteristics (Hambrick, 1984; Starbuck and Milliken, 1988) and rational processes of filtering (Simon, [1945] 1997) all provide channeling of managers' decision-making processes and constrain alternatives for action. Attention structures provide aggregated schemata that managers use to organize stimuli, relate them to prior experience or patterns of knowledge and evaluate available response options.

Prior research has noted the vast volumes of stimuli that managers must navigate in choosing strategic actions (Ocasio, 1997; Starbuck & Milliken, 1988). In seeking to attend to only the most relevant issues or issues that offer the best opportunity for gaining or keeping advantage, managers engage in filtering processes of cognitive simplification. Cognitive simplification under these conditions leads managers to depend upon experience and beliefs about issues that are important and answers that resolve inconsistencies in their environment (Simon, [1945] 1997; Schwenk, 1984). It also leads them to reduce complex stimuli to more easily addressed problems that are consistent with prior issue resolution (Schwenk, 1984). Decision-making researchers vary in their views of simplification processes. Some see it as a set of biases or heuristics on which to base decisions (Tversky & Kahneman, 1974, for ex.), while

others view them as sets of causal relationships or cognitive mapping (Ginsberg, 1994, for ex.). All of these simplification methods reflect the belief systems of managers that emerge as attention structures that select salient stimuli for resolution and strategic action.

Collective managerial attention. Decisions relating to strategic moves of the organization are most often not addressed individually, but rather are embedded in the environmental context of the organization and determined consensually by the dominant coalition of the organization (Hambrick & Mason, 1984; Markóczy, 2001). Thus, the attention structures relevant to strategic moves are the combined set utilized by managers in their contributions to collective decision-making. The collective attention structure is not the simple aggregate of individual structures, but rather is constrained further by dynamics prevalent in group decision-making efforts. Consensus building among management teams depends significantly upon the cognitive filtering that occurs in the decision-making process (Markóczy, 2001). Individuals will attend to certain aspects of salient stimuli based on their individual preferences and tendencies, but the salience of the stimuli will be jointly defined by individual and organizational parameters.

Attention structures emerge from the joint process of innovation and learning that occur in organizations. As novel actions occur, managers develop schema identifying the success or failure of these actions. Hargadon and Fanelli (2002) termed these structures latent knowledge, and they are used to guide attention to future stimuli. At the same time, novel actions produce a learning cycle for the organization that creates empirical knowledge available to all managers. Cultural and technical artifacts are produced, shared beliefs are adjusted or expanded, and goals are adjusted. These changes revise attention structures that will be applied to stimuli managers encounter in the future (Hargadon & Fanelli, 2002). As cycles of novel knowledge production and novel action occur, managers increase their experience with each other and within their

organizations, reducing the range of novel actions and reinforcing the reliance on empirical knowledge over latent knowledge structures as the basis for attention. Further, managers' attention structures tend to build on past attention structures and experiments (Kiesler & Sproull, 1982). For example, firms in a state of decline are likely to produce characteristics and reveal stimuli that managers will judge similarly to ones that led them into the state of decline initially.

Proposition 3a. As the externalities (environmental stimuli) to which an organization attends become more homogeneous, the range of novel actions resulting from knowledge combinations decreases, leading to increased likelihood of mortality.

At the same time, turbulence and ambiguity in the environment may reduce the effectiveness of managerial attention structures. Attention structures depend upon accumulation of experiential knowledge that forms patterns of causal beliefs on which managers can identify salient stimuli for decision-making activities. Under situations of complexity, understandability of the malleable and idiosyncratic nature of the task environment determines the issues to which managers attend (Starbuck & Milliken, 1988) as managers may shape their perceptions of events to fit existing attention structures, or focus only those events with which they have had experience. A dynamic environment increases the range of domains from which stimuli are present (Dess & Beard, 1984; Hambrick & D'Aveni, 1988; Kiesler & Sproull, 1982), but these stimuli become more disconnected from the managerial attention structures in use. Managers perceive them not for what they communicate about present conditions, but for how closely they resemble prior experience and historical consistency. Novelty in knowledge production becomes more difficult to achieve as the cognitive anchors for combining knowledge stores are less available and simplification routines remove the opportunities represented by present stimuli.

