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The POP-DOC Loop: A continuous process for situational awareness and situational action

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ABSTRACT

Among the most critical challenges crisis leaders face is evaluating “the situation”—what is happening and what to do about it. Extensive scholarship on Situational Awareness (SA) has identified a gap: a disciplined process for achieving accurate SA. Further, SA only addresses the first half of that situation equation; awareness is necessary, yet not sufficient, unless linked to and integrated with meaningful decisions and actions. The POP-DOC Loop is a six-step SA tool that combines analysis and action into a continuous process. The analytic side is Perceive, Orient, Predict. The Action side is Decide, Operationalize, Communicate. POP-DOC builds upon Boyd’s Observe, Orient, Decide, Act, or OODA Loop. OODA evolves from and focuses upon military command-and-control contexts, though it is applied in other settings as well. The advance design of POP-DOC incorporates a wider range of human factors, including neuro- and decision science research, in order to equip leaders to build SA in high-stress, high-stakes, evolving, and unpredictable situations.

1. Introduction

Crisis management in government, business, military, and community settings—such as the COVID-19 pandemic—are among the most vexing challenges for executive leaders. Understanding “the situation”—what is happening and what to do about it—is a critical task for those crisis leaders (Marcus, Dorn, & Henderson, 2006). Consideration of contextual factors often falls under the rubric of “situational awareness” (SA), that is: the process of understanding and interpreting what to do about current circumstances. The term is traced back to World War I, when Oswalde Bölcke recognized and articulated the importance of acquiring an awareness of the enemy before the enemy attained a similar awareness ( Bölcke, 2009). Since then, the term has been referenced most commonly in aviation, as pilots make decisions in complicated and dynamic environments. The SA construct also applies to other situations, including emergency management, military command, medical decision-making, and football strategy (Uhlarik & Comerford, 2002). Uhlarik and Comerford (2002) suggest that although vastly different, these different purposes share common foundational characteristics, including dynamic and information-rich environments, time constraints, complex problems, the need for practiced expertise, and high consequence decisions. These characteristics are consistent with leadership through crisis scenario. Of course, leaders in strategic decision-making contexts—whether arising from crisis or in the normal course of business activities—must also gather situation awareness in a dynamic and complex environment that includes customer preferences, supply availability, investor interest, regulatory limitations, and other factors.

The Federal Emergency Management Agency (FEMA), which trains emergency managers in situational awareness concepts and techniques, recognizes the challenges of gathering, comprehending, and projecting information during times of crisis. These factors limit an individual’s capacity to acquire SA and forge from it the required Common Operating Picture (COP) (FEMA Emergency Management Institute, 2017). Some of the obstacles include data that is unknown or mis-interpreted, the failure of communication systems, the weaknesses in one’s mental model or approach, and overreliance on the default values and thinking (FEMA Emergency Management Institute, 2017). See Table 1 below for a brief overview of key contributions to SA theory to-date.

These obstacles, combined with the limitations presented by the three theoretical approaches described below, demonstrate the value of a framework that provides a systematic discipline for acquiring SA. The POP-DOC Loop - Perceive, Orient, Predict, Decide, Operationalize, Communicate - addresses these factors and links SA to appropriate decisions and actions. The model, which incorporates critical human factors, guides the leader’s data collection and analysis toward a logical progression of decisions, actions, and communications.

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2. Theoretical background

The discussion of situational awareness is robust in the scientific and military literature. Nevertheless, that scholarship on SA has been critiqued for its subjectivity (Gilson, 1995), its intuitive nature (Flach, 1995), and its lack of a coherent definition (Sarter & Woods, 1991). Stanton, Chambers, and Piggott (2001) suggest that the differences among definitions can usually be attributed to the prioritization of one of two categories: 1) the process of gaining SA or 2) the product of acquired SA. They also advocate for the inclusion of both parts in the effort to best clarify SA.

These differences have led to three different methods for defining SA (Stanton et al., 2001). The first is information processing. Dr. Mica Endsley, the former Chief Scientist of the United States Air Force defines this approach as: “The perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future” (Endsley, 1988). She explicates three distinct hierarchal phases of SA: 1) perception of the elements in the environment, 2) comprehension of the current situation, and 3) prediction of future status. Endsley asserts that SA is not measured by the processes necessary to acquire SA but rather by whether or not the individual achieved awareness (product). This definition is limited by utilization of psychological constructs not fully understood. It also does not account for the dynamic nature of SA (Stanton et al., 2001).

