Mixed Scanning Revisited

Amitai Etzioni, The George Washington University

An article on mixed scanning as a “third” approach to decision making, published in the Public Administration Review (December 1967) which was awarded the William Mosher Award, generated a steady stream of discussion, criticisms, and applications but very little empirical research. The approach was developed in contrast to rationalist models of decision making and to incrementalism. Rationalist approaches were held to be Utopian because actors cannot command the resources and capabilities required by rationalist decision making. Incrementalism was shown to overlook opportunities for significant innovations and to ignore the empirical fact that incremental decisions are often, in effect, made within the context of fundamental decisions. For example, once the U.S. embraced the Truman Doctrine after World War II, and decided to contain the USSR (rather than either allow it to expand or have the U.S. attempt to free countries within the Soviet Bloc), numerous incremental decisions were made in Greece, Turkey, and Iran. However, these were implemented and guided by the fundamental context-setting decision and cannot be properly understood without taking into account the basic decision.

Mixed Scanning: Definition and Illustrations

Mixed scanning is a hierarchical mode of decision making (Goldberg, 1975, p. 934) that combines higher order, fundamental decision making with lower order, incremental decisions that work out and/or prepare for the higher order ones. The term scanning is used to refer to search, collection, processing, and evaluation of information as well as to the drawing of conclusions, all elements in the service of decision making. Mixed scanning also contains rules for allocation of resources among the levels of decision making and for evaluation, leading to changes in the proportion of higher versus lower levels of scanning based on changes in the situation.

For example, chess players, unable to review all the options (Haynes, 1974, pp. 7-8) and seeking to do better than merely think one or two steps ahead, running from trouble or toward a seeming opportunity, divide their time and psychic energy between first deciding among fundamental approaches (“ready to attack” vs. “need to further develop the forces” vs. “attack on the queen, or — king, side”) and then examining in detail options only within the chosen approach. (In effect, this form of scanning may take place on more than two levels; e.g., choosing a major strategy, a sub-strategy, and then examining in detail some options within that sub-strategy.) Rules for allocation are illustrated in chess when the game must be completed within a given time period. Players will then engage in less higher-level scanning, i.e., allot it less time, as the game progresses, although it may be granted “extra” time if the strategy followed runs into difficulties.

This approach is less demanding than the full search of all options that rationalism requires, and more “strategic” and innovative than incrementalism. It was suggested in the 1967 publication that it is both empirically supported, in that the most effective decision makers are expected to use mixed scanning, and the most suitable, i.e., normative correct, approach.

Mixed scanning, it was suggested in the original publication, is akin to scanning by satellites with two lenses: wide and zoom. Instead of taking a close look at all formations, a prohibitive task, or only at the spots of previous trouble, the wide lenses provide clues as to places to zoom in, looking for details. In the years that passed a new technology was developed which applies the “double-lens” approach of mixed scanning, Decision Information Discipline System (DIDS). The system provides computer graphic displays of geodata, usually in the form of a map. The system has a zoom capacity that allows its users to zero in instantaneously on sub-units (or subsets of variables), for example states within the USA and counties within the states. Wallace (1983) studied the 10 uses of the system as instances of mixed scanning. In one case a wide scan established that some areas were losing population although they were in parts of the county that by general trends should have been experiencing population growth. The zoom revealed these to be places in which military bases were being closed. In four, possibly five, of the 10 cases the approach led to what Wallace calls “unexpected” find-

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ings (p. 318). The broad scanning was more economical than detailed (zoom-in) scanning of all counties. At the same time, the zoom-in scanning of counties, singled out by the broad scanning, prevented the loss of information that would have ensued if only broad scanning would have taken place.

Operationalization

A significant part of the works that followed spelled out the mixed-scanning model in programmatic terms, terms that can be used as a guide for decision makers, as a starting point for a computer program, and as a basis for research designs. Etzioni (1968, pp. 286-288) started this elaboration:

a. On strategic occasions (for definition see d below) (i) list all relevant alternatives that come to mind, that the staff raises, and that advisers advocate (including alternatives not usually considered feasible).

(ii) Examine briefly the alternatives under (i) (for definition of "briefly" see below), and reject those that reveal a "crippling objection." These include: (a) utilitarian objections to alternatives which require means that are not available, (b) normative objections to alternatives which violate the basic values of the decision-makers, and (c) political objections to alternatives which violate the basic values or interests of other actors whose support seems essential for making the decision and/or implementing it.

