

DIAGNOSING STRATEGIC ISSUES AND MANAGERIAL INVESTMENT OF RESOURCES

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ABSTRACT

This paper develops and tests a model of how perceptions and assessments of strategic issues relate to the allocation of individual and organizational resources. Manager's perceptions of each issue's visibility and responsibility correlated with their assessment of an issue's urgency, while perceived issue understanding and capability correlated with their assessment of an issue's feasibility. Managerial assessments of issue urgency and issue interdependence predicted their allocation of time and priorities to issues, but not monetary allocations. Issue feasibility was a weak predictor of managers' resource allocations to issues.

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INTRODUCTION

Researchers who focus on the nature of managerial work have documented the large set of issues that confront managers daily (Hales, 1986; Kotter, 1982; Mintzberg, 1973; Sayles, 1964). Researchers of managerial problem formulation have established that these issues rarely appear to managers in prepackaged form (Cowan, 1986; Lyles & Mitroff, 1980). Both literatures indicate that the process of how managers invest scarce attentional resources in issues is poorly understood. However, it is fundamentally important for understanding how issues are prioritized and ultimately, what actions, if any, follow from them (McCall & Kaplan, 1985).

The allocation of attention to an issue in the form of time, resources and/or agenda priority begins during the early stages of a decision process, when issues are diagnosed and interpreted (Dutton, Fahey, & Narayanan, 1983; Mintzberg, Raisinghani, & Theoret, 1976). Diagnosis and issue interpretation involve the imposition and extraction of meaning by managers to what are typically ambiguous stimuli. Even clearly identifiable stimuli, such as the drop in the Dow Jones Industrial Average on October 19, 1987, could be interpreted in multiple ways—as a threat by some managers and as an opportunity by others, depending on their situation.

The interpretation of any issue depends on each manager's perceptions of various issue characteristics. The more salient issue characteristics serve as clues to the diagnosis of an issue's meaning. The respective meanings that managers attribute to issues, in turn, motivate them to invest different types and different amounts of resources in the issues. This chapter proposes a model of these critical perceptions, and links these perceptions to investments of individual and organizational resources in the issue.

The model focuses on the investment of resources in strategic issues; we define strategic issues as emerging developments, events or trends that have potential consequence for an organization's performance (see Ansoff, 1980; King, 1982). Strategic issues (like strategic decisions) are the developments, trends and events that usually concern managers, and typically involve more important matters than tactical or operational issues (Hickson, Butler, Cray, Mallory, & Wilson, 1986).

We choose the word "issue" as opposed to "problem" to emphasize that the model applies to the interpretation of positive or neutral events, developments or trends (e.g., opportunities), as well as perceived gaps in organizational results between where the organization is and where it wants to be (e.g., problems). In addition, using the term "issue" as opposed to "decision" emphasizes that the model applies to the interpretation of stimuli that may or may not result in choice points or commitments to action. The focus on issues as opposed to decisions also aligns this work with research on issues management, which emphasizes the importance of understanding how issues are managed in

organizations rather than on how decisions are made (e.g., Brown, 1981; Chase, 1984; Dutton & Ottensmeyer, 1987; Heath & Nelson, 1986).

The model of managers' investments in strategic issues is an attempt to specify more closely the important perceptions of an issue that motivate individual preferences of investments of both individual and organizational resources to issue resolution. While current models of problem formulation (e.g., Lyles, 1981; Lyles & Mitroff, 1980) and issue diagnosis (Dutton et al., 1983; Nutt, 1979) depict this process as having both political and cognitive components, the emphasis here is on the cognitive elements, specifying the critical issue characteristics and their relationship to resource investments. Thus, the model does not consider the role of individual differences or organizational context, which other researchers have argued are factors affecting issue commitment and priority (e.g., Bower, 1970; Hawley & Nichols, 1984; Lyles & Mitroff, 1980; McCall & Kaplan, 1985). Future research will need to explore a more inclusive model of how such factors combine to determine organizational investments in strategic issues.

A MODEL OF MANAGERIAL INVESTMENTS IN ISSUES

The Critical Assessments

Managers have a limited supply of attention to devote to any activity or aspect of their work (Sproull, 1984). Unless they inhabit an unusual organization or department, they also confront a limited supply of monetary resources. The critical question for this research is: What characteristics of issues motivate managerial investment in the form of time, money, and agenda priority?

We begin with the assumption that managers wish to invest in issues in which they can expect the highest level of payoff. Payoffs from issue investments include many personal and organizationally derived rewards, including the satisfaction felt from successfully diverting an impending threat, the heightened status and prestige gained by capitalizing on an emerging opportunity, or the praise, recognition and/or bonus earned for solving a costly problem.

We propose that a manager's assessment of an issue's payoff is captured in their assessments of the issue's urgency, feasibility and interdependence with other issues. Issue *urgency* describes the assessment of the value derived from investing in an issue. Issue *feasibility* refers to the probability of successful issue resolution. These two assessments mirror two components of subjective expected utility models of individual motivation to act (e.g., Edwards, 1955; Vroom, 1964). They complement the ideas of Billings, Milburn, and Schaalman (1980), who study the perception of crisis. However, this model differs from Billings et al. (1980) in two ways. First, it posits that time pressure or immediacy

acts *through* perceptions of urgency to determine the level and kind of resources to be invested in an issue. Hence, issue urgency is a mediating variable between issue perceptions and managerial resource allocations. Second, our model of issue investment proposes that an issue is not perceived in isolation of other issues; issues are often interrelated with one another (McCall & Kaplan, 1985). This leads to a third issue assessment—issue interdependence—that managers have been observed to consider in making their issue investments (Kotter, 1982). Managers learn that investments in one issue frequently spill-over into other issues. Inclusion of issue *interdependence* as a key assessment in diagnosing an issue recognizes that managers consider these interrelationships in their evaluation of an issue's payoff. Each of these assessments is discussed in detail below.

Urgency Assessments

The value or utility associated with investing in a strategic issue is captured by a manager's assessment of an issue's urgency. Although some researchers have used the term urgency to denote time pressure alone (Ansoff, 1975), we use urgency to refer to the broader construct of issue value. Issue urgency is defined as the perceived loss of not taking action with respect to an issue—whether that action means resolving a problem or capitalizing on an opportunity (Dutton & Duncan, 1987; Miller, 1982). The perceived loss of not taking on an issue is hypothesized to be higher when an issue is perceived as important, immediate, of greater duration or more visible, and where the manager believes the organization is responsible for the issue (Dutton & Duncan, 1987).