Proposition 3b. As the externalities (environmental stimuli) to which an organization attends become more heterogeneous, abilities to combine knowledge into useful novel forms decreases, leading to increased likelihood of mortality.

Organizational Intrusiveness and Firm Failure

Organizational intrusiveness resides at the heart of interpretational perspectives of the firm. It is defined as the extent to which organizations actively engage in search for understanding of their environments (Daft & Weick, 1984). Intrusiveness provides managers with access to broader domains of empirical knowledge and delivers more elaborated indicators of environmental conditions. Daft and Weick, along with other researchers, define intrusion as a function of environmental scanning that includes search routines (ex., Hambrick, 1982). Others take a more specified perspective, separating environmental scanning activities from search routines in the organization (ex., Mintzberg, et. al., 1976; Nutt, 1984).

Managers make choices in the degree to which they choose to intrude on their surroundings. Some remain passive in their collection of empirical knowledge, allowing stimuli to appear before them through a more stochastic screening process. Active searchers cull the environment for stimuli and for new bits of empirical knowledge, developing a more refined perception of environmental conditions but one which is constrained by the choices made in search and the landscape to be searched. Each of these levels impacts knowledge creation differently, but in ways that ultimately may jeopardize survival.

Environment scanning has been characterized as a significant contribution of managers (Daft, Sormunen & Parks, 1988; Dutton, 1993; Hambrick, 1982), and in some perspectives the

most critical role that managers play as boundary spanners between their organizations and the surrounding environment. Scanning activity increases as the level of task uncertainty increases for a firm, and depends more on the embeddedness of managers in social structures to draw upon personal sources of information (Daft, et. al. 1988). Under conditions of lesser uncertainty, scanning activity tends to remain passive, focused on familiar and impersonal sources of information (Dutton, 1993; Hambrick, 1982). Managerial passivity in intruding on the environment makes managers prone to diagnosis errors by the largely "routinized, habitual, and programmed component" (Dutton, 1993: 340) of managerial cognition and decisionmaking (Cyert & March, [1963] 1992; Mintzberg, et. al., 1976; Nutt, 1984). Insensitivity to new or unexpected stimuli through passive scanning reduces creation of new organizational knowledge and limits the range of knowledge managers rely on for decisions to make strategic moves. These limiting conditions subject managers to taking erroneous actions by committing resources in inappropriate directions or by depleting scarce resources for ineffectual purposes.

Proposition 4a. As an organization s intrusion into its environment becomes more passive (scanning) in the extreme, opportunities for access to novel knowledge decrease, leading to increased likelihood of mortality.

Some managers overcome the dangers of passivity by actively searching for knowledge that activates opportunity or resolves a problem (Cyert & March, [1963] 1992). Search is a mechanism of exploration (March, 1991) that underlies most organizational processes and activities, including decision making (Mintzberg, et.al., 1976), business policy setting (Astley & Fombrun, 1983), innovation (ex., Katila & Ahuja, 2002), strategic choice (Rosenkopf & Almeida, 2003), and organization design (Rivkin & Siggelkow, 2003). Organizations depend

upon a complex series of information processing routines in order to develop new technologies and transform them into appropriable rent (Kaufmann, Lobo & Macready, 2000; Schumpeter 1934). Search serves as an initiating structure to these routines through its role in knowledge acquisition (Cohen & Levinthal 1991), and thus represents a crucial interface to an organization's sustainable advantage.

Search provides a means for organizations to acquire new knowledge that instigates action. Firms use search to expand boundaries or change positions within their organizational field. As such, it runs counter to conventional arguments of routines reinforcing organizational inertia (Hannan & Freeman, 1984, Nelson & Winter, 1982). Search literature suggests that the routine is primarily a local function (ex.,Levinthal, 1997), occurring in proximity into the organization. However, the constraints that guide local search may be overcome at a cost (Kaufmann, et. al., 2000, Rosenkopf & Almeida, 2003). These occurrences of overcoming localizing constraints often lead to radical results.

