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SURPRISE!

From CEOs to Navy SEALs:
How a Select Group of Professionals Prepare
for and Respond to the Unexpected

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Summary

Nearly all professionals—including laborers, knowledge workers, and policymakers—must deal with the unexpected. Indeed, many organizations face an operational environment that is faster paced, more uncertain, and filled with more variables than it was even ten years ago. Some professionals must respond to changes in their environment quickly—sometimes instantaneously—which makes planning for the unexpected of critical importance.

Anecdotal evidence suggests that people in different occupations respond to unexpected situations, or surprises, in different ways. For example, every National Football League (NFL) coach develops a "playbook" that aims to catalogue and have a play ready for every possible situation that might occur during a game. In other words, the coach deals with the unexpected by trying to prevent surprises from being "surprises" at all. In contrast, a Navy Sea, Air, Land (SEAL) special forces member cannot possibly anticipate every type of situation that might occur in a military operating environment and therefore cannot catalogue all the "what if" scenarios. Instead, the SEAL prepares for the unexpected by focusing on important but broad parameters relevant to every mission: What is the mission goal? What is the route to the target? What are the primary threats the team is likely to face?

Such observations provoked questions about how different professions prepare for and respond to surprise, as well as an interest in deriving lessons on how professionals of all sorts can become more adept at planning for an uncertain future. This report represents an investiga-

tion into what diverse professionals believe creates surprise, how they respond to it, and how the effects of surprise can be mitigated.

To explore these issues, we explored existing literature on decisionmaking, used this material as context for developing a framework for thinking about how different professionals respond to surprise, and conducted discussions with a wide variety of professionals. (We have refrained from disclosing the names of persons with whom we spoke because part of our research approach was to promise participants anonymity to ensure their candor.) In our discussions, we asked questions that sought to highlight the techniques and tools each person relies on when responding to surprise.

Thinking About the Unexpected

To understand how people in different professions address surprise, we first categorized three types of "surprise encounters" faced by different professions. For example, some "high stakes" professionals, such as trauma surgeons, firefighters, and military special forces, regularly face unexpected situations with the potential for profound—often life-or-death—consequences. In comparison, a very large set of "quick tempo" professionals, including chefs, stock traders, professional coaches, and theatrical performers, operate in a fast-paced environment that includes many unexpected, but not typically life-threatening, events. Finally, "knowledge worker" professionals, such as chief executive officers (CEOs), politicians, and foreign service officers, may face surprises less frequently than some other occupations; however, decisions made and activities taken by these professions to respond to the unexpected can have profound long-term effects on the world economy, environment, and political situation. Table S.1 shows example occupations for each of these categories.

A Framework for Understanding How Different Professions Respond to Surprise

As we considered the differences in the ways that various occupations address the unexpected, we developed a framework for understanding

Table S.1.
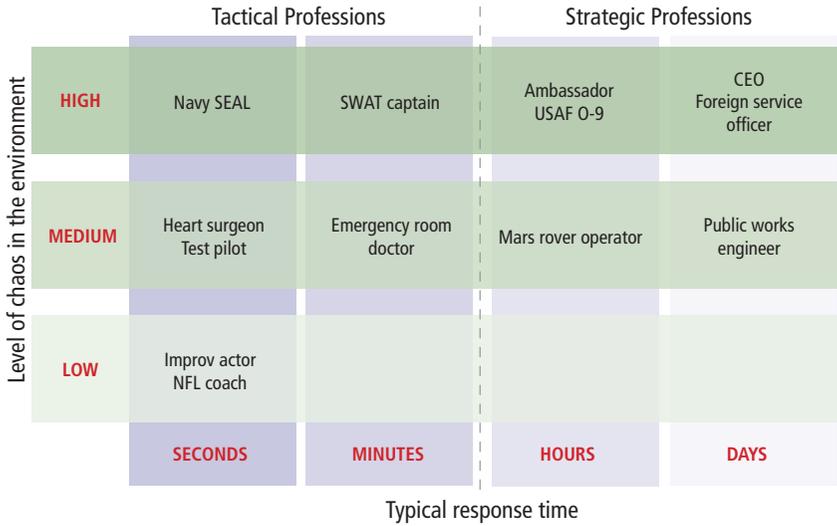**Categories of Occupations and Example Professions**

High-Stakes, Fast-Paced	Moderate-Stakes, Fast-Paced	Longer-Term Decisionmaking
Trauma surgeons	Improv actors	Diplomats
Emergency room physicians	Taxi drivers	Foreign service officers
Firefighters	Flight attendants	Military general officers
Combat pilots	Photojournalists	Space mission commanders
Arctic fishermen	PR officers	Civil engineers
Military special forces	Stock traders	Trial attorneys
Extreme skiers	Professional coaches	Politicians
Hostage negotiators	Chefs	C-level executives
SWAT team commanders		

how different professions respond to surprise. The framework recognizes that different professions' responses to surprise vary according to two key factors: *the time available to respond to an unexpected event and the level of chaos in the environment.* For example, some occupations, such as medical practitioners and military personnel, have to respond to an unexpected event within minutes or seconds while others, such as ambassadors and CEOs, might wait hours, days, or weeks before having to respond. Further, some professionals operate within highly controlled environments (such as a sports venue), while others, such as Navy SEALs, operate in an environment that includes a large number of factors over which the professional has little control (e.g., colleagues, terrain, weather, adversary movement, equipment, civilians), thus leading to a higher potential for chaos, the number of unknowns, and complicating variables.