The second method focuses on activity at the individual level. The question is the process by which the individual determines the nature of tasks and in light of identified goals (Stanton et al., 2001). Bedny and Meister apply this approach in their Subsystem Model (Bedny & Meister, 1999), which includes eight inter-dependent functional blocks. Stanton et al. (2001) summarize the blocks into: 1) meaning, 2) image, 3) conditions, 4) evaluation, 5) performance, 6) criteria, 7) experience, and 8) model. Stanton et al. raise concerns about this model, including the dissociation between the blocks (e.g., from image to evaluation, and to the external world from performance).

The third method views SA as a perceptual cycle and focuses on the dynamic nature of SA. Adams, Tenney, and Pew (1995) proposed a perceptual model consisting of three elements: 1) the object (including the information in the external environment), 2) the schema (including the individual’s internal knowledge developed through experience and training), and 3) exploration (searching the environment) (Uhlirik & Comerford, 2002). This model portrays SA as an ongoing process without a concrete beginning and end.

Recognizing that acquiring SA during a crisis situation, such as the COVID-19 pandemic, is vital to leader decisions and actions, FEMA offers a course on situational awareness at their Emergency Management Institute. Three definitions of SA are referenced within their training, including Endsley’s three-level information processing model. SA is defined in FEMA’s National Response Framework as “the ability to identify, process, and comprehend the critical information about an incident – knowing what is going on around you [requiring] continuous monitoring of relevant sources of information regarding actual incidents and developing hazards” (Department of Homeland Security/Federal Emergency Management Agency, 2016). The definition in the FEMA National Incident Support Manual is outcome oriented, “a result of comprehensive information collection, analysis, and dissemination in a context relevant to the authorities and responsibilities of a particular organization level” (FEMA Emergency Management Institute, 2017; Endsley, 1988; Department of Homeland Security/Federal Emergency Management Agency, 2011).

These different approaches, including the contrasting emphases within the FEMA literature, begs the question: Is it possible to build a model that incorporates information processing, process, activity, the perpetual cycle as well as actionable outcomes?

Boyd’s OODA Loop, with its link between perception and action, is the forebear of many SA methods (Boyd, 2010): observe, orient, decide, act. It has been widely utilized as a tool for disciplined thinking and decision making in military, information technology, health care, and crisis response arenas, among others (Carlsson & El Sawy, 2008; Vasilev, 2015; Von Lubitz, Beakley & Patricelli, 2008; Wickramasinghe, Bali, Lehaney, Schaffer, & Gibbons, 2009). United States Air Force Colonel John Boyd was taken by the superior performance of U.S. fighter pilots in Korean War “dog fights”. (Curts & Campbell, 2001). He recognized that the ability of U.S. pilots to see their adversaries first and then move rapidly through decision-making to action allowed them to triumph, despite their slower flying aircraft. He codified those steps into the OODA Loop. He found that the pilot who moved through the OODA Loop most rapidly had the decisive advantage over the slower actions of their adversary. The OODA Loop was later adapted to ground warfare. Boyd gained the reputation for developing a “revolutionized military strategy” (Curts & Campbell, 2001).

While the original OODA Loop provides a structure and process for thinking, decision-making, and action, its application is limited. It certainly pertains to command-and-control military settings with a clear and focused mission. Boyd expanded the OODA Loop from its origins in aerial warfare to broader relevance in general combat situations (Brehmer, 2005). Others supplemented the model with added steps, including the Dynamic OODA (DOODA) Loop (Brehmer, 2005) and the C-OODA Loop that incorporates cognitive aspects of command-and-control (Breton & Rousseau, 2005), and other variants.

The original OODA Loop did not fare as well in its relevance to non-military situations, including corporate environments, which involve a complex web of inter-connected tasks and missions (e.g., Richards, 2004). Boyd, after all, concentrated upon a specific set of circumstances and was less interested in general theory building (Brehmer, 2005). Even recent adaptations of the OODA loop aim at more complex and dynamic military scenarios, acknowledging the need to further address remaining gaps in the model. (Breton & Rousseau, 2005). For example, the Modular OODA loop (M-OODA), builds cognitive functions and human decision-making capacity into the framework. However, it remains similarly limited in its adaptability and relatability to different components of the loop (Breton & Rousseau, 2005).