(iii) For all alternatives not rejected under (ii), repeat (ii) in greater though not in full detail (for definition of scale see d).

(iv) For those alternatives remaining after (iii), repeat (ii) in still fuller detail (see d). Continue until only one alternative is left, or randomize the choice among those remaining (and ask the staff in the future to collect enough information to differentiate among all the alternatives to be reviewed).

b. Before implementation (i) when possible, fragment the implementation into several sequential steps (an administrative rule).

(ii) When possible, divide the commitment to implement into several serial steps (a political rule).

(iii) When possible, divide the commitment of assets into several serial steps and maintain a strategic reserve (a utilitarian rule).

(iv) Arrange implementation in such a way that, if possible, costly and less reversible decisions will appear later in the process than those which are more reversible and less costly.

(v) Provide a time schedule for the additional collection and processing of information so that information will become available at the key turning points of the subsequent decisions, but assume "unanticipated" delays in the availability of these inputs. Return to more encompassing scanning when such information becomes available and before such turning points.

c. Review while implementing. (i) Scan on a semi-encompassing level after the first sub-set of increments is implemented. If they "work," continue to scan on a semi-encompassing level after longer intervals and in full, over-all review, still less frequently.

(ii) More encompassingly whenever a series of increments, although each one seems a step in the first direction, results in deeper difficulties.

(iii) Be sure to scan at set intervals in full, over-all review even if everything seems all right, because: (a) a major danger that was not visible during earlier scanning but becomes observable now that it is closer might loom a few steps (or increments) ahead; (b) a better strategy might now be possible although it was ruled out in earlier rounds (see if one or more of the crippling objections was removed, but also look for new alternatives not previously examined); and (c) the goal may have been realized and, therefore, need no further incrementation. If this occurs, ask for new goal(s), and consider terminating the project.

d. Formulate a rule for the allocation of assets and time among the various levels of scanning. The rule is to assign "slices" of the available pie to (i) "normal" routines (when incorporating "works"); (ii) semi-encompassing reviews; (iii) over-all reviews; (iv) initial reviews when a whole new problem or strategy is considered; (v) a time "trigger," at set intervals, to initiate more encompassing reviews without waiting for a crisis to develop; and (vi) an occasional review of the allocation rule in the over-all review, and the establishment of the patterns of allocation in the initial strategic review.

Janis and Mann (1977, p. 37) introduced a major improvement of the program. They point out that while in the initial scanning, all those options that have no "crippling objections" are held over for closer scanning, which amounts to a "quasi-satisficing" approach, "each time the surviving alternatives are reexamined, the testing rule might be changed in the optimizing direction by raising the minimum standard (from crippling objections to more minor objections)."

They also expanded the range of decision making to which mixed scanning may be applied: "Although intended for policy makers, the same program, with minor modifications, could be applied to an individual's work-task decisions and to personal decisions involving career, marriage, health or financial security" (1977, p. 38). For such applications, they indicated, step a(i) must be modified: the staff and advisers would be replaced by family or friends.

Starkie (1984, p. 75) concurs with Etzioni that a mere accumulation of numerous incremental changes is not expected to yield the equivalent of a contextual or fundamental decision, because the incrementalist model provides no guide lines for the accumulation; it is likely to be random or scattered. In contrast, in mixed scanning, the fundamental decisions provide such guidance. Starkie correctly points out that Etzioni's suggestion that an "incremental 'creep' followed by a sudden change when existing policies are no longer sustainable by modification alone" is but one possible pattern of a combination of incremental and fundamental decisions; incrementation may follow a fundamental decision, just as readily as the other way around. Chadwick (1971) relates the various methods of decision making to different purposes and techniques of decision making. He sees rationalism as related to attempts to explore the long range; and sees its techniques as either normative forecasting or exploration and simulation; that is, lacking in empirical content. He sees the purpose of mixed scanning as the "provision of alternative sets of action policies," using evaluation, the design methods, and something he calls "planning balance sheet" (p. 340). No details are provided concerning these techniques and Chadwick's endorsement of mixed scanning "as a highly acceptable meta-procedure" is based on his judgment that it is flexible but not on an empirical study. Wright (1977) follows a similar tack.