Thus, while active search offers managers a means to overcome challenges posed by a changing environment through the acquisition of novel knowledge, the choices made in the intrusiveness of organizational search may commit the firm to strategic directions that are irreversible only at high cost. The managers' search activity also increases fundamental risks (market, technical and financial) due to causal ambiguity and contextual embeddedness of the acquired knowledge, the latter of which I explore below. Risk increases further as the search activity becomes more distant from managers' existing knowledge structures. Successful application of novel knowledge depends on the ability of managers to connect empirical knowledge acquired through search with the existing latent knowledge structures. As

intrusiveness increases, the fit of search results with managers' beliefs, value, and attention schemata may decline, reducing the usefulness of search and impacting performance.

Proposition 4b. As an organization's intrusion into its environment becomes more active (search) in the extreme, opportunities for use of latent knowledge to produce novel action decrease, leading to increased likelihood of mortality.

Organizational Memory and Firm Failure

Organizational memory is an information-processing system that supports the acquisition and retention of novel knowledge. Memory serves as means for managers to supplement through recall mechanism the empirical knowledge employed in knowledge creation with system inputs that are less observable, such as tacit knowledge (Walsh & Ungson, 1991). In this way, memory acts a processing mechanism for knowledge creation routines once managers have identified salient issues (belief systems), attended to the most urgent or relevant of these issues (attention structures), and searched the environment for empirical knowledge relevant to the focal issues (organization intrusion). Organizational memory enables managers working collectively to enact strategic moves by combining individual latent knowledge structures with the existing stores of information that reside in many cultural, structural and individual forms within the organization.

Proposition 5a. The degree to which an organization supplements knowledge creation with enacted organizational memory increases the homogeneity of strategic moves with prior ones, leading to increased likelihood of mortality.

Time is an important consideration in memory functions. Accessibility to information sources, processing requirements and familiarity with the content and context of desired knowledge determine the duration required of managers to invoke memory, produce novel knowledge and take action. Experience and information processing ability has been related to reducing the temporal requirements of decisionmaking (Baum & Wally, 2003; Eisenhardt & Martin, 2000). These characteristics result from developed sociocognitive functions that mature as managers work collectively, develop shared perceptions of their environment and create new knowledge structures. Thus, existing knowledge structures in the form of organizational memory may improve the comprehensiveness involved in knowledge production and speed decision-making processes. When durations are extended due to insufficient stores of information to draw upon (memory), decision-making may lag shifts in the environment and lead to firm failure.

Proposition 5b. The degree to which an organization lacks knowledge structures from which to reconstruct memory increases the duration spent creating novel knowledge, leading to increased likelihood of mortality.

STRUCTURAL INFLUENCES ON FAILURE

The context within which social cognition occurs applies important and persistent conditions on cognitive outcomes such as knowledge creation. Managers are embedded in numerous environments (task, social, competitive, for example) simultaneously that contribute stimuli, apply results from or constrain novel knowledge creation (DiMaggio & Powell, 1983; Granovetter, 1973; Hannan & Freeman, 1977). The sociocognitive structures managers employ

in production of knowledge then operate interdependently with their stimuli-generating surroundings . This interdependency leads to two conditions that affect the likelihood of a firm's failure: isomorphic forces, and social structural influence. The importance of legitimacy and the networked nature of an organization have been demonstrated in prior research as important predictors of survivability (Human & Provan, 2000; Powell, 1990). One explored aspect of these studies was the role patterns of organizational knowledge played in sustaining the structure of the network to support survivability.

Isomorphic forces and the Creation of Novel Knowledge

Isomorphic forces reside at the core of ecological and institutional perspectives, which suggest that organizations tend toward within-form similarity as organizational fields become more structured (DiMaggio & Powell, 1983). For ecology, this conditioning process focuses on increasing competition for the same resources among firms of the same form (Baum & Amburgey, 2002; Carroll, 1985; Carroll & Swaminathan, 2000). From an institutional perspective, the effects of isomorphism emerge from coercive, competitive and stakeholder factors present in the organizational field (DiMaggio & Powell, 1983). The net effect of isomorphism from both these perspectives is the centering of more structured organizations in their respective fields, increasing rigidity and inhibiting change.

