

Five Years of Strategic Environmental Assessment Efforts at a Research University: A Case Study of an Organizational Innovation

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ABSTRACT: This study examined the emergence and subsequent five-year history of "environmental scanning" at a large research university. Proponents of strategic approaches to management in organizations usually recommend environmental scanning as a necessary support for effective decision making. The technique seeks to build systematic understanding of the external environment of the organization, via ongoing reconnaissance of relevant developments in technology, the economy, the political and legal arenas, and the larger society. Scanning's fit with educational organizations may be problematic, however. Over time, scanning efforts on the campus studied here became less theory-based and less centralized, and scanning failed to become an institutionalized innovation. The difficulties in institutionalizing scanning are traced to six factors: limitations posed by organizational structure, an absence of powerful champions, constraints from the organizational culture, the existence of a "policy vacuum" surrounding scanning efforts, the daunting demands of such efforts themselves, and questionable articulation with the fundamental goals and mission of the institution. The analysis suggests that the generic scanning model seems unlikely to win acceptance in research universities without substantial modification.

Perhaps a majority of college and university campuses have experimented with planning approaches labeled "strategic" (McMillen, 1988). Little is known empirically about the correspondence of these

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efforts to the generic strategic-planning model originating in the for-profit sector, however (Chaffee, 1985). In particular, although formal assessment ("scanning") of the organization's external environment has long been an accepted element of the generic model (e.g., see Aguilar, 1967; Thomas, 1980; Stubbert, 1982; Wilson, 1983), and although its use in higher education has been advocated by a variety of authors (prominently including Keller, 1983, and Morrison, 1987), the extent and nature of its use, its successes, and its limitations in colleges and universities are only poorly understood. Accordingly, this paper traces the use of the environmental-scanning concept in guiding planning at one research university over a five-year period.

The Concept of Environmental Scanning

The overall purpose of environmental scanning is to build systematic understanding of the external environment of the organization, via ongoing reconnaissance of relevant developments in technology, the economy, the political and legal arenas, and the larger society. As usually conceived, a scanning committee or office is formed in an organization and individuals are assigned to particular interest domains, such as demography or international relations. Within those domains, they gather information potentially relevant to the organization. They can do so from the print and electronic media, conferences, professional networks, or other sources. The information is then brought together in some fashion and disseminated within the organization, often as scanning reports or regular newsletters, sometimes via conferences or seminars. When information of particular importance is identified, that lead may be assigned to a designated individual or group for more concentrated attention. Ideally, an organization armed in this way with extensive, useful knowledge of what lies beyond its current borders can position itself for optimally effective performance (see Morrison, Renfro, and Boucher, 1983, for a more detailed account of the basic methods of scanning).

Environmental scanning as an approach has roots in two theoretical traditions. In the "open systems" perspective on organizations (Scott, 1981; Perrow, 1986; Thompson, 1967; Pfeffer and Salancik, 1978), each organization is viewed as needing to provide inducements for others in its external environment to contribute personal or financial resources to it. Without appropriate inducements, such as lower prices, attractive salaries, and valued products, the organization may prompt individuals and

other organizations to direct their money, time, or energy elsewhere. To provide appropriate inducements, an organization must effectively assess and respond to developments in its external environment.

A second, even stronger source of support for the scanning approach arises from theories and prescriptions associated with strategic management. In the theoretical strategic-management literature, effective strategy is viewed as ongoing attention to appropriately aligning internal organizational resources with relevant environmental constraints and opportunities (Miles and Snow, 1978; Bourgeois, 1980; Hambrick, 1983; Ring, 1988). In parallel with this view, much of the recent prescriptive management literature has argued for a broadly based, environmentally sensitive "strategic" approach (e.g., see Peters and Waterman, 1982). From this perspective, the strategically effective organization surveys its general environment; selects certain key environmental issues, trends, and domains for concentrated tracking; and feeds what it learns into its ongoing strategic decision making.

Aguilar, the scholar whose doctoral thesis coined the now widely accepted term "scanning" for environmental assessment, has argued that scanning is "the activity of acquiring information . . . [It focuses on] events and relationships in a company's outside environment, the knowledge of which would assist top management in its task of charting the company's future course of action" (1967, p. 1). Although all organizations assess their environments in some way, Aguilar suggests that environmental assessment can be made more efficient and effective by supplementing undirected viewing with conditioned viewing and by substituting informal search with formal search. Aguilar defines the activity as the systematic collection of external information in order to lessen the randomness of information flowing into the organization and, thus, to provide early warnings for managers of changing external conditions.

In separate efforts, two theorists (Etzioni, 1968; Wilson, 1983) have extended Aguilar's "early warning" idea metaphorically, noting that organizations facing uncertainty require both clear organizational vision and something akin to "reconnaissance" of an entire terrain surrounding the organization (i.e., environmental analysis) to pick out the opportunities and troubles lying ahead. This view is in keeping with most of the theoretical literature underlying the scanning movement, which tends to suggest systematic parceling of the external environments of institutions into discrete parts, which are surveyed and tracked via regularized attention to a variety of media. Wilson (1983) expands that notion, proposing that truly systematic environmental

assessment has the following features: 1) it is integrated into decision making and planning processes; 2) it is relevant to current and emerging issues; 3) it is holistic rather than piecemeal; 4) it is an iterative and continuous process, consisting both of generalized scanning to spot trends and targeted monitoring to track critical trends; 5) it is heuristic and exploratory rather than predictive; and 6) it balances qualitative interpretive insights with quantitative data. In line with Wilson's six points, scanning activity is usually conceived in the literature as distinct from issues management, multiple-scenario analysis, econometric forecasting, marketing analysis, internal organizational assessment, formalized planning, or values analysis (see Aguilar, 1967; Foresight Task Force, 1983; Chase, 1984).

The concepts of environmental scanning thus have been laid out in some detail in the general management and planning literature. As noted earlier, scanning concepts have also received attention in the literature of higher-education management and planning (Kotler and Murphy, 1981; Heydinger and Zentner, 1983; Heydinger, 1984; Morrison, Renfro, and Boucher, 1983, 1984; Cope, 1981a,b, 1987; Alfred and Weissman, 1987; Simpson, McGinty, and Morrison, 1987; Morrison and Brock, 1991). Most of this higher-education literature is conceptual and/or prescriptive, however.¹ Little is known about how frequently, how well, and how successfully the concepts have been put into practice in higher-education settings.

