Illustrating The Need For Practical Wisdom

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Abstract

In this paper we present an interpretative case study focused on the Center for Catastrophe Preparedness and Response (CCPR). In particular, we focus on the ambiguities being handled by CCPR executive staff as they develop new knowledge and new practices in the emerging field of catastrophe preparedness. Our case data describe patterns of activity that include storytelling, dialogue with diverse groups of people, and embodied experience. We present a series of first-order findings based on our interpretation of these data, then reflect on those findings both in light of recent research in strategic management studies as well as in light of recent research in adjacent fields that address the concept of *practical wisdom.* We then present the second order finding that the case of CCPR illustrates *a need for practical wisdom* that exists currently in the field of catastrophe preparedness and more generally in among strategic management practitioners. We close by outlining what we see as the implications of this need for strategic management theory and practice.

Introduction

Following the catastrophic attacks of September 11, 2001, considerable attention and investment has been focused on the challenge of how organizations might become more prepared to respond effectively to such events in the future. One particular organization, The Center for Catastrophe Preparedness and Response (CCPR), has been created at New York University (NYU) with $7 million dollars of federal funding for each of its first two years of operation. At the date of this writing (12 October 2003), CCPR's mandate is:

> to analyze "best practices" in preparedness and response and develop case studies and training materials for emergency personnel nationwide; to develop techniques and policies to enable health systems to respond well to large-scale emergencies and bio-terrorism; to develop and assess early warning systems to detect biological, chemical or radiological attacks; and to review the psychological and legal implications of terrorist attacks.

If we reflect on the generic elements of this organizational mandate – 'to analyze best practices', 'to develop techniques and policies', 'to develop and assess systems', 'to review implications' – they do not appear to differ significantly from the responsibilities that might be expected of anyone involved in strategy-making, irrespective of the organization's activities or context. And yet, as CCPR executive staff have reported in a series of interviews, the challenge of 'preparedness' in the post-9-11 world calls for a re-evaluation of all the organizational structures and dynamics that are

potentially impacted by catastrophic events, including the generically-understood purposes and methods of strategy itself.

Thus as we proceed in this paper with a presentation and discussion of the illustrative case of CCPR, at one level of consideration it may appear obvious that there is a pressing, current need to apply the existing tools and techniques of strategic management in the emerging field of catastrophe preparedness. Indeed, the title of a 2003 report from Deloitte Research refers to 'the homeland security market' as 'the world's most challenging emerging business environment' (Deloitte, 2003). In this sense, we see great opportunity for strategic management scholars, teachers and practitioners to contribute to the analysis, development, assessment and review of strategies that seek to enhance the preparedness of organizations in the public and private sectors.

At the same time, at another level of consideration, we will take up the challenges faced by CCPR as an opportunity to revisit and re-evaluate certain basic assumptions that inform the existing concepts and practices of strategic management. Indeed, our general line of inquiry will be: *as organizational actors seek in the face of ambiguous circumstances to make judgments and take actions that impact the well-being of entire communities, what conceptual and practical model of strategy is most meaningful?*

Case Illustration

Method, motivations and assumptions

1. Method

We rely in this paper on an interpretative case study method. Yin (1994: 13) has defined the case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; especially when the boundaries between the phenomenon and context are not clearly evident." In keeping with the prescribed functions of the case study method (also following Yin, 1981, 1994), this case study is exploratory (involved in investigating a little-understood phenomenon, i.e., catastrophe preparedness in the post September 11 world) and descriptive (documenting the phenomenon of interest, i.e., the activities of CCPR).

The case data presented here have been collected over a period of four months in late 2003. Primary data were gathered through weekly, semi-structured phone interviews with a CCPR executive staff member, and secondary data consisted of CCPR memos, press releases, news articles, project descriptions, email exchanges between the authors and the executive staff member, and other documentation produced by CCPR with regard to the emerging field of preparedness.

In order to better understand the complexity of the data, we proceeded thus with an iterative process of data collection and analysis (Eisenhardt, 1989), where descriptions as well as the first-order findings were reviewed internally by CCPR staff to check for accuracy. We subsequently reflected on our first-order findings in light of existing literatures both in the field of strategic management studies, and in adjacent fields such as psychology and philosophy. Based on these theoretical reflections, we then developed

second-order findings which we present here as interpretations of the case of CCPR.

By choosing this method, we cannot aspire to generate any findings that are, strictly speaking, generalizable. Instead, we seek with the case illustration to offer a thick description of an organizational phenomenon that we will, in closing, identify as *the need for practical wisdom.*

2. Case selection: motivations and assumptions

The weakness of the interpretative case method is that the bridge from deep knowledge of a particular case to generalizable knowledge of a class or type of phenomena is often difficult to build. We acknowledge that this problem places crucial importance on the selection of the case. In an effort simply to be explicit about why we chose to study CCPR, we here disclose our motivations and assumptions.

First, we find that the theory and practice of strategic management has, over the last decades, evidenced a general trend: *from* long range planning (coming basically from the mid-20th century military and industrial perspective which presumes multi-year, and even multi-decade 'planning horizons'); then as things become more complex and dynamic, *to* 'strategic planning' (typically involving top-down objective-setting, cascading and being implemented in the form of detailed budgets, where the designation 'strategic' refers to focus areas or programs that cut across divisions, units, etc.); then finally as planning horizons shortened and gradually got closer and closer to the here and now, *to* 'planning in real time' (a phrase which some practitioners have reportedly affirmed even as a paradox in itself). Thus in the interest of finding

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new empirical evidence of this pattern, we were motivated to select an organization that is currently dealing with emergent change in its most extreme form, a form that has become more familiar in recent years: *catastrophe*.

With particular respect to the field of strategic management studies, we are motivated to position this case study of an organization that deals with catastrophes as a contribution to two distinct, contemporary streams of research. First and foremost, there is the recently-emerged, and growing literature that has taken the shift from long- to short-term strategizing as an occasion to shift the epistemological unit of analysis to the activities or practices undertaken by strategy-makers.[1] Because our case data deals with the day-to-day practices of the executive staff of CCPR – and additionally, because those day-to-day practices involve an explicit and direct consideration of those practices and activities which are strategically advisable in the event of a catastrophe – we believe that they provide further evidence that the activity-based view can provide a meaningful perspective from which to reflect on strategy-making.

Secondly, there is the more longstanding (albeit rather inchoate) and still growing literature that frames strategy-making in terms of a dynamic and complex ontology. In this regard, we frame the aforementioned shift from long- to short-term planning horizons more precisely in the literature by recalling Mintzberg's differentiation of the learning school, the power school,

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[1] The trajectory of this emerging topic of interest across the field of strategic management studies can be traced clearly from a special issue in the *Journal of Management Studies*, including e.g., Johnson, Melin and Whittington (2003), Balogun, Huff and Johnson (2003), Hendry and Seidl (2003), Regner (2003) to a piece in the introductory issue of a new strategy journal, *Strategic Organization*, Whittington (2002). Heracleous (2003) also picks up the topic, developing the notion of 'organizational action' (OA).

the cultural school, the environmental school, and the configuration school (Mintzberg, *et al*, 1998). Each of these schools, it seems, presupposes a dynamic organizational ontology, though they differ with respect to their categories of analysis. We position this case study as a contribution to these literatures, responding to the decades-old call for more in-depth, qualitative research on strategy-making in action (see Chakravarthy & Doz, 1992; Van de Ven 1992).

In this regard, Weick and Sutcliffe have grounded a recent book on the assumption that "we can all get better at managing the unexpected if we pay more attention to those who have no choice but to do it well" (2001). We share this assumption, although we assume furthermore that strategic management theory as well as practice can benefit from paying more attention to the stories told by people who have made tough decisions and taken difficult actions in the face of catastrophies. Indeed, since all of CCPR's activities are focused on those situations in which strategy may, of necessity, emerge in the course of action, we present the case illustration as a comment on current scholarly debates concerning those emergent, adaptive activities that take the name of strategy in organizations of all kinds.

In the context of these debates, our basic assumption is that the case of CCPR can stand as an acute instance of what is a more generic problem in strategic management: what to do when the horizon is very limited, when the stakes are high, and when the challenges are great? The particular thing that interested us about CCPR was the fact that it was seeking to pose and answer these questions in at least two different ways: first, insofar as CCPR,

as an organization that has recently taken shape in an highly dynamic environment, must strategically make decisions and take actions that enable it adaptively to survive and function well; and second, insofar as CCPR focuses precisely on 'catastrophe preparedness' and thereby is dedicated to understand how other organizations might similarly adapt to survive, albeit under more extreme conditions.

