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Factors Influencing Creativity in the Domain of Managerial Decision Making

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This study examines factors that influence the creativity of managers' decisions. A domain-based, evolutionary model that describes the influence of context on creative action is combined with a teleological model of creative managerial decision making derived from the strategy formulation and organizational decision process literatures. Results show that two key dimensions of managerial creativity, the novelty and the value of choices, were affected by markedly different factors. Surprisingly, influences on the novelty of managers' choices were essentially independent of influences on the value of those choices. Overall, this study represents an initial attempt to describe and empirically examine processes that affect the creativity of executives' choices.

In an era when the competitive environment demands that organizations develop new products, processes and revisions to accepted ways of thinking and doing, there are increasingly frequent calls to pursue creativity as a source of competitive advantage (see October, 1996 special forums on innovation in *Academy of Management Journal* and *Academy of Management Review* for a variety of perspectives). Consequently, one might expect intense scholarly interest in the study of organizational factors that encourage creative action because creative actions represent variations from established routines that facilitate organizational change and innovation. Yet, despite enduring interest in creativity from practitioners and its apparent relevance to many areas of organizational study, the topic remains relatively underdeveloped in management research (Woodman, Sawyer, & Griffin, 1993). Most previous empirical work on creativity in organizational settings has focused mainly on identifying individual differences that distinguish highly creative individuals from their less creative peers (Ford, 1995). This focus on individual differences has in some ways obscured a potentially more fruitful focus on how creativity emerges within complex social settings (Amabile, 1988;

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Ford & Gioia, 1995; King, 1990; Mumford & Gustafson, 1988; Sternberg, 1988). A few influential studies have examined the effect of organizational contexts on creative action (e.g., Amabile et al., 1996; Amabile & Gryskiewicz, 1987; Pelz & Andrews, 1966). However, these efforts typically have been restricted to the somewhat specialized environment of R&D labs. By focusing only on such settings, where creative actions are considered legitimate and essential, researchers perhaps unintentionally have ignored the managerial context as a domain for potentially creative action. As a result, despite important recent conceptual contributions (e.g., Amabile, 1988; Ford, 1996; Ford & Gioia, 1995; West & Farr, 1990; Woodman et al., 1993), our ability to understand and influence creative actions beyond the scope of R&D environments remains rather limited. There is very little empirical work in the area.

This study draws not only on the creativity literature, but also the literatures of strategy formulation and organizational decision processes in an effort to develop and empirically test a viable model of creativity in the managerial decision making domain. Decision making is a pervasive aspect of managerial action (Mintzberg, 1973). Choices made by upper-level managers, especially those that might be considered creative, impute meaning to organizational events that subsequently influence the interpretations and actions of other organizational participants (Gioia & Chittipeddi, 1991). The ubiquitous influence that managers' choices exert over other organization members suggests that the managerial decision making domain is not only important in its own right, but also might be key to understanding creativity in other arenas of organizational action.

We begin by introducing a domain-based, evolutionary model of creativity that describes the variation, selection, and retention processes that define creative actions in specific social domains. Next, we draw on organizational literatures to develop a teleological (purposeful) model of creative managerial decision making. These two models in combination provide a relatively comprehensive portrayal of the factors that contribute to the generation and social validation of creative managerial actions (see Ford, 1996). The empirical study examines factors that distinguish creative from noncreative managerial choices. Our main intention is to enhance the creativity literature by presenting a well-grounded description of creative managerial action embedded within organization settings.

Theoretical Framework

A Domain-based View of Creative Action

It has become increasingly common for researchers to question the usefulness of the general literature on creativity for organizational application and to call for new approaches that represent the influence of social and contextual features on creative action (Amabile, 1983; Ford, 1996; Gardner, 1993; Mumford & Gustafson, 1988; Sternberg; 1988). Csikszentmihalyi (1988, 1990) attempted to address this concern by taking a systems theoretic view of creativity (see also Gardner, 1993; Simonton, 1988). This theory was originally proposed as an alternative to the paralyzing debates that have plagued the creativity literature regarding the relative usefulness of defining creativity in terms of persons,

processes, products, or places. The basic argument underlying this view is that "creativity" should be defined as a socially constructed label used to describe actions embedded within particular contexts. The theory describes three interrelated subsystems, the person, the domain (language, customary practices, etc.), and the field (primarily the gatekeepers and important audiences or stakeholders who personify and affect the structure of a domain). These three subsystems together establish the occurrence of a "creative" act. The primary role of the person is to introduce variations to a field. The gatekeepers who comprise and represent the domain select from among these variations (novel acts). Variations that a field deems valuable are selected and retained as elaborations of the domain, subsequently becoming part of the "legitimate" repertoire of actions within the domain that is communicated back to the person. This process continues as an on-going, cyclical set of relationships. This evolutionary model proposes that creativity does not occur within an individual, but rather is defined by the interaction of persons, domains, and fields. This view, then, sees definitions of *creativity as inextricably rooted within specific domains of action, and as a social* construction process involving actors and gatekeepers representing a domain.[1]

The domain-based view of creative action leads to several important insights that provide a foundation for developing a more realistic model of creativity applicable to the managerial decision-making domain. In terms of defining creativity, it proposes that 1) actions and outcomes are the target of evaluative assessments, 2) judges familiar with a particular domain deliver these assessments, and 3) domains provide the basis for assessments of creativity. It also emphasizes that creativity involves not only intrapersonal processes, but also (and perhaps more importantly) a field's selection and retention processes, because "there is no way to get evidence for a 'creative' process taking place in a person's mind independent of social validation." (Csikszentmihalyi, 1990: pg. 203).

This perspective identifies three important attributes that lead to a general definition of creativity that is more applicable to organizations. First, creativity refers to publicly visible attributes of a product presented *by an actor to a field. The concept of a "creative product" should be construed in broad terms* as anything a field can judge, including communicated ideas and observable processes. Second, creativity is not an inherent quality of an object, but rather is a *subjective judgment* made by members of a field of the *novelty and value of an outcome of an act* (cf. Amabile, 1982). Novelty and value have been noted as the primary attributes of creative solutions in decades of creativity research (Mumford & Gustafson, 1988). Agreement among members of a field tends to produce more meaningful judgments. Third, creativity assessments are *domain specific*. Evaluations of creativity can vary from one task domain to the next, and are likely to change over time as a domain evolves. Following from these insights, creativity is defined here as *a domain-specific, subjective judgment of the novelty and value of an outcome or product of a particular action.*

This domain-based view makes two important contributions to the study of creativity in organizations. It helps describe how "creators" and interested stakeholders act and interact over time during the generation, selection, and retention of creative actions, and how these interactions elaborate task domains over time.

In addition, it provides a rationale for defining creativity in a way that is especially well-suited to the complexity of organizational settings. In the context of this study, upper-level executives are the actors, managerial decision making is the domain, and people well versed in the practice and evaluation of business decisions are representative of the field.

The Managerial Decision Making Domain

As noted previously, creativity researchers typically have been more interested in R&D settings than managerial decision settings. This is problematic for understanding creativity in the managerial decision making domain because reviews of the creativity literature have noted that creativity research findings from one domain often do not generalize to other domains (Barron & Harrington, 1981; Sternberg, 1988). In addition, innovation research, which traditionally has focused more directly on organizational settings, also has found that influences on innovation can vary across domains of action (Abernathy & Clark, 1985; Damanpour & Evans, 1984; Zaltman, Duncan, & Holbeck, 1973). Overall, the poor track record of cross-domain generalizations related to creativity in organizations suggests a need for theoretical and empirical work dedicated specifically to understanding creative action in the domain of managerial decision making.