Objective of the Present Analysis

The continuing appearance of prescriptions for scanning in the higher-education literature, in conjunction with the paucity of published reports on the actual experiences of institutions and systems that have indeed tried the environmental-scanning approach, suggests a need to study the results of the efforts already in place. The objective of the present study was, therefore, to examine and report on scanning efforts over a period of five years (1983–1988) at a large research university, the University of Minnesota [UM].

¹ An exception is Morcol and McLaughlin (1990). Using a conception of environmental scanning demanding integration of sophisticated quantitative information into formal planning processes, they argue that good scanning takes advantage of the data bases and techniques long familiar to institutional researchers on campuses. Their vision of scanning in higher education seems somewhat more limited, more quantitative, and less intuitive than that proposed by other authorities. Perhaps because of that, it may be a more easily attainable vision.

The University of Minnesota has long been mentioned prominently among institutions involved in the strategic planning and management movement in higher education. For example, Keller (1983) reports extensively on the institution in his book on strategic decision-making patterns emerging on campuses, and Cope focuses heavily on the university in his analysis (1987) of different institutions' implementation of the strategic approach. More to the point here is a *Journal of Higher Education* article by Hearn and Heydinger (1985), which blended an extensive discussion of theoretical constraints on environmental scanning in universities with some early empirical evidence on strategically oriented scanning efforts at UM. The article noted that, as of 1983–84, environmental scanning was practiced as a theory-based, voluntary effort directed by staff of the central administration's Academic Vice President's Office. The authors concluded that achieving ongoing legitimized status in the decision-making apparatus of the university was critical for the future of scanning efforts at UM.

A number of articles and books have since appeared that referred to the article as significant evidence on the scanning approach's prospects in higher education (e.g., see Morrison, 1987; Peterson, 1987; Alfred and Weissman, 1987). In addition, the authors have received numerous requests for more information on the fate of Minnesota's scanning efforts. This extensive interest in the earlier work, and the authors' belief that evidence over the *longer term* of an innovation's institutionalization and legitimation deserves more attention (Dill and Friedman, 1979; Goodman, Bazerman, and Conlon, 1980), led to the present follow-up study. The analysis is oriented to clarifying what happened in scanning at Minnesota after 1984, the date at which the earlier paper closed its analysis. Several analytic concerns guided the present analysis: Did scanning persist? If not, why not? If so, in what form(s)? Was scanning well integrated into strategic decision making at the institution? To what extent were the theoretical and practical dilemmas and limitations noted earlier successfully addressed and resolved?

Theoretical Framework

Earlier research suggests that, within large and complex research universities like the University of Minnesota, effective strategic adaptation may be more likely in the disparate academic units rather than at the central level. That is, successful adaptation will tend to occur in atomized, differentiated fashion rather than in concerted fashion. Three organizational characteristics lie behind this supposition: 1) the

traditional slowness and indeterminacy of large universities' central responsiveness to external threats and other decision opportunities (Cohen and March, 1974; Weick, 1978); 2) individual academic departments' close, direct, and highly professionalized connections to emerging developments in their respective fields (Clark, 1983); and 3) the difficulties of institutionalizing strategic organizational innovations, such as systematic internal "audits", in loosely coupled organizations with high levels of internal differentiation (Kotler, 1982). As a consequence, centrally directed strategic planning efforts will tend to be more constrained in universities than the generic corporate strategy model would recommend, and will be especially subject to interest-group pressures and coalition formation (Baldrige, 1971, 1980; Baldrige and Okimi, 1982).

This conclusion suggests that, as one facet of strategic planning efforts, environmental scanning will be more likely to develop at the subunit level than at the central level in large institutions. In accord with that hypothesis is emerging evidence that strategic planning efforts in higher education do not tend to include aggressive, systematic assessments of institutions' external environments (Clugston, 1986; Lozier and Chittipeddi, 1986).

Even when such efforts are made, and some successes accrue, there can be problems. In a report on the successful initiation of scanning at a community college, Morrison and Mecca (1989) note that integrating scanning into the school's ongoing planning process "did not go smoothly". According to some internal critics at the college, the institutional strategy derived from the scanning results was uncoupled from operations and was formulated without wide participation. Also, the internal critics argued, the content of the scanning effort was too narrow, and the techniques for evaluating the robustness and probable effectiveness of the strategies needed work. Morrison and Mecca (1989) conclude by suggesting that environmental scanning in higher education is valuable and should be pursued but is hampered by a number of significant methodological issues (most notably, how to elicit forecasts, how to use groups versus individuals, and how to define, ensure, and improve validity and reliability).

While Morrison and Mecca were examining scanning at a community college, Hearn and Heydinger (1985) were studying experiences with scanning at a very different kind of institution, the University of Minnesota. The two studies found similar barriers to success across these two institutional types, but the problems noted by Hearn and Heydinger appear greater than those noted by Morrison and Mecca.

The Minnesota analysis suggested that research universities may tend to avoid or ignore systematic environmental scanning because such efforts raise several organizational tensions:

Tension 1: whether scanning efforts should provide leaders with information only, or provide leaders with both information and interpretation

Tension 2: whether to solicit and utilize only volunteers for scanning, or to assign particular staff to scanning duties

Tension 3: whether to emphasize group efforts, or to rely on individual efforts

Tension 4: whether to focus on process, or to focus on products

Tension 5: whether to track only “big” issues and trends, or to track “small” issues and trends also

Tension 6: whether to form and pursue a centralized strategy, or to seek only centralized coordination.

Faced with these difficult questions, UM’s scanning efforts had unclear prospects at the time of the Hearn and Heydinger article. As a result, the article ended with its primary question left unanswered: “[T]he short-term results presented here are in many ways preludes to the ultimate evaluation of the Minnesota experiment . . . If the organizational power, energy, and talent of those oriented to environmental assessment are not sufficient to allow them to establish and defend an initial organizational niche from which the effort may be nurtured, then the long-term issues of technique and eventual benefits are moot. Therefore, it seems clearly worthwhile to engage in ongoing analysis of the process, products, and roles of formal environmental assessment as it evolves” (*ibid.*, page 442).

