**MAPPING DECISIONS TO IMPROVE CRISIS RESPONSE**

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**ABSTRACT**

Judgment and decision making are key components of every response and most current contingency plans fail to acknowledge this fully. Decision Mapping is a concept that provides planners with the tools to identify and analyze key decision points present during the event timeline, and it prepares leaders to make quick and informed decisions. It provides an organized method to identify stakeholders, information needs, authorities, and consideration thresholds in a prioritized structure to give leaders the right perspective for balancing competing needs. It is a new way to approach contingency planning that goes beyond the listing of resources and views a response as a dynamic event with many uncertain components.

Crisis response in general, and oil and hazardous substance (OHS) spill response in particular, requires rapid decision making during a non-routine set of events. Successful response and recovery is highly dependent on the ability of the persons responsible for making appropriate decisions in a timely manner. This paper introduces Decision Mapping, an approach to improve the ability of leaders to make informed and coordinated decisions in times of unusual circumstance and great urgency.

“The DHS IG indicated that in the immediate aftermath of Katrina, decision making was mostly reactive, lacking planning or coordination.”

– Special Report of the Senate Committee on Homeland Security and Governmental Affairs

Proper response (execution of contingency plans) relies not only on pre-planned instructions but also on the judgment of those in key positions. All too often, key decisions that affect the relative success or failure of a response may be left to occur without systematic processes, may not be not pre-planned, or may only include a portion of the responsible stakeholders. Decision Mapping is a methodology that pre-plans for critical decisions so that they can be made efficiently and effectively. The Decision Mapping framework helps contingency planners and response leaders use the planning process to systematically break-down the key parts of expected decisions and organize them into job-aids that can be used for reference during an actual event. It does not take the place of judgment and experience, rather it recognizes that judgment and experience are necessary elements to successful response.

**CONTINGENCY PLANNING**

Emergency and crisis response planners develop contingency plans to script reactions to unusual events. Contingency planning attempts to reduce uncertain activities into a series of discrete instructions. The intent is to prepare planners and responders to deal with situations beyond normal capabilities, but within the regime of responsibility. When events are well-defined and occur within the planning parameters, this process is very effective. However, this planning process largely ignores the fact that OHS spills never quite unfold as planned and it ignores the dynamic nature of incident response. It lacks sufficient emphasis on decision-making and, for the most part, does not recognize the reliance on personal judgment in executing a response.

There is some recognition of judgment in planning for use of alternative clean-up methods, where plans address the need to make a rapid decision for applying dispersants or conducting an in-situ burn. Plans might include such basics as stakeholders, likely circumstances, and decision trees related to determining whether or not these approaches are the right answer. This type of general information is included to aid decision making because the best answer or approach cannot be determined until all the factors are known and expert judgment applied. OHS spill response is filled with many such decision points, most of which can be identified, but which action-oriented plans do not address in any systematic way.

**WHY MORE EMPHASIS ON DECISION MAKING?**

Three things introduce significant uncertainty into OHS spill response planning process:

- Limited knowledge about the nature of the events and an undetermined planning horizon (e.g., source, circumstance, timing)
- Complexity of the system to be addressed (e.g., priorities, resources, stakeholders, etc)
- Diversity and number of agencies and entities that have shared interests or responsibilities

This uncertainty necessitates that the planning process include adaptability and flexibility so that managers can execute appropriately in this difficult environment. It also necessitates an interdependence among organizations acting in this arena so that solutions make effective use of limited public and private resources and do not adversely impact each other through inadvertent transfer of risk.

The success of a response is greatly influenced by the abilities of individuals to make the right decisions. During a crisis event,
proper judgment becomes a tremendous challenge due to additional factors, such as:

- Loss of ability due to overextension of personnel
- Conflict over organizational domains
- Events that cut across jurisdictional boundaries

Unfortunately, the actual decision-making process is taken for granted, the appropriate preparation is not always completed and decision tools are not always available during a crisis. In many cases, actions are taken and the individual taking the action may not even realize that they are making choices (i.e., excluding one option by acting on another), and without a full understanding of their influence over the outcome.

PREPARING TO MAKE A DECISION – THE NEED FOR INFORMATION

Prior to making a decision, several critical questions need to be addressed so the decision-maker has as full an understanding as possible prior to being faced with a time critical decision.

- What is it that we are trying to do?
- Under what circumstances will we need to do this?
- What are the essential characteristics of this decision and how do we measure them?
- How will changes in these characteristics influence my decision?
- What are the range of outcomes for this decision?
- Who needs to be involved in this decision?
- What other decision points are we creating by making this decision?

Pre-planning for answering these critical questions brings about greater situational awareness and aids the decision making process. The Decision Mapping concept introduced here recognizes the necessity of these questions and provides an alternative planning framework that fills the gap left by current tactics-based planning methodologies.