Research on managerial decision making emphasizes teleological processes that result in variations (choices) being introduced to organizational fields. Extensive research exists related to many of the stages of managers' intentional decision making processes including issue interpretation and goal articulation (e.g., Dutton & Ashford, 1993; March & Simon, 1958), information utilization (e.g., Langley, 1989; O'Reilly, 1983), evaluation (e.g., Dougherty & Heller, 1994; Feldman, 1988), and solution adoption/implementation (e.g., Nutt, 1987). However, perhaps surprisingly, we have relatively little empirical research devoted to managers' alternative generation processes, which is a key stage in any conceptualization of creativity.

Prior research does, however, offer a few notions of the character of these processes within the managerial decision making domain. The most comprehensive presentation of managers' alternative generation processes was put forth by Alexander (1979), who differentiated between two processes that generate alternatives. The first is a search process aimed at discovering existing solutions; the second is a process of designing or creating solutions that do not preexist. Alexander suggests that an effective alternative generation process should combine both search and creativity, but that these activities should occur within a context that balances both. This balance can be best achieved when problem definitions are allowed to evolve as alternatives are presented and when evaluations are restricted during the alternative generation stage. Unfortunately, such features are not typical of most managerial decision processes. Initial interpretations are seldom questioned as they lead to subsequent action and evaluations are often elicited concurrently with alternative generation (Mintzberg, Raisinghani, & Theoret, 1976). Perhaps of more ominous import with respect to alternative generation processes is Nutt's (1984) finding that no alternative generation activities occurred in 85% of the managerial decisions he studied. Instead of

generating potentially creative alternatives, managers usually adopt well understood, previously successful options. This empirical evidence suggests that managers rarely concern themselves with creativity during their day-to-day decision making activities. These findings also suggest that this domain is quite different from those commonly investigated by creativity researchers where creativity is a primary concern guiding actors' choices (e.g., science, the arts, R&D, etc.).

Thus, despite the substantial dividends one might expect from creative managerial action, the expedient decision processes typical of this domain tend to preclude creative choices. With this background in mind, our next step is to identify factors that might facilitate creative choices in the managerial decision domain. As a first step, it is necessary to further examine prior research to identify patterns in managers' decision processes that distinguish creative from routine decisions. Toward that end, we present and then test a model of creativity in managerial decision making.

A Model of Creativity in the Managerial Decision Making Domain

The domain-based, evolutionary view of creativity described previously draws our attention to ways in which social processes interact to influence creative actions. This understanding can be complemented by research on managerial decision making that emphasizes teleological processes through which managers initiate and introduce creative choices. As applied to managerial decision making, the teleological model describes the intentional development and presentation of creative choices to relevant fields, and the domain-based model describes the social validation and utilization processes that follow (see Ford, 1996). This section presents a model of creativity that integrates the teleological and domain-based views. We primarily draw upon concepts from strategy formulation and organizational decision process research to represent the teleological processes that influence managerial creativity.

The unit of analysis represented by this model is a decision.[2] In brief, the model suggests that managers' choices result from managerial decision processes, including issue interpretation (Cowen, 1986; Thomas, Clark, & Gioia, 1993; Walsh, 1988), alternative generation and scripted action (March & Simon, 1958), and expectations (Amabile, 1988), that can be characterized as being more or less rational, political, or flexible (Dean & Sharfman, 1996). These activities reflect the phases commonly associated with managerial decision making. The "outputs" of this model are variations (i.e., choices) introduced to field members representing a domain. These individuals then either select and retain variations (which can vary from novel to common) as valuable elaborations to a domain, or reject them as ineffective. As this evaluation process is going on, "creators" can attend to feedback from the domain regarding the appropriateness of their actions. This feedback could lead managers to alter their implementation strategies. In addition to this interim feedback, managerial decision makers also attend to the final determinations of these processes and use this feedforward information to alert them to future problems and opportunities. This sensemaking process stimulates further interpretations and expectations, which suggest additional organizational routines, and so on (see Fig. 1). For the purposes of the following description, the

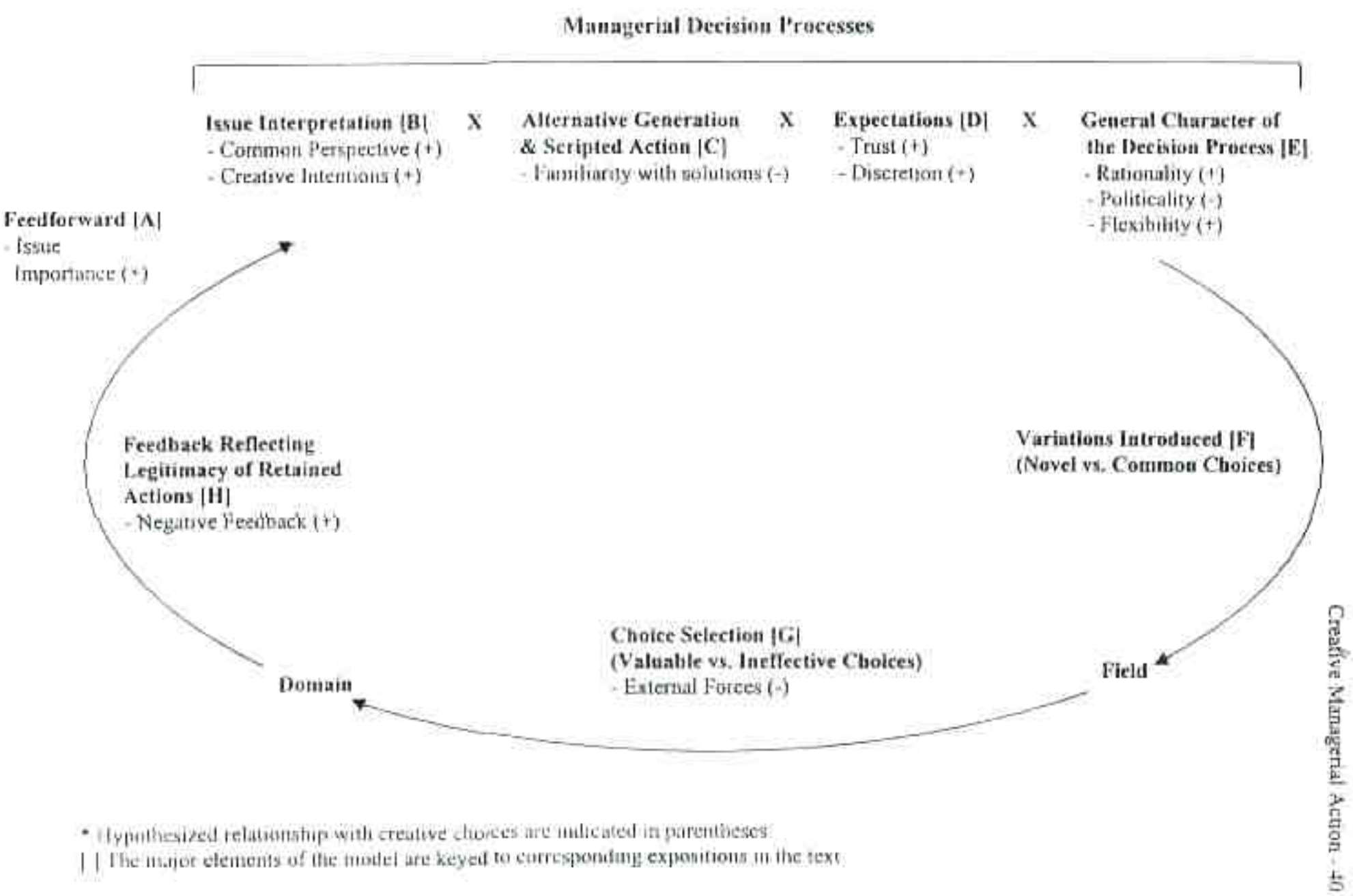

Figure 1. A Model of Creativity in the Managerial Decision Making Domain*

point in the cycle where issues in the domain come to the attention of managers is arbitrarily designated as the starting point in this process (point [A]). We also have indicated the factors that are hypothesized to affect each stage in the process, as discussed in the following sections. Hypothesized relationships are indicated in brackets [ ] after the introduction of each variable.

