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Opening up Decision Making: The View from the Black Stool

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This paper takes a fresh look at both decision-making research and the actual process of organizational decision making. A model is proposed that captures the true complexity of decision making, including the ambiguity of commitment, decision maker experience, affect and insight, and the interwoven network of issues associated with each decision. This article provides new insight and ideas about organization decision making.

Richard L. Daft

Abstract

Set on its current course thirty years ago by Herbert Simon's notions of bounded rationality and sequential stages, the research literature of organizational decision making is claimed in this paper to have suffered from three major limitations labeled reification, dehumanization, and isolation. In particular, it has been stuck along a continuum between the cerebral rationality of the stage theories at one end and the apparent irrationality of the theory of organized anarchies at the other. This paper seeks to open up decision making in three respects. First, the concept of "decision" is opened up to the ambiguities that surround the relationship between commitment and action. Second, the decision maker is opened up to history and experience, to affect and inspiration, and especially to the critical role of insight in transcending the bounds of cerebral rationality. Third, the process of decision making is opened up to a host of dynamic linkages, so that isolated traces of single decisions come to be seen as interwoven networks of issues. The paper concludes with a plea to open up research itself to the development of richer theory on these important processes.

(Decision Making; Networks; Insight)

Aunt Betty calls: "Hi kiddo. I want to buy you a housewarming present. What's the color scheme in your new apartment?" "Color scheme? Betty, you've got to be kidding. Anyway, I'll have to ask Lisa."

"Lisa, Betty wants to know the color scheme of the apartment." "Black." "Black?" "Black," she repeats matter-of-factly. "Lisa, I've got to live there." "Black."

A few days later, father and daughter find themselves in IKEA, Swedish furniture supermarket. They try every couch, every chair; nothing works. Shopper's lethargy sets in. Then, Lisa spots a black stool: "Wouldn't that look great against the white counter!" And with that they're off. Within an hour, they have picked out a dining room table (black), chairs (steel grey), cutlery (white), end table (black), rug (white), and baskets (one black, one white).

The *extraordinary* thing about this ordinary story is that the formal literature of decision making cannot explain it. Ever since Chester Barnard placed decision making at the core of the functions of the executive (1938, p. 189), researchers have sought to render that elusive topic amenable to objective inquiry. As a result, "decisions" have been described as discrete and concrete phenomena driven by rational—albeit bounded—minds, stripped of affect, insight, and history.

No doubt, this view of decision making has provided a framework for seemingly credible, if limited, description, and, at times, intrepid prescription. But it has failed to explain some of the most important aspects of decision making. After more than 30 years of research,

the literature of organizational decision making exhibits its own lethargy, caught in the rut of three fundamental assumptions: that organizational decisions are identifiable outcomes of impersonal and isolable processes. We present this paper not to offer a new theory of organizational decision making so much as to suggest a variety of ways in which current conceptions of the process can be opened up. Our hope is that these ideas will stimulate others, until some researcher spots the "black stool" that will allow that new theory to crystallize.

This paper highlights three properties that are hardly present in the mainstream literature of organizational decision making. First, while the concept of "decision" itself (which we take to mean commitment to action) may imply distinct, identifiable choice, in fact many decisions cannot easily be pinned down, in time or in place. Second, rather than proceeding merely as the linear unfolding of sequences of decomposed stages, more or less, decision making processes are driven by the emotion, imagination, and memories of the decision makers and are punctuated by sudden crystallizations of thought, as is evident in our story. Third, even when a decision can be isolated, rarely can the process leading up to it. During the "long process of appraisal", to quote Dewey and Bentley (1949, p. 247), decisions typically become inextricably intertwined with other decisions. Thus, most of the literature notwithstanding, we believe that no decision can be understood *de novo* or *in vitro*, apart from the perceptions of the actors and the mindsets and cultures of the contexts in which they are embedded. On the contrary, we shall argue that decision making must be studied *in toto* and *in vivo*, at the individual level to include insight and inspiration, emotion and memory, and at the collective level to include history, culture, and context in the vast network of decision making that makes up every organization.

Our arguments will be structured as follows. First, under the heading "Organizational Decision Making in the Research Literature," we shall present three schematic models of the decision making process (labelled *sequential*, *anarchical*, and *iterative*) that between them summarize the main contributions of most of this literature. We will then identify three specific limitations of these views (*reification*, *dehumanization*, and *isolation*). The first limitation is associated with the concept of "decision" itself, the second with the literature's treatment of the "decision-maker," and the third with the "processes" of decision making. The three sections that follow explore each of these limitations in turn, seeking to open up, respectively, the

concept of decision, the view of the decision maker, and the process by which decisions are made. Each of these three sections concludes with an additional schematic model capturing a new dimension that we believe to be important to a full understanding of organizational decision making. These models are labelled in turn *convergent*, *insightful* and *interwoven*. Thus, by the end of the paper, we will have developed six different models of the decision making process. We conclude the paper with an examination of the implications of these different perspectives for future research.

1. Organizational Decision-Making in the Research Literature

The essence of ultimate decision remains impenetrable to the observer—often indeed, to the decider himself. . . . There will always be the dark and tangled stretches in the decision-making process—mysterious even to those who may be most intimately involved. [John Fitzgerald Kennedy, quoted in Allison, 1971, preface.]

Since the role of research is to shed light, researchers have had the option of tackling the "dark and tangled stretches" directly, which would have meant compromising their methods, or else of ignoring these for methodological convenience and so compromising their results. Like that folk figure Nasrudin who preferred to look for his lost key in the light rather than the darkness where he lost it, researchers of decision making in organizations (ourselves included) have often chosen the latter, leaving those stretches to remain as dark and tangled as ever. We examine here how organizational decision processes have been explored over the years in order to identify some of those mysterious and neglected areas. We conclude that most of the literature can be positioned along a continuum between two poles, with the cerebral rationality of *sequential theories* at one end and the *anarchical processes* of the garbage-can model at the other. Yet this continuum fails to capture some important characteristics of organizational decision making.

Sequential Theories and Cerebral Rationality

While John Dewey (1910) may have introduced the notion of decision making as a sequence of decomposed stages that converge on a solution, it was Herbert Simon who established the dominant line of research in organizational theory with his model of decision-making processes as a three phase "intelligence-design-choice" sequence (Simon 1960, p. 2). In addition, he, along with other writers of the time (e.g.,

Simon 1957, March and Simon 1958, Lindblom 1959) opened up the concept of rationality by challenging the economists' notion that decision makers armed with complete information about alternatives and their consequences simply select the one that maximizes their utility. But in so discrediting *economic* rationality, Simon nonetheless remained true to the broader but no less conventional notion of what might be labelled *cerebral* rationality, that decision making is a cognitive process that can be decomposed into a sequence of simple, programmed steps.

A large proportion of subsequent field research on organizational decision making followed Simon's lead. Underlying much of this work has been the view of decision making as a boundedly rational process converging sequentially from the stage of problem definition towards that of final choice. Thus, Mintzberg et al. (1976) elaborated the Simon trichotomy into a model of seven routines surrounded and infused by a series of dynamic factors, while Nutt (1984) elaborated the model in a different way to arrive at a sequence of five stages, each with three components. Other groups of researchers chose to explore particular stages in depth (e.g., Pounds (1969) and Smith (1989) on "problem finding," Lyles and Mitroff (1980) on "problem formulation," Dutton et al. (1983) on "strategic issue diagnosis," Alexander (1979) on the "design of alternatives"), while still others took the stage model as a basis for their investigation of general characteristics of decisions across phases (e.g., Frederickson and Mitchell (1984) on the "comprehensiveness" of decision processes), or developed stage models for particular kinds of decisions (e.g., Bower (1970) on capital budgeting; Ghertman (1981) on acquisitions; Burgelman (1983) on new ventures).

Anarchy as the Limit of Rationality

Of course, the stage model has had its detractors. Schwenk (1985) suggested that the empirical support for this type of model may reflect biases inherent in the methodology of retrospective interviews (e.g., the use of an implicit stage model to frame interview questions, and respondents' selective recall of events as more logical and sequential than they actually were). The sequential models have been particularly questioned where organizations have ambiguous goals, many decision participants, and diffuse actions (e.g., Weiss 1982, Cohen et al. 1972, Allison 1971).