Thus as researchers we were motivated to some extent to select CCPR because we shared their own motivation to develop a better understanding of catastrophe preparedness. In an effort to acknowledge as well as enhance this shared agenda, we framed all of our interactions with CCPR executive staff explicitly as collaborative research, based on an agreement that both parties might learn and benefit through the interactions. In turn, whereas we the researchers were explicit from the beginning and throughout the research process about our motivation to gather qualitative data pertaining to the activities of CCPR, the stated motivations of the CCPR executive staff appeared both to differ between individuals, and also to shift over time. As the process began, one CCPR staff member expressed his perception of the collaboration with a tactical eye toward the eventual publication of the data, stating that "by engaging with innovative organizational researchers, we might be able to help out the center and further the aims of the university." After several interviews had taken place, another CCPR staff member described his own perception of the collaborative research process as follows: "This is like organizational therapy for me. Usually I don't even have the time to think about what happened yesterday, or even sometimes what is happening today,

because I'm so focused on making things happen tomorrow and in the coming days."

While we find it relevant to cite these motivations here in the introduction to the case, we did not endeavour to isolate such differences between the motivations of individual staff members, nor to track changes in them over the course of the data-gathering process. Instead, we chose to focus primarily on the activities undertaken by CCPR in the field of catastrophe preparedness, in hopes that our findings might be meaningful in the more general theoretical and practical context of strategic management.

Background: The emerging preparedness field

"[I]f we knew that there was going to be a terrorist attack sometime in the next five years but did not know what type of attack it would be, who would carry it out, or where in the United States it would occur, what action would we now take and how would we allocate our human and financial resources to prepare?" (Council on Foreign Relations Task Force Report, 2003: 7).

It may be impossible to generate a comprehensive account of the historical, social and cultural implications of the September 11, 2001 attacks on the World Trade Center and the Pentagon. And yet, in spite of this lack of comprehensive understanding, a new field is currently emerging that seeks first to learn and second to teach organizations how to become more prepared for similarly catastrophic events in the future. The term 'preparedness' thus names a field in which a variety of related activities and topics of interest are gathered, including: risk management, crisis management, business continuity, homeland security, contingency

management, and others. Thus while neither the structure nor the dynamics in the 'field of preparedness' have yet been comprehensively accounted for by market research or industry analysis, certain segments have been studied with enough rigor to suggest that a recent trend of rapid growth will likely continue into the near and intermediate future.

For example, Deloitte Research has projected "that total combined spending on Homeland Security by public and private sectors will be between $93 and $138 billion in FY2003" (Deloitte, 2003: 27). With regard exclusively to the 'emergency responder' segment of the preparedness field, the Council on Foreign Relations (CFR) Task Force has found that funding from the federal government will equal $27 billion over the next five years (CFR Report, 2003: 13), whereas funding from state and local government estimated at between $26 billion and $76 billion over the next five years (ibid: 17). And even this staggering amount may well increase, as the same report estimates that *unmet* emergency responder needs at federal, state and local government will equal at $98.4 billion over the next five years (ibid: 13).

Taking another analytic slice of the field, Deloitte research has identified some trends with respect to the size, focus and motivation behind preparedness-related investments and activities in the private sector:

"[p]rivate sector firms are expected to spend the most in the short term on enhancing security, with 50% of total projects falling in the 500K to $10 million range… [This spending pattern] is likely due to organizations' desire to address immediate needs and suggests that spending will be filtered down from the enterprise level to individual business units or divisions. The market may see larger spending outlays in future fiscal years if organizations shift their focus to managing homeland security at the enterprise

level and if providers can develop solutions to address multiple threats simultaneously"
(Deloitte, 2003: 24)

Because these different analyses do not share common terms and assumptions, it remains difficult to estimate the overall size and scope of the preparedness field. Nevertheless, in spite of this lack of analytical clarity, there is ample evidence of the range and number of organizations in the public and private sector that identify themselves as having an interest in preparedness. CCPR's own list of preparedness-related organizations in the United States currently includes ninety-two different government agencies, forty-two different academic institutions and programs, sixty-three different nonprofits and foundations and sixty-three different 'private sector resources'.[2] We can only assume that if this list were to include organizations outside the United States, it would grow significantly. And in any case, the existing evidence suggests that the preparedness field is currently taking shape, and will continue to grow in the coming years.

Within this somewhat amorphous, but nevertheless clearly emerging field, New York City holds unique significance given the events of 9-11. Indeed, the level and intensity of popular attention focused on New York City has perhaps never been higher within the United States and around the globe than during the months following the collapse of the World Trade Center towers. More interestingly, the particular image of New York City that was projected in the popular news media could in retrospect be characterized in terms of courageous and heroic endurance in the face of undeservedly horrible

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[2] Cf. http://www.nyu.edu/ccpr/resources/

circumstances. Mayor Rudolph Guiliani, who by many accounts personified these virtues, has himself subsequently (and after leaving office) ridden a wave of admiration into a successful consulting career, advising municipal officials in Mexico City for example on how to manage their crime problems.[3] But beyond the mayor and his post-political career, stories told by various New York government officials, organizational leaders, and even the many residents of the city can provide invaluable data pertaining to the factors that might contribute to catastrophe preparedness.

For researchers and educators within the New York University community, these data hold particular (and in some cases, personal) significance. NYU has a very unique position with respect to the events of 9-11, and with respect to the image that the city and indeed the nation have projected subsequently. Beginning in the 1980's and accelerating through the 1990's, NYU grew aggressively, increasing in every category of analysis from course offerings to property holdings. In particular, the university has garnered international recognition for its professional schools and high-end research programs. And as the century turned, NYU was positioning itself as a cutting-edge learning institution, providing continuing education to tens of thousands of people within the city and attracting undergraduate and graduate students from around the world with the promise of a quality curriculum offered in a singular setting.. The central NYU campus (i.e., Washington Square Park and its Greenwich Village environs) was however so close to Ground Zero that it remained for days following the event within the perimeter that was off limits

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[3] E.g., http://www.cbsnews.com/stories/2003/08/06/world/main567030.shtml

to all but residents – and for weeks following the event, smoke from the burning rubble continued to waft over the campus.

In this unique position, as the federal government began in the months following the attacks to allocate funds for catastrophe preparedness research and program development, NYU's Office of Federal Grants was able to succeed in the months following the September 11 events in landing a congressional allocation to fund a project that was envisioned as:

> "one center in a critical location that could work closely with New York City and State, as well as the federal government, to look beyond the terrorist attacks and advise on how to best prepare for such future emergencies, catastrophes and disasters" (NYU Press Release, 2002).

The period of data gathering that has informed this case study began almost one year later, in September 2003, when the authors had contact with CCPR executive staff members and agreed to conduct a series of interviews and exchange information concerning their current situation.

Handling ambiguities

CCPR executive staff report that they are currently handling a series of ambiguities as they seek to fulfil the organization's mission by enhancing the nation's capacity for preparedness and response. These ambiguities exist at the following distinct, but related levels of analysis and consideration: 1) defining the objective of preparedness in relation to the catastrophic event itself; 2) identifying the various communities that stand to be impacted by a catastrophe, and in turn, those organizations that hold a responsibility to

become more prepared; 3) determining the tactical actions that will serve most effectively to develop a state of preparedness among the target communities and organizations. The following three sections of this chapter present evidence of how CCPR staff explain and reflect on these ambiguities.

1. Thinking the event

In a March 2003 Harvard Business Review article entitled "Preparing for Evil", authors Ian Mitroff and Murat Alpaslan entice readers with the promise that they will "Learn to think…about the unthinkable." These words echo Donald Rumsfeld's infamous distinction between 'known knowns, known unknowns, and unknown unknowns' (in a February 12, 2002 Department of Defense news briefing) – where the putative 'unknown unknowns' are precisely those blind spots against which intelligence and defense strategists must prevail. Yet just as in the intelligence field, the challenge in the field of preparedness extends beyond the sheer unknowability of the future. Indeed, for CCPR staff the 'unthinkability' pertains directly to the catastrophic event and to the objective of catastrophe preparedness. Even in hindsight, when the event is as plainly 'thinkable' as the attack on the World Trade Center, CCPR struggles first to identify and analyze different aspects of the catastrophic event, and second, to determine which of those aspects may be prepared for in such a way as to mitigate or reduce their impacts.