A cognitive perspective on isomorphism suggests that more embedded organizations will adopt institutionally consistent knowledge structures in order to conform. These knowledge structures will draw upon beliefs and values shared at the organizational field or industry level, and will promote managerial attention to stimuli that are institutionally relevant. Dynamic or

highly uncertain environments that produce countervailing stimuli from the institutional norms of the field will not be attended to as well by managers and will consequently have deleterious effects on their firms.

Proposition 6a. Managers of organizations highly embedded in their institutional fields are more influenced by institutionalized knowledge structures, which reduce attention to countervailing environmental cues and stimuli, leading to increased likelihood of mortality.

Peripheral organizations experience quite different dynamics from the isomorphic forces that affect highly institutionalized firms. These specialists are defined by their attention to specific niches within the field and configuration of scarce, remainder resources left by isomorphic processes to construct competitive advantages (Carroll, 1985; Carroll & Swaminathan, 2000; Péli & Nooteboom, 1999). Applying sociocognitive models to the dynamics of resource partitioning suggests that managers of specialist firms possess more limited access to stimuli and are less intrusive into their environment. Positioning on the periphery allows managers exposure only to the locally relevant stimuli, and thus knowledge that is generally familiar to them. Also, resources are less evenly distributed and thus unpredictability in managers' ability to acquire them increases.

Beyond the environmental influence on peripheral firms, managers in these firms face constraints to novel knowledge creation generated internally. Peripheral firms tend to be newer and thus possess less experience than centrally located organizations. Managers of the peripheral firms possess less experience collectively than their counterparts in core firms. As experience provides a critical component to managers' construction of attention structures and belief systems (Ocasio, 1997), managers of peripheral firms are at greater risk of overlooking critical

changes in the environment or external stimuli that prove relevant to sustaining competitive advantage. Both the externalities and internal limitations posed above contribute to decline in organizations' responsiveness and therefore increases possibility of failure.

Proposition 6b. Managers of organizations residing on the periphery of their institutional fields possess limited visibility and accessibility to environmental cues and stimuli and lack adequate knowledge structures in order to attend to relevant cues and stimuli, leading to increased likelihood of mortality.

Social Structural Influence and the Creation of Novel Knowledge

Knowledge provides a currency for the construction of reality among actors in an environment (Berger & Luckman, 1966; Hayek, 1945; Polanyi, 1962). Within organizations, managers trade, exchange, imitate, duplicate, analyze and discard knowledge often seeking to generate or discover situated novel knowledge. In this way, the usefulness of knowledge for the acquiring actor lies not in its current state, but its applicability to the context of the manager. By contrast, the nature of desired knowledge is based upon its content and upon the context within which it resides. Knowledge varies in its interdependence with the social cognition and physical conditions within which it resides. Therefore, the social embeddedness of a manager can become a significant conditioning effect on her ability to extract useful (empirical) knowledge from the surrounding environment (Birkinshaw, et. al., 2003; Burt, 1992).

Social structural influence refers to the degree to which the manager is connected to other actors in her network. It may be measured in many ways through network analysis. More common measures include structural cohesion, structural equivalence, centrality and density

(Burt, 1992; Wasserman & Faust, 1994). DiMaggio and Powell's (1983) construction of this condition develops along two dimension, connectedness and structural equivalence. Social influence is applied through the efforts of actors to steer the outcomes of decisions made by authorities in their organizational field. Connections to greater numbers of other actors in the social network increase the level of power achievable to these ends (Laumann, Galaskiewicz & Marsden, 1978). These connections also influence the ability of actors to access knowledge in the network in support of these decisions (Nahapiet & Ghoshal, 1998; Reagans & McEvily, 2003). Following White and collaborators (Boorman & White, 1976; White, Boorman & Breiger, 1976), structural equivalence increases the likelihood of access to knowledge as it provides for a greater consistency of connection for an actor in a network. Actors provide the source of empirical knowledge, and the level of connectedness thus provides a reflection of accessibility to knowledge. An important note in this interpretation is that an actor need not correspond to an individual, but rather to some entity (person, book, database, lab report, for example) that possesses knowledge or information that is empirical, useful and desirable to the searcher. In combining social embeddedness with qualitative differences in both types of knowledge and the search for knowledge, I propose that an organization's knowledge creation routines and activities occur on a "social substrate" that combines these organizational and environmental characteristics.