Feedforward from Domain Communicates Need for Action

Feedforward information represents an important nexus between the evolutionary forces characterizing a task domain and the intentional processes undertaken by managers. Managerial decision making typically requires attending to the evolution of a variety of domains internal and external to an organization. At any given point in time, managers are likely to be faced by many potentially relevant issues competing for attention. These issues provide feedforward information that result in managers allocating their attention to those issues they deem most important (Dutton & Ashford, 1993). Thus, feedforward information elevates some issues to the point of necessitating action and relegates others to being ignored, at least for the time being. Empirical research has found that as issues become more important managers are more likely to employ comprehensive decision processes in an attempt to avoid major errors (Carter, 1971; Dean & Sharfman, 1993). Because comprehensive decision processes concerning important issues tend to provoke consideration of implicit assumptions and a wider range of alternatives (cf. Fredrickson & Mitchell, 1984), we expect that [H1] *issue importance* will be positively associated with creative managerial decisions.

Issue Interpretation in the Managerial Decision Domain

Because managers' decisions typically evolve in a context involving several other participants (cf. Hambrick & Mason, 1984), one of the most critical influences on subsequent decision making is likely to be the extent to which decision makers agree on the nature of the issue(s) at hand and the outcomes to be accomplished. Previous research suggests that two different views apply here. Pfeffer (1981) and Gladstein (1984) argue that similar goals and beliefs about courses of action lead to more open communication, access to important and relevant information, and the consideration of more alternatives—processes that have been associated with improved creativity (Woodman et al., 1993). Also, research on demographic diversity suggests that homogeneity provides common frames of reference that allow groups to operate more efficiently because communications are simplified and interpretations are less problematic (O'Reilly, Caldwell, & Barnett, 1989; Tsui & O'Reilly, 1991).

Conversely, Janis (1972) suggested that when participants in a group are "all of one mind" they will suffer group process losses that produce poor decisions. However, we would argue that because so much of modern managerial work, especially at higher levels of management, involves short-lived task forces, ad hoc groups, cross-functional committees, and so forth, extreme cases of homogeneity and conformity are rare. Therefore, especially in organizational contexts where teamwork matters, we propose that [H2] *common perspectives* will be positively associated with creative managerial decisions.

However, these positive interactions may have no impact on the creativity of managers' decisions if they believe that a common solution (rather than a creative solution) is the most appropriate path to follow. Therefore, interpretations that elicit creative intentions are more likely to lead to creative solutions. Furthermore, research on individual creativity suggests that a personal interest in creative action is associated with subsequent creative behavior (e.g., Amabile, Hill, Hennessey, & Tighe, 1994; Ford, 1995; Kirton, 1980). Therefore, we expect that [H3] *creative intentions* will be positively associated with creative managerial decisions.

Alternative Generation and Scripted Action

Depictions of decision making processes suggest that alternative generation proceeds immediately once a plausible interpretation of an issue emerges. As a result, prior knowledge, or the extent to which decision makers know of possible alternative solutions as they begin working on a problem, has an important influence on the creativity of managers' decisions. Contradictory results regarding this variable have been reported. One line of argument holds that a high degree of expertise, prior knowledge, or familiarity with a given problem domain is necessary before one can develop creative solutions (Simon, 1986; Weisberg, 1988). A more compelling, empirically-based perspective suggests, however, that access to existing or "off-the-shelf" solutions tends to inhibit creativity (March & Olsen, 1976; Nutt, 1984) because limited search processes lead to satisficing, especially when nonthreatening or stable situations provide little incentive to produce original solutions (Van de Ven, 1986). In general, organizational actors tend to resort to familiar, scripted actions even in the face of considerable ambiguity

(Gioia & Poole, 1984). Therefore, we expect [H4] higher levels of *familiarity with solutions* will be negatively associated with creative managerial decisions.

Expectations That Influence Evaluations of Creative Alternatives

Once an important issue triggers action, expectations about the appropriateness of various suggestions can influence the likelihood of taking creative action. Within a collective of managers, trust is likely to have an important influence on the willingness of participants to suggest novel alternatives. Trust facilitates creativity because it reduces evaluative pressures among group members (Klimoski & Karol, 1976) and also facilitates other processes that foster creativity, including sharing information, clarifying problem definitions and goals, and producing satisfaction with the task (Zand, 1972). Perhaps most importantly, however, trust tends to encourage risky behaviors, such as proposing creative alternatives in a decision-making group. Therefore, we expect that [H5] *trust* among managers involved in a particular decision will be positively associated with creative managerial decisions.

A second factor that affects managers' expectations and willingness to suggest creative options is their discretion to utilize resources or undertake certain actions. Discretion has been proposed as a potent facilitator of creative action (Ford, 1995); in the managerial decision making domain discretion might be especially important because it allows the consideration of a broader range of alternatives (Bourgeois, 1981; Nohria & Gulati, 1996). Therefore, we expect that [H6] *discretion* will be positively associated with creative managerial decisions.

General Character of the Decision Process

In addition to the foregoing variables selected because of their fit with commonly proposed stages of decision processes, we also wanted to assess the impact of the configuration of these processes. Our literature search suggested that the rationality, politicality and flexibility of managers' decision processes (Dean, Sharfman, & Ford, 1991; Eisenhardt & Zbaracki, 1992) were potentially important variables. In a broad sense, these variables capture aspects of the nature of information use and exchange within and among the various phases of managers' decision processes. Rationality denotes the extent to which decision makers look for and analyze information, consider alternatives, and use analytical techniques to make decisions (Allison, 1971). Seminal contributors to the creativity field like Schachtel (1959), Mednick (1962), and Guilford (1975) all found that the generation and consideration of a wider range of alternatives is associated with more creative solutions. Although it seems counterintuitive for creativity to be associated with "rational" processes, a rational process aims to produce an exhaustive list of potential alternatives and delay their evaluation until all have been presented. Therefore, perhaps paradoxically, we expect that [H7] decision process *rationality* will be positively associated with creative managerial decisions.

Politicality in decision processes implies that interests, preferences, and exerted influence, rather than the quality of a proposed solution, determines the outcome of a decision (Dean & Sharfman, 1996). Politicality also implies withholding of important information, which is likely to constrain the range of

alternatives considered (Dean, 1987; Kanter, 1988; Pettigrew, 1973). The diverse criteria used by managers representing different constituencies are also likely to rule out alternatives that might be viable under less contentious circumstances. Therefore, we expect [H8] higher levels of *politicality* to be negatively associated with creative managerial decisions.

Managerial decision processes are often nonlinear and recursive, and involve shifting participation in ill-structured roles (Cohen, March, & Olsen, 1972). The notion of flexibility attempts to capture this reality; it alludes to the extent to which interim steps taken during a decision process are reconsidered, the extent to which unusual ideas are offered, or the extent to which people contribute in ways outside their job descriptions. All these features have been associated with creativity (Alexander, 1979; Mumford, Whetzel, & Reiter–Palmon, 1997; cf. Quinn, 1980). We therefore expect that [H9] higher levels of *flexibility* will be positively associated with creative managerial decisions.

Variations Introduced

To this point our description notes that important issues from the domain trigger the teleological processes reflected in managers' interpretations, prior experience, expectations, and decision processes. This constellation of processes then leads managers to introduce variations in the form of choices concerning a new product, idea, or process, and so forth for their intended audience(s) or field(s). These choices can range from novel (original) solutions to common (well-known or routine) solutions, which are subject to evaluation by the field.