Assessments of issue urgency are based on a number of perceptions about an issue's consequences (Hickson et al., 1986) or the level of loss incurred if the issue is not resolved successfully. The size of the loss (or alternatively, the magnitude of the gain) from resolving the issue is defined as an issue's *importance*. Where the magnitude of loss from not acting on an issue is perceived to be higher, managers are expected to diagnose an issue as more urgent (Billings et al., 1980).

The value of resolving an issue is related not only to the magnitude of gain or loss, but also to the time pressures associated with the issue and the issue's likely perseverance over time. For example, researchers of crisis perception have found that time pressure is an important element in determining whether a crisis has materialized (Billings et al., 1980; Hermann, 1963). Immediate issues have external pressures associated with them that activate managerial attention (McCall & Kaplan, 1985). Managers see more urgency associated with *immediate* issues, as these issues tend to get worse if not acted upon (McCall & Kaplan, 1985; Pounds, 1969). Similarly, issues that are perceived to be enduring or of long *duration* are seen as more urgent because the value is gained

by committing a larger amount of resources to the issue. These three claims lead to our first hypothesis:

- Hypothesis 1.**
- A. The greater the perceived importance, immediacy and duration of an issue, the greater the assessment of urgency.
 - B. Perceived importance, immediacy and duration of an issue affect resource investment in issues through their effect on urgency.

Assessments of issue urgency take place within a social context, making additional perceptions important for predicting issue investments. Assuming that managers experience the social pressures arising from legitimacy and accountability norms that pervade organizations (Hannan & Freeman, 1984), more visible issues for which the individual or organization appears responsible should be perceived as more urgent. In the presence of high visibility issues, managers can personally gain or lose the most from their action or inaction (Cobb & Elder, 1972). Consequently, we hypothesize that highly visible issues will be perceived as more urgent, and will be allocated a higher level of resources.

Similarly, when managers believe that they or their organization has a high degree of responsibility for an issue, they are likely to believe there is a higher value attached to resolving the issue than when individual or organizational responsibility for the issue is low or absent altogether. When managers perceive their organization, and potentially themselves as responsible, they are likely to feel accountable for issue resolution and blamable if the issue is not successfully resolved. Links between the social context, issue assessments, and investments are captured in Hypothesis 2:

- Hypothesis 2.**
- A. The greater the perceived visibility of an issue and the greater an organization's perceived responsibility for its resolution, the greater the assessment of urgency.
 - B. Perceived visibility and responsibility affect resource investments in issues through their effect on urgency.

Feasibility Assessments

The probability that any payoff from issue investment can be realized depends on whether an issue is feasible to resolve. Billings et al. (1980) call this perception "the perceived probability of loss." A feasibility assessment captures managerial judgments about the probability of issue resolution. When the probability of effective issue resolution is high, that is, an issue is assessed as feasible to resolve, managers express more willingness to invest resources

in the issue, as it is an issue for which effort or investment translates into payoffs. By working on the more feasible issues, managers have fewer resources to devote to less feasible issues. This reduces the amount of conflict and frustration they might feel if they frequently address infeasible issues (McCall & Kapan, 1985). Infeasible issues may also be avoided because they raise doubts about one's personal competence and efficacy that are not as prevalent in the face of feasible issues. These facts may account for the finding that managerial interest is greater in issues that are perceived as feasible to resolve (Dutton & Webster, 1988).

Following Dutton and Duncan (1987), we hypothesize that assessments of issue feasibility are formed from two issue perceptions—issue *understanding* and issue *capability*. Issue understanding describes the perception by managers that the organization has the means-ends knowledge to resolve the issue. Where decision makers understand an issue's causes or means to resolve it, their issue actions are more efficacious. McCall and Kaplan (1985, p. 41) make the same point in their review of factors that affect managers' priorities for action:

When the nature of the problem is unclear, the consequences of bungling suggest caution. Just as managers are likely to assign greater weight to losses than to gains (Hogarth, 1981), they are likely to be circumspect about working on (and thus owning) a problem before they have some idea that it can be solved successfully.

Assessments of feasibility are also tied to perceptions of issue capability or the perception that the organization, and hence the manager, has the resources and access to the means to address the issue. Issue capability is a perception that closely parallels what Milliken (1987) calls response uncertainty. It captures a manager's belief that the organization has the level of knowledge and resources required to respond to the issue. An individual's sense of efficacy vis-à-vis an issue is highest when there is perceived understanding and capability:

- Hypothesis 3.**
- A. The greater the perceived understanding of an issue, and the greater perceived issue capability, the greater the assessment of issue feasibility.
 - B. Perceived understanding and perceived capability affect resource investments in issues through their effect on feasibility.

Assessments of Interdependence

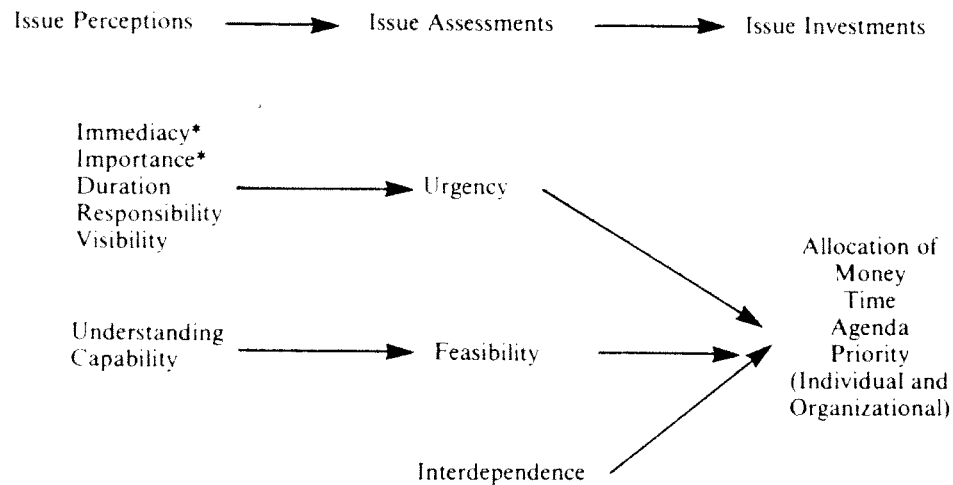
Strategic issues rarely confront managers in isolation of one another (McCall & Kaplan, 1985). Strategic issues are frequently clustered based on their content or relationships between the managers who promote them. For

example, Diffenbach (1982) illustrates how the subissues contained in a peak-loaded pricing issue were linked through the shared interest of various constituency groups. Investing in one issue meant that a manager was confronted with a set of related issues. By allocating resources to an issue that is related with other issues, resource investments are perceived to be more efficient. When issues are perceived as bundled together or interrelated, successful investment in one issue is amplified by spill-over effects into other, related issues.