Thus, a very different perspective developed, a kind of subversive element in this literature, which focused on organizational decision making as a social interac-

tive process. This had its roots in the work of James G. March along with various colleagues (e.g., March 1962, 1978; Cyert and March 1963; Cohen et al. 1972; March and Olsen 1976; also March and Simon 1958), but also developed in a stream of "political" models which depicted independent actors promoting personal interests through games of bargaining, coalition building, persuasion, and the like (e.g., Allison 1971, Model 3; Brunsson 1985; Pettigrew 1973; Crozier and Friedberg 1977; Murray 1978; Eisenhardt and Bourgeois 1988). Although somewhat less enthusiastically adopted by empirical researchers, these models opened up decision making to the collective dimension. Here, the emphasis was placed, not on activities required to diagnose problems and generate solutions, but rather on the ways in which problems and solutions emanating from various parts of an organization combined to produce decisions.

Of these social interactive descriptions, Cyert and March's (1963) "behavioral theory of the firm" remains perhaps closest in flavor to Simon's sequential approach, with its emphasis on the organization's structural decomposition into loosely coupled subunits, each with its own standard operating procedures (see also Carter (1971a, b) and Allison (1971)), while the "garbage can" model of Cohen et al. (1972) went perhaps farthest in describing organizational decision making as a chaotic process. In their "organized anarchies," problems and solutions became linked in random or at least opportunistic or serendipitous ways driven by the hazards and vagaries of participation in choices. In effect, the bounded decision makers faced so much complexity and ambiguity that anarchy took over. Thus, the garbage can model did not drop the assumption of bounded rationality so much as pursue it to its natural conclusion.

The contribution of the Cohen et al. (1972) model is that it began to provide some explanation for the apparent disorder we have all witnessed in some decision processes. However, as noted by Pinfield (1986), the explanation often seems limited and the assumptions far-fetched when specific cases are examined in detail: "participation in decision processes is not fluid but is channelled by structural features of hierarchy and functional specialization" (Pinfield 1986, p. 386). In fact, with its powerful metaphor, the model can easily become a convenient way to deal with all of the unexplained variance: whatever researchers fail to understand using more traditional theories can be safely dumped into the garbage can. The danger is that other important but as yet unexplained forms of order in the processes we call decisional can be overlooked.

To summarize, the literature of organization decision making has tended to accept a dichotomy between rather clear and focused sequential processes on one end and rather dark and tangled “anarchic” processes on the other. Ironically, these two extremes have been championed by the two individuals who coauthored one of the classic works that helped to establish this literature in the first place (March and Simon 1958). But as we have suggested, their divergence may be more apparent than substantial; as we add other perspectives, this dichotomy will, we believe, begin to look like a bipolar line in the multidimensional space that houses these complex processes. We shall refer to the two extreme views as Models 1 and 2. Our presentation of these models below deliberately caricatures the work of the original authors, reducing the ideas to their essentials in order to firmly anchor the two extremes.

Model 1. Organizational Decision Making as Sequential. Model 1 is represented by Simon’s original view of decision making, which emphasizes structure and order in a three-step sequence: *intelligence*, in which the confusing messages of the environment are reduced to a diagnosis of a problem that drives *design*, in which alternate solutions to the problem are developed, which through analyses can be reduced to the *choice* of one (see Figure 1). The process progresses steadily, albeit bounded by people’s limited cerebral rationality, towards a solution. The appropriate metaphor is the machine, in Simon’s work especially, the computer.

Model 2: Organizational Decision Making as Anarchical. At the other extreme along the scale of order is March and his colleague’s approach, which we label Model 2, in which decisions appear to emerge in an inconsistent fashion, as shown in Figure 2, emanating tangentially from a kind of vortex with no apparent structure or sequence. The best-known metaphor is, of course, the garbage can, although in its milder, political rendition, the Hickson et al. (1986) use of the image of the vortex might be more appropriate.

In concluding that this has been the sharpest and most evident dichotomy in the literature of organizational decision making, we do not, however, wish to imply that this literature clusters at the two extremes.

Figure 1 Model 1: Organizational Decision Making as Sequential, Driven by Diagnosis

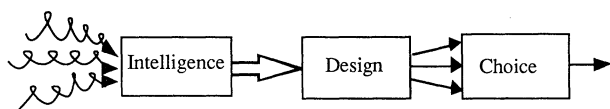
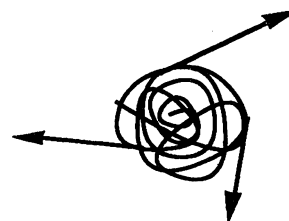


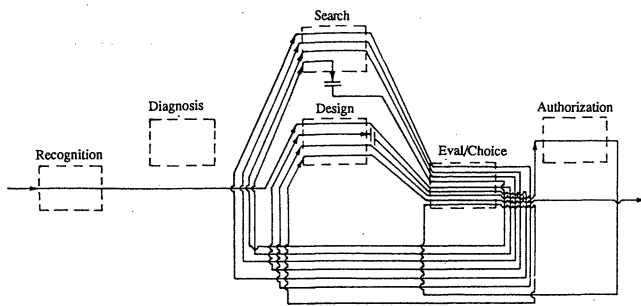
Figure 2 Model 2: Organizational Decision Making as Anarchical, Driven by Events



Quite the contrary in fact: many of its authors have been careful to position their work in between, sometimes as compromises or syntheses of the sequential and anarchical, sometimes in the form of typologies that lay different types of processes along the continuum (e.g., Mintzberg et al. 1976, Fahey 1981, Meyer 1984, Quinn 1980, McCall and Kaplan 1985, Shrivastava and Grant 1985). The most sophisticated and ambitious effort in this regard would seem to be that of Hickson and his colleagues (1986), who studied 150 decision processes in depth, in 30 different British organizations. Their typology of three modes of decision making includes *constricted* processes (corresponding roughly to Model 1 described above), *sporadic* process (corresponding closest to Model 2), and, in between, *fluid* processes, which deal with “unusual but non-controversial tractable matters which tend to be less complex...[and] least political” (p. 175). Note that some researchers have followed Allison’s (1971) lead of applying several models to the same situation in order to enrich explanation of it (e.g., Steinbruner 1974, Mazzolini 1979, Pinfield 1986). Again, at least in these particular studies, the models have tended to fall along the sequential-anarchical continuum. Thus, we shall take Model 3 as the middle ground between the first two models.

Model 3. Organizational Decision Making as Iterative Sequence. Our representation for the midpoint of the continuum comes from Mintzberg et al. (1976). This model combines elements of both sequential and anarchical views by taking the linear sequence of Model 1 as a foundation and then imposing on it a series of “dynamic factors” (such as external interruptions and organizational politics) that reflect the chaotic elements of Model 2. Here the decision makers begin with something tangible—a problem or crisis to be resolved, an opportunity to be exploited—and then expend their efforts to keep the process *on track*, through distinct stages from initial conception to final choice. Meanwhile, the messy world of unpredictable events and conflictive perspectives intervenes, knocking the pro-

Figure 3 Model 3: Organizational Decision Making as *Iterative Sequence, Driven by Diagnosis and Interrupted by Events* (Mintzberg et al. 1976, p. 273)



cess off track. Depending on the severity of these, decision making takes different forms, falling closer to Model 1 when the interruptions are few or minor, closer to Model 2 when they are so influential that order becomes difficult to restore. Our illustration for Model 3 comes from Mintzberg et al. (1976), and represents the “decision” of a small firm to build a new plant (see Figure 3).

Limitations of the Mainstream Literature

Researchers who have accepted the conventional conceptions of decision making described above have had a clear course of action set out for them. They had to isolate “the decision”—that critical moment of final choice—and then work back to reconstruct the track of the decision-making process from its starting point, the sequence of events that produced it as well as the various digressions that arose along the way. However, when juxtaposed against the reality of managerial work, the limitations of this approach are obvious:

... the manager’s job can usefully be pictured as a stranded rope made of fibres of different lengths—where the length represents time—each fibre coming to the surface one or more times in observable “episodes” and representing a single issue. The higher the level of manager the longer the average length of the fibre, the more intertwined the issues become, and the greater the number of episodes per issue. (Marples 1967, p. 287)

If this metaphor rings true, then “decision” and decision process as decomposable elements tend to become mere figments of the researchers’ conceptions, or artifacts of their methods. Or to use an even more graphic metaphor, if a decision is like a wave breaking over the shore—that is, perhaps identifiable at some sort of climax—then tracing a decision process back into an organization becomes much like tracing the origin of a wave back into the ocean.