With what metrics or indices is the 'catastrophic' event to be measured or understood? Is it, for example, appropriate to consider and evaluate catastrophes primarily in dollar amounts? If so, should those dollar amounts

include only the value of material assets that were destroyed or damaged, or additionally, should the estimates include revenues which were projected to be derived from activities which did not in fact take place? For what period of time should such projections be calculated? Conversely, should attempts to calculate the economic impact of a catastrophe take account of the gains made by firms or individuals who were in a position to provide goods or services to those who were in need? Evidence for the pressing need for answers to such questions may be found in the fact that, as the US federal government Department of Homeland Security has recently turned to the task of creating Centers of Excellence in the preparedness field, the first major grant has been awarded to a group at the University of Southern California dedicated to the economic impacts of terror.[4]

CCPR staff illustrate the ambiguity of the economic dimensions of preparedness with a very practical, and very sensitive example. With respect to the 9-11 attacks, it appears that the 'spoils of war' included not just the property looted from Ground Zero in the hours and days immediately following the event, and not just the massive clean-up bills paid by the city and the federal government to private construction crews. Indeed, CCPR has learned that fully one quarter of the New York Fire Department retired in 2002. Apparently the NYFD pension plan is structured in such a way as to pay benefits as a percentage of the last year's wages prior to retirement – and since so many NYFD people logged so many overtime hours during the 9-11 clean-up, a number of them took advantage of the situation and cashed out before traditional retirement age. Of course CCPR staff do not seek to

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[4] A press release to this effect can be found at http://www.dhs.gov/dhspublic/display?content=2387

attribute to the firefighters any improper motives such as the desire for personal financial gain at the expense of fulfilling their mission. Nevertheless at the level of the analysis of the economic impacts of the 9-11 catastrophe, CCPR staff wonder whether accounts should factor in the massive increased expenditures in recruitment and training of new staff on behalf of the NYFD? What about the proportionately higher pensions that will be paid for proportionately longer periods of time to the early retirees? How much time will pass before costs such as these become indistinct from standard operational expenditures, and thus, the catastrophe (as well as the chance for increased economic preparedness) becomes unrecognisable as such? Has that time already passed, hastened along perhaps by a wave of public veneration of its fallen heroes in the NYFD?

To take another broad angle on the issue: should the primary unit of analysis instead be human lives? And if not the lives of the dead, which though tragic are relatively easy to count (notwithstanding the months of work it took to establish an 'official' death count), what then about the traumatic impact on the lives of survivors? Over what period of time, and with what quality of life indicators, should the truly catastrophic effects be assessed? To be sure, the question of how to choose from among these various scales or categories of analysis confronts public policy-makers with respect even to more familiar matters such as health care or unemployment. However, while CCPR staff acknowledge that they share certain aspects of this ambiguity with other managers, still they feel that there is something unique about catastrophes which tends to overwhelm rational attempts to calculate and analyze their effects.

The ambiguity deepens as CCPR staff seek to identify the goal or outcome (i.e., the strategic objective) of 'preparedness' itself. What are the indices or metrics that indicate whether an organization (whether it be a municipality or a project group within a Wall Street firm[5]) is prepared for a catastrophe or not? And if one might speculate and establish a particular metric by inference, then what are the methods of measurement that might provide the most accurate, predictive results?

At the level of strategically setting and administering policies, this ambiguity may in one sense be mitigated by the development of standards. CCPR staff refer on this point to the CFR report, which refers repeatedly and at considerable length to the need for such standards, stating that:

"…it is impossible to know precisely what is needed and how much it will cost due to lack of preparedness standards" (CFR Report, 2003: 4);

"there are currently no comprehensive, systematic, and consolidated principles or measures against which the degree and quality of preparedness can be tracked nationwide" (ibid: 15);

"[t]he absence of a functioning methodology to determine national requirements for emergency preparedness constitutes a public policy crisis" (ibid: 8);

and finally, sounding a clear note of desperation, if not cynicism,

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[5] An excellent case study of just such a team can be found in Beunza D. and Stark D. (2003) "The Organization of Responsiveness: Innovation and Recovery in the Trading Rooms of Lower Manhattan", *Socio-Economic Review*, 1: 135-164.

"[i]t is therefore extremely difficult, if not impossible, to measure how well prepared the United States is" (ibid: 17).

The Deloitte report, in turn, registers the difficulty that this ambiguity raises with respect to spending in the private sector, emphasizing that "things are on hold and people are waiting for the federal government to come out with uniform standards and strategy" (Deloitte, 2003: 11). While CCPR staff acknowledge that the establishment of preparedness standards for all levels of government would enable the allocation and distribution of resources, they also recognize that the current lack of standards is intricately connected to the ambiguity of the catastrophic event itself. Indeed, standards must be set on the basis of certain assumptions about what might happen, and the range of possible catastrophes is at this point so great that it remains difficult for policy-makers and researchers to clarify and agree on even the most basic of assumptions.

To illustrate how this practical ambiguity of preparedness standards plays out on a national scale, a CCPR staff member said that, "today states are getting money for security first responder needs by a formula that is based on population. This formula is being re-worked to be based on threat because, for example, Montana is currently getting the most money per capita." Thus while it is widely acknowledged that the shift to a 'threat-based' formula to guide budget allocations will make more sense than the current, population-based formula, CCPR staff point out that the threat-based model is itself an imperfect solution that rests on a variety of questionable assumptions. Again, are we talking about a threat to strategic assets or a threat to human lives? Will certain types of catastrophe (like a dirty bomb on the East Coast of the

United States) render certain assets (like clean air) more or less strategic (thus increasing the relative strategic importance of Montana)? And again, is it not in the nature of a catastrophe to subvert even the most carefully formulated assumptions? Who assumed, for example, that a commercial airplane would be used as a projectile to destroy a metropolitan building? Much has been made of the fact that not even the reinsurance industry had accounted for such a possibility – and indeed, there has been considerable quibbling about whether the collapsed buildings should be counted as one or two different events.[6]

And yet, even if we factor appropriately for risks of all kinds and assume moving forward that such catastrophic events (of whatever kind, in whatever number, with whatever effects) are possible if not to some degree or another probable, then what would the most appropriate measurement of preparedness be? The relative rigor of passenger screening procedures at airports? The extent to which airline pilots are armed with handguns to defend themselves and their control of the airplane in the event of a hijacking attempt? The relative proximity of metropolitan areas to a military airbase with land-to-air or air-to-air capacity sufficient to neutralize such an errant craft? Each of these decision criteria holds radically different implications for the estimated 'level of threat' of a given area – and yet, together they refer to only one of a practically infinite range of possible scenarios, namely, the plainly 'thinkable' one that happened on 9-11.

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[6] CCPR staff cite recent news reports which indicate that a date has been set for the first of several trials to settle the dispute on this point between Silverstein Properties and insurers including SwissRe and Travelers (www.insurancejournal.com/news/newswire/east/2003/11/25/34462.htm).

At a different level of consideration, as CCPR staff reflect on the extent to which the proposed objective of preparedness remains radically ambiguous, they are also aware of contemporary theories within the fields of psychotherapy and cultural studies which indicate that traumatic experiences tend to stretch the limits of rational self-understanding. To put the matter more paradoxically, traumatic experiences seem in some instances to bring about the death of the self, even though the individual may not in fact have died.[7] Inspired by these streams of research, CCPR staff are developing a project proposal that involves NYU trauma specialists in a study of different methods of treating trauma in first responders.

But this practical example of a project under development serves only to illustrate the extent to which CCPR staff are aware that the task of preparedness and response requires not only the best scientific analyses of the situation, but additionally a pragmatic awareness that even under the best of circumstances, and even where the given criteria of preparedness have been optimally satisfied, catastrophic events give rise to a need for decisions and actions that can neither be fully anticipated nor cognitively explained *post facto*. CCPR staff thus acknowledge that the capacity to make decisions and take actions in the event of a catastrophe is intricately tied up with the deeply ambiguous affective and social dimensions of human experience.

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[7] Susan Brison cites a survivor of the Nazi death camps, who states that "'One can be alive after Sobibor without having survived Sobibor'" (Brison, Susan. "Trauma Narratives and the Remaking of the Self" in *Acts of Memory: Cultural Recall in the Present*, ed. Mieke Bal, Jonathan Crewe & Leo Spitzer, University Press of New England, Hanover, NH: 1999).

2. Identifying the community

Depending on how CCPR staff define the catastrophic event and the goal of preparedness, a distinct but corresponding ambiguity emerges with respect to the community that is affected by the event and thus in need of preparedness. Indeed, as the question of 'who is impacted by a catastrophe?' is answered, it leads directly to the question of 'who is therefore responsible for being prepared for catastrophe?'. The ambiguity of the community thus appears first and foremost as a question of responsibility. At this level of consideration, the prospect of a catastrophe raises for CCPR staff a series of issues pertaining to the operation of civil society and democratic government as well as the corresponding civic and social responsibilities held by public and private organizations on every level of scale.