Research Design

As in the earlier work, the University of Minnesota is the setting for the case-study analysis. Because UM is an extraordinarily large institution (with over 50,000 students and several hundred degree pro-

grams), the authors verified and expanded on their own perspectives as UM employees with interviews of eight UM leaders.² One was a vice president at the highest level of central administration. Five were deans or associate deans of major academic units (including the college of liberal arts, the college of education, the institute of technology, the graduate school, and the continuing education and extension unit). The remaining two were professional planners, in the central administration and the health-sciences unit, respectively. Several, but not all, of the respondents were also interviewed for the earlier Hearn and Heydinger analysis.

The sequence of interview questions was designed to elicit open-ended responses before the actual use of scanning techniques was assessed. This approach was chosen for two reasons. First, asking questions about whether a respondent pursues some putatively desirable activity can create biases in interview responses. For example, to ask at the start of an interview whether someone uses "quantitative trend analysis" is to put some pressure on him or her to respond either positively or defensively, given the undeniable appeal of the term in the rational, scientific climate of the university. Environmental attention in a unit can, in fact, range from formal, structured, systematic activities (e.g., assigned magazine and journal reading, surveys, fundamental research, and trend analysis) to informal, unstructured, unsystematic activities (purposive talk, passive reception of information, etc.). Each activity has potential merit, and it would be inappropriate to prompt response biases that could be avoided by alternative sequencing of questions. Second, the sequencing approach allowed the interview design to be sensitive to the possibility that some university leaders might be "doing" environmental scanning without actually calling it that, while other leaders might be claiming to pursue environmental scanning but are in fact not doing so, at least under the strict technical criteria of the theoretical literature. We were particularly concerned that our respondents inform us accurately concerning whether their units were attempting to follow scanning theorists' advice that such efforts should be based in "all-terrain" viewing, via compartmentalization of the external world into discrete, trackable categories, such as the familiar "STEP" (social, technological, economic, and political/legal) typology discussed by Morrison, Renfro, and Boucher (1984) and by Cope (1987).

² At the time of the interviews for this analysis, all three authors were employed at UM.

Respondents were asked six general questions, some with sub-questions:

Question 1: Universities, like all organizations, must deal with threats and opportunities posed by their external environments. In what ways does your office inform itself and learn about these threats and opportunities?

Question 2: Please tell us whether your office's approach to environmental attention: Is regular or is episodic? Uses formalized categories for external information (such as the STEP typology)? Involves assigned activities by multiple actors? Is part of official ongoing job responsibilities for one or more staff members? Is oriented to neutral information gathering or to providing recommendations? Has formal distribution/dissemination channels for reports? Studies magazine and journal articles primarily or utilizes a variety of sources? Has relied on outside experts or consultants (e.g., faculty)? Features specially designated environmental reports (e.g., the State Planning Office's *Trend Reports*)? Is led by the head of your unit? Is sanctioned by the head of your unit?

Question 3: A number of formal techniques for environmental attention have been proposed in the strategic planning literature for use in for-profit, as well as nonprofit, organizations. Has your office tried any of the following techniques, and if so, how successful was or is the activity: Formal trend analysis? "Issues management"? A "probability/diffusion matrix"? An "impact network analysis"? Formal "scenario generation"? Systematic "environmental scanning"?

Question 4: Would you like to see your unit change the ways it learns about its external environments? If so, how? Do you know of any exemplary approaches of the kind you propose?

Question 5: How would you characterize the ways the University of Minnesota as a whole currently learns about its external environments?

Question 6: Would you like to see the university change the ways it learns about its external environments? If so, how? Do you know of any exemplary approaches of the kind you propose?

The authors supplemented interviewees' responses to these questions with 1) the results of a similar interview with the university's Associate Vice President for Institutional Relations conducted by a student for a graduate-level education course (Lee, 1988) and 2) their own views based on their local working experiences in, respectively, UM's college of education, continuing education and extension unit, and central administration. Obviously, this design for the analysis is subject to criticism. The sample is small, and the authors themselves are supplemental sources of the data as well as analysts of those data. To address possible biases in this approach, the authors solicited feedback on their initial findings from respondents and other knowledgeable authorities, focusing on the theoretical soundness, objectivity, and empirical validity of the analysis.

Findings

The interview findings fall into two general categories: respondents' reports relating to the analytic concerns guiding the study and respondents' independent evaluations concerning environmental attention at UM. These will be presented in turn.

Findings on the Analytic Concerns Guiding the Study

Three analytic concerns of the study were introduced earlier: Did scanning persist? If so, was it well integrated into strategic decision making at the institution? To what extent were the theoretical and practical dilemmas and limitations noted in the earlier paper successfully addressed and resolved? The interviews provided intriguing information on each of these concerns.

First, *did scanning persist?* Environmental attention, and several aspects of the scanning approach, indeed persisted at UM, although in forms significantly different from their original form there. Before 1985, scanning was in place as a voluntary group effort directed by staff of the central administration's Academic Vice President's Office. The techniques used were highly structured and drawn from the theoretically based scanning literature. The products of the efforts tended to be value-neutral information pieces. Several years later, much had changed: 1) scanning was no longer being pursued at the central level; 2) the products of environmental assessment efforts tended to be unstructured (i.e., unwritten and diffuse in focus) and value-laden (i.e.,

prone to active interpretation and recommendations for political and strategic positioning); 3) environmental assessment was not pursued in ways suggested by the theoretical literature; and 4) the environmental assessment that was being pursued was for the most part neither voluntary nor group based but, rather, part of the regular job responsibilities of individuals.

We will cover these four points of change in order. The shift in the organizational location of environmental assessment work at UM over the period studied was striking: central administration's scanning activities diminished appreciably, but scanning emerged and persisted independently in several separate academic and nonacademic units. The environmental assessment that was occurring at the time of our follow-up interviews tended to take place outside of the university's central administration and central governance apparatuses (e.g., University Senate planning efforts for the entire institution did not encompass scanning). Interestingly, theory-based environmental assessment efforts never emerged in the liberal arts and sciences units traditionally viewed as the core elements in research universities (Keller, 1983; Heydinger, 1982; Mims, 1980). Instead, the academic units coming closest to pursuing scanning in the traditional, theory-based sense were in the professions and the more applied areas. The organizational locus of the activity moved, therefore, from higher to lower levels and from the center to the periphery of all-campus planning activity.