DECISIONS IN A CRISIS

Decisions are made continuously during incident response by almost everyone in the organization.

Some are well recognized as key decisions and are treated as such (information is collected, options are openly deliberated), but far more actions (and therefore decisions) are taken by individuals relying solely on intuition. For some decisions, this is perfectly acceptable. But at most key decision points, a more systematic approach will lead to better results. Figure 1 shows a simple framework derived from a number of resources that represents some basic steps for successful decision making. While this is a simple approach, it is not widely employed. Most often, when faced with uncertainty, people will tend to jump straight to step 2 in this process, in the hope that they will get appropriate information to make a clear decision, and then they tend to rely on intuition when approaching step three. But collecting information (step 2) before analyzing the information needed (step 1) will lead to inappropriate influence of whatever information is immediately available. People will rely more on what they can get, rather than what they need. It may also lead to decision ineffectiveness due to the desire to collect greater amounts of information than what is actually needed.

FIGURE 1 - BASIC DECISION PROCESS

Reliance on an intuitive decision process can be flawed due to limited perspective and an unbalanced bias towards available information. The perspective with which one approaches a decision has a pronounced affect upon what information is collected. Different stakeholders would approach the solution to the problem in a different way, and when attempting to gather information to inform a decision, would look to different sources. This unnecessarily limits available options from which to select a solution, and it may also fail to appreciate considerations of the broader stakeholder community who may be impacted by the decision.

When faced with a problem, one intuitively begins to collect intelligence in order to improve the chances of making the right decision. In a crisis, the timeliness of a decision is a critical factor in the success of the outcome of the response to the crisis. At the onset of a crisis, it is possible to know information about the general case, but limited information may be known about the case at hand. Decisions made at this early stage often have almost complete influence over the outcome, but the outcomes at this stage are usually unclear. As time passes, additional information can be collected and it becomes possible to make a more informed decision, but the effectiveness of the decision may be diminished (see Figure 2). If too much time is spent gathering information in advance of a decision, any decision reached may have almost no impact on the outcome as events will have proceeded on their own natural path. There is a balance between the time spent information gathering and the advantage that the information provides. Pre-planning a decision allows relevant information to be identified and accessed more quickly, allowing decision makers to chose the right balance.

FIGURE 2 - THE BALANCE OF INFORMATION COLLECTION AND INFLUENCE

Using the dispersant example, if information is collected early (i.e., stakeholders are known and informed) and a decision is made immediately after a spill occurs, responders have almost complete influence over the outcome by being able to apply chemicals at any point during the spill. But if too much time is taken to gather information, influence over the outcome begins to diminish and flexibility is reduced. Eventually, if so much time is taken to know...
all information before making a decision to apply dispersants, it may be too late to impact the outcome. Many plans include some decision information for dispersant application in order to help responders prepare to act as quickly, and as informed, as possible, but Decision Mapping would go further.

**DECISION MAPPING**

Decision Mapping helps identify and organize information streams in advance of a crisis and improve embedded decision expertise which serves to allow decision makers to make informed decisions sooner while maintaining decision effectiveness. The process can help make any response leader faced with such decisions as port closure/opening, resource mobilization/priority, or safe haven, better informed so that they know what information is needed to support the decision, and where/how to obtain it or where/how to deliver it (if approval from another entity is required).

Figure 3 shows the conceptual outline of Decision Mapping, a process used to pre-plan and analyze potential decisions. More than a simple decision tree, Decision Mapping examines all parts of a potential decision in advance allowing a complete picture of inputs and outcomes to be formed so the best judgment can be made when the decision is actually needed.

**CONCLUSION**

Today’s contingency planning focuses on scripting events so that decision-making under duress is minimized. This approach provides value, but it ignores the reality that in these non-routine situations, judgment is needed and decisions must be made before contingency tactics can be executed. It inherently reduces the ability to make decisions when they are needed. These plans should be written to support decision-making and to aid the judgment of managers and responders. By mapping likely decisions (including stakeholders and information streams needed to support sound judgment) instead of simply prescribing actions, contingency plans would have the flexibility to adapt to the dynamic nature of these types of incidents.

Efforts should be made to increase the emphasis on effective decision making. A decision-based approach to contingency planning, such as Decision Mapping, can better prepare organizations to deal with uncertainty and to integrate stakeholders. Through the identification of decision points throughout the life cycle of an emergency, the necessary perspectives and information streams can be aligned to facilitate an effective response. This will also result in more capable responders who are able to adapt to the dynamic and indeterminate nature of crisis response.

**BIOGRAPHY**

William Healy is a Senior Associate with the management consulting firm Booz Allen Hamilton. Will has worked in the emergency preparedness field for the last 15 years, with a focus on salvage, oil spill response, and port security for clients such as Navy, Coast Guard, and TSA.