They find evidence of this ambiguity in the CFR report, where it is noted for example that "there were no accepted national guidelines for determining the nature of burden-sharing between the federal government and state and local jurisdictions" (CFR Report, 2003: 17). Based on their analysis of this problem, and echoing the problem of standardization outlined above, the CFR task force outlines the policy objective that "Congress should establish a system for allocating scarce resources based less on dividing the spoils and more on addressing identified threats and vulnerabilities. To do this, the federal government should consider such factors as population, population density, vulnerability assessment, and presence of critical infrastructure within each state" (CPR Report, 2003: 19).

While CCPR staff are aware of, and in support of this overall policy objective, they nevertheless recognize as premises of their current activities

a) that Congress has not at the date of this writing yet established such a system, b) that even if and when such a system is established by Congress, the interpretation and implementation of the system will bring with it another series of ambiguities, and c) that even if such a system were to be designed and implemented optimally well, it would still be based on a set of premises that could easily be rendered obsolete in the face of a catastrophic event. In this sense, the ambiguity of 'who is responsible for taking action to prepare or respond to catastrophic events?' cannot simply be resolved by the creation of new federal policy standards.

This ambiguity strikes at the heart of those organizations who would, on the face of it, most directly hold responsibility and jurisdiction. CCPR staff cite a three-part article that appeared in *The Atlantic Monthly* (2002) as evidence of how, in the hours and days immediately following the collapse of the World Trade Center, it was not at all clear who was responsible for coordinating the response. According to this account, there was

> …an obscure city agency called the DDC [Design and Development Commission] that for unknown reasons was emerging in an unscripted leading role. A couple of guys there were said to be making decisions. Apparently the one to see was a man…named Mike Burton (2002: 65).

Burton explained his actions to the *Atlantic Monthly* reporter, saying at that time that

[t]he only way we can get control of the situation is by having everyone here. There's no time for distributing memos or waiting for the chain of command. Everybody has to hear what the problems are. The decisions have to be made, and everybody has to hear those decisions. We have to keep everyone moving in the same direction. (ibid: 67)

For CCPR, beyond the effectiveness of the tactical decisions taken and communicated by Burton, the most interesting thing about these accounts is the fact that Burton himself, and the city agency he represented, did not hold any direct responsibility to act in this way. And yet, in the situation where the Office of Emergency Management, with its main offices located in the World Trade Center, "had lost everything…all their preparations…thrown out the window" (ibid: 65), Burton and DDC assumed the responsibility and acted in a way that appears in retrospect to merit praise and admiration as well as careful study. In this light, the ambiguity at the level of the community of those responsible for catastrophe response did not disappear even when a few individuals simply started acting.[8]

In the months and now years following the attacks, as the actual clean-up operation has been completed and officials have turned to the complicated task of understanding exactly what happened and why, the ambiguity of the community continues to play out, albeit in quite different ways. For example, among those emergency responders who were involved with the events of 9-11, the right to privacy appears presently to counterbalance the responsibility to comply with a federal investigation. CCPR staff cite a series of events in which the National Commission on Terrorist Attacks Upon the United States

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[8] Though moving forward, it is certainly an interesting research question to consider whether it is possible to design heterarchic decision-making structures that survive even as the chain of command is broken or rendered ineffective due to jurisdiction-related ambiguities.

has issued a subpoena to the City of New York requesting access to the thousands of tapes, transcripts and other records pertaining to the city's emergency response activities on September 11 and in the following days. The commission has issued two other, similar subpoenas to Federal Aviation Administration and the Department of Defense, and whereas those two organizations have announced their intent to comply with the investigation, New York Mayor Michael Bloomberg's administration has over the last two years signalled a significant unwillingness to comply. In a statement issued on November 20, 2003, the mayor's office sought to edit and remove from the transcriptions "the intensely emotional statements of people who lost their lives or whose lives were in jeopardy" (New York Times, 11/21/03). This position is supported by advocacy groups such as the Family Steering Committee, which represents the families of those whose lives were lost during the catastrophic event. Family Steering Committee spokespeople have alleged, in turn, that the investigation commissioners' words and actions are politically compromised by conflicts of interest including associations and friendships with White House officials. These conflicts threaten the impartiality of the investigation, and provide grounds on which to resist its efforts in hopes that actionable truth might emerge by other means.

In this illustration, local officials appear to be at direct odds with national officials, even though both groups purport to be acting in the interests of a public that deserves first to understand what really happened and thereby second to become more effectively prepared for similar events in the future. And although the political machinations of the situation (the fact, for example, that one of the most vocal critics of the Bush Administration's role in the

commission's investigation is Senator Joseph Lieberman, who is currently campaigning to unseat Bush and become the next U.S. President) remain tangential to the focus of CCPR's activities, still the story serves to illustrate the extent to which the identification of the community is plagued by ambiguity.

3. Taking the right actions

Depending again on how the catastrophic event and the objective of preparedness are defined, and depending furthermore on how the community of those who are affected and responsible is identified, there is a corresponding yet distinct ambiguity about how to move forward with decisions and actions. In other words, even if everyone could agree on the standards by which catastrophes could be measured, and even if the responsibilities held by various organizations could be clarified once and for all by executive mandate, CCPR staff note that a great deal of ambiguity would nevertheless confront the tactical challenge of attaining the nominal objective of preparedness. Recalling from above the relative weighting of the airplane attack scenario in the estimation of levels of threat – again, what are the tactics that will serve most effectively to reduce the likelihood of such an event while increasing levels of preparedness in the unlikely but possible event that a similar catastrophe would take place in the future?

CCPR staff claim that contemporary discourse and practice on this topic may be divided into two distinct paradigms. On one hand, there are people throughout the preparedness field who advocate the development and implementation of comprehensive systems of information tracking and

analysis. Working on this suggestion, computer scientists are developing complex algorithms that will enable the identification of suspicious patterns of behavior, as tracked for example through transactions or physical movements in public spheres. For example, at a November 2003 conference called 'Are We Safer?' held at the NYU Law and Security Center and sponsored by CCPR, a representative from Scotland Yard reportedly said that "[y]ou Americans have such a fear of being videotaped but it has to stop. In the UK we are running algorithms on traffic cameras that trigger alarms whenever somebody deviates from their normal path to work."

On the other hand, there are people who advocate the development and implementation of simple, local solutions that depend rather on practice-based, subjective techniques of pattern recognition. Working on this suggestion, people are looking for example at the terrorism defense procedures that have been developed and implemented successfully over the years by El Al, the Israeli passenger airline. Rather than relying on a database, highly trained, young and energetic El Al staff conduct individual interviews with each prospective passenger. This technique has established a 100% success rate in preventing hijacking – while the airline does not release statistics on how many hijackings have been prevented by this means, the simple fact is that no El Al jets have been hijacked.[9]

While these two distinct paradigms of tactical action (comprehensive and systemic, relying on technological capacities vs. local and contingent, relying on human capacities) are not necessarily irreconcilable in principle, alignment with one paradigm or the other can have profound resource implications in

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[9] CCPR staff cite terrorism expert Charles Mann's outline of this distinction in "Homeland Insecurity", an article published in the *Atlantic Monthly*, September, 2002.

practice (e.g., with respect to grant program development budgets focused on artificial intelligence vs. practice-based training). More importantly, whichever tactical course is chosen by researchers and policy-makers, still the degree to which particular actions can effectively serve particular strategic goals cannot ultimately be proven except by experience even under the best empirical conditions. And since in this case the relevant experience is that of a catastrophe, the ambiguity overwhelms all attempt to establish hard empirical evidence that one way to cultivate preparedness is better than another. Indeed, according to the CFR report, "there is no natural limit to what the United States could spend on emergency preparedness. The United States could spend the entire gross domestic product (GDP) and still be unprepared, or wisely spend a limited amount and end up sufficiently prepared" (CFR Report, 2003: 9).

In some cases, the empirical question of which actions might tactically serve the objective of preparedness turns into a straightforward, though even more deeply ambiguous, question of values. In other words, a choice must be made between alternative tactics which are equally unproven, but which have profoundly different moral or ethical implications, and the question of 'what is the best thing to do?' becomes more a question of 'what is the right thing to do?'