Choice Selection

Once choices are introduced, members of the field render judgments about the value of those choices—judgments that can span a range from valuable to ineffective in addressing the issue of concern. Such judgments are the primary determinant of whether a choice will be selected by the field. However, the domain-based view of creativity also proposes that once choices are introduced to a field, outside events (e.g., accidents, changes in management, competitor innovations, restructurings, strikes, etc.) can influence the ultimate fate of a proposed solution. Although one hallmark of effective managerial decision making lies in anticipating and responding to expected hurdles presented by members of a field who have a stake in a decision, unforeseen events can nevertheless wreak havoc with the best laid plans. Unanticipated events or events beyond the control of those involved in a decision represent external forces that impact the successful implementation of managers' decisions (Dean & Sharfman, 1996; Kimberly, 1981). Because they tend to disrupt the intended outcomes of managers' decisions, we expect that [H10] significant *external forces* will be negatively associated with creative managerial decisions.

Feedback Reflecting Legitimacy of Retained Actions

The process of introducing a significant choice to a field is likely to evolve over an extended period of time. Discussing issues with members outside the decision making group and ordering supporting analyses can serve to prematurely

acquaint members of the field with managers' intended actions (Levitt & Nass, 1989). As a result, managerial decision making groups are likely to receive some preliminary feedback regarding the course of their deliberations. This feedback reflects the extent to which various options under consideration are viewed as legitimate within the organizational domain. Not unexpectedly, an established domain is likely to greet known options with more favorable feedback than creative options that challenge the status quo. This implies that innovators must persevere in the face of (and perhaps be motivated by) opposition from others. Therefore, based on selection processes that favor conformity over creativity, we expect that [H11] *negative feedback* will be positively associated with creative managerial decisions.

The variables described above represent our major hypothesized influences on the creativity of managers' decisions. These influences describe teleological and evolutionary dynamics that are characteristic of the decision making domain faced by managers. This theoretical framework guides the following investigation of the creativity of managers' choices in the organizational decision domain.

Method

Sample and Data Collection Procedure

Fifty-one upper-level managers from different sized businesses in the eastern U.S. participated in the study. We chose participants by using professional contacts to identify potential participants that fit our sampling requirements (i.e., middle or upper level managers with at least five years of management experience). We then contacted these people directly. Most of the managers we contacted agreed to participate in the study (51 out of 65 people contacted). We only knew three of the participants personally before the study. Their average age was 44 years; 65% of the participants were at the Vice President/Director level or higher with the remaining managers holding middle management positions. Data were collected via an interview protocol; participants described three consequential decisions in which they recently had been intimately involved, thus providing a total sample of 153 decisions. Because we wanted to avoid some of the problems associated with retrospective accounts of decisions (cf. Miller, Cardinal, & Glick, 1997), we asked the managers to describe decisions that had occurred within the past year for which the results were known. This procedure produced a decision outcome (choice) description that could be judged and verified by others.

Previously, creative decisions were defined as those that are judged as both novel and valuable within a domain. Therefore, "noncreative" decisions can be thought of as possessing different combinations of novelty and/or value (i.e., low novelty/low value; low novelty/high value; high novelty/low value—see Fig. 2). Because the main purpose of this study was to contrast creative decisions with those that were noncreative, it was necessary to sample decision episode descriptions in a way that allowed meaningful contrasts to be made. Therefore, we asked each manager to describe a decision that he/she considered to be creative within the context of his/her business. Contrasting decisions were gathered by asking each manager to describe two of the following three types of decisions: 1) low

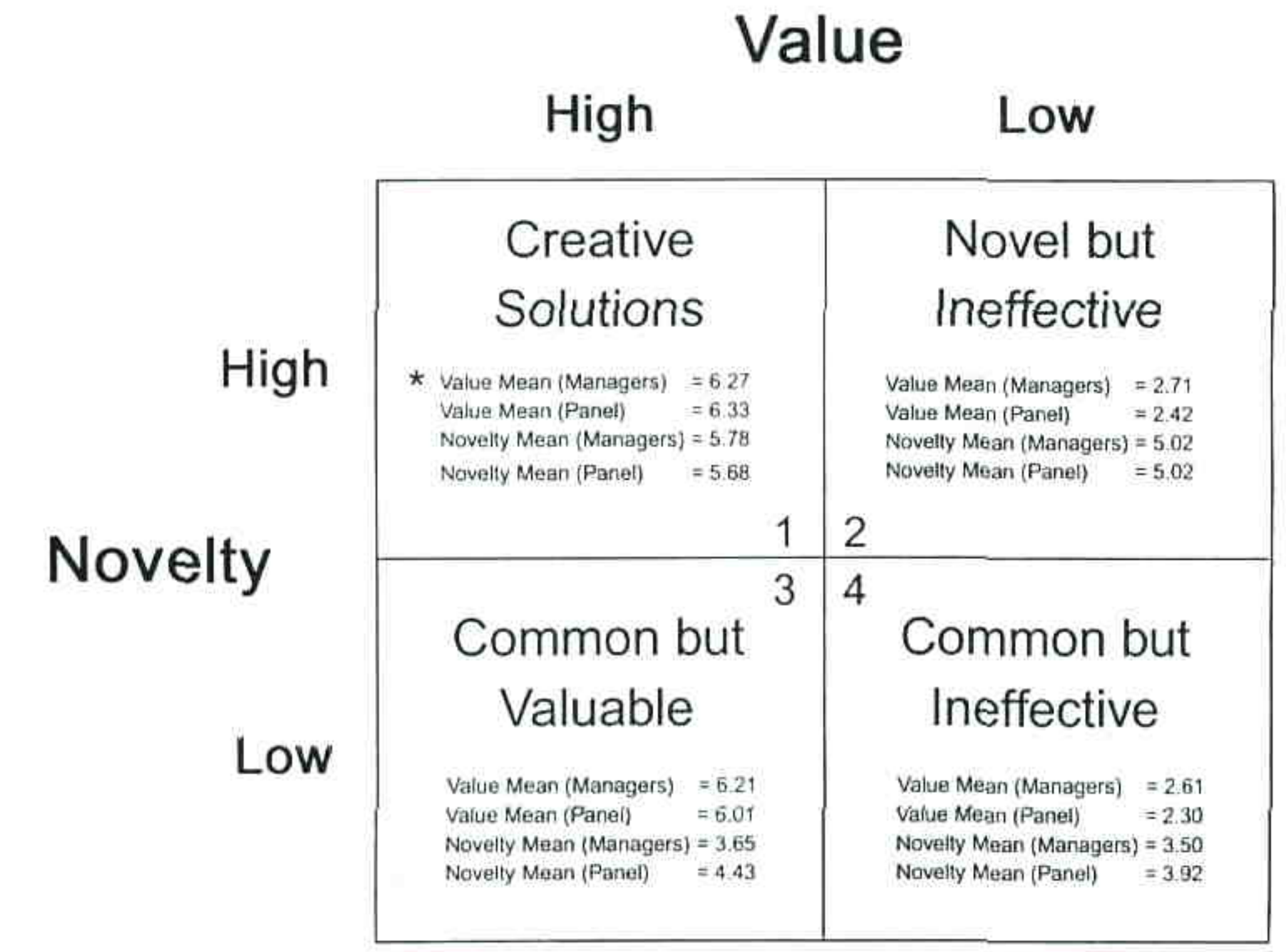

Figure 2. A Classification Scheme for Creative and Non-creative Decisions

novelty/low value; 2) low novelty/high value; 3) or high novelty/low value. (Pretesting indicated that it would take 20–30 min to collect data for each decision. Most of the upper-level executive participants were unwilling to allot *more than one hour for our interview. Therefore, collecting data regarding all four* decisions was impractical for many managers. Our decision to limit our interviews to descriptions of three rather than four decisions was a concession to the time constraints of our participants. Because we wanted to assess creative decisions in each case, the total sample of 153 decisions includes 51 creative decision outcomes and 34 of each of the other three types of decision outcomes). These four decision classifications are shown in Fig. 2.