How a fundamental decision can be told from an incremental decision properly concerned several who
examined the mixed-scanning model. Lee (1979, p. 486) agrees with the basic approach, to wit "it is more rational in practice to be selective and systematic about a number of feasible options than to 'rationally' examine all the choices." He adds, however, that the theory "does not tell us at what point the selection ceases to be rational." Cates (1979, p. 527) writes: "my problem is trying to identify a big or little decision.Appearances are deceiving." (See also, Falcone, 1981.)

On the other hand, Alexander (1972, p. 327) does not experience this difficulty: he finds that an example Braybrooke and Lindblom use to show how a policy is determined by incremental decisions, the 1940 "state of emergency" declared by F. D. Roosevelt prior to U.S. entry into World War II, was in effect an incremental step implementing his prior fundamental decision, to involve the United States in the war, one way or another.

One way to differentiate between incremental and fundamental decisions is relative size. For example, Fenvo (1966) used the fact that Congress tends to make only 10 percent or less changes in the budgets of numerous federal agencies, each year, to argue that it is only incrementing. Ten percent or less may amount to billions of dollars but in the context may be considered small or incremental. Etzioni, in turn, used the same rule of thumb, i.e., 10 percent or less is marginal, to show that many of the actual decisions made were non-incremental: 211 out of the 444 decisions Fenvo studied (12 years, 37 agencies) were actually changes of 20 percent or larger, within one year; 24 decisions entailed a budget change of 50 percent or more; seven—100 percent or more (Etzioni, 1968, p. 289). Other changes were small, but only following a major change. For example, the U.S. defense budget increased at the beginning of the Korean War from 5.0 percent of the Gross National Product in 1950 to 10.3 in 1951.

Another way to distinguish between incremental and fundamental decisions is to check for a nesting relationship. If an incremental decision requires or draws on a contextual decision, this is the fundamental one. For example R&D review committees that authorize funds for federal projects act incrementally if they review each project, of which there are many, on its own merits. They engage in mixed scanning if they first form some guidelines as to what lines of research they wish to promote and heed these when they render specific decisions. Indeed, some projects, that do not qualify by the criteria chosen, may not need to be reviewed in detail at all.

Positive and Normative

All three approaches to decision making are not only positive, in the sense that they claim to describe the ways decision makers actually act, but also normative approaches in that they prescribe how effective decisions ought to be made. Alexander (1972) would add here, "under the given circumstances," because he does not believe that there is one appropriate decision-making strategy for all circumstances. Janis and Mann (1977, p. 38) suggest that different types of decision makers will find different strategies suitable to their divergent personalities and levels of education and training. In contrast, I hold that these situational and actor differences will be reflected in the relative investment among the various scanning levels. For instance, those with less education will tend to invest less in higher scanning. However, no actor, under any realistic circumstances, can abide by the rationalist approach. And, all actors under all but highly unlikely circumstances would lose by merely incrementing, although if the situation is very stable and the actors happen to use the best strategy to begin with, the damage would be smaller than under other circumstances.

Parkinson (1980) applies the mixed-scanning approach in an attempt to develop a new policy-making model for the educational system in Ohio, superior to the existing one. The approach used in the educational system before Parkinson's endeavor was relatively incremental; contextual considerations were neglected (1980, p. 161). Following the mixed-scanning approach, Parkinson developed a model that defines policy first on a broad level and then evaluates policy on an incremental level. To incorporate the mixed-scanning approach, Parkinson suggested that there is a need to establish a meta policy group with the capability to maintain broad perspectives needed for longer range planning. "The collection and maintenance of broad policy information and its ready availability to all would enlarge the policy view to incorporate more than the current preoccupation with immediacy—that is solving the problems of the moment—without destroying the need for individuals and groups to research and provide information on specific policy issues which are of particular interest to themselves" (1980, p. 169). Parkinson's study is normative in that it is prescriptive; he did not study the results of shifting to the mixed-scanning model he favored in his study.

Hackett (1980) offers a model for the use of power by administrators. Much of his work does not concern mixed scanning but the way "assets" (resource, personality) are converted into intraorganizational power. However one of the major components of his power model is the use of mixed scanning. He integrates it into his model by tying sweeps of scanning to the development of plans to deploy or "activate" the administrator's power assets. Thus, for example, if scanning reveals a loss of cooperation, power assets have to be deployed to regain cooperation (or to force one's way), or, presumably, to modify one's approach (1980, p. 102; see also p. 14).