Thus, despite the undeniable contributions of the literature described above, we believe that conventional conceptions of decision making suffer from several limitations. We examine three of these in depth.

Limitation 1. Reification. The first limitation, even in the most radical of this literature (namely the “garbage can” theory), is that *decision* exists and can be clearly identified: there is that moment of “choice.” We wish to argue that “decision” is a construct, often useful but sometimes misleading, whose use, in fact, reflects a bias toward viewing organizations as mechanistic and bureaucratic.

Limitation 2. Dehumanization. The second limitation, derivative of both the cerebral perspective and the formal methodologies of research, is the view that decisions unfold in a sequential pattern, oblivious of individual differences and divorced of human emotion and imagination. These *arational* forces are ignored in almost all of the literature, yet they can undermine the notions of both distinct stages and simple bounded rationality. Accordingly, we argue that the individual decision maker plays a central role as creator, actor, and carrier, and that organizational decision processes are often driven by the forces of affect, insight, and inspiration of these decision makers acting collectively.

Limitation 3. Isolation. The third limitation is the assumption that decision processes can in fact be isolated from one another and from much of the collective reality that is organization. In other words, distinct processes can be identified, tracing back from particular choices, and these can be described rather independently of their organizational context. We shall instead argue that strategic decision processes are characterized more by their interrelations and linkages than by their isolation.

In the next three sections, we discuss each of the three limitations in turn, opening up respectively the concept of “decision,” the “decision maker” and the “decision making process.” At the end of each section, we suggest a new schematic model of organizational decision making.

2. Opening up the Concept of “Decision”

It is a perplexing fact that most executive decisions produce no direct evidence of themselves and that knowledge of them can only be derived from the cumulation of indirect evidence. They must largely be inferred from general results in which they are merely one factor, and from symptomatic indications of roundabout character. (Barnard 1970, pp. 192-193)

The implication of Barnard's comment is that decisions clearly exist; he may have doubted our ability to track them down but not their very existence. But the problem may be ontological as well as methodological, and another interpretation needs to be considered: that decisions often do not exist; they are merely constructs in the eyes of the observer.

Let us return to our story of the black stool. (This may be a personal decision but its implications are no less organizational.) If decision is commitment to action, then what do we take to be the commitment on sighting those stools: to buy them, to get on with furnishing an apartment, to do so in black and white, even to create a new lifestyle? And given that the commitment occurred shortly after the sighting—at the revelation that black and white could work, indeed would look rather good—what “evidence” did that commitment leave behind for researchers? An astute observer, or a lucky one, might have gleaned this through in-depth interviews shortly after the event. But where would that have left him or her on “validity” and “reliability?” Conventional researchers would probably have sought the more tangible trace, most obviously here the purchase slip. But in that case they would have found nothing, for the store was out of stock of those stools that day and for many months thereafter. (A friend eventually bought them in an IKEA store 150 miles away!)

In fact, by relying on paper artifacts, researchers favor only the tangible manifestation of decision, or put another way, only decisions that tangibly manifest themselves. It is not incidental, in our view, that the most popularly studied “strategic” decision in the literature is that to purchase EDP equipment (e.g., Cyert et al, 1956; Carter 1971 a, b; Witte 1972). Unfortunately, as Barnard noted, some “decisions” never manifest themselves tangibly.¹

Most of the research has, in fact, proceeded initially not from decision so much as action, for example the purchase of a computer or the acquisition of a firm. It then assumed decision: that some identifiable moment of commitment inevitably preceded action. In other words, if an organization *did* something, it must have previously *decided* to do so. Not surprisingly, the search for the seminal decision generally proved successful. But that may have had a good deal to do with the kinds of “decisions” and forms of organizations implicitly favored for study. For, in fact, the relationship between decision and action can be far more tenuous than almost all of the literature of organization theory suggests.

For one thing, action can occur without commitment to act. The doctor who strikes your knee knows that and so does the judge who accepts that when a murder is planned and deliberate, it is called first degree, otherwise it is second degree. In other words, in law people can murder without deciding.

Transferring to the organizational context, consider the following comment by an executive of the world's largest corporation:

It is often difficult to say who decided something and when—or even who originated a decision... I frequently don't know when a decision is made in General Motors. I don't remember being in a committee meeting when things came to a vote. Usually someone will simply summarize a developing position. Everyone else either nods or states his particular terms of consensus. (quoted in Quinn, 1980, p. 134)

But organizations can act even without explicit consensus. The story circulated in Europe several years ago that the top management of another large automobile firm had hired consultants to find out who in their company had “decided” to introduce a major new model. Perhaps someone really did decide; but conceivably no one did. Someone may have just produced a clay model of a speculative design, someone else may have perceived the engineering implications of this, and, like a rolling snowball, thousands of “decisions” and actions later—concerning bumpers and assembly lines and advertising campaigns—a new automobile appeared. Or perhaps the outcome was the result of the application of myriads of “standard operating procedures,” mechanisms designed after all to allow action while economizing as much as possible on decision (Cyert and March 1963, Allison 1971).

One fundamental problem with decision is the difficulty of identifying commitment in the collective context of organization. Must there always be a clear *point* as well as a clear *place* of decision? Associating it with some specific document may simplify the research, but at what price? Consider the example of a company that announces the “decision” to build a new factory. Tracing back, one might find a minute of a board meeting in which the “decision” was “made,” which really means recorded. But perhaps the real commitment preceded that minute by six months, when the owner-president visited the site and made up her mind. A second problem is interpreting the *nature* of any commitment that was made: in the minds of managers, the formal decision about the new factory could represent anything from a minor question of site-selection to a major commitment about market expansion (see Kriger and

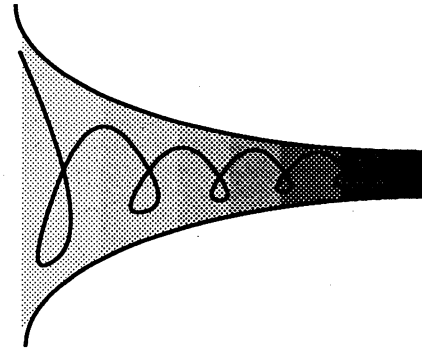
Barnes 1992). Thus, the critical evidence on the true timing and nature of commitment may be beyond the protocols of researchers. Yet both the retrospective tracing of decision processes and the measurement of associated decision characteristics such as duration, comprehensiveness, or conflict demand clear definitions of the temporal and substantive boundaries of the phenomenon.

It is in fact a precept of one particular form of organization—the machine-like bureaucracy—that explicit commitment must precede all action. Administrators are supposed to decide formally, and then have that choice formally “authorized” in the hierarchy “above,” before others are expected to implement the choice “below.” One consequence of this is that a research community intent on formally operationalizing its concepts inevitably falls into the same context of bureaucracy, in two respects. It unknowingly exhibits a bias in its choice of research samples, toward bureaucratic forms of organization, where “decision” is most easily operationalized (and where the necessary hard data is most readily available). And worse, it itself becomes part of that context, bureaucratizing research for the sake of “scientific rigor.” “Decision” gets studied; behavior gets lost.

The important conclusion to be drawn from all this is that decision, like so many other concepts in organization theory, is sometimes an artificial construct, a psychological one that imputes commitment to action. For individuals as well as for organizations, commitment need not precede action, or, perhaps more commonly, whatever commitment does precede action can be vague and confusing. In the final section of this paper, we explore some of the new research directions suggested by this type of thinking. Meanwhile, we conclude this section with another simplified model that recognizes the ambiguity of decision and of the activities generally associated with it.

Model 4. Organizational Decision Making as Convergence. Model 4 assumes that instead of a decision appearing at a point in time, decision making follows a general trajectory (Hage 1980) of gradual convergence on the image of some final action (see Figure 4). Instead of conceiving decision making as a series of steps (or cycling imposed on a linear sequence as in Model 3), it comes to be seen in a more integrative way as the construction of an issue. Also, rather than “working backwards,” from the sense of a final solution, decision makers instead “work forward,” guided by the unfolding image of something new to be created. This “enables the organization to move from an initial state to a terminal state by exploring outward from the

Figure 4 Model 4: Organizational Decision Making as Convergence, Driven by Iteration



initial data in a limited fashion” (Feldman and Kanter 1965, p. 617). Concomitantly, the process is no longer seen to be driven by diagnosis; indeed diagnosis—the great mystery of the conventional model (Mintzberg et al. 1976, p. 254)—ceases to be a distinct stage at all. To quote Dewey (who, ironically, set this literature on the track of decomposed stages), “In fact we know what the problem *exactly* is simultaneously with finding a way out or getting it resolved” (1933, p. 108). Thus, the apt metaphor for Model 4 may be Nicolaidis’s notion of fermentation, captured well in Barnard’s early words: “. . . the process of decision is one of successive approximations—constant refinements of purpose, closer and closer discriminations of fact—in which the march of time is essential” (1938, p. 206).