The idea that the interdependence of issues affects resource investments can be tied to the general notion from subjective expected utility theory that higher payoff options encourage greater resource investments. The inclusion of assessments of issue interdependence in a model of issue investment acknowledges that managers typically face an array of stimuli potentially representing many issues at any one point in time, and that commitments to some issue are tied to other issues. Kotter's (1982) study of what successful general managers do supports this proposition. He found that effective managers invest in issues that are interconnected with other issues; the effort exerted to resolve one issue is expected to have positive payoffs for other related issues. Thus, an issue assessed as interdependent with other issues is allocated greater levels of attentional resources. Our fourth hypothesis relates assessed urgency, feasibility, and interdependence to the amount of resource allocations to issues:

Hypothesis 4. The greater the assessments of urgency, feasibility and issue interdependence, the greater the investment of resources in an issue in the form of time allocated to the issue, money made available to address the issue and higher placement in agenda priority.

The issue investment model is represented schematically in Figure 1. The model depicts managers as rational investors of their and their organization's resources in strategic issues. Issues assessed as urgent, feasible and interdependent are allocated greater levels of resources, as these are the issues where managers can expect the highest payoff from issue investment. Payoffs may be in the form of instrumental and/or symbolic rewards. Instrumental rewards might be monetary gains associated with pursuing an emerging opportunity or minimizing the damage from an impending threat. Symbolic rewards might be heightened status, prestige and possibly power from investing in issues that are successfully addressed. The model suggests that many issue perceptions are important to the allocation of resources, but that the effects of issue perceptions are mediated by managerial assessments of issue urgency, feasibility and interdependence.



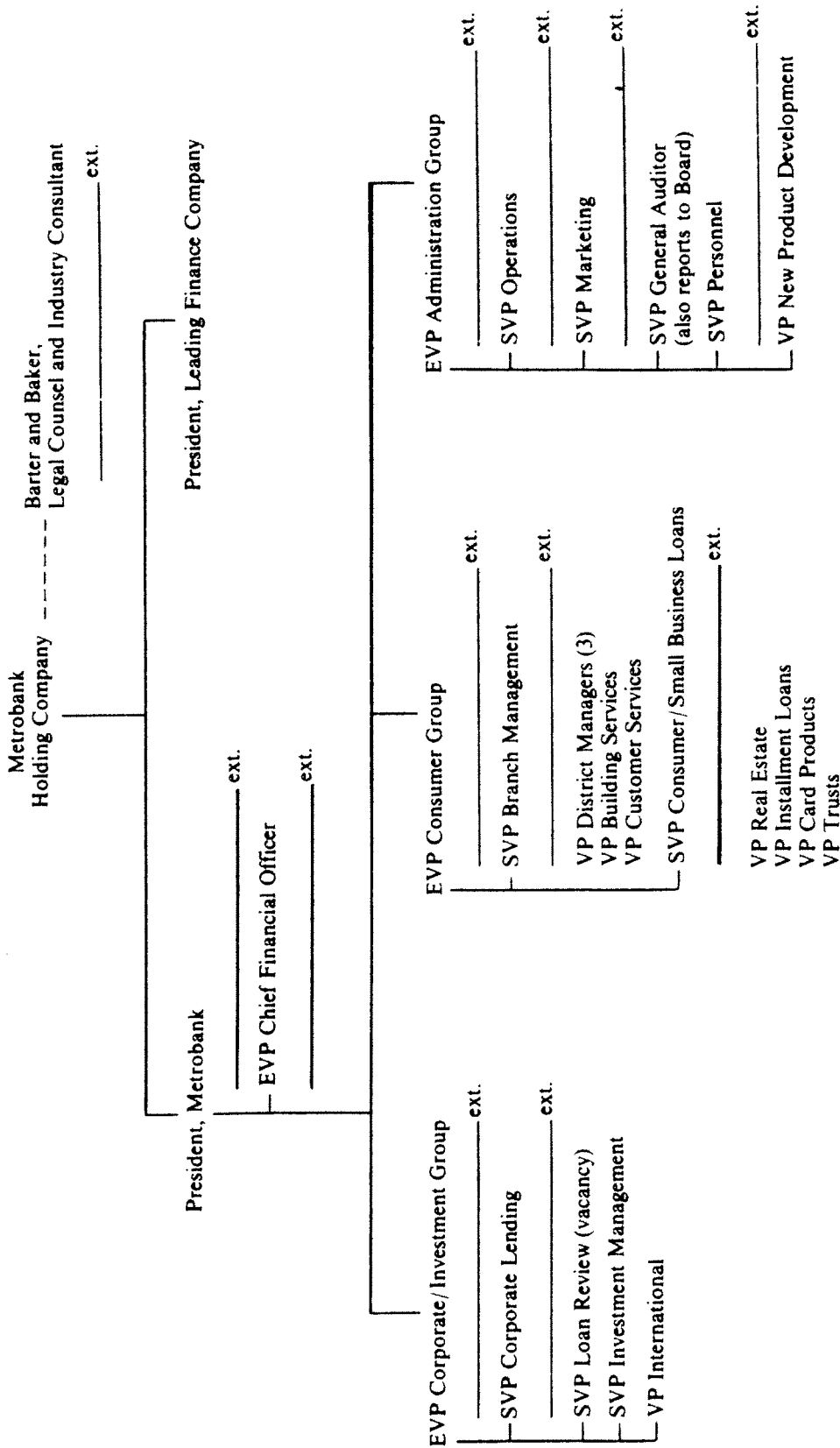
Note: * Although contained in the model, these perceptions were not measured in the empirical study.