Seen in a wider perspective, differences in normative models tie to differences in general world views. Rationalists tend to be philosophically attuned to laisser faire classical liberal and libertarian perspectives. They are also highly optimistic in that they see the individual decision maker as highly self-reliant and able. In that sense they are also highly optimistic, utilitarian, and Utopian (Bradley, 1973, pp. 297-298). Incrementalists
favor conserving the status quo, because they are blind to opportunities for radical departures (Dror, 1969) or to major reforms. They are also highly pessimistic about human capacity to know and to act sensibly.

Mixed scanning is most compatible with a progressive, innovative viewpoint. It assumes a capacity of the actors to adapt to changing circumstances, even major changes, including the structure of the actors themselves. Revolutionary changes, which entail a breakdown of the old regime and the rise from the ashes of a new one, may occur in a poorly scanning actor but, under most conditions, can be avoided by proper scanning if the findings of the scanning undertaken are heeded and proper adaptations are made. At the same time the hyperoptimism of fine-tuned planning and rationalist models is avoided. (Indeed, Dyson, 1975, p. 160, reports that the model "stimulated S.P.D. intellectuals." The S.P.D. referred to is the German Social Democratic Party.) As Bradley (1973, p. 298) puts it: "Mixed-scanning seeks to avoid the most serious problems of both the overly rationalistic model and the excessively pragmatic model. . . . Normatively, it provides for the standing and predictability, which at least in the long run, is necessary to a decent society as well as acceptance of needed major innovations. . . ."

Others have questioned whether mixed scanning avoids the twin traps. Hanna (1980) depicted incrementalism as compatible with market economies and those who champion them; rational planning as reflecting "value authoritarianism," and mixed scanning as "ignoring normative issues." He does not provide the reasons for reaching this conclusion. Smith and May (1980, p. 153) pose a more serious challenge:

But in fact it is not clear that the unrealistic and conservative shortcomings would actually be avoided. They might merely be confined or moved to different sectors of the decision making process. There is no guarantee that within these confines they might not even be accentuated. We would need to examine mixed scanning in practice before we could judge. Other issues are side-stepped. For example Etzioni retains the presumption that decision makers can summarize and rank their values, at least ordinarily. As we have mentioned, it has been argued with conviction that values are ordered only in contexts of specific choice.

Indeed, whether or not values can be "summarized" is an empirical question which unfortunately has not been studied, at least in this context.

**Structural Factors**

The original article (Etzioni, 1967) and the following elaboration (Etzioni, 1968) stressed the role of structural factors. Decisions are not made in a vacuum; they are deeply affected by the position and relative power of the decision makers and their relation to one another.

Rationalism assumes an all-powerful actor, as reflected in the notion that actors ought to set their goals and set about implementing them, without asking about their place in various power hierarchies or the strategies needed to deal with them. For instance, a subordinate may need to act differently than a high ranking executive. Incrementalism is most compatible with the acceptance of existing power relations. As Bradley (1973, p. 298) put it: "The unorganized, and others who lack control over adequate decision-making resources, have no role to play in the game of partisan mutual adjustment." (Mutual adjustment is usually associated with incrementalism.) Mixed scanning sensitizes the decision maker to taking into account other actors; one of the major factors scanning encompasses is the posture of other actors and the relations among them.

The structural element received little attention in the more than 50 publications that deal with mixed scanning, possibly due to a widespread tendency to treat decision making as a disembodied strategy. (A full list of references is available from the author.) Wimberly and Morrow (1981), one of the few who examined this factor, concluded that incrementalism leans toward consensus whereas rationalism tends toward optimization and hence to disregard of consensus. Mixed scanning is viewed as seeking to provide a "compromise" of the two approaches. The authors see mixed scanning as "involved" and "time consuming" (p. 504) but deem these features as unavoidable if both the need to scan sufficiently, not to overlook a major opportunity, without being burdened down with insurmountable details, are to be attended to. They hence conclude that mixed scanning is "most suitable for the full range of decisions" (p. 506).

A structural point was made by Snortland and Stanga (1973) when they applied mixed scanning to the relations among courts. The higher courts (like higher ranking executives) attempt to reserve for themselves the fundamental decisions and expect the lower courts to increment. When the lower courts deal with incremental cases in contexts the higher courts have not passed on, this becomes "a matter of concern" for the higher ones.