For example, CCPR staff report that discussions are currently underway within the preparedness field about how to handle a terrorist attack on a nuclear power facility. In this scenario, the tactical options are basically two-fold: either state and local officials should distribute two anti-radiation,

potassium iodide pills to everyone living within a ten mile radius of a nuclear facility with instructions to take the pills within several hours of the security breach, or they should develop the capacity for a mass evacuation of those same populations. In the case of New York City, with Indian River Nuclear Facility less than ten miles up the Hudson River, these two options carry with them a series of profound ethical implications.

In the first option, the pills would provide everyone with a minimal hope of surviving the effects of the radiation leak. However, with six or seven million people in the New York metropolitan area, the distribution of anti-radiation pills involves a considerable logistical exercise, not to mention a massive public awareness campaign that would be required to inform people of the threat, to convince them that the chosen tactic is the best way to go, and finally to educate them about how to self-administer the treatment. To make matters worse, clinical evidence shows that even the best available anti-radiation medication cannot counteract direct exposure, and even when it does effectively prevent immediate death in cases of lesser exposure, then the quality of life decreases dramatically, tending toward deformity, sickness and eventual death.

In the second option, the evacuation capacity would be designed to provide those people who are able to access it with a means of escape from the lethal effects of the radiation. However, the physical relocation of even a small percentage of the population would involve a massive logistical exercise, and many of these individuals may already have been exposed to radiation to the extent that they would die before, or soon after arriving at the target removal location. And to make matters worse, if great pain and

expense were taken to create a radiation-free safety zone, there is no assurance that it would not become another target for further attack.

So is it the right thing to give everyone an equal, albeit middling, chance to survive by taking a pill? Is it instead the right thing to assume that the strong, quick or lucky citizens would escape and survive, leaving the weak, slow and unlucky ones to die? Given the status quo (i.e., relatively underprotected nuclear facilities within range of many metropolitan centers in the US and Europe), that is the tactical dilemma currently facing the preparedness field, and it raises some profound ethical issues. According to a recent report on the issue in Homeland Security Daily, an email newsletter, of the 34 US states with populations within 10 miles of operational nuclear reactors, 12 states currently have no potasssium iodide distribution plans, opting instead for evacuations.[10]

And while the advantages and disadvantages of these tactics continue to be discussed, the debate raises issues that move beyond the existing status quo in the interest of preparedness. Could society be more effectively prepared by making nuclear facilities secure at whatever expense? Opening up the economic dimensions of the debate somewhat, would such expense exceed the costs of dismantling the facilities altogether and re-focusing on energy sources such as wind, sun or water that did not, in themselves, involve the potentially hazardous and vulnerable resource of nuclear fission? Carrying this point to the extreme, should the Western industrial world start to minimize its energy needs in the interest of preparedness? The point here is not to answer such questions, but simply to emphasize that these are the

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[10] This subscription-only source document was provided to the authors by CCPR staff.

kinds of value-related issues that come up for CCPR staff as they attempt to handle the tactical ambiguities pertaining to catastrophe preparedness.

Pausing to summarize the contents of this section, we can say that CCPR staff find themselves in the emerging field of preparedness dealing with three distinct, though interrelated ambiguities: 1) an ambiguity that makes it difficult to analyze the catastrophic event and the objective of preparedness, 2) an ambiguity that makes it difficult to identify and differentiate those communities impacted by the catastrophe and responsible for preparedness, and 3) an ambiguity that makes it difficult to take the actions that effectively prepare those communities for future catastrophes.

In the following section, we will see how CCPR staff attempt to handle these ambiguities and fulfill their charter to "to look beyond the terrorist attacks [of 9-11] and advise on how to best prepare for such future emergencies, catastrophes and disasters."

Activity patterns

As they seek to handle the various ambiguities outlined above, what do CCPR staff actually do? Descriptively speaking, what are the activities in which they engage? In the course of our data-gathering, we have identified the following three patterns of activity: 1) storytelling, 2) dialogue with diverse groups of people, and (what we will call) 3) integrated experience. We do not here present these three activities as if they stood in a direct, one-to-one relationship to the three ambiguities outlined above – for example, analytically

speaking, storytelling may be equally relevant to preparedness-related objectives, communities *and* tactics. Nor do we present the three distinct patterns of activity as if they were mutually exclusive from each other – as we will see, in some cases CCPR staff find themselves telling stories to diverse groups about integrated experiences. Rather, in the following section we present a series of detailed descriptions of how CCPR staff seek to handle the ambiguities that face them in the emerging field of preparedness.

1. Storytelling: 'A Million Casualties'

Moving forward, CCPR staff have chosen to focus their attention on a hypothetical catastrophe that they define quite simply, albeit horrifically, in terms of a million casualties. As CCPR staff tell this story – which they call 'Project LASER' – they find that it provides a conversational frame within which CCPR staff can elicit and discover potential funding needs.

Indeed, it appears that in the course of their daily activities, CCPR staff spend a considerable amount of time engaged in the telling and sharing of stories with the various people with whom they are in contact. The story of 'one million casualties' gains definition in comparison with the stories told by individuals who were involved in events such as 9-11, infrastructure failures (such as the blackout in the Northeast), and military conflicts. In the exchange of stories, a comparative, explanatory logic emerges, taking the (here paraphrased) form of 'well, it happened this way in my experience, so if we were dealing with a million casualties, then we'd be looking at these issues…'

For example:

A recent story I heard relating to 9-11 is that the military structures that lay people think are in place to handle catastrophic events are in fact, in the times of crisis following the event, mandated by Department of Defense to be focused on other objectives such as protecting the nation from the next attack, rather than on managing the one that just happened. That was the reason why we saw that construction crews loosely managed by FEMA handled 9-11 more than the military. The upshot of this is that civilian and other non-military governmental structures and capacities need to be in place sufficient to manage even a one million casualty event, because even under such extreme circumstances, the military would still have to be worried about not letting the situation get even worse.

In this regard, the August 14, 2003 blackout that struck New York as well as the entire northeast serves as an interesting demonstration of how failures of infrastructural services such as electricity might impact levels of preparedness for the hypothetical million casualty event. Eyewitness reports from people who were working in Manhattan skyscrapers said that when the power went out everybody just hit the stairs and moved quickly down, assuming the worst and struggling to access intermittent cell phone services. For some people, the cause of the blackout remained completely unknown for up to two hours after the initial outage. As night settled in, and as a general awareness spread that the event was not 'terrorist-related', but rather an unfortunate engineering malfunction, eyewitnesses as well as news sources reported that people in the city engaged in activities such as: providing food and shelter to co-workers stranded by malfunctioning commuter links; engaging in public revelry, with bars and restaurants opening their doors to the streets; engaging in private activities that appear to have produced what

demographers and hospitals anticipate will be a sharp spike in the birth rate, etc.

The almost complete lack of reckless looting and lawlessness reported in New York and elsewhere gives people in the preparedness field cause for great hope with regard to the capacity of the American citizenry to handle themselves responsibly in the face of catastrophic circumstances. By contrast, whereas the infrastructural failure itself gives cause for considerable concern, most concerning is the extent to which a failure in one place (e.g., the Niagara grid) exhibited a total lack of regional and local preparedness for such an event:

> The blackout involved the removal of one simple variable and the effect was so large that it changed the measures of success. The evidence of successful preparedness cited by Mayor Bloomberg in New York was the fact that more than 5000 '9-1-1' calls were answered by operators in the city. That's fine, but what else could the city have done? Could they, for example, have had backup electrical power systems in place? What would they have been able to do to protect people if certain groups of people in the city had decided not to behave so well? To put a slightly finer point on it, you wouldn't be able to hang your hat on the preparedness of the 9-1-1 operators in the case of a million casualties.

In this way, as CCPR staff engage in the activity of telling stories, they become able to operate more effectively, making sense of past experiences and identifying opportunities to develop projects that will raise levels of preparedness for similarly catastrophic events in the future.

2. Dialogue with diverse groups: 'Potential in every sector of society'

A second pattern of activity in which CCPR staff are engaged involves dialogue with diverse groups of people. CCPR is currently working on the explicit assumption that "there is potential in every sector of society" to contribute to achieving the objective of preparedness. This assumption has informed and guided CCPR's endeavor to position itself first and foremost within every segment of the NYU community. This endeavor is exemplified by a meeting on November 5, 2003 in which the deans from various NYU schools (including the Law School, Wagner School of Public Service, Medical School, School of Education, Arts and Sciences, etc.) were gathered so that CCPR staff could "ring the bell as loud as we can ring it, basically tell them how we are organizing here and start discussing initiatives which they might have."