Figure 1. A Perceptual Model of Individual's Investments in Strategic Issues

METHODS

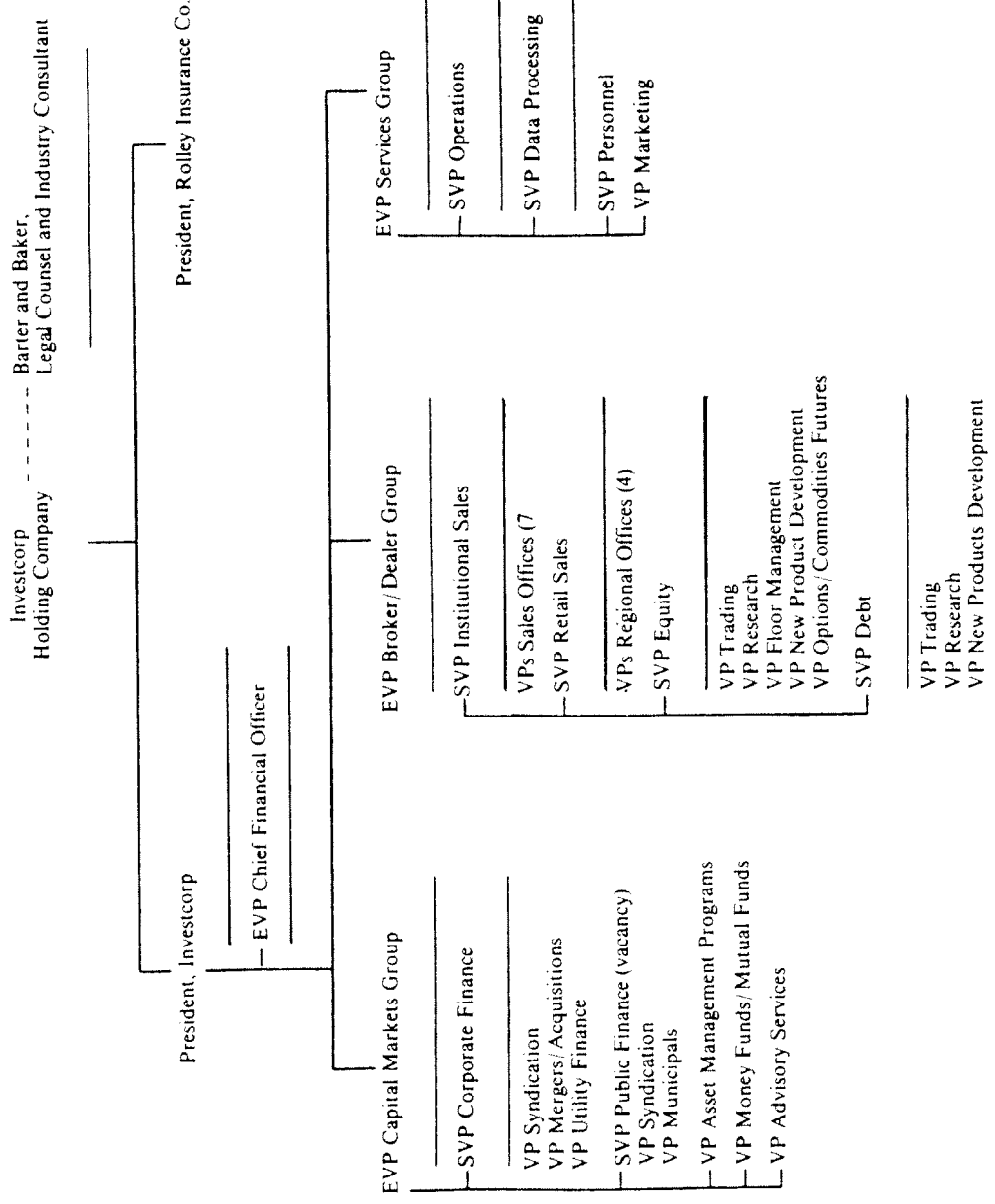
The investment of resources in strategic issues was studied using two behavioral simulations developed for research purposes by New York University in collaboration with the Center for Creative Leadership (Mullen & Stumpf, 1987; Stumpf, 1988). The simulations, which are comprised of hundreds of memos cast in the form of interdependent in-baskets, replicate a day in the life of senior level management in a commercial bank (Metrobank) and securities firm (Investcorp). As is the case with the Looking Glass Inc. (LGI) behavioral simulation, participants in Metrobank and Investcorp control what issues they address (Dutton & Webster, 1988); there is documented evidence of a high level of managerial involvement in the simulations (e.g., Petre, 1984); and, the richness of the organizational context make behavioral simulations well suited for the study of issue interpretation and investments (Dutton & Stumpf, 1988; McCall & Lombardo, 1982).

Prior to the simulation, participants self-select and assume one of the 11 or 13 roles built into the simulated organizations and receive several hours of reading material on the company and their role (e.g., an annual report, market data, human resources information, and others). These roles range from the Senior Vice President (SVP) level to the President of the firm. The roles are distributed in three divisions in Metrobank (Corporate Investment Group, Consumer Banking Group and Administration Group) and three divisions in Investcorp (Capital Markets Group, Broker/Dealer Group and Service Group). The roles that participants assume are designated in bold letters in



Source: Stumpf, Mullen, Hartman, Dunbar, and Berliner (1983).

Figure 2. Metrobank Organizational Chart



Source: Stumpf, Mullen, Hartman, Dunbar, and Berliner (1983).

Figure 3. Investcorp Organizational Chart

the organizational charts for the two firms (see Figures 2 and 3). The additional roles and organizational structure noted in the organizational charts exist in written form for participants to address, but are not roles that are assumed by participants.

Prior to the start of the behavioral simulation, participants spend several hours analyzing the company material provided, and they may meet in small groups to discuss general aspects of the company. Following this individual and small group preparation and analysis, the six-hour managerial behavior portion of the simulation takes place. Participants are free to work on whichever issues they wish with whomever they think is appropriate. At the end of the simulation, participants record their perceptions of specific issues, their preferences for allocating resources to them, and a host of other organizational features (e.g., information assimilated, climate, power distribution) that are used as the basis for feedback to participants in a session that takes place for six or more hours the day after the simulation.