Consistent with the definition offered previously, we asked the managers to define novelty as the extent to which a decision was unusual within the context of their organizations, and to define value as the extent to which a decision accomplished the objectives desired by the participating decision makers (Dean & Sharfman, 1996). This approach allowed for more specific comparisons between *creative decisions and those that were not considered creative (e.g., common* successes, novel failures, etc.). We used an unstructured interview format to help the managers' recall the events of each decision in their own words and tape

recorded the decision descriptions. We randomly varied the order of these descriptions from one participant to the next (e.g., varying the order of successful and unsuccessful outcome descriptions) to avoid systematic bias in participants' recollections.

After completing these descriptions, the managers responded to a questionnaire designed to measure the variables from the model (see Fig. 1). Each manager was given a booklet containing the response scales for each question; the researcher then read each question and the manager selected a number from the corresponding scale to indicate his or her response. This procedure was repeated three times, once for each decision. We used an interview protocol rather than a traditional questionnaire format to insure that the managers understood the meaning of each question, to reduce the monotony of the usual questionnaire response procedure, and to minimize potential problems associated with retrospective data (Huber & Power, 1985; Miller, Cardinal, & Glick, 1997). The logic behind this interview structure was to have managers discuss decisions in their own terms first, in an effort to improve recall and to reduce demand characteristics associated with the researcher's questions. The questionnaire then allowed us to gather comparable information related to a large number of decisions so that we could examine patterns among the decisions.

Variables

Dependent Variables. The data collection procedures related to the dependent variable were conducted in three steps aimed at producing reliable assessments of creativity. To begin, managers were asked in advance via letter to identify appropriate decisions that they could describe. Then, on site, we asked managers to describe decision episodes that led to outcomes they classified as resulting in creative and noncreative solutions corresponding to the four combinations of decision outcomes described in Fig. 2. The managers' classification of their decision outcomes constituted the dependent variable for the study.

Next, we employed reliability procedures to verify that these classifications were distinct and meaningful. At the conclusion of each questionnaire was a series of Likert-type scales (reproduced in the appendix) designed to measure the novelty and value of the outcomes of each of the three decisions discussed by the manager. We used the response to these scales to assess whether the classifications made by the participants were reliable and distinct (e.g., that high novelty/high value decisions were significantly higher in novelty and value than low novelty/low value decisions). We used a two-item scale to measure novelty (interitem reliability coefficient $r = .68$), and a three-item scale to measure value (coefficient alpha = .97). Both scales demonstrated acceptable reliability. The means of the participant's assessments on the scales were contrasted using Scheffe's pairwise comparison test to see if the high and low novelty and value designations corresponding to different decisions could be confirmed using a different data collection procedure. All 12 contrasts comparing the novelty or value of the four types of decision outcomes were as expected. This analysis provides evidence of internal-consistency reliability and helps to validate the categorization scheme used to collect the data.

Then, because creativity is best viewed as a *consensual* judgment (cf. Amabile, 1982), we employed a panel knowledgeable about the domain of managerial decision making to help verify the managers' classifications. This technique, known as the consensual assessment technique (Amabile, 1982), provides reliable, independent measures of the novelty and value of the decisions to compare to the managers' assessments. This procedure allowed us to control for the potential influence of common method bias because the managers also provided the data related to the independent variables. We assembled a panel of four second-year MBA students who were familiar not only with the managerial decision making domain, but who also were experienced in the kinds of decisions described by the managers in the study. Working independently, each rater read transcripts of each decision (edited to remove company and individual names) and evaluated the outcome of the decision on the same series of scales used by the managers. The order of the decisions was randomized across coders, as was the order of the scales used to assess the decisions. The various dimensions were defined for the raters as they were for the managers; novelty was assessed relative to the specific company represented in the transcript and value was judged based on the goals discussed in the decision episode. Cronbach alphas for the inter-rater reliabilities among the four panelists ranged from 0.73 to 0.96, with a mean of 0.86 for assessments of the novelty and value of each decision. These results allowed us to combine the four panel members' judgments of novelty and value for all subsequent analyses. The combined novelty and value assessments again demonstrated high interitem agreement (r = .90 for the two-item novelty scale and alpha = .99 for the three-item value scale). We then used those ratings to conduct t tests comparing the panel's and managers' assessments of novelty and value across each of the four types of decision outcome classifications from Fig. 2. The respective means for the managers and the panel are reported in Fig. 2. t tests comparing the managers' and panel's assessments revealed that seven out of eight comparisons were not significantly different (t tests for the seven nonsignificant comparisons ranged from t = 0.02 to t = 1.28). The only significant t test revealed that the manager's viewed their common/valuable choices as somewhat less novel than did the panelists (t = 2.18, p = .02). This result probably stems from the managers' intimate familiarity with the routines of their respective organizations when compared to the outsider's perspective offered by the panelists. Despite this minor discrepancy, the overall level of agreement between the managers' and the panelists indicates that the outcomes of the choices in our sample could be reliably evaluated by individuals familiar with the managerial decision making domain. The general agreement between the managers' and the independent panel's descriptions suggests a substantially reduced threat of common method bias in interpreting the results.

Also, as a final validity check, we asked the manager' and the panel members to describe how creative each decision was on a single Likert-type scale. We then compared each sample's assessment of the "creative" choices (cell 1 in Fig. 2) to their assessments of the three types of noncreative decisions (cells 2–4 in Fig. 2). The three contrasts for the managers and the three contrasts for the panel all showed that the choices in cell 1 were viewed as substantially more creative than

the choices in the other cells (t tests ranged from t = 17.35 to t = 4.05, $p < .01$ for all six contrasts). Overall, these results provide evidence of good internal-consistency reliability, inter-rater reliability, and reliability between the managers' and the panel's assessments, as well as validation of our conceptual definition of creativity. We employed this extensive set of procedures to help overcome some of the common conceptual and empirical measurement problems that have hindered many prior studies of creativity and innovation (Schoenfeldt & Jansen, 1997).

Independent Variables. Items related to each of the independent variables, representing the factors shown in Fig. 1, were contained in the questionnaire. Eight of the scales were composed of three to five items, three other variables were measured with two-item scales. The reliability of these scales is reported in Table 1. Eight out of eleven of these scales were identical or somewhat modified versions of those used in a previous study of strategic decision processes that also relied on field interviews (see Dean & Sharfman, 1996 for a complete description). The three completely original scales, the measures of creative goals, familiarity with solutions, and negative feedback, were designed to replicate the general style employed by Dean and Sharfman's measures. One of Dean and Sharfman's key findings was that different managers playing different roles were able to agree reliably about the decision making processes employed by their respective groups. They reported inter-rater reliability coefficients ranging between 0.70 and 0.90 on measures related to decision process, choice characteristics, and task environment characteristics. These results indicate that managers' perceptions generally agreed with those of their colleagues' across a wide variety of organizational phenomena. Thomas and McDaniel (1990) and Thomas, Clark & Gioia (1993) successfully employed a closely related methodology that required executives to serve as informants with respect to specific decisions and organizational processes. Given that we were limited to interviewing only one informant per decision, and given that our interview protocol was essentially identical to that of Dean and Sharfman (1996), replicating key aspects of their procedures and measures affords us some protection from threats to the efficacy of our independent variable measures. Although we do not have direct evidence of the inter-rater reliability of the independent variable measures in this study, Dean and Sharfman's results using a nearly identical method suggest that this is an unlikely threat to the validity of our findings.