CCPR staff are positioning themselves strongly outside of the NYU community too, assembling an advisory board that currently includes members of city, state and national government as well as influential individuals in the private sector.[11] Beyond this group of advisors, CCPR engaged during the period of data gathering in dialogue with hundreds of individuals from dozens of organizations, gaining input from everyone from academics and policy-makers to firefighters and video game designers.

CCPR staff cite another project under development as an example of how the potential for collaboration can emerge in quarters of society which do not at first glace appear to be relevant to the field of preparedness. By bringing

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[11] In particular, this list includes the Commissioner of the New York City (NYC) Police Department; the Senior Advisor for Counterterrorism to the Governor of New York State (NYS); the Director of Disaster Preparedness and Response from the NYS Governor's Office; the Director of the NYS Office of Public Safety, a national transportation expert from Parsons Brinkenhoff, the Commissioner of the NYC Office of Emergency Management, the Commissioner of the NYC Fire Department, an executive from the Greater New York Health Association, and the Chief Security Office from Goldman Sachs.

together the diverse disciplines of computer science, law and ethics, the project's conceptual framework emphasizes that the values of democratic, civil society can be embedded even in the design of technologies. If we accept that catastrophe preparedness bears upon the values that uphold civil society; and if we accept that technology design can actually play a major role in the capacity of independent, autonomous actors to organize and act in the collective forms that are appropriate in the event of a catastrophe; then it becomes clear how this project framework might allow the CCPR staff to pose the question of whether the re-development and deployment of (to choose a particularly poignant example) medical technology might not be a fruitful area within which innovation should be supported and encouraged by grants from the federal government.

These examples provide descriptive evidence of the extent to which CCPR staff have engaged in dialogue with a variety of communities as they seek to handle the ambiguities that confront the field of preparedness. In short, CCPR staff are convinced that the objective of preparedness, however it may be defined, cannot be approached much less attained unless all sectors of society are somehow involved in the conversation.

3. Integrated experience

A third pattern of activity in which CCPR staff are engaged involves the exploration and development of technologies and processes that provide people in the preparedness field with training that integrates as many aspects of the projected catastrophe experience as possible. In this sense, while

storytelling and dialogue with diverse groups are important, additionally important is the development of an embodied awareness of the many variables that can be expected to change dramatically in the event of a catastrophe.

Thus on one hand, CCPR is engaged in a virtual world software development project that seeks to develop such an embodied awareness, stating that:

> The idea here is that you would have a customizable virtual simulation training game that would target players all along the emergency response hierarchy from first responders to agency decision makers. Since the game would be customizable, you could put GIS and building data on every structure in NYC. This interface would then function not merely as a training tool but it would also be of use in the event of an actual catastrophe response.

On the other hand CCPR is engaged in the review of real-world event simulations such as those undertaken by the NYC Fire Department and the National Emergency Management Association (NEMA):

> We visited the NYC Fire Department training campus on Randall's Island last week, where they have a bunch of regular classrooms, and then they have a two- to three-block long street scene, like a Hollywood movie set, in which all the different Manhattan building types are represented. In a training exercise, the trainees pull up to the set and there is a guy in a tower who controls what happens, from pyrotechnics to walls falling down, etc. This is the kind of thing that needs to be developed and effectively integrated into the training and development of all emergency responder personnel, and special care needs to be taken to ensure that individuals and organizations have the right kind of incentives to use the facilities.

Another similar example is TOPOFF, a series of catastrophe response exercises that is coordinated nationally by the National Emergency Management Association (NEMA), involving all the 'top officials' who would participate in the consequence management of terrorist attacks. The first three major exercises took place in 2000, when key personnel simulated a plague attack in Denver, a mustard gas attack in Portsmouth, New Hampshire and a radiation leak in Washington DC. The second set of exercises, TOPOFF 2, was conducted in 2003, with 18,000 people from 103 US government agencies and 19 Canadian departments participating in seven different exercises, including scenarios such as weapons of mass destruction attacks, cyberterrorism attacks, dirty bombs in metropolitan areas, and additional chemical and radiation attacks. CCPR staff cite the findings from these simulations that were presented at the NEMA Conference on September 9, 2003, including the assertions that "the speed of decision making was often outpaced by the tempo of the news" and "changes in the HSAS [Homeland Security Alert System] to "red" have significant economic and social implications that have not yet been completely explored."[12] In particular, CCPR staff say that:

> The thing to keep in mind about these TOPOFF findings is that they emerged in and through the physical experience, on behalf of thousands of participants, of a simulated catastrophe. In that respect they are valuable and revealing of the ways in which the conditions faced directly by first responders might change depending on how they are reported on and understood by people far from the front lines. But in the event of a real

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[12] Source documentation provided to authors by CCPR. For additional information, cf. http://www.ojp.usdoj.gov/odp/library/bulletins.htm

catastrophe, the potential parameters for variability are even greater. For example I read a report today that said in the event of bio terror attack, 30-40% of health care providers won't show up to work. So the lessons learned from TOPOFF need to be evaluated in that light, where the viability of the response strategy depends directly on ensuring that the 60 to 70% of responders who will in fact show up have been through the drill and know more or less what physical activities they might be called upon to perform.

Thus as CCPR staff engage both in the development of virtual gaming environments as well as in the development and refinement of scenario training drills, they recognize the importance of creating preparedness training processes that are integrated as much as possible in the daily realities of the responders. In practice, this integration may face a number of obstacles, including relatively mundane aspects of organizational reality such as incentive structures:

> The problem with the fire department training is that when the guys are mandated to go there for training, they aren't in a position to get the overtime hours they stand to get if they're on active duty, so the incentive structures are not in line with the training goals.

In light of this story, the challenge of preparing individuals and organizations for catastrophes involves not only the design and development of learning environments that provide an embodied experience of simulated catastrophe, but also the effective integration of that embodied experience into the everyday (i.e., non-catastrophic) work reality.

We can now end the case illustration with a short summary: as CCPR staff seek to handle the ambiguities that pertain to catastrophe preparedness,

they engage in activities that involve storytelling, dialogue with diverse groups of participants, and integrated experiences such as virtual gaming and disaster simulations.

Case Discussion

First order findings

The illustrative case data presented above describe the patterns of activity experienced by staff of the Center for Catastrophe Preparedness and Response (CCPR) as they seek to develop catastrophe preparedness in collaboration in local, regional, national and international networks of people. In the context of an emerging field, and to the extent that CCPR staff are prominently positioned in the field, we suggest that these activities provide a meaningful indicator of what other individuals and organizations might currently be doing to understand catastrophe preparedness, and thereby, to become more prepared. Thus we should be clear that the case data cannot, strictly speaking, be generalized to describe a population of similarly-acting individuals or organizations. Neither are we at a stage in our research process where we can begin to formulate predictive hypotheses about catastrophe preparedness based on the case data. Instead, and in keeping with our chosen method, we present our findings below as interpretations of the descriptive case data.

1. *At the limits of science, values*

In empirical philosophical logic, the term 'ambiguity' refers to contradictory compossibles. For CCPR staff, working with this ambiguity in the field of preparedness, the case data indicates there are contradictory and compossible measures of success, and each individual measure stands to be obviated by the unforeseeable event that catches us unprepared. Similarly, the data indicates that boundaries of the community (marked by the aforementioned 'us') are contested in a political sense with respect to responsibility, and difficult to resolve analytically or ethically. Finally, the open question in the field of preparedness of 'what should be done?' brings the problematic character of the ambiguous logic to the forefront: there is no existing predictive theory that clearly indicates how to become more prepared in the future, and there is no assurance, in the face of the previous two ambiguities, that such theory is possible at all, much less soon in coming. In short, the challenge of preparedness that confronts CCPR appears to be irresolvable by purely scientific means, to involve a wide range of people and organizations, and to require concerted attention for the foreseeable future.

CCPR staff thus pose the question: since we cannot know with any certainty what the most effective thing to do is, what should we do? What do we think the right thing to do, the best thing to do under the circumstances? For whom is it the best thing to do? Who should do it? How should it be done? Such questions can of course not be answered in this paper. And yet, to the extent that the case data illustrate how such questions arise in the field of preparedness, we find that *the tactical challenge of preparedness calls for moral reasoning as well as scientific understanding with respect to catastrophic events*.