The Issues

Embedded in each of the simulated organizations are a variety of strategic issues, ranging from merger and acquisition possibilities, capital investment developments, to human resource challenges. From a set of over 40 strategic and operating issues embedded in Metrobank and Investcorp, eight strategic issues (four per organization) were selected by two expert judges as issues that involve many participants and appeared to vary in urgency and feasibility. Issue interdependence was not used as selection criterion per se because it was perceived to vary across the issues selected. In addition, selecting issues that systematically varied on three design variables would have necessitated the selection of eight issues per simulation to be evaluated by participants. Pretest research indicated that participants were unwilling to assess more than four issues in a postsimulation questionnaire, and that the reliability of those assessments dropped significantly after the second issue was assessed. The experts selected issues based on the information contained in the simulation training manual, which provides descriptive facts on each issue and observations about how participants interpreted the issues during previous runs of the simulation conducted before this research study.

The four issues selected for each organization are described briefly in Table I. The issues range from product-related issues such as "Travelers Checks" (an issue that considers a new product launch for Metrobank), to customer-related issues such as the "Card-Products" (an issue that concerns customer service and confusion over a Metrobank product). The means and standard deviations of these issues' perceived urgency and feasibility, as assessed by the participants in the study, are also noted in Table I. A reasonable degree of variance in assessments of urgency and feasibility was observed.

Table 1. Means and Standard Deviations of Urgency and Feasibility Assessments for the Sample of Issues

Issue	Metrobank				Investcorp			
	Urgency		Feasibility		Urgency		Feasibility	
	(x)	(s.d.)	(x)	(s.d.)	(x)	(s.d.)	(x)	(s.d.)
1	3.3	(1.1)	3.8	(1.0)	3.9	(.9)	4.4	(.9)
	<i>Travelers Checks:</i> Opportunity exists for Metrobank to enter this market alone or with another product.				<i>Retail Accounts:</i> The Firm is considering entering Retail while moving away from Institutional activities. Many current retail accounts are inactive.			
2	3.4	(.8)	4.1	(.6)	3.1	(1.1)	4.0	(1.1)
	<i>Image Link to Leading Finance Company (LFC):</i> Metrobank could expand its distribution network by 30% through cross-selling with LFC; this could help Metro establish a stronger market presence.				<i>Life with Rolley (Insurance):</i> Possible joint venture in opening Investcorp/Rolley. Retail offices could create opportunities and with Rolley upper-income clientele.			
3	3.9	(.7)	4.2	(.6)	4.5	(.7)	4.4	(.5)
	<i>Card Products:</i> Consumers have linked Pass/Supercard to Metrobank, thus creating confusion at the branches. Market potential foreseen, but operational problems linger.				<i>Data Processing:</i> The staff in the Data Processing area are overworked and underpaid. Equipment is outdated, processing costs are rising and managers are complaining about lateness of work.			
4	2.4	(1.1)	3.2	(1.0)	3.8	(1.0)	4.2	(.8)
	<i>High Interest Money Market Account:</i> Legal and operational issues are creating problems for branch offices and complaints by customers.				<i>Acquisition Preferences:</i> Several alternatives exist, including several banks, a computer software service company, and two real estate syndications.			

Unit of Analysis and Participants

The research hypotheses focus on managerial perceptions and resource investments that are issue-specific. The unit of analysis for the study was the *issue episode*; perceptions and resource allocations to a particular strategic issue by the individuals managing the simulated company. Equally important to our research design was that the same individual allocate resources to more than one issue. This was particularly critical in order to represent what actually takes place in managerial practice. Managers rarely deal with resource allocation issues around a single strategic issues in isolation of all other issues. For the issue perceptions and assessments to have practical validity (i.e., generalizability), they tend to be made in a life-like, comparative manner.

Each participant was asked to make 24 issue judgments at the conclusion of the simulation for two of the four issues targeted in this research. The two issues that they were asked to judge were two of the four issues that, by design of the simulation, the role would be most familiar with. For example, questions regarding Travelers Checks are directed to a task force within Metrobank. It is members of this task force who were asked to assess the Travelers Check issue. In this way, measures of issue perceptions and resource allocations were made by the most informed roles in the organization.

Three groups of individuals participated in the study. Each group consisted of 24 individuals, with each person self-selecting a unique role in either Metrobank or Investcorp. Two of the groups consisted of students in a capstone business policy course who participated in the simulation as part of their course requirements (average age 22 years with 1 year of work experience). The other group consisted of middle-level managers of a large chemical manufacturing organization who participated in the simulation as part of an executive development program (average age 38 with 18 years of work experience).

Analysis of differences in issue perceptions across the two subgroups (students or managers) revealed one significant difference: students saw the issues as more understandable than did managers (mean = 3.5 vs. 2.9, $p \leq .01$). Because this difference was modest, we collapsed across the subgroups for the remainder of the study.

Out of a possible 144 issue episodes (72 individuals times two issues), we obtained 115 useful issue assessments. The instructions given to participants were to “complete the issue assessment questionnaire on the two issues indicated if they, in fact, addressed this issue during the simulation today.” In 29 cases, one of the two issues that was related to the role was not dealt with by the role incumbent. The sample size was reduced to $N = 79$ for any analysis that required a participant to answer all questions on each issue. Because some issues were “assessed” but no monetary or agenda priority resources were allocated, we were unable to obtain all measures of attention allocation from all participants on all issues. These findings in themselves suggest the critical importance of issue perceptions on a manager’s allocation of scarce resources. Some participants in the study chose not to deal with the designated issues in the simulation in a comprehensive manner. We do not view the difference between the potential sample size of issue episodes (144) and the actual sample of issue episodes analyzed and allocated resources (79) as a response-bias problem or a missing-data problem. Such “shrinkage” is exactly what takes place in work organizations as managers selectively attend to some issues and ignore others. The problem that this shrinkage creates in our research study is restriction in range—we are observing artificially smaller correlations among independent and dependent variables than are likely to exist in the population of issue episodes. This problem is similar to the criterion validity problem in concurrent validation studies of selection or performance appraisal instruments.