3. Opening up the Decision Maker

In the previous section, we appealed for greater awareness of the ambiguities surrounding the notion of decision. Here, we appeal for a richer conception of the role of human beings in producing organizational decisions and actions. Our arguments in this section deliberately emphasize the individual rather than the organizational level of analysis, because the point we wish to make is precisely that conventional notions of decision making have neglected key human faculties and individual characteristics that combine to determine organizational outcomes.

Simon’s “administrative man” of the 1950s was, in his words, committed to a mid-course between the “posterously omniscient rationality” of the economic man (Simon 1976, p. xxvii) and the “preoccupation of psychologists with the non-rational” (1976, p. xxix). However, Simon’s administrative man, with his bounded but

cerebral approach to decision making, while perhaps more life-size than economic man, turned out to be hardly more life-like than his forerunner. Individuality continued to matter little: "If we put several humans in the same problem situation, if they have the same goals, and if they have sufficient ability to solve the problem, then many features of their behavior are given the same shape by the task environment" (Newell and Simon 1972, p. 865).

Thus did administrative man enter the published world of administration. Cyert and March (1963) placed the locus of decision making in the procedures of organizations, March and his colleagues in solutions that drove the process, Braybrooke and Lindblom (1963) in the complexities of the process itself. Yet the nagging thought remained that there had to be something more beside Simon's bounded rationality and the apparent irrationality of March's garbage can, perhaps a kind of *extrarationality*, beyond conscious thought, yet because it may sometimes be far more effective in achieving desired ends, even more rational than conventional rationality.

Experienced policy makers, who usually explain their own decisions largely in terms of subconscious process such as "intuition" and "judgement," unanimously agree, and even emphasize, that extrarational processes play a positive and essential role in policy making. Observations of policy making behavior in both small and large systems, indeed, all available description of decisional behavior, especially that of leaders such as Bismarck, Churchill, de Gaulle, and Kennedy, seem to confirm that policymakers's opinion. (Dror 1968, p. 149-150).

That such words have been heard so often must be indicative of something, just as must their casual dismissal. To understand such extrarational processes, we need to turn our attention towards the decision maker, seeking to open that person up in three respects: by examining his or her role as a *creator*, an *actor*, and a *carrier* of decisional activity.

The Decision Maker as Creator

Although the term decision *making* is in common usage, too often the literature depicts the process as one of passive selection, where people do not *make* decisions so much as find them. To emphasize true decision *making*, we use the label "creator."

In his *New Science of Management Decision*, Herbert Simon (1960, 1977) identified within a box labelled traditional, nonprogrammed decision making, the phenomenon of "judgement, intuition, and creativity." He then commented that "to name a phenomenon is not to explain it" (1977, p. 52), and concluded that "making

nonprogrammed decisions depends on psychological processes that, *until recently*, have not been understood at all" (1977, p. 52; emphasis added). Simon was here referring to his work with Newell (Newell and Simon 1972) in which protocols were used to study and so to simulate human problem solving on structured tasks such as cryptarithmic problems. In his writings since then, Simon has been quite clear in his conclusion that such verbalized articulations of thought are sufficient to capture the essence of what goes on in the head of a decision maker:

The first thing we have learned—and the evidence for this is by now substantial—is that these human processes can be explained *without* postulating mechanisms at subconscious levels that are different from those that are partly verbalized. Much of the iceberg is, indeed, below the surface and inaccessible to verbalization, but its concealed bulk is made of the same kind of ice as the part we can see....The secret of problem solving is that there is no secret. It is accomplished through complex structures of familiar simple elements. The proof is that we have been able to simulate it, using no more than those simple elements as the building blocks of our programs. (1977, p. 69)

In a more recent article, Simon (1987) went on to argue that the essence of intuition lies in the *organization* of knowledge for quick identification ("arranged in terms of recognizable chunks," (1987, p. 60)) and not in its rendering for inspired design. In his words, "Intuition and judgement—at least good judgement—are simply *analyses frozen into habit* and into the capacity for rapid response through recognition," (1987, p. 63, emphasis added).

Let us, therefore, consider the explanation of one particularly famous exercise of intuition (or, if you prefer, creative synthesis):

One day when we were vacationing in Santa Fe in 1943 my daughter, Jennifer, who was then 3, asked me why she could not see the picture I had just taken of her. As I walked around that charming town, I undertook the task of solving the puzzle she had set for me. Within the hour the camera, the film and the physical chemistry became so clear that with a great sense of excitement I hurried to the place where a friend was staying to describe to him in detail a dry camera which would give a picture immediately after exposure. In my mind it was so real that I spent several hours on the description. (Edwin Land, quoted in *TIME* Magazine, 1972, p. 84)

What exactly did Land recognize here? Which of his analyses were frozen into what habit? Indeed, how exactly did his rationality bound him? Land claimed elsewhere that during his periods of creative insight, "atavistic competencies seem to come welling up. You

are handling so many variables at a barely conscious level that you can't afford to be interrupted" (in Bello, 1959, p. 158), least of all by a researcher demanding verbal protocols!

Many years ago, Mary Parker Follett (1942) suggested that decisions need not be made by the domination of one actor over another or by compromise between the two; they could also integrate their needs into a creative solution that gave more to both of them. But such creative integration risks getting lost when the subconscious processes of the mind become "analyses frozen into habit." When intuition becomes analysis, there seems no place left for synthesis.

Thus, to Simon's *administrative man*, who replaced the economists' *rational man*, and who we prefer to call *cerebral* because he follows consciously and analytically the dictates of his own bounded rationality, we wish to add *insightful man*, who listens to the voices emanating from his own subconscious, or perhaps better expressed, who sights the images that well up in his own imagination.

While the word "intuition" may not tell us much, the word *insight* may. True, the source of insights may be mysterious. But the presence of them is not, whether that be in Land's revelation or even Koehler's (1925) ape who realized quite suddenly that he could get the banana by putting the box under it (see also Hadamard, 1949). And once we accept such a concept, we can begin to study the characteristics that surround and evoke it.

In reference to the Japanese executive, Shimizu (1980) refers to insight as "intuitive sensibility," an "ability to grasp instantly an understanding of the whole structure of new information." He refers to the "sixth sense or *kan*" which, in contrast to the "sequential steps of logical thinking," entails the "fitting together of memory fragments that had until then been mere accumulation of various connected information" (p. 23). *In-sight*, an inside view, seems to come to the decision maker when he or she can see beyond given facts to understand the deeper meaning of an issue.

At the organizational level, Nonaka (1991) has considered how insight has been institutionalized in some Japanese companies, through the transformation of "tacit" knowledge in the minds of expert employees into "explicit" knowledge which can then be applied to new areas. He suggests that top management's use of metaphor, analogies, redundancies in organizational design, and open ended "umbrella" concepts stimulates "knowledge creation" among organization members, making the organization as a whole more insightful.

Insight might be dismissed as too rare to be worthy of attention. But this can be disputed on two grounds. First, a great deal of the behavior of organizations is determined by those occasional insights that restructure thinking, as in Land's idea for the camera that created a major corporation and reconfigured a major market. If the soldier's lot is months of boredom interrupted by moments of terror, to cite an old adage, then the lot of organizations may likewise be described as years of routine reconfigured by flashes of insight. How, then, can the adjective "strategic" possibly be applied to any theory of decision making that does not take account of such insights?

Our second point is that while such "strategic" insights may not be frequent, little insights that reconfigure small pockets of cognition and behavior occur all the time, to all kinds of people, whether these be to redesign a product, furnish an apartment, or write an article for this journal. Each may be small, but together, alongside the strategic ones, they determine the world in which we all live. How, then, can there be any viable theory of decision making without them?

The Decision Maker as Actor

The writings of Simon and March, as well as much of the rest of cognitive psychology and organization theory, have portrayed the decision maker as passive, a receptacle to whom things happen: problems arise, opportunities appear, choices are forced, interruptions occur. But as the Edwin Land illustration makes especially clear, people also act in rather purely voluntary ways. Land could simply have responded, like so many fathers before him, with "It's not possible, dear."