2. Diversity and dialogue

Thus we find further that the ambiguity that pertains to community and responsibility is distinctly ethical. The second-person narrative form communicates this point most effectively: if you are the health care worker who sees a news report of a catastrophic bioterror attack on your city, and you are deciding whether to flee or report to work, what are your ethical responsibilities? To the victims? To your co-workers? To your family? To yourself? Your 'higher power'? Again, such questions cannot be answered here – the point is that in the field of catastrophe preparedness, organizations and individuals who seek answers to such questions find themselves frequently, and perhaps naturally, in dialogue with diverse groups of people about ethical obligations. In this light, the challenge of integrating local, state and federal agencies in a training exercise, much less an actual response to an hypothesized million casualty event, appears to involve the differentiation of self from other, the negotiation of identity and difference. This negotiated differentiation (in its simplest organizational form, the affirmation of 'we'll do this') takes place in and through the practice of dialogue. CCPR's experience provides evidence that the preparedness field may currently be characterized at the level of its activities of a complex series of dialogues, interactions between people who do not normally talk with each other but appear to share the common interest of becoming more prepared for catastrophic events.

In this sense, while the ethical implications of dialogue between diverse groups of people merit additional consideration, still there are important tactical implications as well. Again, CCPR staff insist on the notion that 'there

is potential in every sector of society' to contribute to the objective of preparedness. *We find that this claim underscores the need for adaptive practices within the emerging field of preparedness, and that it posits dialogue as an effective means for diverse communities to develop adaptive practices in the face of unresolved ambiguities.*

3. Embodied awareness

We find furthermore that the case data indicate that moral reasoning and dialogue must be supplemented with 'blended learning' approaches that provide physically and virtually simulated experiences of catastrophic events to individuals and organizations that seek to become more prepared. Indeed to the extent that social and affective dynamics are implicated in catastrophe preparedness and response, a purely cognitive learning approach cannot be considered sufficient. This finding is not restricted to the first responders, but appears to pertain equally to decision-makers and government agency officials. In this light, preparedness appears to involve not only moral reasoning and dialogue with diverse groups of people, but additionally, *a kind of embodied awareness that can only be trained and developed through learning approaches that integrated cognitive, social, emotional and perceptual dimensions of experience.*

Second order reflections

Recalling and translating our guiding question from the introduction: *what theoretical or practical model of strategy is most meaningful for people who engage in moral reasoning, dialogue with diverse communities, and integrated*

experiences with respect to catastrophic events? In order to answer this question, we now turn slightly away from the case data and consider the significance of our descriptive data in light of the existing literature in the field of strategic management studies. In particular, we inquire whether there is a concept or a stream of research that might provide an explanatory framework for our interpretative findings.

1. Contributions and limitations in the existing strategy literature

First and foremost, the field of crisis management must be acknowledged as a source of possible explanatory insight into the case of CCPR. Prominent early work in this field (Mitroff, 1986; Mitroff *et al,* 1987; Mitroff, 1988) responded to industrial disasters such as the 1984 Union Carbide accident and the 1979 Three Mile Island accident by developing diagnostic and analytic tools to enable the effective management of such crises in the future. Other early work in this field examined the importance of unlearning for effective crisis management (Nystrom & Starbuck, 1984), and on a similar point, the concept of sensemaking (Weick, 1988; 1993) has been developed to explain the relative effectiveness of teams and organizations that deal with crises on a regular basis. We believe that such concepts provide significant explanatory power (see for example Exhibits 1-5 from Mitroff *et al*, 1987) for the case of CCPR:

At the same time, we suggest that such models do not adequately address the question of value. Thus in recent work, following the events of September 11 and contributing to the same contemporary discourse as CCPR, just as the question of value is raised – "deliberate evil actions…[destroy] our deeply held

beliefs about people, society and business" – the argument quickly turns to the "need to develop special skills to come to grips with abnormal accidents", completely sidestepping the question of what those values might consist of, where they might come from, and how they might change in the future in and through the process of becoming more prepared (Mitroff, 2003: 111). In this light, we hope our present considerations might extend the crisis management literature by presenting the finding that at a certain point, even the best analytic or diagnostic tool might cease effectively to guide decisions and actions in the event of a catastrophe. And at that point, we find the CCPR case illustrates the importance of addressing the role that values might play in catastrophe preparedness and response.[13]

A second obvious point of reference is the literature within strategic management studies on scenario planning. From its origins in practice, scenario planning has become a well-established concept in strategic management studies (e.g. De Wit & Meyer, 2001; Guth, 1985; Montgomery & Porter, 1991). In this literature, the uncertainty that derives from contingencies in external variables is conceived of as the most prominent challenge for strategic management. In response to this uncertainty, scenario development involves an exploration of reasonably possible avenues for the future (e.g. Schoemaker, 1993, 1995; Schwartz, 1991; Van der Heijden, 1996; Hodgkinson & Wright, 2002). Assessing the effectiveness of scenario development raises questions about the relationships between intentions, actions, and effects. In this light recent research has embraced the heritage

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[13] Outside the field of strategic management studies, here is a parallel tradition in the social sciences that deals with such issues explicitly in affective terms. For an early and influential source, cf. Bettelheim, B. (1943) "Individual and Mass Behavior in Extreme Situations", *Journal of Abnormal and Social Psychology*, 38: 417-452.

of social constructionism and begun to explore how organizations might 'enact' their environments (McKinley & Mone, 2002). But in spite of these preliminary attempts, the issues of embodied action and blended learning have not to our knowledge been fully explored by the scenario planning literature. We suggest therefore that the importance of embodied experience that we found in the case of CCPR might inspire additional research that explores how the practice of scenario planning might be enhanced in and through a blended learning approach that integrates as much of the catastrophic scenario as possible into the everyday life of the planners.

Finally, with direct respect to the issue of values, it must be acknowledged that ethical issues have frequently been woven into the management discourse[14], and that the particular area of corporate social responsibility has been receiving considerable popular attention in response to recent corporate scandals. Research in this area has been significantly inspired by ecological sustainability paradigms (e.g., Purser *et al*, 1995; Starik and Rands, 1995) as well as theories of moral development that undergird stakeholder analyses with notions of universal human rights (especially following Kohlberg, 1981). Additionally relevant to our second finding is a stream of research adjacent to business ethics and corporate responsibility that has sought to understand the importance of dialogue and culture with respect to handling change (e.g., Scharmer, 2001; Schein, 1993).

The extent to which these issues have been integrated into strategic management literature is however unfortunately limited. Evidence of this situation can be found in the *Handbook of Strategy & Management* (Pettigrew

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[14] For a historical sampling of such literature that demonstrates the range of both theoretical and practical considerations cf., Baumhart, 1961; Brenner and Molander, 1977; Trevino, 1985; Weaver *et al*, 1999).

et al, 2001), where the chapter on social responsibility starts with the question: "Some readers might be wondering: Why include a chapter on business ethics and social responsibility in a handbook on strategy and management?" (Whetten *et al,* 2001: 373). Of course, the authors go on to answer that question, and we generally agree with and accept their claims that 1) organizational science can benefit from a better understanding of responsibility-related issues, 2) that the contemporary business landscape is fraught with conceptual and ethical challenges that should be of interest to scholars, and 3) that the social responsibility literature contains many new opportunities to develop and extend the existing strategic management literature in particular (ibid). We suggest only that these possibilities have not yet fully been pursued, and that for the time being these disparate strands of different discourses do not adequately explain our case findings.

In sum, we suggest that the existing literature in the field of strategic management does not provide a conceptual framework that can explain the data (the ambiguities and CCPR's activities) nor our first order findings. Phrasing this claim from the perspective of CCPR executive staff, it appears that there is no existing model of strategy that can effectively serve the need that is currently emerging within the preparedness field for moral reasoning alongside science, dialogue with diverse groups of people in spite of conflicting interests, and the cultivation of embodied awareness that might enable more effective responses to totally unexpected and catastrophic events.

2. Practical wisdom: a rich tradition in adjacent literatures

If we reach slightly beyond the strategic management and organizational literatures, into the fields of psychology and philosophy, we find a concept that appears to provide an explanatory framework for all three of our case findings: *practical wisdom.*

This concept has been around since Aristotle, who famously defined it as the virtuous habit of making decisions and taking actions that serve the good of the polis (1962). Aristotle was careful to differentiate practical wisdom (*phronesis*) from scientific understanding (*episteme*, appropriate to the unchanging laws of the natural world) and cunning intelligence (*metis,* appropriate to those who seek advantage for its own sake, like military generals and rhetoricians), claiming that neither science nor cunning was appropriate to the complex human social world, where decisions and actions may be judged on moral grounds. This classical heritage has significantly influenced the development of Western civilization, but in modern times scientific understanding has taken prominence over practical wisdom as the goal of education and the bedrock upon which strategic and political decisions are made. More particularly, the modern academic field of strategic management studies has emerged primarily within the paradigm of scientific management, ignoring the concept of practical wisdom almost completely.