A similar relationship has been observed between federal agencies and other agencies and private agents. Cardinal (1973) explored a specific act from a mixed-scanning viewpoint; namely the National Environmental Policy Act of 1969, focusing on its implementation. Special attention is paid to Section 4332(c) that provides for an institutionalization of the scanning levels. The "generalist policy leadership is seen as coming from the EPA . . . to be the primary line agency to create and complement policies. . . ." (p. 469). Detailed implementation and related incremental decisions are often left to other agencies: states, localities, or corporations.

Berry (1974, pp. 358-359) examines what he calls "community relations" under different decision-making strategies, specifically in the context of the relations between Comprehensive Health Planning Agencies and their councils. The rationalists' plan, he finds, is "technically sophisticated" and hence requires a "rather stable" environment. This, in turn, requires council members who are technically competent and following approval of this document [the master plan] community reaction and debate would be discour-
aged...” Incrementalism requires a high level of consensus building; hence great attention must be paid to a council that is based upon fair representation. Mixed scanning requires deep public awareness of the fundamental decisions and of the main alternative schemes. (But, by implication, less involvement in incremental decisions.)

Some Evidence

Snortland and Stanga (1973, pp. 1021-1031) applied mixed scanning to the study of the law. First they found the model applied to the Constitution.

The second phase of the incorporation of the Bill of Rights provides an illustration of mixed-scanning. While the first phase proceeded absent-mindedly, the second involved fundamental decisions by the Court within a mixed-scanning framework of both fundamental and bit decision. Mapp v. Ohio, and certainly Gideon v. Wainwright, appear to represent major and conscious fundamental decisions to incorporate provisions of the Bill of Rights into the fourteenth amendment. Within a few years after these decisions, the Court virtually completed the process of incorporation by incremental decision-making. The Court did not adopt Justice Black’s position, which called for immediate and complete incorporation. Rather, the Court made a fundamental choice on the incorporation question, but ensured that the process could be halted if it proved to be deleterious to the administration of criminal justice. The Court retained the freedom to reevaluate this major policy decision and to retrench, if necessary. This is precisely the process that is prescribed by the mixed-scanning model.

Snortland and Stanga show the relevance of mixed scanning to two major Supreme Court decisions: Miranda and Brown. In the case of Miranda, the context setting decision involved both formulating guidelines and selecting the incrementing case. In the case of Brown, the fundamental decision both followed and set the context to incremental ones.

The Court clearly was aware that its first decision on interrogations and confessions after Escobedo would be an important one. The case takes on an even greater significance, in terms of mixed-scanning, when it is realized that Miranda and the companion cases “were as representative of police interrogation situations as Escobedo had been unique.” Miranda involved not only a conscious decision of a fundamental question but also a selection of cases that would encourage a broad application of the new policy to interrogation and confession cases.

The Brown decision provides a useful example of the application of the mixed-scanning model. Brown was preceded by a series of cases that strongly eroded the “separate but equal” doctrine. Because of the incremental nature of these cases, the outcome in Brown should have been a surprise to no informed observer. Yet it is clear that Brown was a major policy decision of fundamental importance. It was not an incremental decision, although it is likely, as Shapiro suggests, that the Court had already resolved to outlaw segregation. Many aspects of racial discrimination were left unanswered by Brown. The questions were to be worked out incrementally, as is shown by the second Brown decision.

Many additional detailed points made by the two authors cannot be recaptured here.

Wiseman (1979) examined the design and development of planning processes used within the Scottish health service. Various decision-making approaches are examined and “for reasons set out below, a mixed-scanning approach was felt to be most relevant” (p. 104). The subject of the study is the Scottish Home Health Department (SHHD) that encompasses 15 district health boards and a headquarters that contains an administrative and a planning unit. Before reorganization, the focus of the study, the SHHD was “very much geared to the administration and management of existing health services and the development of policies was mainly undertaken in response to external stimuli” (p. 105). Issues arose on an ad hoc basis, with no systematic evaluations of the situation, and decision making was largely one of incrementalism, although sporadic and futile attempts to introduce rationalisms occurred. For example, an attempt was made to use management science techniques for manpower planning purposes. Disappointment with the results of this approach led to a search for a more effective approach.

. . . A rational comprehensive approach was rejected at an early stage because of the limited planning resources available, the complexities of a changing environment, the multiple interests and the multiple accountability of individuals within the health service. On the other hand, there was also a desire to introduce more rationality and more balance into policy-making than had been possible in the past. This inevitably meant searching for a middle course which would improve on past practice. A mixed-scanning approach was proposed which embodied three key components (Wiseman, 1979, p. 107).