The social substrate moderates the sociocognitive system. The substrate of organizational knowledge creation determines the effectiveness and patterns by which organizations may combine extant and novel knowledge to undertake novel actions (Hargadon & Fanelli, 2002). Some substrates may be thicker. That is, a thick organization-environment substrate would consist of dense and redundant relationships between organizational actors, external stakeholders

and other environmental actors. Ties between these members would likely be stronger and exhibit greater cohesion (Wasserman & Faust, 1994). Managers in firms may be more deeply enmeshed within the stratum of their organization-environment structure in thick substrates. Contrastingly, others may be thinner, with managers of peripherally engaged in the surrounding environment. Managers' ties with other actors will be sparser and less redundant between knowledge clusters (subgroups on the organization-environment landscape) and more limited in breadth of knowledge domains accessed.

A structural holes perspective suggests that knowledge would be differently accessible depending on the nature of the manger's embeddedness in different substrates. Further, it proposes that novel knowledge, or innovation, is less likely to occur in networks consisting of strong and direct ties since managers may access the same information through multiple conduits. Burt (1992) argues that this redundancy reduces novelty, and will necessarily force managers to continue search routines and extend them more broadly (Kaufmann, et. al., 2000; Levinthal & March, 1981; Stone, [1975] 1989).

Managers will experience varying levels of successful search for novel knowledge based on the nature and condition of that knowledge. As a result, novel actions in response to environmental stimuli will be constrained to appropriable domains of knowledge regardless of applicability to the desired response. Thus, the misalignment of choices in organizational intrusion, position within the social substrate and knowledge appropriation may yield unsuitable or inappropriate managerial actions and ultimately lead to mortality. Search that is more distant or forced upon a less active searching organization may consume greater managerial capacity and resources available, affecting disproportionably firms that possess scarce resources. Contrastingly, lack of accessibility to novel knowledge due to substrate conditions may lead

managers to “satisfice” on less efficacious knowledge (Simon, [1945] 1997), and employ suboptimal novel actions that change the organization in unintended or undesirable ways.

Proposition 7a. Thickness of the social substrate of managers’ ties to knowledge clusters (subgroups) negatively moderates the relationships of sociocognitive antecedents with organizational knowledge by increasing the duration required to acquire novel knowledge.

Proposition 7b. Thickness of the social substrate of managers’ ties to knowledge clusters (subgroups) positively moderates the relationships of sociocognitive antecedents with organizational knowledge by increasing the span of knowledge domains available overall to the organization.

Proposition 7c. Thickness of the social substrate of managers’ ties to knowledge clusters (subgroups) negatively moderates the relationships of sociocognitive antecedents with organizational knowledge by reducing the span of knowledge domains considered acceptable (relevant) by the managers from which to acquire novel knowledge.

Focal knowledge similarity moderates the sociocognitive system. When managers seek to acquire new knowledge, they must identify, validate and achieve access to the novelty. In addition, in order to produce useful and novel actions, they must transform the knowledge from idiosyncratic source conditions to their own conditions. This transformation is a nontrivial task that is highly dependent on specificity with which the valuable nature of knowledge is based on the technologies and processes leading to its production, the actors involved, and mobility or imitability of the substrate on which it resides. Researchers have characterized this transformation as a critical impediment to the transfer of knowledge to searching managers (Birkinshaw, et. al., 2002). Dependency of the knowledge in its current state produces causal

ambiguity in the efficacy of its transfer to new contexts. Thus, managers pursuing knowledge in highly embedded contexts engage in risky search activities. Efforts to pursue these streams of knowledge may require exceedingly high levels of cognitive attention from managers, leading them to suspend transfer activities and limit production of novel action from external sources of knowledge. For example, Birkinshaw, et. al. (2002) found that R&D units possessing highly situated knowledge are better suited to autonomous design whereas units with less context specificity were likely to be more integrated and amenable to knowledge transfer.