This pattern apparently was a result of natural processes of organizational change. No actor in planning processes at the university-wide level consciously chose to decentralize environmental scanning activities or to move them to non-core academic units, but that was the pattern of events after 1984. Career transitions may account for some of this pattern. At least four champions of scanning activity either left central administration for other parts of the university or took on demanding new central roles in the 1984-88 period. None of those committed to traditional notions of environmental scanning landed in the core liberal arts and sciences areas of the university and, despite the urging of several "champions" outside in those units, critical planning actors there repeatedly expressed suspicions of the logic, techniques, and usefulness of scanning activities.

Also of interest in our study was the unstructured nature of much of UM's late-1980s environmental-assessment efforts and the relative assertiveness of those efforts in the domains of values and policy. In earlier years at UM, formalized categorization and activities were the norm, and value and policy positions were largely avoided. Regarding

the structuring question, most of the administrators in our current sample responded to the question about how they learned about environmental threats and opportunities by simply listing the various ongoing arrangements through which they stayed in touch with what was going on outside of their units. Such arrangements were nothing out of the ordinary for such units, and were not overtly linked to the scanning concept or literature. Among the arrangements mentioned were association with their units' external advisory committees; employment of part-time consultants; discussions and meetings with faculty connected with national disciplinary groups, local organizations, and university groups; discussions and meetings with administrators through which perceptions and information were routinely shared (these networks were involved in monitoring trends, setting agendas, and identifying threats and opportunities); personal involvement in critical external arenas (e.g., service on boards or panels of national disciplinary organizations, research labs, the National Institutes of Health, and other federal units); involvement in relevant local organizations (e.g., "high-tech councils"); program reviews; capital campaigns; partnerships with businesses; recruitment on campus; accreditation reviews; and program-rating processes.

There were some exceptions to the assessment activities' movement away from neutral analysis and movement toward taking overt value and policy positions. For example, some administrative leaders reported that they were essentially reactive in gathering and using external information. One noted his unit's actions involved "just keeping our eyes and ears open, cutting out and circulating items of interest, and attending conferences". Similarly, the two planners in our sample described efforts geared more to systematic collection of quantitative data along several predefined fronts, each tightly limited in scope. Our other respondents, however, described themselves as more activist, aiming to connect themselves with the key decision makers influencing the future of their fields, to absorb data pertaining to future developments, and to shape external conditions as much as possible to position their units for future opportunities. Such an approach was more qualitatively than quantitatively oriented, diffuse rather than constrained, and overtly political.

All of the environmental assessment activity we found was clearly atheoretical. Or, more precisely, it did not apply the established theories behind management's movement toward environmental scanning in particular or strategic thinking in general. Neither the planners nor the administrators in our sample exhibited the consistent, structured,

broad-based, multilateral attention prescribed in the theory-based environmental scanning literature. Nor was there any evidence of full, widespread use of the various scanning methods derived from strategic theories (e.g., employing Wilson's ongoing iterative processes or working from the "STEP" categories). Four of the eight respondents indicated that their units did not use any formal environmental typologies, reporting media, or any other of the systematic techniques for environmental attention emphasized in the literature. The other four respondents' units used formal trend analysis, regular scenario generation (on an informal basis to prompt discussions), or both. None of the respondents reported that his or her unit used probability/diffusion matrices or impact-network analysis.

What is more, none of the respondents showed any inclination to pursue such approaches. Although all respondents commented that they had experienced a need to pay more serious attention to external developments than in the past, they had not significantly modified the structures they use to bring information "from the outside in". Indeed, several of our respondents used virtually no "strategic" language, and only a minority suggested they were familiar with the strategic planning and management literature. Instead, the structuring of respondents' environmental attention seemed more a function of administrative style and the competitive environment of their respective units than of acceptance of the benefits to be derived from pursuing the techniques prescribed by strategic-management theorists.

Nevertheless, although formal strategic concepts may not have been overtly on the minds of our sample, "unschooled" strategic reasoning may partly account for UM's movement in the 1980s toward making environmental assessment part of the formal job assignments of individuals. Earlier at the university, scanning techniques were theoretically formalized but only informally sanctioned in the organization. Several years later, the reverse was true. The new formalization consisted of requirements, stated in the job responsibilities of a number of academic and nonacademic leaders and planners on campus, that those people pay close attention to relevant environmental developments. On the other hand, however, these job descriptions rarely directed the incumbents to employ scanning techniques and ideas drawn from strategic theory, and they rarely did so.

The individualistic orientation to environmental assessment that emerged at UM did not preclude respondents' units entirely from more collectively organized environmental assessment activities. Our respondents' units varied considerably in the specific nature of their

approaches to organizing environmental intelligence. Three respondents described their units' approach to environmental attention as "regular". That is, in their regular staff meetings, staff were expected to describe critical external developments in their areas of responsibility (and monitor developments in these areas). Three respondents indicated that their units used formal categories for external information but, once again, these categories were determined by job responsibilities rather than theory (e.g., a staff person working on minority recruitment was assigned to monitor minority issues for the unit). As noted earlier, no consistent typologies were used in gathering or filing information, although all approaches to gathering and disseminating environmental intelligence were sanctioned and led by the unit heads. Once information was collected from a variety of sources, it was shared in a variety of ways. Only one unit described any formal distribution channels for its reports, and none featured specially designated environmental reports.

In sum, environmental scanning did indeed persist through the 1980s at UM, but did so in quite diluted fashion. In concise terms, compared to 1983-84, it was more diffusely located and directed, less structured and more value-laden, less theoretically grounded, and far more individualized.

The second analytic concern guiding the study was *whether scanning was well integrated into strategic decision making at the institution*. Environmental assessment efforts in some non-central, non-core units (e.g., the health-sciences unit) were indeed well integrated into decision making. Nevertheless, as noted above, the wide-ranging techniques of formalized scanning in its purest form were not found in even those environmentally sensitive units. What is more, in other units conducting some environmental assessment efforts, connections between those efforts and decision making were even more tenuous. An example of one of the tighter connections between environmental attention and strategic concerns comes from the comment of a dean in our sample. Regarding the national policy arena, as well as local policy contexts, he commented that he was simultaneously oriented to "wiring" key external arenas to his units' strengths and to developing his units' strengths to respond to likely future opportunities. Although neither strengths nor opportunities were formally studied in the fashion recommended in the management literature, strategic themes and logic were clear.