Here we believe the missing concept is *inspiration*, again a label for a pocket of our ignorance, but again concerning behavior that sorely needs to be factored into our theories of decision making. The most interesting decision makers seem to be personally inspired, and they and their actions in turn inspire the behavior of others. We need only consider an Edwin Land, or a Winston Churchill during World War II. It is such inspiration that allows people to transcend the upper bounds of their rationality to produce those necessary insights. We might say that Mary Parker Follett's integrative solutions are "inspired." The "satisficing" decision maker, in contrast, cannot be inspired and so cannot inspire others. And without understanding that, we cannot understand what makes organizations effective.

The absence of inspiration in decision making theory is really just one manifestation of a broader problem: the *dehumanization* of the decision making process.

Absent from these theories is not only insight and inspiration, but affect in its various forms. In contrast, rich accounts of real world decisional processes make clear how critical are these factors to outcomes. Consider Allison's quotation of Dean Rusk about the Cuban missile crisis: "We're eyeball to eyeball and I think the other fellow just blinked" (1971, p. 131). Or the words of President Kennedy on being presented with photographic evidence about the installation of offensive missiles in Cuba, with reference to Khrushchev: "He can't do that to *me*" (1971, p. 193). We do not wish to suggest that such factors have received no attention, only that the literature of management can no longer afford the convenient differentiation of having the psychologists consider affect in one set of journals while the organization theorists deal with effect in another.

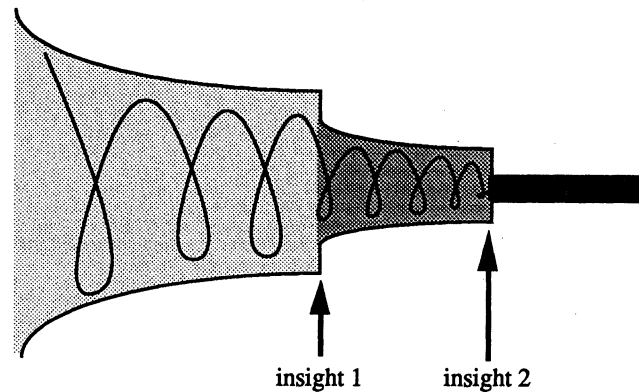
The Decision Maker As Carrier

Decision makers may be creators and actors, but they also carry with them, through their memories, experiences and training, the cumulative impact of the world around them. They are the repositories and interpreters of organizational histories, acting as media through which decisions are linked over time. As people remember, justify, and anticipate decisions, they bring past, present, and future to bear on each other.

To show cycles and loops in decision making processes (Model 3) is not to capture this notion at all, except as rather short-term and isolated learning. Overall experience is lost, at the level of the individual, that of groups, and that of the organization and beyond, into the society at large. Indeed to state that a decision process is interrupted or recycled is to reify and dehumanize the process. "History repeats itself" or "we learn from history" only through experience and memory. During the Cuban Missile Crisis, Kennedy's stance seemed guided by his belief that "the 1930s taught us a clear lesson: aggressive conduct if allowed to go unchecked and unchallenged, ultimately leads to war" (Allison 1971, p. 51).

Organizations provide meaning by which actors transact their work, formulate policy, and allocate resources. But this meaning is given and shaped through individual cognitive processes and experience, and transmitted collectively through social interaction. Walsh and Ungson (1991) suggest that "organizational memory" is retained through five different mechanisms: individual memories, culture, transformations (standard operating procedures), structure, and ecology (physical structures). However, only individuals "have the cognitive capability to fully understand the

Figure 5 Model 5: Organizational Decision Making as *In-sightful*, Driven by Inspiration



'why' of a decision in the context of an organization's history" (Walsh and Ungson 1991, p. 67). Thus to try to study decision processes in vitro, isolated from the history and experience of the people involved, is to ignore their complex rooted reality, thereby depriving oneself of explanatory power.

Model 5. Organizational Decision Making as *In-sightful*.

To summarize, we have suggested that researchers need to incorporate richer conceptions of individuals into theories of organizational decision-making. In particular, we have emphasized the crucial roles of insight, inspiration, affect, and memory in determining organizational outcomes. The final notion of the decision maker as carrier serves as a bridge to the next section of this paper, where we seek to open decision making processes up to each other and to the organization at large. But before proceeding to that, we wish to draw this second section to a close by elaborating our fourth model of decision making into a fifth. We do this by showing convergence, not as steady and gradual as in Model 4, but rather as progressing through occasional insights, which are inspired and in turn inspire others.

The apt metaphor here may be the sudden freezing of a supersaturated liquid: a set of conditions all ready to "gel" as a key stimulus appears. Our model shows two insights, a first that brings an initial order to a confusing issue, and a second that crystallizes a specific solution (see Figure 5).

4. Opening up the Decision Making Process

In the first of the three sections that make up the body of this paper, we questioned whether decisions them-

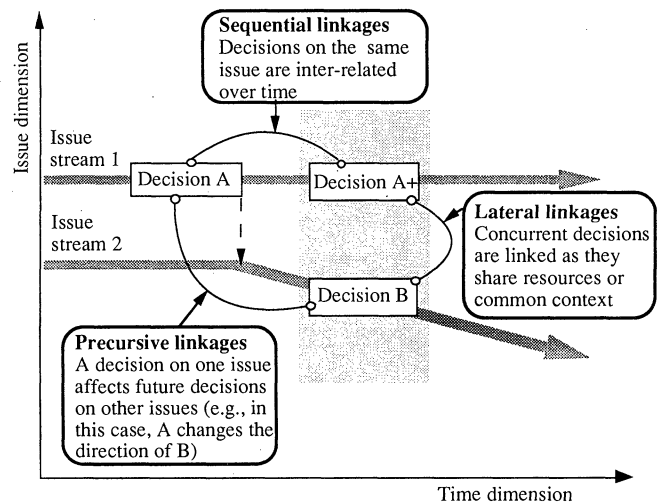
selves can always be clearly isolated in organizational activity. In the second, we questioned whether cerebral rationality can always be isolated in the mind of the decision maker and, concomitantly, whether distinct phases can always be isolated in the decision making process. Now we question whether those processes themselves can always be isolated from one another and from the dynamics of the organization at large.

From Decision Processes to Issue Streams

In our earlier discussion, it became clear that not only are “decisions” difficult to pin down in practice, but that the attempt to do so may distort our perceptions of how action really occurs in organizations. The difficulty of using “decision” as a primary unit of analysis is further aggravated by another phenomenon, sometimes acknowledged but rarely explicitly investigated: that decisions interact with one another. Nicolaidis (1960, p. 173) wrote about “constellations or galaxies of individual decisions” making up any organizational decision, Marples (1967, p. 287) used the metaphor of the “rope” of “intertwined issues”, McCall and Kaplan (1985, p. xv) evoked the metaphor of “a flowing stream, filled with debris, meandering through the terrain of managers and their organizations,” Dill (1964, p. 489) referred to “links” between decisions, and Radford (1988) used the concept of decision “linkages” in his development of a methodology for formal problem solving. These writers all seem to be saying that drawing boundaries between individual decision processes requires some fairly arbitrary choices. Yet most researchers have usually made these choices anyway, and the interactions between different decisions have tended to remain on the periphery of organization theory.

We suggest here that these artificial boundaries need to be made more transparent, and that there may be useful gains from moving decision interactions to centre stage. To achieve this, however, we need to move beyond *the* decision and consider the organization as a *system* of decisional processes. Indeed, we propose to move beyond “decision processes” per se, to *issue streams*, a concept which we believe better captures the behavior in question. Organizational vocabulary reflects this too: while it may be true that some discussion in organizations revolves around making “decisions,” at least as much revolves around dealing with “issues.” Files, for example, are generally kept in terms of issues, and meeting agendas are generally stated around issues rather than decisions. Many issues persist in some form or another for considerable time. They do not necessarily die even when key decisions

Figure 6 Types of Decision Linkages



are made; many flow on and intersect with other issues. In our opinion, therefore, research in this area would be more productive if conceived in terms of continuing and interacting streams of issues that spin off actions, *sometimes* through identifiable decisions.