Control Variables. In addition to the independent variables, we measured several control variables including organizational size, industry, type of ownership, as well as the participants' age, education, hierarchical level, and functional area. We conducted one-way ANOVAs to test the impact of the categorical control variables; we assessed the impact of organizational size using correlational analysis. We also conducted a one-way ANOVA using each participant as a level to control for within-subject biases caused by individual differences. We used the interval level measures of creativity, novelty, and value as dependent variables for these analyses. None of the tests was significant, indicating that these control variables did not influence the dependent variables in the study.

Table 1. Reliabilities, Means, Standard Deviations, and Correlations for Independent Variables[a]

Variables	*Reliabilities**	*Means*	*SD*	*Correlations*										
				1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1) Importance	.69	4.81	1.02	1.00	.05	.34	.04	.21	−.04	.34	.05	.27	.00	.19
2) Common Perspective	.67	3.92	1.42		1.00	−.12	.22	.52	.23	−.17	−.49	−.43	−.10	.19
3) Creativity Goal	.67	4.70	1.36			1.00	−.03	.08	.06	.19	.09	.46	.05	.10
4) Familiarity w/solutions	.67	4.18	1.38				1.00	.18	.08	.03	−.11	−.22	−.12	.06
5) Trust	.69†	5.62	1.31					1.00	.32	.12	−.57	−.21	−.24	.23
6) Discretion	.69	4.93	1.40						1.00	−.15	−.50	−.22	−.23	.16
7) Rationality	.82	4.21	1.43							1.00	.17	.33	.03	.07
8) Politicality	.80	3.26	1.70								1.00	.31	.14	−.21
9) Flexibility	.61	3.86	1.26									1.00	.14	.00
10) External forces	.41†	3.75	1.79										1.00	−.12
11) Negative feedback	.66†	5.39	1.42											1.00

[a] $N = 153$. All correlations above $r \geq .16$ are significant at $p < .05$.

All correlations above $r > .21$ are significant at $p < .01$.

* Reliabilities assessed by Cronbach Alphas except for two item scales (designated by †) which were assessed by inter-item correlations.

Statistical Procedures

We used stepwise discriminant function analysis, which selects variables that discriminate membership among two or more categories, to test the hypothesized relationships. The most common application of this procedure is in selecting the most useful variables from a wide range of possible variables that might be used to construct a predictive model. In this study we were seeking to identify the variables that discriminate among four different types of decision outcomes: creative, as distinguished from the three types of noncreative decisions. Stepwise discriminant function analysis accomplishes this task by determining whether categories differ with regard to the means of the independent variables, and then using the discriminating variables to predict category membership. The first step of this procedure is essentially a MANOVA, with subsequent steps relying on canonical analyses to produce a classification model.

Studies that feature discriminant analysis (or logistic regression) usually try to predict membership into only two groups, which yields a single discriminant function that can be interpreted in much the same way as a stepwise regression analysis. However, because we are examining both the novel and valuable aspects of managerial decisions, we need to predict membership into four groups (corresponding to the cells in Fig. 2). Because variables might discriminate differently across the four types of decision outcomes, it is possible that multiple, independent discriminant functions could emerge from the analysis. Therefore, discriminant analysis comparing more than two classification groups involves additional steps. First, the stepwise selection procedure chooses the subset of independent variables that have significant mean differences across all four classifications. The variables that are significantly associated with novel and/or valuable decisions are at this point considered to be "in the model" (i.e., they constitute the variables that distinguish decisions that produced different types of outcomes). This step can be interpreted as a direct test of the hypotheses guiding this study. However, this result does not identify the specific nature of the differences among the cells. Therefore, canonical analysis is necessary to determine the number of significant, orthogonal discriminant functions that predict category membership. The maximum number of possible functions is equal to the number of groups minus one, or three in this case. The weights in these discriminant functions can be interpreted as would regression weights: larger weights contribute more to the discriminant ability of the function. However, the weights do not indicate which of the groups the respective functions discriminate among if more than one significant function emerges. Therefore, if there are two or more significant functions, it is necessary to perform another step that compares the means of the functions across the four groups to identify the nature of the discrimination for each function. As mentioned previously, these two steps were necessary because we had four outcome classifications in our study. However, unlike the hypotheses tests reflected by step one of the discriminant analysis procedure, we had no a priori expectations regarding the results produced by these final two steps in the analysis. Overall, these three steps will lead to the identification of the variables that discriminate between creative and noncreative decision outcomes, the rela-

tionships among those variables, and the nature of the discrimination provided by the variables across the four types of decision outcomes. As a result, these procedures should be able to generate a model that is specifically relevant to understanding attributes that enhance creativity in the managerial context.

Results

Table 1 reports the reliabilities, means, standard deviations and correlations among all the independent variables. As noted, the first step in this stepwise discriminant analysis was to test the study's hypotheses by identifying variables that discriminated among decisions possessing varying degrees of the attributes of creativity (i.e., novelty and value). This result is shown at the top of Table 2. Seven of the eleven independent variables entered the model when the probability of the "F to enter" criterion was set at 0.10. This probability level was selected as appropriate because the downside associated with overlooking a potentially important influence on creativity was seen as greater than the risk associated with

Table 2. Results of Stepwise Discriminant Analysis for Creative Decisions

1) Stepwise selection of discriminant variables			
Variables in the model	Wilk's lambda	*F* Value	P-level
Importance	.53	5.56	.001
Common perspective	.49	2.25	.08
Familiarity with solutions	.51	3.44	.02
Trust	.52	5.12	.002
Flexibility	.55	7.92	<.001
External forces	.51	4.00	.009
Negative feedback	.50	3.00	.03
Overall *F*-value = 7.16 ($p < .001$)			
2) Discriminant functions*			
Variables in the model	Function 1	Function 2	
Importance	**.56**	.09	
Common perspective	−.24	**.38**	
Familiarity with solutions	.12	**−.51**	
Trust	**.61**	−.01	
Flexibility	.15	**.87**	
External forces	**−.47**	−.07	
Negative feedback	−.23	**.42**	
Eigenvalue	.57	.33	
Common Variance Explained	62.05%	36.20%	
Chi Square ($p < .001$)	110.21 (df.=21)	44.28 (df.=12)	
3) Group means of canonical variables			
	Function 1	Function 2	
Group 1 (creative)	.61	.60	
Group 2 (common & valuable)	.71	−.79	
Group 3 (common & worthless)	−.70	−.42	
Group 4 (novel & worthless)	−.98	.31	

* Coefficients in boldface were used to interpret the function.

including a marginally significant variable in the model, given the lack of research on creativity in the managerial context. As indicated in Table 2, the 0.10 criterion includes only one marginally significant variable (common perspective, at .08); the other four variables did not approach significance.

The following variables all significantly discriminated decisions that produced different degrees of creativity: 1) problem importance, 2) having a common perspective among participants, 3) familiarity with possible solutions, 4) trust among participants, 5) flexibility of decision processes, 6) external forces, and 7) negative feedback. Having creative intentions or discretion, or engaging in rational or political behaviors did not significantly affect the means across the four types of decision outcomes (see the top of Table 2).

A canonical analysis performed to test for the uniformity of the effects of the seven variables in the model across the four groups is reported in the middle of Table 2. This analysis produced two significant, orthogonal discriminant functions. Concerning the hypothesized relationships, all the coefficients used to interpret the discriminant functions (boldface in Table 2) were in the predicted direction, thus providing further support for of 7 of 11 expected relationships. These two functions indicate that problem importance, trust, and a lack of external forces discriminate among the four decision classifications in a different fashion than having a common perspective, low familiarity with solutions, flexibility of decision processes, and negative feedback. These two functions together explain over 98% of the common variance in the canonical analysis.