Clearly, scanning efforts did make some contributions to strategy at the university. Heydinger (1992) suggests that UM's initial scanning

efforts in the early 1980s, via its Experimental Team for Environmental Assessment [ETEA], had a number of direct benefits over the longer term, most notably including serving as an impetus to the institution to deal quickly and effectively with the then-emerging protests over "animal-rights" concerns. Most research universities reacted more belatedly, and far less systematically, to this question. Other efforts of the ETEA to identify potentially disruptive or promising issues proved less prescient. Not surprisingly, therefore, the institutional-relations administrator interviewed by Lee (1988) emphasized the mixed results for UM's strategic environmental assessment efforts in the 1980s. He commented that those efforts could claim one great success and one great failure. His great success was the early identification of the animal-rights issue as a matter meriting quick and decisive attention by central administrators and the Board of Regents. The failure, which occurred later, after rigorous scanning had largely disappeared at the central level, was the central administration's poor handling of a "blue-ribbon" faculty task force dealing with strategic reallocation efforts (the task force recommended the closing of the university's veterinary medicine and dental schools, two key sources of public and legislative support for UM).³

As noted earlier, it is intriguing that throughout our sample we found respondents reporting strategically oriented thinking but evincing little familiarity with, attention to, or devotion to strategic theory, literature, or techniques. Our probes on the actual nature of environment/strategy connections at UM elicited several general comments on the enterprise of strategic environmental attention, perhaps in part because some respondents found themselves saying "no" to most of the specifically scanning-oriented items. An erstwhile planner and environmental scanning champion, turned administrator, suggested that she no longer regarded the use of formal techniques and a structured, staffed scanning effort as essential. For her, scanning was most important as "a way to think about things", and as a critical element in the management process. She observed, however, that formal scanning with separate staff and committee responsibilities "can degenerate into an academic exercise overly concentrating on impending doom, rather than being part of the broader decision making process." In a similar vein, another academic administrator questioned the utility of gathering information in this fashion, and stated

³ The analysis of the animal rights issue by the environmental scanning team at the university is covered in Hearn and Heydinger (1985).

that he would never put any resources into such undertakings, even if a foundation made money available for only such a purpose.

The administrator most geared to gathering environmental intelligence cautioned that such an undertaking cannot be a staff function; it must occur at the highest level and be embedded in the way the leadership of the unit goes about setting its strategic direction. Because of the extraordinary amount of "noise" in external environments, this dean suggested, individuals not privy to the private discussions of key decision makers will not be able to discern and disseminate critical information on real threats and opportunities.

The third and final analytic concern guiding the study focused on the *extent to which the theoretical and practical dilemmas and limitations noted in our earlier work were successfully addressed and resolved*. Two of the tensions noted in 1983–84 did appear largely resolved by 1988. We found no voluntary efforts in scanning, only written or assumed job responsibilities; Tension 2, therefore, was no longer in evidence. In addition, the activities we found were almost entirely individual in nature, suggesting that Tension 3 (whether to emphasize group efforts or to rely upon individual efforts) had effectively been resolved in favor of the latter. Nevertheless, the remaining tensions noted in the earlier paper were still present in the institution's radically altered environment for scanning of the late 1980s. Environmental assessment efforts provided some leaders only information, as in the earlier incarnation, but provided others both information and interpretation, often only vaguely differentiated (Tension 1). The phrasing of the respondents' answers to our questions suggested that some tended to focus more on process, while others focused more on products; there was, however, little firm resolution on this score in either camp (Tension 4). Tension 5, whether to track only "big" issues and trends or to track "small" issues and trends also, was still present at the university as well: the range of issues covered by our various respondents in their units' efforts was wide. Finally, whether to form and pursue a centralized strategy or to seek only centralized coordination (Tension 6) was also still a dilemma: individual units' leaders expressed dissatisfaction over the university's responses to environmental challenges while still expressing ongoing need for attention to their own distinctive niches in those larger environments. In sum, five years after scanning's initiation at UM, tensions around environmental assessment efforts remained strong. Although some scanning continued in pockets of the institution, it could not be seen as a legitimated, securely institutionalized innovation.

Respondents' Own Evaluations of Environmental Sensitivity at the University

Intriguingly, despite their largely shared doubts about traditional forms of environmental scanning and despite the tensions still surrounding it, most of our respondents said they would like movement in the general direction of greater environmental awareness. Specifically, they sought changes in the ways their units learned about their respective external environments. Three respondents desired more-detailed information on matters of importance to them (e.g., monitoring federal and state developments in a particular area or hiring management consultants to assist the organization). Three wanted a more systematic and deliberate way of gathering environmental intelligence, though they emphasized better internal communication, not information generated by an "intelligence" unit. Two respondents also emphasized improving staff understanding of trends and the higher-education literature.

Similarly, respondents were not enthusiastic about the way the institution as a whole was learning about its external environments, describing UM as "too reactive and slow" and "denuded of intelligence, and failing to play the role it should in shaping federal and state policy." One respondent commented that, although "faculty members learn about their environments quickly, the diffuseness of the institution prevents any systematic approach." Respondents varied in the ways they wanted the University to change its approaches to learning about its external environment. Two respondents wanted a centralized data base with better information on the colleges' activities and better monitoring of disciplinary developments. Other respondents desired a range of changes, including "more faculty members having lunch at the Minneapolis Club," "better PR and an annual report," "better advisory boards, more attention to clinical appointments—but not more paper," "more strategic thinking on the part of deans," and "better information sharing in meetings about developments in various fields." One, however, expressed suspicion of too much, rather than too little, investment in environmental attention. She suggested that UM had no need for "another staff function [environmental scanning] that generates more information that we don't have time to assimilate and is of questionable relevance."

Viewed as a whole, the patterns of responses across units reveal some interesting organizational tendencies in evaluating scanning efforts. Units operating in highly competitive environments with clear exter-

nal constituencies, such as the health-sciences unit and the Institute of Technology, valued environmental intelligence more than units buffered from strong accountability to external environments, such as the liberal-arts college, and more than units suffering from questionable connections to the institutional core, such as the continuing education and extension unit.⁴ Even in the more supportive units, however, environmental intelligence was seen as something that should be part and parcel of administrators' strategic orientation. It was not viewed as a domain of activity that could be effectively delegated to lower-level staff.