The first element was the introduction of a scanning process, whose purpose was to review from time to time “what had been happening, to identify and where possible anticipate major issues for possible detailed attention and in general to provide an overview on which the future directions for the development of health services could be considered” (ibid.). To ensure that the process would not be rationalistic it was agreed that “the review process would consider the field of health services in broad terms but not in depth and would not attempt to produce detailed policies or plans for any one specific aspect” (ibid., p. 107).

The second element was a selection procedure, to sort out which of the fundamental issues identified by the review process would be subject to detailed study and planning, taking into account the limited resources. The third element entailed detailed planning of the relatively small subset of issues selected for incrementalization. Wiseman (1979, p. 104) reports that the plan was implemented but provides no observations on its effectiveness. (Two other publications, Wiseman, 1978 and 1980, deal with the same effort but provide no more detail on the outcome of the introduction of mixed scanning.)

Berry (1974, pp. 351-353) suggests briefly how mixed scanning can be applied to a variety of situations, including the decision of an owner of several newspapers in small communities of whether or not to include a given additional town in his chain, and the use
of sudden changes in death or morbidity data to initiate various levels of scanning by public health authorities (scope of search depends on the relation of departure of the data from the established norms). Berry proceeds to suggest the amount of resources and time various approaches to decision making require: The rationalist approach requires “maximum time and funds before action”; incremental—least; mixed scanning relatively few funds but more than incrementalists and “moderate time”; the radical approach is as taxing and time consuming as the rationalist ones (p. 356).

Deshler (1974) trained 56 educational administrators in mixed scanning and observed their behavior both before and after the training and attained information from them by the use of questionnaires and interviews. He found that practically all those studied scanned broadly “naturally,” before they were exposed to mixed scanning (p. 89). However, before they were introduced to mixed scanning about half limited their scanning to local issues, ignoring state and federal ones; and most tended to scan downward, not upward, and internally and not externally. Mixed scanning enhanced the scope of their scans upward and outward. It also decreased their tendency to attach the label of “excellent” to whatever was established practice and enhanced their tendency to consider alternatives. “The process enables you to think about the issue in greater depth. It removes your tunnel vision. It stimulates cross-disciplinary thinking, and opens up new areas for consideration” interviewers told Deshler (Deshler, 1974, p. 101).

DeVall, Bolas, and Kang (1976) compared the three approaches to the decision making in their study of the utilization of applied social research in 240 projects. They developed a measure of “overall policy impact” based on interviews with policy makers. (The measure has five elements the correlations among which were examined. For details see ibid., appendix B.) Testing next showed that the rationalist approach, defined as explicitly, fully spelled-out “policy norms,” has a poor policy impact. The impact was 12.56 when the norms were clearest; 13.40 when they were unclear; and 19.07 when they were not explicitly indicated.

Incrementation, operationalized as adjusting closely the policy research to the “ongoing, day-to-day processes of decision making” showed considerable policy impact (highest, 17.60). Mixed scanning was operationalized as full scanning, rather than merely diagnosing the problem or merely identifying policy goals—also encompassing implementation options. It was associated with the most intense use of the applied social research. The policy impact reading was 23.67.

Conclusion

Mixed scanning seems to have an intuitive appeal to a fair number of scholars and action-oriented students of decision making. The ways it might be operationalized for the purpose of research or implementation have been clarified over the years, and the essential difference between fundamental and incremental decisions seems not to pose great difficulties. The links between the three different approaches of decision making and various intra- and interorganizational power structures, as well as between power approaches versus consensus building, have been explored. However, it remains to be empirically substantiated if, indeed, rational models are more suitable for totalitariansm or high-power approaches (e.g., master planning); incrementalism to highly pluralistic, special-interest dominated polities; and mixed scanning to systems that combine a balanced commitment to the collectivity with pluralism (Etzioni, 1984). The alternative hypothesis would be that rationalism does not work even for highly centralized systems (as the recent changes in USSR and China suggest) and that incrementalism reinforces the weakness of pluralism without a collective framework. All may require mixed scanning albeit using different mixtures of higher and lower levels of scanning.

Above all, mixed scanning is still very short of case studies and quantitative studies of situations in which decision-making strategies were changed from either rationalist or incrementalist ones to mixed scanning. More needs to be known of the results in terms of effectiveness and of the factors that hindered or fostered the use of mixed scanning.

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