Figure S.1 shows how we categorized different types of professions according to these two variables, *typical response time* and *level of chaos in the environment*, which are shown along the horizontal and vertical axes, respectively. Representatives from all the professions in the figure were included in the interviews for this research.

The framework allows us to make some observations about different types of professions. For example, the professions shown on the left side of Figure S.1 tend to be more *tactical* (i.e., involving touch labor, hand-eye coordination, physical activity), while the professions

Figure S.1
A Framework for Understanding How Different Professionals Respond to Surprise

		Tactical Professions		Strategic Professions	
Level of chaos in the environment	**HIGH**	Navy SEAL	SWAT captain	Ambassador USAF O-9	CEO Foreign service officer
	MEDIUM	Heart surgeon Test pilot	Emergency room doctor	Mars rover operator	Public works engineer
	LOW	Improv actor NFL coach			
		SECONDS	**MINUTES**	**HOURS**	**DAYS**

Typical response time

RAND *RR341-S.1*

on the right tend to be more *strategic* (i.e., involving knowledge capital). Figure S.1 can also be read from top to bottom. The professions experiencing the highest level of chaos (top row of the figure) tend to face surprises generated by other humans, while professions working in moderate- or low-chaos environments (lower portions of the figure) face surprises that are generated primarily by environmental factors.

Key Findings

Our methods for generating hypotheses and collecting data are described in detail in the main body of this report. The conclusions that we note below are based on data from a small set of interviews from exemplar professions, and there is always a danger of drawing a false conclusion from scanty data. Our main objective was to identify general trends across the professions and our discussions were sufficient in meeting that goal. As our series of interviews progressed, we started

to hear familiar narratives repeated, which was a good indication that we were reaching the point where conducting additional interviews would yield diminishing returns. Therefore, the observations and key findings that we describe below are based on our interviews with a limited set of professions, and the statements that we make are in relation to the group of practitioners we interviewed.

Is There a Set of Common Response Techniques Across Professions?

We identified four strategies that were common across all of the professionals we interviewed. First, we observed that they *rely on experience* when dealing with surprise. Experience is one of the best insurance policies against the negative effects of surprise because it allows people to recognize what is happening during the unexpected event and thus to respond earlier and more effectively. We also observed that they *try to reduce the level of chaos in their operating environment*, since reducing chaos also reduces the complexity and scope of the solution space. In practice, we found that professionals reduce chaos by eliminating as many variables as possible by fixing their values. We learned that they *try to use a measured response to surprise* (e.g., by keeping overconfidence and emotions in check, allocating resources in a measured way), which helps keep response options open as the surprise unfolds. Finally, we found that everyone we interviewed *values teamwork when responding to unexpected events*, including professions that some may imagine as "individually focused" professions, such as heart surgeons or test pilots.[1] All types of professionals rely on colleagues to help plan and prepare for surprise, scan for and report surprises when they occur, and refine and execute the response following a surprise.

Do Tactical Professions Respond to Surprise Differently Than Strategic Professions?

There were, however, important differences in the response approaches taken by those involved in tactical professions (e.g., medical practitio-

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[1]   As we describe later in the text, the imagery of a heart surgeon or test pilot working alone was a misconception on our part—a fact that we later discovered and corrected after speaking with the practitioners.

ners, Special Weapons and Tactics [SWAT] team members) and those involved in strategic professions (e.g., CEOs, foreign service officers).

First, strategists generally have to work harder than tacticians to identify and react to surprise. Generally speaking, strategic professionals have relatively more time to respond to surprises and often rely on others to detect and identify them. Thus, communication and coordination—though important for most professions—are particularly critical for strategists, who will typically use these approaches often and earlier in the response process.

Second, strategists tend to use a different response loop than do tacticians. Tactical professionals must often overcome emotions of fear and panic in order to successfully deal with a surprise. In contrast, strategists must work to contain anger and impulsive desires to overreact. We observed that tacticians typically rely on protocols to overcome panic and respond effectively using minimal analysis. A common tactical protocol involves three steps: 1) control panic; 2) buy time; and 3) revert to fundamentals learned in training and through prior experience. In contrast, successful strategists tend to use a four-step process to control emotion and facilitate teamwork: 1) control emotion and possible overconfidence; 2) initiate first-order steps to start the response; 3) convene a trusted inner circle of advisers and direct reports; and 4) disseminate a coherent longer-term response throughout the organization.

How Does Environmental Chaos Affect the Way Professionals Prepare for and Respond to Surprise?