Discussion

It is imperative to place these findings into a proper context. The university encountered continuing difficulties in its immediate environmental relations in the mid-1980s.⁵ Overall, the institution seemed to have been more reactive in defending past decisions and practices than proactive in using scanning and other environmental techniques to anticipate and deal with future environmentally based trends, events, and issues (Louis, 1989). It is sadly ironic that the university's early reputation as a pioneer in higher-education strategy in general, and in environmental scanning in particular, was soon followed by striking difficulties in the external arena. Nevertheless, the irony fades when one considers the contrast between the longer-term emphasis of most scanning activity and the shorter-term demands imposed by the environmental crises that emerged to threaten the university.

The disappearance of the earlier form of scanning activity at UM is the most striking finding of our followup. To the extent scanning, or at least some elements of systematic environmental attention, were championed and institutionalized at the university in subsequent years, it was in places unanticipated in 1984. Why did scanning effort arise and endure only in the *noncentral level* in units *outside of the*

⁴ Interestingly, a continuing-education unit at a similar land-grant institution, the University of Georgia, has become well known for its successful traditional program of environmental scanning (Simpson, McGinty, and Morrison, 1987).

⁵ The various academic and fiscal troubles of the 1980s at the university are detailed in Lederman (1988), in Lee (1988), and in the report of the Faculty Senate Consultative Committee (1988). The university, in response to these troubles, began a greatly stepped-up effort to deal more effectively with its complex external context.

academic core of the institution? Why did it remain so absent in the fundamental decisions being made at the upper reaches of the organization? Several possible answers may be ventured.

First, as suggested in the theoretical framework outlined earlier, scanning work may indeed have been constrained, especially at the central level, by the structural limitations on strategic action in research universities. In his case analysis of strategic-planning activities at UM in the 1980s, Robert Cope (1987) follows this line of reasoning, suggesting that the limited successes and occasional, highly visible failures of the University's strategic planning were intimately tied to the institution's complexity and size: in such an environment, definitive strategic movement tends to be difficult and controversial. Beyond complexity and size, inter-unit competition over scarce resources, differences posed by disciplinary arrangements, and loose coupling may have each constrained strategic action in general and scanning in particular (see Hearn, 1988, for a review of the constraints on strategy in universities).

The structural constraints on strategy at UM in effect may have not supported the "more advanced" forms of scanning but apparently tolerated less systematic forms of environmental attention. Jain (1984) argues that scanning efforts in various kinds of organizations tend to fall into four forms along a continuum: primitive, *ad hoc*, reactive, and proactive. Organizations operating "primitively", in Jain's terms, view their external environment as unalterable. In the *ad hoc* form, areas are identified for careful observation, but no formal mechanisms are initiated. In the reactive form, the environment is continuously monitored for information about specific areas, and that information is systematically compiled and interpreted, but without a formal scanning system. In the proactive form, formal search (i.e., formal scanning) is conducted, and unlike other stages, systematic efforts are made to integrate the results into strategic planning processes. At Minnesota, early efforts to initiate the proactive form at the central level failed, but we found substantial evidence of both the *ad hoc* and reactive forms throughout the institution. Perhaps structural factors thwart universities from operating centrally in the proactive form.

A second reason for the problems associated with rigorous scanning at UM may have been that it suffered from an absence of champions in high places. One obvious question for researchers in this area is whether having an active, persistent champion of environmental scanning in the upper reaches of central administration would have helped the institution avoid its environmental difficulties, or at least mitigate

the strategic challenges posed by the institution's complexity and size. Whatever the answer to that question, the "champions" and sympathetic allies of environmental scanning at UM, as they rose through the organizational hierarchy, seemed to lose commitment to environmental scanning as a set of specific, necessarily formalized techniques. The institutional researchers profiled by Hearn and Corcoran (1988) moved on to the upper reaches of administration but did not lose their belief in the necessity of institutional-research activity, but the scanning champions studied here did not persist in their belief in the necessity or cost-effectiveness of the more systematic aspects of the approach, such as regularized, intensive, extensive reconnaissance of literature in a set of pre-specified environmental domains. They maintained strong belief in the strategic importance of the university's learning about its external environments for its planning efforts and future, but lost faith in the applicability of the various specific techniques and processes recommended in the literature of strategic scanning.⁶

A third reason for the difficulties in fully institutionalizing theoretically based scanning efforts at UM's central level and in its core academic units may have been rooted in some distinctive characteristics of the organizational culture of research universities: a strong emphasis on pursuing internal academic quality (defined rather abstractly) rather than adaptation to external trends and markets (Clugston, 1986); suspicions of scholarly deficiencies in the logic and empirical validity of the open-ended, often non-quantitative nature of scanning efforts, and a resistance to the epistemology and vocabulary of the strategic approach. In reviewing written and oral reactions to calls over the years for more-systematic environmental attention at UM, we found these particular themes of resistance recurring repeatedly. Academic cultures can certainly pose daunting managerial challenges (Dill, 1982; Masland, 1985; Clark, 1983). Perhaps both disciplinary cultures and the more generalized academic culture in the university may have worked in concert to deflect organizational momentum toward scanning.

The fourth possibility in the demise of traditionally structured environmental scanning at the university is that it may have been hampered by what Corwin and Louis (1982) have termed a "policy vacuum".

⁶ Perhaps the leaders of the earlier UM efforts would have persisted in the scanning techniques and approach longer if they had been more fully trained, experienced, and skilled in them.

Such a vacuum frequently seems to surround information-oriented innovations like scanning efforts in colleges and universities. Corwin and Louis note that research findings often do not seem to have discernible influence on administrative practice in nonprofit organizations because research there is often conducted in a policy vacuum. They suggest that "Policy vacuums occur in the absence of an organized constituency of policy makers, identifiable policy issues and research questions, consistent policies and clear policy options, coordination among independent agencies responsible for a policy area, and an ongoing, operational program that can make use of the findings." Although Corwin and Louis' empirical analysis rested on study of the federal government's National Institute of Education, the concepts applied and lessons learned in that setting seem applicable to the fate of scanning at the central level of a research university like UM. Like research efforts in a federal agency, centralized environmental-scanning efforts at UM tended to be conducted without important constituents awaiting the results; without clear policy issues discerned *a priori*; without clearcut goals and operational policy options for achieving those goals (see Cohen and March's 1974 discussion of the "problematic goals" of research universities); without clearcut boundaries between central and unit-level responsibilities for policy development in particular areas (e.g., policies concerning research and program development in fields like bio-engineering, which cross disciplinary and organizational boundaries); and without clear programmatic grounding.