The group means of these two functions are reported at the bottom of Table 2. The pattern of these means reveals that Function 1 discriminates between valuable decisions and those decisions that were ineffective; Function 2 discriminates between novel and common decisions. The factors that distinguish novel decision outcomes include common perspectives among decision makers, a low level of familiarity with existing solutions, flexibility of decision processes, and negative feedback. Factors that distinguish decisions producing valuable outcomes include high perceived problem importance, a high level of trust within the decision group, and a lack of detrimental effects from external forces. Thus, distinct and independent constellations of factors affect the novelty and value of creative managerial decisions.

The effectiveness of a discriminant model is generally measured by its ability to classify observations accurately. The overall ability of these functions to accurately classify the decisions from this study is 56%, compared to 25% if the decisions were classified randomly. The model was especially effective at classifying the most creative decisions, accurately classifying 67% of decisions in the creative group (compared to a 25% a priori probability). This suggests that the criteria used to select variables for inclusion in this study were effective for identifying important influences on managerial creativity.

Discussion

This empirical study contributes to the creativity literature by considering the influence of both teleological and evolutionary processes on creativity. It also

contributes by focusing explicitly on creativity in *managerial* decision making, an obviously important if markedly understudied domain. Our approach emphasizes that creativity, especially managerial creativity, entails an interaction between managers, the domains toward which their decision making activity is targeted, and the gatekeepers and stakeholders who represent those domains. We believe this approach represents a more realistic portrayal of the complexity and richness of the organizational setting as it relates to the realization of hoped-for creativity.

Overall, this study demonstrates that evolutionary and teleological processes both significantly affected the creativity of managers' decision outcomes. Perhaps the most striking finding was the distinct pattern of influences that affected the novelty and value of decisions. Of the seven variables that differentiated creative from noncreative decision outcomes, four comprised a configuration of influences that distinguished the novelty dimension and three others comprised a separate configuration that distinguished the value dimension. This pattern of results reveals creativity to be a multidimensional phenomenon, and shows that those dimensions are affected by markedly different processes that are essentially independent of each other.

A more detailed look at this pattern shows that the novelty of the decision outcomes was related to negative feedback, an evolutionary process reflecting the influence of context. Novelty was also enhanced when managers worked with other decision makers holding a common perspective, were unfamiliar with potential solutions, and used flexible decision processes, all of which are teleological processes reflecting the influence of managers' decision processes. On the other hand, the value of decision outcomes was positively influenced by issue importance and the absence of disruptive external forces (both evolutionary, contextual processes) and by trust among decision makers (a teleological process). These relationships are shown in Fig. 3; taken together, they reveal a complex interplay of manageable and unmanageable forces that differentially affect the novelty and value of managers' choices.

The discovery of multiple, independent influences on creativity in the managerial domain was neither expected nor suggested by previous empirical creativity research. We assumed that we would find a relatively unified array of influences. In retrospect, our expectations were probably most affected by conceptual and operational definitions of creativity that imply that novelty and value go hand in hand. For example, Amabile's influential research on creativity in R&D settings (summarized in Amabile, 1988 and Amabile et al., 1996) was based on asking R&D professionals to describe occasions when they were either particularly creative or uncreative. This procedure tends to conflate novelty and value but is common in the creativity literature. Most creativity research also seems tacitly to assume that novelty inherently adds value to a solution (i.e., new is better). This may be true in the arts or in R&D settings, but, in the domain of managerial work, novelty may be more loosely coupled to the value associated with managers' choices. As one manager commented:

"With creativity comes uncertainty. Whenever you have uncertainty people feel uncomfortable and insecure. If [a creative decision] is not successful, the

Processes Associated with Decision Outcomes	Decision Outcome Dimensions: Primarily Associated With Novelty	Decision Outcome Dimensions: Primarily Associated With Value
Evolutionary Processes (reflecting influence of context)	Negative Feedback	Problem Importance Lack of External Forces
Teleological Processes (reflecting influence of managers' decision processes)	Common Perspectives Few Familiar Solutions Flexible Decision Processes	Trust Among Decision Makers

Figure 3. A Summary of Influences on Creativity in the Managerial Decision Domain

negative things that can happen to you are ten times greater than the positive things."

One implication of these findings is that managers should be wary of adopting creativity techniques primarily designed to enhance the novelty of available solutions. Such practices are likely to be only marginally useful in the managerial decision domain.

Aside from these overall findings, several findings related to the specific variables retained in the model merit discussion. The finding that issue importance is associated with creative choices is reminiscent of the adage that necessity is the mother of invention. It may be that important issues bring with them a wider variety of incommensurate demands. In such circumstances, it may be difficult for managers to resolve problems with current routines. Thus, a group of decision makers might be more motivated to consider novel solutions than when facing less important situations where an expedient response would be adequate (cf. Cohen, March, & Olsen, 1972).

Our expectations regarding common perspectives were also supported by our results. However, a closer look at our findings reveals a potential paradox; having a common perspective was negatively associated with flexible decision processes ($r = -.43$), one of the other teleological processes associated with novel choices. This finding is consistent with the notion that homogeneous decision-making groups often proceed unquestioningly (i.e., nonrecursively) toward early adoption of nondivisive solutions. However, this negative tendency might be counterbal-

anced by other positive influences on managers' decision processes. Specifically, it could be more important in this domain to have agreement-in-principle about the nature of the problem to be solved than it is to have diverse backgrounds upon which to draw.

Another variable that has been subject to contradictory predictions related to creativity is the familiarity of decision makers with alternative solutions. The results of this study are consistent with empirical evidence that decision makers frequently opt for familiar solutions. This variable might be particularly important to formulating a view of the distinctiveness of managerial creativity. In experimental studies in other domains, the familiarity of subjects with the task at hand (often a novel, but trivial, problem-solving task) is explicitly designed to be low. Managers, however, tend to be held accountable for problems related to their areas of expertise—especially for problems that are traceable to familiar solutions rooted in their specialized backgrounds. Thus, managers interested in creative options might be faced with a well-known dilemma: if they choose the safe path by adopting a professionally sanctioned solution they might not resolve the problem, but they reduce their exposure to second guessing should the action fail. Adopting creative choices may increase the odds of resolving the problem(s) at hand, but at the cost of leaving decision makers open to the stones and arrows of critics should the decision fail. The calculus underlying this tradeoff might be especially salient in the managerial decision domain (Ford, 1996), so this finding tends to reinforce the importance of having an overall climate that supports risk taking (Amabile et al., 1996; Tesluk, Farr, & Klein, 1997).

The findings that trust and flexible decision processes enhance creativity offer relatively straightforward implications. It is likely that trust enables creative action by encouraging open information exchange, goal alignment among decision makers, and (perhaps especially) willingness to suggest novel alternatives. A trusting work environment allows individuals to develop solid expectations about the contingencies associated with different behaviors. Thus, a trusting context that is supportive of creativity, risk taking, and critical discussion should enhance decision makers' motivation to propose and consider creative solutions (Ford, 1996). Flexible decision processes enhance creativity by allowing managers to avoid closure between the problem definition and alternative development phases of their decision processes (Alexander, 1979). Managers may want to consider recursive processes as a potential opportunity for creativity, rather than as frustrating instances of indecisiveness.

Finally, external forces and negative feedback both were consistent with our expectations. The significant role that external forces played in these managers' decisions reminds us that serendipity can play an important role in the ultimate selection and retention of creative acts. Occasionally, the difference between a valuable and an ineffective choice was simply the presence or absence of an unexpected contingency. This finding suggests that managers need to remain aware of the potential for uncontrollable forces to ruin the best laid creative plans. The finding that novel solutions typically elicited negative feedback from other organization members echoes folklore that describes creators doing battle with doubters before their creations were realized. The implications of this finding are

twofold. First, managers should set their expectations so that negative feedback does not unduly dampen motivation to continue a potentially promising effort. If negative feedback is prevalent, perhaps it can be utilized positively to encourage managers to do a better job of articulating and justifying their choices. Second, resistant constituencies can be actively influenced; interested stakeholders can be lobbied by touting the benefits of creative action in terms related to the stakeholders' goals.