Critical to achieving this transformation is the imitability, or reproducibility, of the focal knowledge's environment within the manager's context. The intangible, cognitive nature of knowledge means imitability is linked to a manager's ability to identify and interpret the knowledge, to link the knowledge sought with existing stores, and accurately transfer the knowledge (Weick, 1995, Nelson & Winter, 1982). Knowledge structures possessed by the manager provide necessary channeling to convey appropriate conditions of transfer (Hargadon & Fanelli, 2002). These knowledge structures are historically evolved from the experiences, memory and learning of the managers of the firm and are, consequently, limited to the domains of knowledge previously acquired by the firm.

Proposition 7d. Similarity between managers' knowledge structures and characteristics of the focal knowledge of interest positively moderates the relationships of sociocognitive antecedents with organizational knowledge by improving knowledge transformation.

DISCUSSION

This paper proposed to bridge disparate perspectives on the failure of firms by connecting them through the social cognition mechanisms of managers. Specifically, a model of four sociocognitive components is suggested, with the components serving as mediating performance factors for the sources of failure. The components include: managerial beliefs, attention structures, environmental scanning patterns, and memory systems. I propose that extreme levels for each of these conditions increases the likelihood of mortality, while a balanced cognitive coordination strategy within and among them can improve survival probabilities. However, the perspective presented contains several assumptions and boundary conditions that open opportunity for further exploration of managers' influences on organizational mortality.

Prior research had implicated managers in failure only to the extent that managers engage in risky behaviors and allocate resources (Barney, 1991; Thornhill & Amit, 2003; Wiseman & Bromiley, 1996). These approaches did little to explicate the ways in which managerial decision-making and action could signal or lead to failure. Thus, as the first of two goals I have attempted to begin filling an understated gap in the mortality literature by implicating managers [and their cognition processes] in firm demise. Second, I hoped to open normative discussion of certain managerial behaviors in order to expand the scholarly usefulness of social cognition in explaining strategic variables and to introduce managers to broader implications they should consider through their decision-making and actions. The effects of managerial decision-making are often delayed, and sometimes amplified by systemic idiosyncrasies and misalignments of organizational resources and interpretations. Understanding the potential mechanisms for these processing errors provides an important initial step for managers to making their organizations

more resilient and less susceptible to failure. Also, understanding the several sources from which mortality may emerge offers researchers and practitioners alike a more specified set of perspectives on aligning knowledge creating routines, decisions and actions to avoid failure depending upon both managerial and organizational context. I explore both of these issues below.

Expanding the Sociocognitive Model

An expected consequence of the complexity of the perspective presented is the absence of important constructs related to knowledge and social cognition. Three notional constructs in particular would provide additional insight into the role of cognition on deleterious firm performance: A) manger's cognitive maturity, B) simultaneity in knowledge creation, and C) organizational learning. These three dimensions are indicated as dashed lines with the corresponding denotations above.

Any explanation of social cognitive influences on performance should also consider the recursive influence that action and performance may have on the growth of managers' cognitive functions. With the model presented in this paper, I have set aside recursiveness in order to isolate and elaborate the sociocognitive functions leading to mortality. We should expect that the outcomes (both performance and derivative knowledge) of knowledge generating routines in the firm will produce internals to managers regarding the effectiveness of their cognitive functions. In addition, the group nature of managerial decision-making will lead to increased sharing of knowledge structures between managers. Further research should consider the recursive

outcomes (Figure 1 – line A) and the degree to which these feedback signals may reduce the likelihood of negative performance [failure].

Simultaneity in knowledge creation occurs when composition and imposition of knowledge are closely linked temporally (Moorman & Miner, 1998; Cohen, et. al., 1972). This phenomenon may take the form of creativity, briccolage or improvisation, in which one cycle of a knowledge creating routine may produce immediate recurrence in the routine (Figure 1 – line B) without first cycling through strategic moves of recursiveness development flows in the system (i.e., cognitive maturity, organizational learning). This experimentation-oriented creation process provides an important source of serendipity and inspiration for managers in recognizing and acting on novel knowledge (Carayannis and Chanaron, 2007). Research should focus on the non-routine nature of simultaneity to understand its potential influences on mortality outcomes.