As we move the focus from decision processes to issue streams, interactions or linkages between different decisions now become key to understanding how organizations behave over time. One particular type of decision linkage—the sequence of incremental decisions that ultimately evokes a final choice—has received considerable attention in the literature, while other types of linkages have occasionally been identified. However, these contributions themselves are fragmented: no comprehensive theory of issue interconnectedness currently exists. Our intention here is not to develop such a theory—obviously an ambitious undertaking—so much as to help point the way towards one by examining different ways in which these linkages can occur. We have worked these into a typology, which we illustrate schematically in Figure 6.

In this figure, we identify three basic types of linkages between decisions. Some linkages are purely *sequential*, concerning the same basic issue at different times. Other interrelationships are mainly *lateral*, involving links between different issues being considered concurrently. As we indicate below, such linkages may be created either by pooled resources or by common organizational context. Finally, some linkages are *precursive*, cutting across different issues and different times, as decisions taken on one issue affect subsequent decisions on other issues within the same organization.

These three broad types of linkages are discussed in more detail below. To illustrate them, we draw on a variety of sources, including not only the traditional literature on decision making but also published case studies such as Chandler's (1962) history of Du Pont and Quinn's (1980) study of ten multinational firms. Descriptive case histories have the advantage of considering the behavior of organizations more broadly than in the conventional decision making literature.

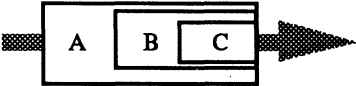
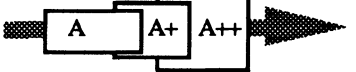
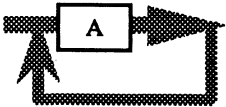
Sequential Linkages

Sequential linkages are interrelationships between different decisions concerning the same issue at different points in time. Although, to our knowledge, researchers have not previously attempted to classify these explicitly or to incorporate them into a broader typology, different forms of sequential linkages have been observed repeatedly in many traditional studies of decision making. For example, Thompson and Tuden (1964), Mintzberg et al. (1976), and Snyder and Paige (1958) all noted that dealing with a major issue typically involves making a series of sub-decisions. Indeed, this in itself has proved a major source of ambiguity and confusion when attempts have been made to isolate individual decisions. In a recent innovative effort to deal with this ambiguity, Kriger and Barnes (1992) used a theatrical analogy to describe the relationships

between various levels of decision activities associated with the same broad issue. They defined six different levels of decision ranging from instantaneous decision choices (an actor's line in a play) to decision actions (dialogue), decision events (a scene), mini-decision processes (an act), decision processes (a play) and long term decision theatres (a series of plays). In their study, "each lower level of 'decision' was found to combine with 'decisions' of the same level and to be embedded within higher levels, resulting in a nested hierarchy of simultaneously occurring processes" (p. 439).

Elaborating on this, we suggest that decisions related to the same issue may "nest," "snowball," or "recur" (see Table 1). *Nesting* occurs when large decisions generate a nested series of smaller ones. This is the typical "decision in principle" followed by elaboration and implementation in ever more narrowly focused choices, as described in the quotation from Mintzberg et al. (1976) in Table 1. In contrast, *snowballing* occurs when a sequence of smaller decisions accumulates over time to generate a major decision. In the literature, this can be recognized in the writings on "escalating commitment to a chosen course of action" (Staw 1976, Staw and Ross 1978, Brockner et al. 1986) and in the discussion of "incrementalism" (Braybrooke and Lindblom 1963, Quinn 1980), the first representing a

Table 1 Sequential Linkages Between Decisions

Linkage	Description	Example(s) / references
Nesting	A major decision (A) involves a series of more minor subdivisions (B, then C). 	"They [the decision makers] factor their decision into a sequence of nested design and search cycles, essentially working their way through the decision tree, with the decisions at each node more narrow and focused than the last." (Mintzberg et al, 1976). See also Snyder and Paige (1958), Kriger and Barnes (1992), Thompson and Tuden (1964).
Snowballing	A series of relatively minor decisions "snowball" into a major one. 	"Escalating commitment to a chosen course of action" (Staw, 1976; Staw and Ross (1978); Brockner et al. (1986) or "Incrementalism" (Braybrooke and Lindblom, 1963; Quinn, 1980). Interestingly, the first represents a negative, the second a more positive view of the same phenomenon.
Recurrence	The same decision situation recurs repeatedly. 	At E. I. DuPont de Nemours, the multi-divisional structure was considered and rejected three times before its final acceptance in 1921 (Chandler, 1962). The recurrence of decision situations has often been recognized in the traditional literature as "recycling" (Mintzberg et al., 1976; Nutt, 1984).

negative and the second a more positive connotation of the same basic phenomenon.² Finally, the same or a very similar decision situation may simply *recur* because prior choices have not finally resolved the issue. This would be recognized as “recycling” in much of the literature (e.g., Mintzberg et al. 1976, Nutt 1984) and may be particularly common with negative “decisions” (i.e., those rejecting change in favor of the status quo), such as the repeated rejection (but final acceptance) of the multidivisional structure at du Pont (Chandler 1962, see Table 1).

Lateral Linkages

Decisions may be linked not only sequentially but also laterally (i.e., across different issue streams), as shown in Figure 6. However, with a few exceptions, the tradi-

tional literature on decision making has tended to ignore this. We identify two forms of lateral linkages called “pooled” and “contextual” (see Table 2).

Pooled linkages (named following Thompson, 1967) are created when different issues share resources. For example, one of the contributions of the Cohen et al. (1972) garbage can model, taken up also by Kingdon (1984) and Dutton and Duncan (1987), has been to draw attention to the fact that issues in organizations compete for participants’ time and energy. Thus, the size, diversity, and complexity of the “issue array” (i.e., the entire set of issues facing an organization) may affect the way in which any one of them is handled (Dutton and Duncan 1987). But as illustrated in Table 2, issues may compete for other types of resources too (e.g., financial or political). Despite the obviousness of

Table 2 Lateral Linkages Between Issue Streams

Linkage	Description	Example(s) / References
Pooled Linkages	<p>Issues are linked because they compete for resources, e.g.:</p> <ul style="list-style-type: none"> • financial resources, • managerial time and energy, • political support 	<ul style="list-style-type: none"> • “The members of the Executive committee [at Du Pont] realized that until they decided how much money to spend abroad, they could hardly make a rational decision on how much to spend at home.” (Chandler and Salsbury 1971, p. 168). • “...decision makers’ attentional resources are distributed across a set of strategic issues...” (Dutton and Duncan 1987, p. 104). • “log-rolling” phenomena (I’ll support your project if you’ll support mine) (Wildavsky, 1974)
Contextual linkages	<p>Issues are linked because they bathe within the same organizational context, composed of the same ...</p> <ul style="list-style-type: none"> • people • culture / ideology, • structure, • strategy. 	<ul style="list-style-type: none"> • Noëi (1989) describes “magnificent obsessions” that drive CEOs and affect all organizational activity. • “Many organizational actions do not follow decision processes: agreement and coordination arise without decision making, because the actors perceive situations similarly and share general expectations and values” (Brunsson 1982, p. 38). • “...structure’s pervasive impact offers a reasonable explanation of why a firm develops a particular way of making strategic decisions” (Fredrickson 1986, p. 294). • Almost by definition, strategy implies a pattern underlying decisions across the same organization, whether deliberate or emergent (Mintzberg and Waters 1985).

such linkages, however, many studies have examined decisions requiring major investments as though they were independent of other investment proposals (e.g., Mintzberg et al. 1976, Ghertman 1981, Shrivastava and Grant, 1985). But whether or not such decisions are explicitly brought together in a formal capital budgeting process, they clearly remain interdependent: use of resources on one issue affects the resources available on others.

Concurrent decision processes within the same organization may also be interrelated simply because they bathe within the same organizational context, involving the same people, the same structural design, the same strategies, and the same organizational culture and traditions (see Table 2). This creates what we call *contextual* linkages between decisions. We have already noted the central role of individuals as decision creators, actors and carriers. It follows that when many different decisions involve the same key people, they are often linked because they are driven by the same interpretations of the world or the same “magnificent obsessions” (Noël 1989, see Table 2).

Beyond specific individuals, organizations may develop deeply rooted shared convictions—cultures or ideologies—that may influence a wide variety of organizational activities and so link issues (Allaire and Firsirotu 1985, Donaldson and Lorsch 1983, Hinings and Greenwood 1988). Research has also suggested that as all issues are shunted through the same basic structural channels in an organization, the decision-making processes followed may take on a certain consistency independent of issue content (e.g., Fredrickson and Mitchell 1984, Fredrickson 1986, Hickson et al. 1986 and Langley 1990).