In this kind of vacuum, early environmental assessment efforts tended to be ignored and unrewarded. The trend analyses and issue briefs that the experimental scanning efforts provided to central administrators in the mid-1980s were often seen as having little direct relevance and, if expanded, would have burdened leaders with an additional staff function to support. It was an organizational innovation blessed by the theorists and productively employed in other settings, but at UM it awaited its symbolic and operational welcome well isolated from not only the values and routines of central administrators but also the structural support systems essential to lasting presence in the organization.⁷ Operating outside the established channels of command and

⁷ See Van de Ven (1986) for a thoughtful exploration of factors necessary for successful adoption of innovations like scanning; see Goodman, Bazerman, and Conlon (1980) for discussion of the individual and structural factors essential to institutionalization of organizational change.

political conflict, it quickly began to wither away as a viable activity at the central level. Instead, it found hospitable soil for development only in certain local academic units.

Even in those units, however, environmental attention did not assume the form of "pure" scanning. The most environmentally oriented, and apparently environmentally successful, units in our sample exhibited strong levels of environmental sensitivity but did not invest heavily in the environmental scanning methods prescribed in the literature. Success was dependent not upon technique, but rather upon a general orientation to the importance of the external and, perhaps also, upon an activist conception of "enacting" the external world (Weick, 1979). The most environmentally sensitive administrator we interviewed, a dean, saw relations with external factors as interactive rather than reactive. His was an orientation not of one-way, passive information gathering, in the style of much of the scanning literature, but rather of "wiring" the external world to his unit's advantage. None of his activities in that domain involved the techniques of formal environmental scanning, but they seemed to be eminently successful. In his unit, there was no policy vacuum to confront.

A fifth reason for the faltering history of rigorous, traditionally organized scanning at UM may lie in the demands scanning places on its participants. Scanning authority James Morrison (personal correspondence, June 15, 1989) suggests that "University administrators and faculty members tend to be very busy people" for whom the regular dictates of scanning can take on the cast of an "additional duty". Along the same lines, Morrison and Mecca (1989) argue that:

Developing and institutionalizing a systematic, comprehensive environmental scanning function requires a commitment of time and resources that at present only major corporations . . . , think tanks . . . , and some philanthropic organizations . . . have been willing to do. A number of colleges (e.g., St. Catherine's) and universities (e.g., Arizona State, Colorado, and Minnesota) have conducted periodic scans, but the only comprehensive, ongoing system reported in the literature is at the Georgia Center for Continuing Education (Simpson, McGinty, and Morrison, 1987). There may be several reasons for this state of affairs. One is the resource commitment required in (a) obtaining sufficient readers to regularly scan a variety of information sources, (b) maintaining the files manually and electronically, and (c) obtaining time of busy administrators and faculty members to review, discuss, and use the pertinent information developed in the process . . . There are attempts under way to develop environmental scanning consortia [among different institutions] . . . Even with such assistance in maintaining a shared data base, however, the question of how to best use the scarce time available for the major decision-makers remains an issue.

In sum, scanning may have run into trouble at Minnesota solely because of cost-effectiveness concerns, and not for any pre-ordained flaw in its organizational logic or legitimacy.

A sixth and final explanation of the findings is perhaps most fundamental: scanning faltered at the central level because it was insufficiently connected to the dominant goals and mission of the institution. That is, the ideology of scanning generally tends to favor holism, i.e., attention to the entirety of the external environment, within practical limits. The rationale is that something might be missed by limiting the contents of scans to particular areas of interest. Although attractive in principle, this approach may limit the consistency with which the products generated by scanning efforts mesh with the areas of top concern in the organization. At Minnesota, of course, the holism principle was never fully adopted—to do so might well be impractical and inefficient in any organization (as noted in the immediately preceding possible explanation of scanning's fate at UM). Still, to the extent the avowedly neutral, "let's see what's out there" perspective was pursued, the acceptance of scanning's products and processes may have been limited. Attending more directly to particular issues of strategic concern might have added to the prospects for systematic environmental attention at the institution.

Of course, one cannot determine which of these six interpretations of scanning's limited success at Minnesota is most accurate. Each makes some sense to the authors and to our interviewees, who reviewed our findings and interpretations. Whether structural limitations, the absence of powerful champions, the constraints of culture, the existence of a policy vacuum, the sometimes painful demands of the effort itself, or simply the lack of close articulation with specific goals and mission of the institution were the most dominant factor in scanning's fate, it is clear that the environment of the 1980s was not especially beneficent for those who wished to incorporate environmental assessment into a more significant role in institutional planning at UM.

Implications

From a practical perspective, the initial results of this study suggest that the Minnesota experiment in scanning cannot easily be termed an outright failure or a success. Clearly, the kind of scanning advocated by Morrison, Cope, and other experts did not take root at this university. The impetus for systematic environmental attention continued to emerge at the institution, but these activities were inconsistently, and

sometimes indifferently, embedded in most units and were largely non-existent at the central level. A secure organizational niche for scanning at UM did not emerge. In addition, evidence that scanning provided effective support to strategic planning is limited. A future judgment of practical success seems heavily dependent upon scanning's remaining champions adapting it to the university setting, overcoming deeply felt suspicions of the approach, and fostering acceptance of expanded definitions of organizational quality.

Each of these points suggests that the difficulties of scanning at UM still revolve around the kinds of tensions identified by Hearn and Heydinger in their earlier article. Thus, it seems appropriate to note, in closing, our emerging ideas for resolving those tensions. Our analysis suggests that to succeed, environmental scanning in academic settings needs to be 1) integrated into decision-making activities, not isolated into a separate unit for separate individuals on the staff; 2) oriented toward output, not technique (scanning practitioners may have initially been experimenting with *process* to such an extent that they have rarely produced *products* of direct interest to power-holders); 3) somehow opened to the dynamic and unexpected aspects of life in clumsy, anarchic organizations (Cohen and March, 1974; Weick, 1977), rather than "hyperrationalized" into discrete and exclusionary categories; 4) legitimated as a personal and professional priority of top administrators (scanning champions at UM have not all, or always, been in seats of clear power and resource control); 5) treated as an art to be developed, or a skill to be learned after much practice, rather than a "magic bullet" of instant utility; 6) characterized by both a receptive and an activist approach to information; and 7) strategically focused, rather than focused on general, all-purpose reconnaissance.