Finally, organizational learning is a primary derivative of the sociocognitive routines discussed here (Figure 1 – line C). Learning provides a mechanism for developing shared knowledge structures, improving sociocognitive functions and increasing levels of firm-specific empirical knowledge. Learning influences the growth and predominance of organizational memory, and also enables managers to improve the quality and speed of reactions to changing stimuli. Learning as a theoretical domain is complex and unstable, depending upon multiple streams of thinking and great variance in definition and paradigmatic substrate. Learning, as such, falls outside the scope of this paper because it occurs from the underlying cognitive fundamentals to which this paper attends. Further studies could elaborate on the role of learning in failure, particularly empirical ones in which learning might be more able to be operationalized than the sociocognitive constructs presented here.

Deconstructing Mortality [Further]

This paper presents a comprehensive view of mortality, attempting to identify and link through sociocognitive functions the disparate views of this domain. In doing so, I have implied a typology of mortality based on the origination of forces that cause the failure. While explaining the typology is not critical to an understanding of the proposition exposed here, I believe ultimately linking the sociocognitive functions above to different levels in typology might help develop context-specific normative explanations of the forces of failure and enable managers and researchers to better grasp means by which forces of mortality may be combated.

Table 1 offers an initial structure for the mortality typology in which some levels of failure are related to exogenous sources, while others are associated with endogenous events or actions of the firm.

Insert Table 1 about here

Table 2 then attempts to connect this typology directly with the propositions above, developing a contingent model of failure based upon the nature of failure source and sociocognitive functions most relevantly linked to focal level of failure. This contingent model provides a starting point for empirical validation of the propositions derived here, and an opportunity to expand theory and research into mortality along a new set of dimensions.

Insert Table 2 about here

CONCLUSION

This paper provides a social cognition answer to the omnipresent question shared by strategic management and organization theory fields: How do managers hasten firm failure through the decisions and strategic moves they make? I draw a connection between the processes through which managers create knowledge, and the potential impact those patterns of knowledge creation have on the likelihood of future mortality. The simple answer is that managers' knowledge kills companies. However, a more complex (and thus more useful) explanation suggests that the joint effect of individual subconscious activity and the interaction resulting from embeddedness in a broad set of social contexts will determine the likelihood of mortality for an organization. Newness, oldness, density – these characteristics are all derivatives of the sociocognitive activities of managers in pursuing solutions to problem, making decisions and taking action in an effort to improve firm performance.