However, the concept of practical wisdom has been taken up with renewed vigor in recent years by researchers in the fields of law (e.g., Kronman, 1995; Silva Marques, 2002), political science (e.g., Smith, 1999; Stern, 1997; Blaug, 2000), philosophy (Gadamer, 2002 [1960]; Rorty, 1979; Macintyre, 1984; Ricoeur, 1986; Gallagher, 1993; Abizadeh, 2002;), education (e.g., Noel, 1999), medicine (e.g., Hoffman, 2002), sociology (e.g.,

Bourdieu, 1998) and organizational theory (e.g., Tsoukas and Cummings, 1997; Lynch, 1999; Eikeland, 2001; Calori, 2002; Clegg and Ross-Smith, 2003). In particular, we find that the theoretical and empirical research of psychologist Robert Sternberg (1998, 2001) merits attention as we seek an explanatory framework for our case findings. In a single sentence that does a remarkable job synthesizing elements of these various streams of literature, Sternberg defines practical wisdom as:

> The application of tacit knowledge as mediated by values toward the achievement of a common good through a balance among multiple a) intrapersonal, b) interpersonal and c) extrapersonal interests in order to achieve a balance among a) adaptation to existing environments, b) shaping of existing environments, and c) selection of new environments (Sternberg, 1998).

It remains out of the scope of this paper to parse and discuss all the terminological and conceptual distinctions embedded in this definition. However, it appears on reflection that the concept of practical wisdom, thusly defined in accordance with a tradition that stretches back thousands of years and across a wide range of contemporary fields, might provide an adequate explanatory framework for our first order case findings.

Second-order finding

We now offer a second-order interpretation, in light of these theoretical reflections, of our first order findings (Van Maanen, 1983) – insodoing, we seek to shift the emphasis of the paper from storytelling (through the words and experiences of CCPR staff) to theorizing (in the fields of catastrophe

preparedness and strategic management studies) (cf. Kriwet, 1997). In order to develop this theoretical interpretation, we revisit each of our findings in turn in light of Sternberg's definition.

We found first with respect to the case of CCPR that in the face of ambiguities that make it difficult if not impossible to identify and analyze the event of catastrophe and the objective of preparedness, decisions and actions must be guided by values in addition to the best available science. To the extent that practical wisdom is explicitly concerned with ethical obligations and the common good, thus it would appear to provide an explanation for the need for moral reasoning as a supplement to scientific understanding in the field of catastrophe preparedness.

Second, we found that within the preparedness field, dialogue with diverse groups of people appears to be an effective means of developing adaptive practices. To the extent that practical wisdom is explicitly and directly concerned with the balance of different interests, Sternberg's definition would appear to provide a conceptual framework to explain the experience of individuals and organizations who engage in adaptive dialogue as a method of handling ambiguous and conflicting interests among the diverse groups of people impacted by, and responsible for dealing with, catastrophes.

Third, we found that effective preparedness training appears to require blended learning approaches that integrate social, emotional, and perceptual dimensions of catastrophe response. Sternberg's definition appears to explain this finding to the extent that practical wisdom is explicitly founded on tacit knowledge that cannot be formalized into abstract principles or rules, but

remains always situational and contextual, tied directly to lived experience. It is worthwhile to quote Sternberg at greater length on this point:

> From a developmental standpoint…wisdom is not taught so much as indirectly acquired. One can provide the circumstances for the development of wisdom and case studies to help students develop wisdom, but one cannot teach particular courses of action that would be considered wise, regardless of circumstances. Indeed, tacit knowledge is wedded to contexts, so that the tacit knowledge that would apply in one context would not necessarily apply in another context. To help someone develop tacit knowledge, one would provide mediated learning experiences rather than direct instruction as to what to do, when (Sternberg, 1998: 351).

In other words, practical wisdom appears to explain why CCPR staff place such importance on the context-specific integration of preparedness training – namely because it develops the tacit knowledge necessary to respond in the event of a catastrophic event of which there was no cognitive anticipation and for which there is no explicit, strategic plan.

Thus as we interpret our descriptive case data through the theoretical lens of these second-order reflections, we find that CCPR staff are currently experiencing a *need for practical wisdom*.

Implications

In closing, we might phrase the above interpretative finding in normative terms for the field of preparedness as well as for strategic management as follows: *the practically wise habit of making judgements and taking actions that serve the common good may be developed through storytelling, dialogue*

with diverse groups, and blended learning approaches. And by engaging in these various activities, people can more adaptively handle the complex ambiguities that pertain to the challenge of preparedness.

But we cannot, strictly speaking, substantiate this normative claim with empirical evidence. Indeed, even if our interpretative finding is correct, and the concept of practical wisdom provides a explanatory framework for the illustrative case of CCPR, then more research is certainly necessary to define exactly how this explanatory frame might serve other individuals and organizations in the emerging field of preparedness. Similarly, our brief literature review in the preceding section would need to be extended and deepened in order to determine more precisely the significance of the concept of practical wisdom for the field of strategic management studies. Finally, a more comprehensive review of the practical wisdom literatures in adjacent fields must be conducted to identify other potential significance of the concept for strategic management studies. We suggest that these opportunities for future research have certain implications which merit consideration in closing.

For the field of preparedness

The general implication of the case discussion for the field of catastrophe preparedness is that practical wisdom can serve as a meaningful conceptual frame to guide and develop the capacity to respond adaptively and in the interests of the common good to a catastrophic event. Within that framework, and based on our phenomenological interpretation of the CCPR case data we offer the following three normative claims as a pragmatic contribution to the

field, in hopes of inspiring additional research and discussion of practical wisdom:

1) As the field of preparedness moves forward, individuals and organizations should strategically provide people with opportunities to gather, listen and learn from the stories told by others who have experience responding to catastrophic events, while sharing and discussing their own reflections on those stories.

2) Individuals and organizations in the field of preparedness should engage as often as possible and with as many different constituencies as possible in reflective dialogue about the values as well as the scientific principles on the basis of which practically wise actions may be taken.

3) Individuals and organizations in the field of preparedness should ensure 1) that those people who may be called upon to respond to a catastrophe (whether as emergency first-responders or as agency decision-makers) get training not just in a classroom, but in an environment that integrates the multi-modality of lived experience to as great an extent as possible, and 2) that such training procedures are, in turn, integrated as much as possible into the daily lives of those individual responders as well as the public whose interests they serve.

For the field of strategic management studies

Any implications of the case discussion for the field of strategic management would rest on the assumption that CCPR is a particularly acute

case of a generic problem that afflicts strategy-makers in all manner of organizations, especially in cases where complex dynamics reduce the planning horizon dramatically. As stated at the outset, we believe that the stream of literature that treats strategy-making as an adaptive, emergent process (again, cf. Mintzberg, 1998) provides ample evidence that such an assumption is justified. Working with that assumption then, we suggest that practical wisdom might provide a new horizon for theoretical and empirical research in the field of strategic management studies.

In short, we suggest that practical wisdom might provide a new conceptual model for strategic management as such. Following Aristotle's differentiation of *episteme* (science), *metis* (cunning) and *phronesis* (practical wisdom), we venture a broad generalization and suggest that the field of strategic management studies has consisted of an effort to develop *episteme* about *metis*. In other words, whereas strategic managers have sought competitive advantage, strategy scholars have sought to develop explanatory and predictive knowledge that would enable them to seek advantage more effectively. Aristotle's assumption that the methods and aims of epistemic science were inappropriate to the complex human social world has, of course, re-surfaced in recent years, and the status of the 'social sciences' has been called into serious question, especially with regard to ethical matters.[15]

In deference to these ongoing debates, we suggest that the field of strategic management studies might do well to embrace a model of *phronesis* that brings the cognitive, social, emotional, perceptive and ethical dimensions

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[15] In these so-called 'science wars', the two opposing sides cast each other as 'pre-Kantian shamans' and 'physics envy', respectively. For a clear exposition of the recent history as well as the stakes of this contest, cf. Flyvbjerg, B. (2001) *Making Social Science Matter,* Cambridge: Cambridge University Press

of experience to bear on organizational challenges while neither aspiring to establish eternal, universal truths nor succumbing to the pitfalls of cunning (viz., Enron, the extreme case of *metis* setting itself beyond the law). Indeed, in reference to the title of the 2004 Academy of Management Annual Meeting, "Creating Actionable Knowledge", we suggest in closing that the *practical wisdom* illustrated by the case of CCPR provides actionable knowledge not only for the field of catastrophe preparedness, but additionally for strategists in all kinds of organizations.

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