We found that the level of environmental chaos strongly affects the way in which different professions prepare for and respond to surprise. Our interviews revealed four key insights.

In less-chaotic (and more-controllable) environments, professionals rely more on "what if" response plans that are thought out in advance, while in more-complex environments, professionals develop general response frameworks that are useful in a variety of situations. Professionals who work in the most-contrived (low-chaos) environments, such as athletic fields, face only a finite range of possible surprises and outcomes and thus are typically better able to plan

a response for nearly any event, as NFL coaches regularly do. Professionals who work in moderately chaotic environments like operating rooms or test plane cockpits rely on pre-planned protocols for the most likely events, as well as for some less common, but possible, surprises. However, there are too many unforeseen events in moderately chaotic environments to plan against every possibility, so these professionals also employ some basic response frameworks that they can fall back on if the surprise event is not covered by a more specific protocol.

The most challenging circumstances are faced by those who work in highly chaotic environments, such as a foreign embassy or behind enemy lines. Such environments can be so complex and unpredictable that it does not make sense to do much planning against specific surprise events. Instead, these professions develop and exercise a more general-purpose framework, or series of steps, that can be deployed whenever a major surprise is encountered.

The most complex and chaotic situations are caused by other humans, rather than solely by environmental factors. While the environment can introduce a wide range of factors that contribute to the level of chaos in unexpected situations, the actions of other humans are typically involved in the most-chaotic situations. Human actions are often unpredictable, especially when a large number of people interact with each other. When people are at the root of a surprise, the level of complexity increases, and this dramatically magnifies the difficulty of developing specific response plans ahead of time.

Once a surprise occurs, an effective response depends more on whether the surprise is *recognized* or *unrecognized*, not whether it is *known* or *unknown*. In moderate and highly chaotic environments, a key challenge is often to understand, or *recognize*, what is happening when a surprise occurs. That is, the range of possibilities is generally known, but the challenge is to recognize the features of a particular situation as it is happening. Once the nature of a surprise is recognized as something similar to what the practitioner has experienced previously, the response can be focused and precise (either a specific plan worked out in advance or the appropriate general response strategy), whereas the response to an unrecognized situation must be more tentative and generic.

A surprise caused by other humans most often comes from a third party, not a known adversary. For professionals in the most chaotic environments, their biggest surprises arise from the actions of a third party (e.g., a bystander, a civilian in a military environment) rather than a direct adversary or stakeholder. The intuitive explanation for this phenomenon is that people usually have a good understanding of their most direct threats; i.e., they understand the calculus that drives adversary or stakeholder behavior and can make appropriate plans to avert or respond to surprise. However, despite such preparations, professionals can still be open and vulnerable to less predictable third-party actions, even when that third party has no adversarial intent.

Recommendations

Our findings generated several recommendations on how professionals can prepare for and respond to surprise:

Learn from experience: Attract and retain the most experienced people. Nearly everyone told us that nothing substitutes for experience. Practically speaking, this means that teams and organizations seeking to minimize surprise also need to attract and retain the most experienced people, since they represent an organization's best general defense against surprise.

Address the negative effects of surprise. Professionals in any field can take additional steps to mitigate the negative effects of surprise, including:

- fostering collaborative tools that help share knowledge and experience across an organization
- developing mechanisms to encourage measured responses
- instilling the workforce with the mind-set that surprises can often be converted into both opportunities and learning experiences.

Assess the level of chaos in the work environment. Professionals who work in more contrived environments are typ-

ically able to develop a plan for most contingencies, and should devote most of their energy toward developing more-comprehensive response plans. Those professionals working in moderately or highly chaotic environments should develop specific response plans that focus on the most likely surprises and existential threats. They should also develop and exercise more generalized response frameworks to use when an unrecognized surprise occurs.

Prepare for "third-party surprises." While most tacticians probably do not engage in "alternative futures" exercises, they can benefit from the philosophy associated with those events. Toward that end, all professionals should spend part of their planning time specifically thinking about threats or surprises that could originate from outside their usual field of view. It may be helpful to engage a third party in this exercise to further expand the scope.

Beyond these broad suggestions, our findings also suggest some lessons targeted at strategic occupations.

Focus on building a network of trusted colleagues. Strategic professionals are often in charge of large groups of people or whole organizations, and therefore tend to be more reliant on a team approach to both detect and handle their surprises. Successful strategists therefore benefit from a network of trusted colleagues at all levels of the organization. This network can also function as "surprise sensors," greatly expanding the chief strategist's field of view.

Conduct regular future-planning exercises. Strategists can gain significant benefit from conducting regular exercises to identify alternative futures. When conducting these exercises, strategists should instruct the participants to adopt an open perspective and a very wide field of view, not focusing solely on known stakeholders, competitors, and adversaries, but also potential actions by third parties. While the exercise should seek to prepare for a large set of possible threats, the act of identifying all potential sources of surprise alone represents an important step toward mitigating the possible effects of surprise.