Finally, decisions may be laterally linked through an integrated strategy, whether this is driven by the vision of a leadership, a formal deliberate strategic plan, or patterns that simply emerge through a process of learning (Mintzberg and Waters 1985). In fact, defining strategy as pattern in action, we see that it may act as both an outcome and a context. The notion of emergent strategy implies that while ongoing decisions or actions determine the strategy as pattern, that pattern in turn acts as a frame for future decisions and actions (i.e., acts as part of the context). For example, as described by Chandler (1962), du Pont’s first steps towards diversification were ad hoc responses to excess capacity problems that became more pressing as the company prepared for the post-war period. Various product groups were added from 1908 on, but it was not until 1917 that a comprehensive diversification strategy was formally defined. This formal strategy

represented both the outcome of prior decisions (i.e., the recognition of an emergent strategy), and a context that would orient many future decisions (i.e., the establishment of a deliberate strategy).

Precursive Linkages

Decisions can also, to quote Hickson et al. (1986), have a “precurative” effect on each other, i.e., a decision on one issue can critically affect the premises for subsequent decisions on a variety of other issues (see Figure 6). For example, as suggested in Table 3, one decision may “evoke” new problems, “enable” decisions to be made that were previously blocked, or “preempt” other decisions in the making.

Some issues tend to be intrinsically precursive, because of the pervasive effect they are known to have on the future context and on resource allocation. These may include major mergers and acquisitions, significant shifts in ownership, appointments to key posts (e.g., CEO) and structural redesigns. The following quotation from Quinn (1981, p. 51) illustrates a richly precursive chain of preempting, evoking, and enabling decisions precipitated by an initial change in top management:

At General Mills, General Rawlings and his team of outside professional managers actively redefined the company’s problems and opportunities in ways the prior management could not have foreseen. Because of the new values these individuals brought with them, various divisions which had been the core of the company’s product line were divested. Once these divestitures were made, the funds released were used for acquisitions, thus automatically increasing the visibility and power of the new Controllershship-Financial group which had been brought in by General Rawlings. Similarly, with fewer large divisions competing for funds, the Consumer Foods Group rapidly increased in its importance. This ultimately led to a choice between these two group’s leaders for the next chairmanship of the company—and hence for control over the corporation’s future strategy.

As illustrated in Table 3, one decision may also set off a “cascade” of decisions on a wider range of issues, or conversely, a set of apparently unrelated issues may “merge” into a single decision (as in “killing two birds with one stone”). In fact, this is where insight likely becomes a critical factor in decision making: the perception of two or more phenomena as a single one. For example, in one of the decision situations studied by Langley (1990), a firm was concerned with four issues simultaneously: cost cutting, employee job security, diversification, and the quality of customer service. The decision to integrate vertically was seen as a way to deal with all of these at once: by (1) diversifying into

certain customer services, the firm could (2) gain better control over their quality and (3) could transfer surplus employees to the new activity thereby cutting costs while (4) avoiding layoffs.

Finally, in the longer term, the attempt to reproduce past successes and avoid past failures can have a major impact on future behavior (e.g., Miller 1990). Thus, the perceived results of one decision may generate "learning" that will influence later decisions in related and unrelated areas.

From Issue Streams to Issue Networks

Taken all together, the various linkages discussed above describe decisional behavior in organizations as complex webs of activity, which we shall label *issue networks*. These networks are sets of interconnected issues evolving dynamically over time. They may, of course, vary in nature and complexity, depending on a variety of factors. Thus, to draw together some of the ideas of this section, we present below one way to consider decision making as a function of the type of organization in which it is embedded, based on the intensity of the linkages (or coupling) between decisions. We sug-

gest five basic types of coupling on a continuum from tight to loose.

In some organizations at certain points in time, one issue appears to drive all others. For example, approached by one of the authors to participate in a study of strategic decision making, a governmental organization declined on the basis that there could be no strategic decisions made pending a privatization initiative (see Table 3 under preempting). This one issue generated what might be labelled a *fully-coupled* issue network. A severe performance crisis or a change in chief executive (see the example from Quinn above) will tend to have the same effect. Something akin to fully-coupled decision making may also exist in the centralized entrepreneurial firm, where it is not one issue that creates the tight linkages so much as the influence of a dominant chief executive.

When power over decision making is not centralized in the hands of a single actor, decisional processes may nevertheless be held together by a common style or perspective. We label this a *stylistically-coupled* issue network. Here, members of the organization share a clear strategic vision, and established ideology, or a

Table 3 Precursive Linkages

Linkage	Description	Example(s) / References
Enabling	One decision may remove blocks to others, or make certain outcomes more likely.	Quinn (1981, p. 51) describes how the arrival of new management at General Mills "enabled" divestments to take place in previous core areas, which "enabled" new acquisitions to occur (see quotation in text).
Evoking	One decision may evoke new problems or opportunities.	Diversification at du Point "evoked" unexpected organizational problems that ultimately led to the multidivisional form of organization (Chandler 1962, p. 91) See also Quinn (1981, p. 51).
Preempting	One decision may render other issues irrelevant, obsolete, or simply delayed.	Approached by one of the authors to participate in a study of strategic decision making, the governmental organization in question declined on the basis that there could be no strategic decisions made pending a privatization initiative. See also Quinn (1981, p. 51).
Cascading	One decision may set off a series of decisions on a wide range of issues.	A merger with a competing firm will generate cascades of decisions about people, structure, procedures, etc. (e.g., Buono and Bowditch 1989).
Merging	A set of unrelated issues come to be seen as a single one and so are decided upon symbiotically.	"As they made or approved key decisions within each subsystem, top managers tried intuitively to integrate their projected actions into a cohesive whole." (Quinn 1980).
Learning	Early decisions generate learning that may influence later ones in the same and other areas.	The concept of emergent strategy (Mintzberg 1978, Mintzberg and Waters 1985) describes the propensity of organizations to learn from earlier decisions, as does Weick's (1979) concept of sense-making.

well-defined leadership style which suffices to link different issues together. Such stylistic coupling is likely to be found in organizations with rich cultures, where many actors—once socialized and/or indoctrinated into the system—are trusted to act on its behalf.

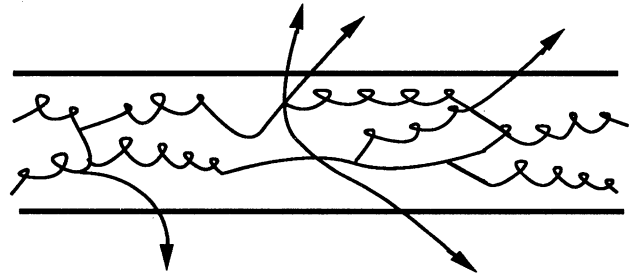
Some organizations are deliberately structured to encourage horizontal linkages between different units (Porter 1986). These organizations will tend to experience a richly developed net of interactions in which almost everything seems to impinge on everything else: the true “system” (or in Thompson’s (1967) words, “reciprocal interdependence”). This creates what we call *intricately-coupled* issue networks. Such networks are also likely to be common in organizations, sometimes referred to as adhocracies or project organizations (e.g., Mintzberg 1979), that have to innovate regularly in interactive ways. Here, complex intertwined problems must be tackled through the mutual adjustment of many different experts.

Formally-coupled issue networks occur when rules and procedures are the principle mechanism linking decision processes. For example, planning systems of various sorts—budgeting, scheduling, programming—may create explicit interrelations, as may rules and policy manuals of various sorts. The corresponding context here is obviously one of the traditional machine-like bureaucracy.

Finally, we have the situation of minimal interactions between decisions, hardly beyond the pooled form of linkages, where different issues merely compete for common resources. We call these *loosely-coupled* networks. These would appear to be common in conglomerate corporations, where there is little synergy across businesses, although interestingly, a number of management techniques, popular in more integrated organizations, such as capital budgeting, encourage this form of issue network as well. Formal hierarchical authorization becomes the vehicle for connecting decisions rather than horizontal relations among different actors or even the sharing of common perspectives. A similar type of coupling may occur in professional organizations where groups of autonomous specialists function fairly independently of one another. We might also note that the traditional literature of decision making, by isolating decisions and their processes, has likewise favored this form of network, however inadvertently. Thus our criticism of it, in this regard, has not been that it is wrong so much that it has described a small piece of practice while purporting to capture all of it.