Limitations

Perhaps the most serious limitation constraining the design of this study stemmed from resource requirements associated with visiting 51 different research sites. We were only able to interview a single informant for each decision. To mitigate this shortcoming, we have taken care in designing procedures and selecting measures (many of which generated high inter-rater agreement in Dean and Sharfman's 1996 study) that would enable us to capture meaningful assessments reflecting the shared perceptions of the managers involved in each decision. We also took care to avoid single source (common method) bias between the independent and dependent variables. The consensual assessment procedure provided corroborating assessments of the characteristics of the choices in the sample that helped to validate our dependent variables. Nevertheless, our procedures do not provide a direct assessment of the reliability of our informants' assessments of the independent variables. We would, therefore, suggest that future studies consider including multiple informants so that direct measures of inter-rater reliability can be produced.

Because of the pragmatics of dealing with executives time constraints, we were limited to discussing only three (rather than four) decisions with each informant. If we had comprehensive data for each subject we could have conducted within-subject analyses that could be compared across participants. Following this approach in future studies might produce new insights that could further enrich our understanding of the complex interactions portrayed by our model.

Finally, several of the measures employed to assess the independent variables demonstrated only moderate scale reliabilities, which is not unusual when complex behavioral variables are measured. However, these limited reliabilities might have reduced our ability to identify some statistically significant relationships during our analyses. The reliability of our measure of decision process flexibility in particular was marginal. This variable was meant to reflect what are often considered "creative" decision processes. Even though flexibility had a strong impact on the creativity of the decisions included in our sample, one can't help but wonder if a more effective measure might not have revealed an even stronger relationship. Such a finding would certainly be encouraging to consultants who offer interventions aimed at facilitating such processes. Future studies should seek to refine our measures or create new, more reliable assessments.

Conclusions and Future Research Directions

Overall, this study provides a clearer and more comprehensive picture of the relationship between various aspects of managers' decision making activities and the creativity of their choices. These results are encouraging because they indicate that many of the influences on creative managerial decision outcomes are, in fact, manageable. The results point to actionable factors that might have substantial potential for facilitating efforts of managers interested in boosting the creativity of their decisions.

This study provides an initial empirical demonstration that teleological and evolutionary processes both influence creative managerial action. It also shows that different factors independently influence the novelty and value of creative outcomes. These results suggest that researchers of organizational creativity need to consider more comprehensive theoretical depictions of creativity that are more appropriate to organizational domains, and to employ measures of creativity that reflect both novelty and value. At a more specific level, this study represents an attempt to describe the processes that facilitate creative action in the managerial decision domain, and our theoretical framework suggests that several of our findings might be specific to this domain. This study suggests that in organizational domains novelty and value are loosely coupled outcomes affected by relatively independent constellations of influences. If influences on novelty are typically independent of influences on value, then the efficacy of creativity interventions that focus mainly (or solely) on producing novel ideas becomes problematic. Future research that addresses these issues not only represents a more realistic theoretical portrayal but might also enhance the practical utility of creativity interventions across a broader range of organizational participants.

Notes

1. This domain-based, evolutionary description of creativity has direct parallels in the sociology of organizations. Specifically, institutional theory presents a similar description of how domains and fields interact with organizations to select and retain "legitimate" organizational forms. This theory proposes that domains, defined by their "rationalizing myths" (Meyer & Rowan, 1977), lead actors who comprise an organizational field, defined as key organizations that constitute a recognized area of life (DiMaggio & Powell, 1983), to look and act as prescribed by the rules and myths of the domain. Those organizations deemed "legitimate" by their field (i.e., stakeholders) are selected (i.e., they survive), and the organization's practices are retained as elaborations to the domain. Contrary to the systems view proposed in psychology, institutional explanations have been utilized almost exclusively to describe constraints that produce conformity within a domain, although recent arguments have described institutional theory's potential for explaining heterogeneity and change as well (e.g., Powell, 1991).
2. Although the unit of analysis is a decision, we should also note that these decisions took place in groups. The participants in the study were instructed to act as informants regarding decisions in which they had been involved. Perhaps not surprising given the status of most of our participants, these decisions invariably involved a wide range of individuals both inside and outside the participants' organizations. The "groups" that our participating executives referred to usually varied from one decision to the next. Few participants described decisions that all took place in the context of an ongoing team. Although we draw several important insights from research on groups, we have chosen to emphasize decision making research in the development of our hypotheses to be consistent with our chosen unit of analysis and underlying theoretical framework, and to address this characteristic of our sample.

Appendix

The managers described the independent variables in the study by responding to the following questions. All questionnaire items were measured on 7-point Likert scales.

Importance:

1. How important was this decision?
2. On the following scale please indicate what you think could have been the best and worst possible effects on your company from this decision. (Score equals difference between marks)
3. How would you describe the group's level of interest in this decision relative to other decisions in which you have been involved?
4. How much was this a central focus of your attention during the time it took to complete?

Common Perspectives:

1. To what extent did the group members approach this decision with similar perspectives?
2. How different were the people involved in this decision in terms of education, experience, specialized knowledge, and so forth?
3. How often did people display differences of interest during this decision?

Creativity Goal:

1. How concerned was your group with developing a creative solution when you first considered this problem?
2. Did your group make a specific effort to develop a creative solution?
3. How creative would you say you and the group's other members are compared to other people you have worked with?

Familiarity with Solutions:

1. How knowledgeable was this group about the issues related to this decision?
2. To what extent was the group already familiar with a variety of possible alternative solutions when you first heard about this problem?
3. Was this the kind of problem where a number of fairly obvious solutions became immediately apparent to the group?

Trust:

1. How confident were you that you could rely on those with whom you worked with on this decision?
2. How would you characterize the level of trust among the people involved in this decision?

Discretion:

1. How much autonomy or discretion did you have in making this decision?
2. To what extent did you have to rely on the authority of others when making this decision?
3. Businesses often go through cycles in the availability of money. Sometimes it is very tight, and other times its not very tight. How would you describe your situation at the time you made this decision?
4. How difficult would it have been to get approval for a medium-sized project (for your company) that was worth doing at the time this decision was made?

Rationality:

1. How extensively did the group look for information in making this decision?
2. How extensively did the group analyze the relevant information before making this decision?
3. How important were quantitative analytic techniques in making this decision?
4. How confident are you that the group considered every reasonable possibility in making this decision?
5. How would you characterize the processes that had the most influence on this decision?

Politicality:

1. To what extent was the decision affected by the use of power and influence among group members?
2. How important were political constraints to the outcome of this decision?
3. How much was the decision affected by negotiation among group members?
4. One more time, how would you characterize the processes that led to this decision?

Flexibility:

1. To what extent were you able to reconsider steps that were taken leading to your final decision?
2. To what degree were people able to contribute to the decision in ways that did not strictly match their job description or level of authority?
3. How often were novel or unusual ideas presented during discussions?
4. Once again, how would you characterize the activities or processes that led to this decision?

Externalities:

1. How seriously was the outcome of this decision effected by factors that were beyond the group's control?

2. How much was the outcome of this decision influenced by unexpected events or circumstances?

Negative Feedback (Reverse Scored):

1. How supportive were people in your organization of this decision?
2. To what extent were people in your organization "behind you" as you worked on this decision?

After completing the items that measure the independent variables, the managers were asked to assess the *result* of each decision they described by using the following response scales.

Worthless 1——2——3——4——5——6——7 Valuable
Novel 1——2——3——4——5——6——7 Common
Effective 1——2——3——4——5——6——7 Ineffective
Creative 1——2——3——4——5——6——7 Uncreative
Successful 1——2——3——4——5——6——7 Unsuccessful
Routine 1——2——3——4——5——6——7 Unusual

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