Measures

In addition to other questionnaires involving over 500 questions that are a part of the behavioral simulation (Dutton & Stumpf, 1988), participants filled out a 24-item questionnaire on each of two designated issues at the completion of the simulation. The questionnaire contained measures of eight of the original 10 perceptions and assessments contained in the model (as depicted in Figure 1). Perceptions of issue immediacy and importance were not measured as separate variables in this study because of their failure to achieve empirical independence from the concept of issue urgency. A pretested version of the questionnaire used a separate sample of 104 undergraduate students and asked them to complete judgments of all 10 perceptions and assessments of issues embedded in two case situations (the Head Ski and Crown, Cork, & Seal cases contained in Christensen, Andrews, Bower, Hamermesh & Porter, 1986). Based on a principal components factor analysis of 276 issue episodes contained in this pretest study, issue importance and issue immediacy items loaded with the issue urgency items on the principle factor (eigenvalue = 8.6). Based on these pretest results, we chose not to consider issue immediacy and importance as separate variables in this study because of their failure to demonstrate discriminant validity in the questionnaire pretest study.

The eight issue perceptions and assessments were measured using 3-item scales. Items for each of the scales are included in the Appendix. For each issue, participants were asked to reply to an item such as "Was it possible for management to take actions to begin to resolve this issue" (feasibility item), using a 5-point Likert scale with the anchors "little or no extent" (1), "moderate extent" (3); and "a great extent" (5). Individual scores for each measure were computed by averaging the ratings across the items comprising a measure.

Five measures of resource allocations were collected for each issue episode: the time allocated to the issue, issue placement on the division's agenda, issue placement on the organization's agenda, willingness to spend one's unit's discretionary budget on this issue and preference for corporate level monetary investment on this issue. Observational data collected by the training staff generally supported the participants' views of their attention allocations. Direct, parallel observational measures of resource allocations to the participants resource allocation measures were not possible because the training staff was not permitted to interact with participants during the simulation. It was therefore not possible to observationally assess specific resource allocations to specific issues unless a participant happened to make a direct and clear statement in this regard. When such statements were made, the training staff recorded them. These observations subsequently attested to the validity of the participants' postsimulation responses on the 24-item questionnaire.

Time allocation was measured by having individuals judge the actual *percentage of time spent on an issue* during the simulation day. Agenda priority

was assessed at the divisional and corporate levels: (1) where should each issue be placed on the *division's agenda*? (assume the division has a total of seven issues to address, only two of which you note below (1 = top issue, 7 = last issue, reverse coded); and (2) where would each issue be placed on the *organization's agenda*? (assume the organization has a total of 11 major issues, only two of which you note below (1 = top issue, 11 = last issue, reverse coded). Note that for the two agenda-related questions the participants were asked to place the item within a larger agenda. This greatly reduced any measurement bias due to using a rank-type measure across participants. Two people placing the same two issues 1 and 2 on an agenda could have them in reverse order, yet the first person's second priority issue could be higher than the second person's first priority issue. For example, person A places issues 1 first on the agenda and issue 2 as third on the agenda. Person B places issue 1 sixth on the agenda, and issue 2 fourth on the agenda. Person A has his/her second priority issue higher on the agenda than person B's first priority issue. Through this method of data collection, we were able to minimize any artifact effects of using interdependent measures of resource allocations across issue episodes.

Preferences for monetary allocations were assessed at the divisional and corporate level; (1) would you be willing to spend most of your *unit's discretionary budget on this issue*? (1 = no, 5 = to a great extent); and (2) your management group has a *million dollar corporate budget* to address various strategic issues, how much money would you spend on each issue (measured as an open-ended question and converted to a percentage of dollars spent to minimize the nonindependence of assessments across issue episodes).

The five resource allocation measures intercorrelated substantially (median $r = .40$). Because the issue perceptions and assessments were observed to relate differently to the separate resource allocation measures, it is appropriate to discuss them individually.

Analysis

Several analyses were conducted to test the four hypotheses. First, reliability coefficients were computed for the eight perceptual measures of issue characteristics. Second, part A of Hypotheses 1, 2 and 3 were examined by regressing urgency and feasibility assessments on the relevant issue perceptions. Hypothesis 4 was examined by regressing the five resource allocation variables on the three assessments. Finally, part B of Hypotheses 1, 2, and 3 was assessed using stepwise multiple regression.

RESULTS

Means, standard deviations, Pearson correlations and reliability coefficients for the scales are included in Table 2. For two of the eight scales (understanding

Table 2. Means, Standard Deviations, Intercorrelations and Coefficient Alphas for Issue Characteristics

Issue Characteristics	Items	Means	S.D.	1	2	3	4	5	6	7	8
1. Urgency	3	3.63	1.09	(.88)							
2. Duration	3	4.01	.82	.36	(.64)						
3. Visibility	3	3.57	.95	.55	.36	(.69)					
4. Responsibility	2	3.53	.89	.47	.43	.43	(.68)				
5. Feasibility	3	4.07	.84	.58	.41	.41	.46	(.64)			
6. Understanding	2	3.53	.99	.40	.16	.39	.31	.51	(.80)		
7. Capability	3	3.91	.87	.32	.34	.35	.31	.55	.50	(.82)	
8. Interdependence	3	3.61	.99	.40	.23	.33	.35	.39	.40	.37	(.71)

Notes: $N = 115$; correlation coefficients above .23 are significant at $p \leq .05$; those above .31, at $p \leq .01$.

Table 3. Results of Regression Analysis of Issue Assessments on Issue Perceptions

1. Urgency Assessment		$R = .62$	$R^2 = .37$	
Independent variables	b	Beta	F	
Visibility	.45	.40	22.60***	
Duration	.13	.10	1.39	
Responsibility	.31	.26	9.09**	
2. Feasibility Assessment		$R = .61$	$R^2 = .36$	
Independent variables	b	Beta	F	
Understanding	.25	.30	12.19***	
Capability	.38	.40	21.65***	

Notes: $N = 115$

** $p \leq .01$

*** $p \leq .001$

and responsibility), one item was not used to improve the scale's reliability. Cronbach's alpha for all scales was .64 or greater.