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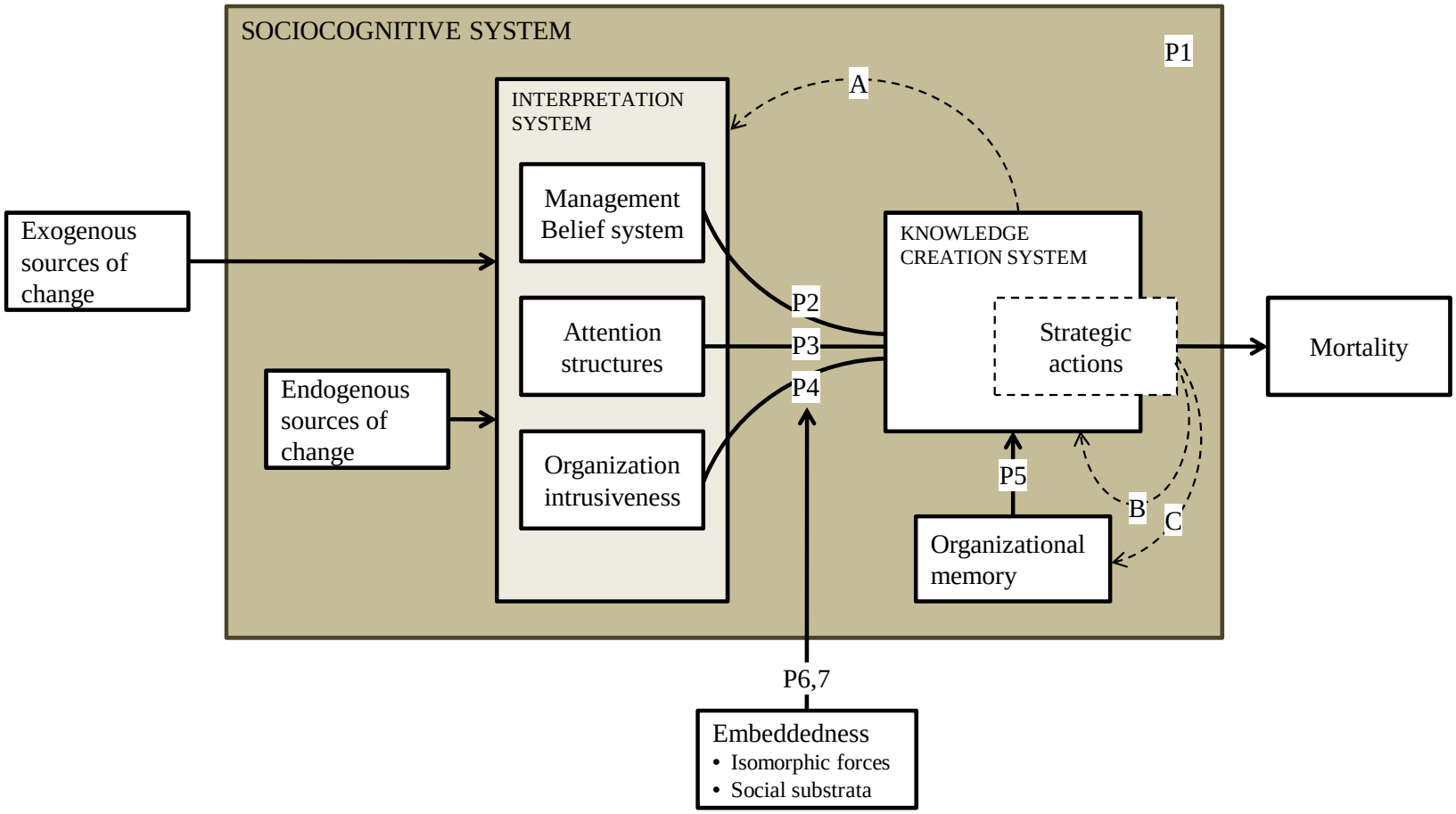
FIGURE 1



The sociocognitive system as mediator of mortality.

TABLE 1

	DESCRIPTION	SOURCE	MORTALITY PERSPECTIVE
Type I	Nature of environmental change is beyond response	Exogenous	Selection
Type II	Firm response lags environmental change	Exogenous	Adaptation
Type III	Lack of resources restricts response	Endogenous	Action (adaptation)
Type IV	Firm changes in wrong direction	Endogenous	Action (adapatation)
Type V	Firm changes when not appropriate	Endogenous	Action

Typology of organizational mortality source and perspective.

TABLE 2

	I Shift beyond response	**II** Response lags shift	**III** Lack of resources restricts response	**IV** Response in wrong direction	**V** Response when not appropriate
Knowledge system mediates					
	✓	✓	✓	✓	✓
Belief systems					
Homogeneity	✓	✓			
Heterogeneity				✓	✓
Attention structures					
Homogeneity				✓	✓
Heterogeneity		✓	✓		
Organization intrusiveness					
Passive scanning		✓	✓		
Active search				✓	✓
Organizational memory					
Increased use of memory				✓	✓
Lack of memory		✓	✓		
Isomorphic forces					
Core position	✓	✓			
Peripheral position			✓		
Social structural influence					
Greater duration		✓			
Broader range of domains			✓		
Narrower range of acceptable domains				✓	✓
Similarity of knowledge contexts					✓

The sociocognitive system and its predicted influence on mortality.

ENDNOTES

[i] Throughout the paper, I use the terms “organization mortality” and “firm failure,” or some variation, to refer to termination of an institution. While firms may move into and out of markets or industries, I concern myself with why independent firms disappear altogether. In this theoretical context, I consider mortality to include the disappearance, bankrupt inability to continue operations, and acquisition of firms, even though some empirical literature draws distinctions between disappearance and acquisition in seeing only the former as mortality. From a theoretical standpoint, when managers of a particular organization fail to maintain its independent operations, the firm is likely to undergo significant changes to culture, composition and context. Consequently, a new firm (or business unit) may emerge from the ashes of the failed firm, but the original firm remains dead.