Taking these five forms of issue networks as lying on a continuum, we would expect conditions of stability in

Figure 7 Model 6: Organizational Decision Making as *Interwoven*, Driven by Linkages



an organization as well as the presence of slack to drive it towards the loosely coupled end, while those of resource scarcity, change, and especially crisis would encourage it to move toward the tightly coupled networks.

Model 6. Organizational Decision Making as Interwoven. We conclude this section with our sixth simplified model of decision making. Here we shift, not only away from decision itself but also from the decision process. Decision making comes to be seen here as a complex network of issues involving a whole host of linkages, more or less tightly coupled. Periodically decisions emerge from this network, or at least actions, driven by insights as well as various affective factors in addition to the cerebral rationalities of the actors. The apt analogy here is the moving stream, the context in which the issues float along, sometimes getting washed up on shore as actions, sometimes sinking and disappearing, and often bumping into each other with the effect of changing another’s direction, slowing one down, speeding one up, joining two together, or having a single issue burst into several new ones.

5. Opening up Decision Making Research

We began this paper with a review of the current literature on organizational decision making, presenting three schematic models that between them summarize the main contributions of this literature. We then proposed opening up decision making in three different ways, adding three new models of these processes. First, the concept of “decision” was opened up to the ambiguities that surround the relationship between commitment and action. Second, the decision maker was opened up to history and experience, to affect and inspiration, and especially to the critical role of insight in transcending the bounds of cerebral rationality.

Third, the process of decision making was opened up to a host of dynamic linkages so that isolated traces of single decisions came to be seen as interwoven networks of issues. Each of our six models of decision making incorporates some dimension that we believe to be important to our understanding of such processes. Something akin to the simplest of these—straight sequence, organized anarchy, or insight alone—can perhaps occasionally be perceived in real world organizations, while the more complex ones will perhaps seem to occur more frequently. But it is our contention that a realistic theory of organizational decision making, insightful in its own right, will encompass all of these models, and more, richly intertwined.

Ours is a plea for opening up conceptions, not only of decision, the decision maker, and the decision making process, but of research itself. Thus, in this concluding section, we examine some of the implications of our ideas for researchers, suggesting five ways in which progress might be made, one step or “chunk” at a time, to be sure, towards the development of richer theory.

**Suggestion 1. Trace “Issues” Forward,
Not “Decisions” Backward**

Our first suggestion, derived directly from the discussion in the previous section, is to work with a new unit of analysis: the “issue” rather than the “decision.” In pragmatic terms, one could begin to trace the development of the portfolio of issues preoccupying organization members by using formal agendas for meetings and labels in files. Longitudinal studies of how and why groups of issues develop, get redefined, and interact over time could enrich theories of organizational decision making. Here, “decisions” would be viewed, not as the constructs that drive methodology, nor necessarily as the ultimate point of destination, but as events that punctuate and modify the flow of issues. Returning to the wave metaphor used earlier, we propose riding the wave forward, wherever it may lead, rather than picking out a breaker on the shore and tracing it backwards.

Dutton’s (1988) study of the evolution of issues emerging from a formal “issue management” system as well as her subsequent work (e.g., Dutton and Dukerich 1991) illustrates this type of approach. Of course, because only highly bureaucratized organizations have formal “issue management” systems, the problem of the reification of issues, like decisions, must be borne in mind in generalizing this idea. However, in a sense, “decision” has had its place in the sun for long enough.

It is time to give a chance to some different but at least equally plausible concepts to see where they may lead.

Suggestion 2. Try New Perspectives: Zoom in or Zoom out

Most research on organizational decision making has examined these processes from what might be called middle-distance. In other words, the focus has been on decisions that were labelled important at the time of the research and that could be traced back several years. Typically, two to ten retrospective interviews per decision have been considered adequate to capture the essential characteristics of the processes, depending on the number of key participants (Mintzberg et al. 1976, Nutt 1984, Hickson et al. 1986, Eisenhardt and Bourgeois 1988). However, we suggest that this middle-distance perspective may not be sufficient to explore fully the behavior in question.

To appreciate the rich relationship between commitment and action, or to detect the roles of insight, inspiration, and emotion will require researchers to zoom in closer to the people and processes under study, in effect adopting a phenomenological perspective. DesRosiers (1994) carried out one such study, using “strategic issues” as a unit of analysis and relying on observations and in-depth interviews over a 15-month period. She produced, amongst other results, a typology of possible relationships between intention (a form of commitment) and action. This micro-perspective may also be appropriate for understanding how managers relate different issues to one another in their daily activities.

At the opposite extreme, certain concerns may well require a more global perspective. In order to explore the full ramifications of issue networks and to detect the effects of history and context, researchers may need to zoom outwards to consider the histories of organizations over longer periods of time as in the research of Chandler (1962) and Pettigrew (1985). Kriger and Barnes (1992) noted how individual decision processes identified by managers in their research tended to be embedded in broader decision “theatres” that evolved over periods in excess of twenty years.

**Suggestion 3. Follow Processes in Real Time,
As well As Retrospectively**

Related to the above two suggestions, clearly one of the best ways to trace processes forward (rather than backward) is to follow them in the making. This ensures that perceptions are not biased by a knowledge of a final outcome, as has been the case in most decision making research (Schwenk 1985). This may also help in understanding how issues do or do not generate organizational decisions. Because concurrent

research is expensive in terms of time and effort, it may be useful to combine it with less detailed retrospective studies or with retrospective information on the same cases (Pettigrew 1985, Leonard-Barton 1990).

Suggestion 4. Focus on People and Personalities, Not Just Events

We pointed out in our discussion that the literature has often adopted a very narrow view of the decision maker. Not only has it neglected certain key faculties such as insight and inspiration, but it has also tended to ignore individual differences. Thus, there is the opportunity for research exploring the pattern of decisions created by interactions between people with different types of personalities and abilities. In a recent study, Pitcher (1992) developed a typology of three management personality types, called "artists," "craftsmen," and "technocrats." After classifying 15 general managers of one large firm into each of these categories, she then traced the interactions and displacements between them as the strategy and structure of the firm evolved across a period of 30 years.

Suggestion 5. Reanalyse Previously Analysed Decision Processes Not Just New Ones

Another way to test new ideas would be to go back to previously studied "decisions" to determine whether the new lenses proposed here can add anything to our understanding. For example, how did insight and inspiration contribute to the resolution of the much studied Cuban missile crisis (e.g., Allison 1971, Anderson 1983)? What could be learned from an analysis of linkages with other decisions and issues? The most useful databases for this type of analysis could well be descriptive cases whose reporting contains relatively little conceptual bias towards any specific "decision" (e.g., the examples used in Section 5 including Quinn 1981, Chandler 1962, Pettigrew 1985).³

More generally, we argue for more varied approaches to research, so that justice can be done to the histories of organizations, the people involved in them, and the intricate webs of issues they experience. Obviously, research always needs to simplify by holding certain factors constant, but the boundaries of *ceteris paribus* should be shifted from time to time. As researchers, we may all be acutely aware of the boundedness of cerebral rationality. But that does not justify us in promoting methods that deny the existence of ambiguity, insight, interaction. Decision making is prospective, introspective, and retrospective, sporadically rational, ultimately affective, and altogether imaginatively unbounded. From the vantage point of our black stool,

today's conceptual world of organizational decision making looks awfully black and white. Is it not time to open it up to the rich world of color?

Endnotes

¹The following draws on "Does Decision Get in the Way" by H. Mintzberg and J. Waters, *Organization Studies* (1990, 11, 1, 1-16).

²A major difficulty with this distinction, however, is that it offers no way to distinguish constructive from wasteful commitment ("tenacity" as opposed to "compulsiveness"). One must ask whether Staw (1976) could have entitled his article "Knee Deep in the Big Muddy" had the U.S. forces held the Vietcong at the Demilitarized Zone; likewise, would his theory have caused him to label as "escalating commitment" Pilkington Glass's (Quinn 1988) dogged persistence over many years to perfect its new float glass process, which remade both the industry and the firm. As Staw and Ross (1978) themselves observe: "At times, individual persistence in the face of failure is the *most* rational thing to do, just as at times, persistence is a classic outgrowth of rationalization" (p. 62).

³In the case of the Cuban missile crisis, the existence of personal and candid correspondence between Kennedy and Khrushchev, recently revealed in the press, offers the opportunity of adding a fourth model to Allison's earlier work founded on information recorded in real time and focusing on the perspectives of the actors involved as indicated in suggestions 3 and 4.

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