Inspection of the correlations indicates the issue assessments and perceptions are related to one another; the median correlation among the issue characteristics is .39. More important for the hypotheses are: (1) whether perceptions relate as hypothesized to assessments of feasibility and urgency; (2) whether assessments relate as hypothesized to resource allocations; and (3) whether assessments of urgency and feasibility mediate the effect of the other issue perceptions on resource allocations as specified by the model.

Table 3 presents the results of the regression analyses appropriate for evaluating Hypotheses 1, 2, and 3 (part A). We are limited in our ability to address Hypothesis 1 derived from the model, as we did not measure perceived issue importance and immediacy as separate variables. Although there is support for the hypothesized relationship between perceived visibility and responsibility and urgency assessments (Hypothesis 2A), perceived duration is not significantly related to the urgency assessment of an issue. Together, these three perceptions account for 37 percent of the explained variance in an issue's urgency.

The two issue perceptions hypothesized to influence an issue's feasibility accounted for 36 percent of the variance in this assessment. As Table 3 shows, both an issue's perceived understanding and capability are significantly related to assessed feasibility.

Table 4 presents results from the multiple regression analyses, where the resource allocation variables were regressed on the three assessments. As the adjusted multiple correlation coefficients suggest, the model was more

Table 4. Results of Regression Analysis (Betas) of Resource Allocations on Issue Assessments

<i>Issue Assessments</i>	<i>Resource Allocations</i>				
	<i>Personal Resource</i>	<i>Division Resources</i>		<i>Corporate Resources</i>	
	<i>Time</i>	<i>Budget</i>	<i>Agenda</i>	<i>Budget</i>	<i>Agenda</i>
Urgency	.21*	.19	.30**	.39**	.29*
Feasibility	.14	.01	.08	.09	.05
Interdependence	.33**	.23*	.29*	.05	.34**
R^2	.31***	.13*	.31***	.13*	.33***

Notes: $N = 79$

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

successful at explaining the investment of time and agenda resources than the allocation of money (divisional or corporate), even though these equations were significant. For all of the analyses except the allocation of divisional budgetary resources, urgency assessments significantly relate to investments in an issue. Issue interdependence is also important, indicated by the significance of the standardized regression coefficients, in all of the equations except corporate cash resources. What is particularly interesting is that when issue interdependence and urgency are controlled for assessments of issue feasibility do not relate significantly to the allocation of any resource type.

Part B of Hypotheses 1, 2, and 3 was tested by determining whether assessments of issue feasibility and urgency mediate the effect of the other issue perceptions on resource investments. This was done using a stepwise multiple regression. The perceived issue characteristics were entered as a set after urgency and feasibility had been entered into the equation for each resource allocation measure. The five perceived issue characteristics were unable to account for any significant variance in any of the resource measures. In fact the adjusted R^2 increased by only one percent in the prediction of the time allocated to resolving an issue, and one percent in the prediction of corporate budget resources. For the other three resource allocations, adjusted R^2 decreased from three percent to nine percent when the five perceived issue characteristics were added to the regression equation.

DISCUSSION AND IMPLICATIONS

The results from this empirical study of issue interpretation and issue investments in a simulated context support parts of our original issue investment model, and suggests some additions for future research.

At a basic level there is evidence that an interpretive view of how managers invest in issues does have explanatory power: individuals' assessments of issues in terms of urgency and interdependence correlate significantly with making an issue an agenda priority (divisional and corporate agenda). Issue interdependence is the sole predictor of the allocation of a divisional budget to an issue, while issue urgency is the sole predictor of the allocation of personal time and corporate cash to an issue. Several points are derived from these findings that deserve greater elaboration.

First, the finding that the importance of issue assessments varies across the different measures of resource allocations raises an intriguing possibility: that a model that predicts the investment of very personal resources such as the expenditure of time, may differ from models that predict the allocation of monetary resources or the assignment of agenda priority. Although we intended to have these different measures be alternative operationalizations of the same fundamental construct (i.e., resources), perhaps such an assumption is too simplistic.

There are several reasons that one might expect these different classes of resources to be invested differently based on motivational considerations. First, resources vary in terms of the absolute and relative control that an individual has over their allocation. Some resources are the managers'; they can be drawn from the individual's personal supply, thereby requiring little official approval (e.g., a manager's time and agenda priority). Other resources may require approvals at higher levels of management. Another source of difference between resource types lies in the resource's visibility to individuals inside and outside the organization. One might argue that managers, in general, have more discretion in the allocation of their time than in the allocation of money, because the former allocations are less visible and easier to implement. These differences, in turn, may translate into different issue perceptions being important for the allocation of different resource types. Future research must consider how resource types vary from an individual and organizational view, and then incorporate these differences into models of resource investment.

A second point revealed by the analysis is that assessments of an issue's feasibility do not significantly predict resource allocations when an issue's urgency or interdependence is statistically controlled. Several possibilities are suggested by this finding. First, it may be that managers are less sensitive to the instrumentalities involved in an issue's resolution when an issue's urgency and linkages to other issues (interdependence) are high. This may account for findings such as problemistic search (Cyert & March, 1963) or "garbage can"

decision processes, where individuals appear much more sensitive to the importance of an issue than to the possibility of its resolution. In this study, as well as in another study of issue perceptions in a graduate school of business (not a simulation study), individuals displayed a sense of omnipotence with respect to the feasibility of resolving issues. This is demonstrated here by the high average feasibility ratings for all the issues in this study (see Table 1). To the extent that this sense of omnipotence is evident in real organizational settings, individuals may take action on issues that are poorly understood or beyond the current capability of the organization. Over time these types of judgments may account for poor quality decisions such as the decision to launch the Challenger in January 1986 (Starbuck & Milliken, 1988) or less visible, but equally important, judgmental decisions that are routinely made in organizations (Stumpf & Zand, 1981).

The importance of issue interdependence as a predictor of resource allocations to issues suggests that models of problem formulation or issue diagnosis should consider the agenda of issues that confront managers and how managers see agenda issues as related to one another. While typical approaches to studying problem formulation processes have considered how issues are interpreted in isolation of other issues (e.g., Lyles, 1981; Pounds, 1969; Volkema, 1983), this research suggests that these models could be improved by considering patterns of perceived relationships among sets of issues. As researchers of decision processes have argued, descriptive validity is gained by considering the set of decisions (in this case issues) that confront decision makers at any one point in time (March, 1981; March & Olsen, 1976).