These last two recommendations seem critical. Regarding the sixth, a fundamental dilemma for those interested in assessing external environments is how far to go in "adding value" to information by aggressively connecting it to central organizational and political concerns. It seems to us that the *gathering and sharing* of information should be supplemented in environmental assessment not only by the *creative interpretation* of that information⁸ but perhaps also by action recommendations. Some successful leaders in our sample moved be-

⁸ Milliken (1990) suggests that an objectively verifiable environmental change, the decline in the number of 18 to 22-year-old youth in the U.S., was interpreted differently by different college administrators in recent years, depending upon their respective resource dependencies and the nature of their respective organizational contexts. Understanding the local contextual importance of a specific piece of information is critical to its proper use.

yond interpretation into activist political behavior, leading us to believe that the tension discussed in the original Hearn and Heydinger article between "information and interpretation" was too narrowly stated. Is the alternative to neutral information gathering simply a matter of interpreting? That is, is it simply relating issues to each other, spinning out all possible scenarios, and so forth? Or is there a more radical, and potentially more useful, alternative? Picture a continuum running from presenting, as neutrally as possible, pure information, to interpreting possible or likely implications of the information, to actually arguing on behalf of a particular course of action. The latter would involve integrating the information, the organizational values involved, and the likely outcomes into a coherent whole. Together, these would compose a set of activities far removed from scanning as a mere staff activity for receptive policy makers. The new activities could be more accurately captured by the notion of scanning as a legitimate leadership activity.⁹

The seventh recommendation above is closely related to this question of scanning's connections to organizational leaders. The recommendation specifically addresses the possibility that scanning's attachment to fundamental organizational goals and mission was insufficient for its survival at the central level. From this perspective, strategic vision should be nurtured from the start by the *selective* pursuit of information on external environments. The fatal flaw of the usual conceptions of scanning may be a tendency to neutrality toward the current concerns of the organization and its leaders. Without clarity of mission and goals, and without leaders' imposition of favored directions for scanning efforts, efforts at the central level may have been hampered from the start.

In contrast, clarity of mission and goals, and direction from leaders as to appropriate directions for scanning efforts, may lie behind the *relative* success of scanning in specific programmatic units within UM, such as the continuing education unit. That is, the argument for attaching scanning efforts more directly to strategic goals and institutional mission seems to apply at the programmatic level as well as at the level of the entire university. After all, units within large universities have their own mission and goals. These are presumably in line with the overall institution's mission and goals, but they are also somewhat more targeted.

⁹ Such an approach more closely resembles that of "issues management" than that of environmental scanning as it is usually conceived (for discussion of issues management, see Lozier and Chittipeddi, 1986; Heydinger, 1992). Notably, the activist dean in our sample argued strongly that this kind of environmental attention could not be parceled into discrete categories and delegated to staff members.

The ease with which scanning and strategy may be connected at the central and unit levels bears some questioning, however. Clarity over mission and goals may be appreciably easier to achieve at the unit level: the centered, embedded nature of particular programs in specific professions and markets may in and of itself make scanning more focused and ultimately more successful, even without detailed prior strategic direction. Authorities might, therefore, disagree over whether parallel success can be achieved by strategically focusing (and limiting) scanning at the central level of a large and complex institution, or over whether pursuing scanning solely at the programmatic level is sufficient in such a setting.¹⁰ It nevertheless seems reasonably clear that undertaking a broad, unselective version of the technique at any organizational level may not be cost-effective.

To conclude, it may be best to put aside all of our recommendations and dreams and return to the reality of the UM experience: the accepted technologies of scanning did not flourish there. In their earlier article, Hearn and Heydinger suggested that it may well be awkward to attempt to blend techniques drawn from "the exuberant literature of 'the strategic management revolution' with the bittersweet realities of contemporary university organization" (Hearn and Heydinger, 1985, page 424). The subsequent fate of UM scanning activities, as one aspect of that revolution originating in general management thinking, supports that earlier conclusion. Scanning, once it lost its central direction, moved from the academic and administrative core to the periphery of the institution and from the central administrative level to the unit level. Such a journey is in keeping with the theoretical expectations and normative views of Weick (1978), Cohen and March (1974), and Clark (1983) regarding the special nature of higher-education organizations, particularly research universities. Loose coupling of units, goals, and activities is a fact of life in such institutions and cannot be easily wished away in the service of a centralized strategic ideal.

¹⁰ Disagreeing with both arguments, James Morrison (personal correspondence, June 15, 1989) favors, instead, a more traditional institutional focus in scanning: "A scanning committee should be composed of individuals from all areas of the institution, each assigned to gather information (a) from publications they regularly read or are assigned, (b) from conferences they regularly attend, and (c) through their informal networks. Their focus should be on information that represents an actual or potential development that could affect *the institution* [italics Morrison's] as well as their particular programs or functional areas." Although this is an appealing vision that may well be appropriate in other institutions, the complexity, loose coupling, culture, and size of UM may make the ideal more tenuous there. As one example, so many developments could conceivably affect an institution like UM that the scanning task could become impossible.

One may, nevertheless, argue that the optimal forms of environmental adaptation by colleges and universities in the financially constrained, accountability-driven 1990s remain unknown. It may be that the coming years will form a watershed period in the history of UM and its sister research-oriented, land-grant institutions, a time in which historic alignments with external, traditionally served constituencies are being changed fundamentally. Such realignments may call forth a period of organizational "re-creation", with special needs for monitoring and responding to environmental developments (Tushman and Romanelli, 1985). How that might happen remains unclear. Even if centrally driven environmental assessment is indeed becoming increasingly imperative in complex, research-oriented universities like the University of Minnesota, evidence from the present study suggests that the generic centralized scanning model will require substantial modification before achieving institutionalization and regular use in such settings.

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