The strategic issues diagnosis model is more successful in explaining the allocation of time and agenda priority than it is the allocation of divisional or corporate budgetary resources. One reason for the differential predictive validity of the model may be that allocations of money are more sensitive to political considerations, and these forces are not captured in this purely interpretive model. Influence processes may be the more powerful predictors of the allocation of money (rather than time or agenda priority) because these allocations serve an important signaling function for those who do and who do not have the power in an organization.

Allocation decisions provide a reality by which power can be assessed. Decisions provide ratification for the perceptions of relative influence, that before were only loosely held. (Pfeffer, 1977, p. 254)

Finally, the diagnosis model presented here assumes that managers are effortful in their evaluation and interpretation of strategic issues. This perspective does not consider the possibility that managers may be much less effortful in their conscious evaluation of issue characteristics, but instead may diagnose issues "on automatic" or as "top of the head phenomena" (Taylor

& Fiske, 1978). This latter view suggests that models of issue diagnosis must incorporate issue characteristics that are immediately salient in the environment as important factors in interpreting an issue's meaning or significance. Thus, another agenda item for future research is to develop a model of issue diagnosis that reflect a more automatic interpretation process. For example, Dutton and Jackson (1987) have suggested that organizations furnish managers with ready-made interpretations of issues such as "threat" and "opportunity" that imbue issues with particular attributes. Perhaps researchers need to develop a set of conditions under which managers would be expected to diagnose issues in an automatic versus a controlled mode—a suggestion that social cognition theorists also favor (Taylor & Fiske, 1978).

Practical Implications

Results from this study have direct implications for the management of issues in organizations. While the point has been made that the management of meaning is an important dimension of leadership (Pfeffer, 1981), results from this research suggest the types of issue meanings that draw attention in organizations. For example, the results suggest that issues perceived as more interdependent with other issues attract resources in terms of money and agenda priority. Consequently, managers who wish to stimulate this type of investment in issues need to highlight an issue's interconnections with other issues. Similarly, managers who wish to dissolve interest in an issue can do so more rapidly by portraying an issue as an isolated instance—as separate and unconnected to other strategic issues facing a unit or organization. The investment model for issues suggests what types of perceptions about issues would be most successful in attracting or repelling other managers' interests.

The results also suggest that individuals may want to be more directly confronted with an issue's feasibility or infeasibility in order to consider the full impact of this dimension before committing to or investing in issues. When effective resolution of issues depends on realistic appraisals of an issue's feasibility, a realistic feasibility assessment may need to be introduced into the issue diagnosis process.

While the results of this study of issue interpretation lead to both theoretical and practical insights, limitations of the research should be mentioned. One limitation is that the study cannot address how individual interpretations and investments in issues translate into collective interpretations and investments. A necessary extension of this individual investment model involves developing and testing how these individual assessment are consensually validated across individuals (Weick, 1979), and how these individual investments translate into organizational commitments and choices.

The study supports the potential of behavioral simulations to study the early phases of decision making—when issues are first noticed and interpreted. The use of a simulation that interjects the complexity and interactive nature of

management processes, is uniquely suited to track how individuals sort and imbue strategic issues with meaning. The simulation allowed for the unrestricted interaction of multiple decision makers over a wide range of issues. This property permitted the measurement of interpretations at the level of issue, as opposed to individuals, units or organizations, revealing some of the subtleties of the microprocesses underlying strategic issue management.

While large scale behavioral simulations reproduce many of the behaviors elicited by managers in "real" organizations, the simulations necessarily contain a restricted range of issues, and the abbreviated time period means that issue commitments do not translate into long-term consequences for the individuals involved. Future research should attempt to substantiate and understand why managers approach issues with such a can-do (high feasibility) perspective. Is this a false sense of managerial omnipotence or an artifact of the simulation? Moving research on issue interpretation into the business field would allow consideration of this question.

APPENDIX: ITEMS USED TO MEASURE ISSUE ASSESSMENTS AND PERCEPTIONS

Please respond to each question below for both issues before going on to the next question. Write the appropriate number in the designated column based on the following scale:

	Little or No Extent	Moderate Extent	A Great Extent	I	I
	1-----2-----3-----4-----5			S	S
				S	S
				U	U
				E	E
	Independent of any actions taken (or not taken), to what extent:			1	2
U1	1.	Was this an urgent issue?		_____	_____
U2	2.	Was there likely to be a substantial benefit for taking quick action?		_____	_____
U3	3.	Did this issue demand attention?		_____	_____
D1	4.	Was the cause of the issue likely to persist?		_____	_____
D2	5.	Was the issue temporary?		_____	_____
D3	6.	Would the issue exist for a substantial time period?		_____	_____
V1	7.	Was the issue visible to groups external to the organization?		_____	_____
V2	8.	Were the actions taken (or not taken) likely to be visible to important, relevant others?		_____	_____
V3	9.	Did many people in the organization know about this issue?		_____	_____
R1	10.	Were forces external to the organization responsible for causing this issue?		_____	_____
R2	11.	Was management responsible for bringing about this issue?		_____	_____
R3	12.	Were factors internal to the organization responsible for the occurrence of this issue?		_____	_____
F1	13.	Was it possible for management to take actions to begin to resolve this issue?		_____	_____

(continued)

Appendix (continued)

F2	14.	Was it feasible to attack this issue?	_____	_____
F3	15.	Was management able to take action on this issue?	_____	_____
Un1	16.	Did management have the knowledge necessary to resolve this issue?	_____	_____
Un2	17.	Did management understand the actions necessary to resolve this issue?	_____	_____
Un3	18.	Was additional information needed to resolve this issue?	_____	_____
C1	19.	Did management have control of the resources necessary to deal with this issue?	_____	_____
C2	20.	Could management control the resolution of this issue?	_____	_____
I1	22.	Did the resolution of this issue rely upon the actions of more than one Group's members?	_____	_____
I2	23.	Was responsibility for this issue shared with another Group's members?	_____	_____
I3	24.	Did another Group affect the way this issue was handled?	_____	_____

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