The M-OODA Loop (modular) provides support for elements of the POP-DOC Loop introduced in this paper. M-OODA accounts for complexity, feedback loops, and cognitive functioning in its construct. While M-OODA’s modules serve as “building blocks” to the larger system, each component functions as a separate unit, unlike POP-DOC which regards each step in its continuous loop. M-OODA is designed for

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**Table 1**

| Contributor          | Key conceptual components |
|----------------------|----------------------------|
| Oswald Boelcke      | Origins in World War I aviation |
|                      | Critical to helping pilots make decisions in complicated and dynamic environments |
| Ulhark & Comerford  | Highlight extension of SA to other fields including crisis management, non-aviation military command, medicine and healthcare, and athletics |
|                      | Define common foundations across environments that call for Situational Awareness, including time constrained complex problems, high consequence decisions, and information rich and dynamic environments |
| FEMA                | Highlight common pitfalls to gathering SA, including unfamiliar data, communication challenges, deficiencies in mental model / approach, and overreliance on the “status quo” |
a “simple, dynamic system enabling the control of the tasks/processes already identified as representing a commander’s decision-making capacity,” within a military context (Breton & Rousseau, p. 15). The strength of POP-DOC is its relevance to a broad spectrum of situations. While inspired by OODA and its offspring, POP-DOC strives to guide analysis and decision-making in scenarios that defy the command and control that typify military order.

3. The POP-DOC Loop

Development of the POP-DOC Loop built from a simple premise: Leaders must be adept at operating in volatile, uncertain, complex and ambiguous (VUCA) situations (Alkhaldi et al., 2017). Whether these are government, business, military or community settings, developing accurate and pragmatic situational awareness is a fundamental responsibility of leaders. In the typical course of strategic leadership, especially in crisis scenarios, it is critical to achieve rapid assessment and then translate that awareness into responsive steps forward. Whatever the leader does will change the situation – for better or worse – so the SA process must be continuous and adaptive.

The POP-DOC LOOP expands and integrates aspects of its forebears as it builds SA. It incorporates information processing as its opening step, “Perceive.” As in Boyd’s original model, that information is oriented into patterns that build comprehension in complex situations, “Orient.” Cognitive processing translates situational awareness into anticipation for what could come next, “Predict.” Following Boyd, next is “Decide,” based on predictive analysis and accounting for how strategic decisions could project the response forward. “Operationalize” is more complex than Boyd’s “Act” since there is more than one pilot. There is a system of people to direct and coordinate. There is a system of people to direct and coordinate.

The construct of the POP-DOC Loop builds on advances in and insights from brain science (including psychology, neuroscience, and brain imaging). This body of knowledge informs a deeper understanding of cognitive functioning and its influence on leader behavior. Furthermore, this understanding enhances guidance to leaders grappling with crisis situations (McNulty et al., 2018). The widely used Incident Command System and National Incidence Management System do not incorporate the impact of neurological and psychological factors on leaders during crisis and disaster situations. The POP-DOC Loop does not replace these operational frameworks. Rather, it complements them with a robust tool that accounts for the cognitive functioning of leaders grappling with high stress and high consequence civilian crisis response decision making, devoid of simple military command and control (McNulty et al., 2018).

The “amygdala hijack” is among the more critical and relevant neurological and psychological factors affecting disciplined crisis leader thinking and decision-making (Brown, Dawson, & McHugh, 2018). The amygdala is the brain’s quick alert system that ignites survival instincts, often called the “fight, flight, fight.” In the face of a threat, perceived or real, the amygdala overrides brain functioning, literally hijacking higher functioning thinking. Therefore, in an emergency, when methodical cognitive capability is most needed, the brain shifts into individual survival mode. This can distract the leader, impairing the quick situational awareness and actions required during evolving, high stakes, complex crises (Genovese, 1986; Moynihan & Crean, 2009). Neuroscientists find that disciplined and practiced response frameworks can assist leaders to overcome the resulting impediments to focused decision making during crisis response (Pillay, 2011). Nevertheless, these insights on brain functioning are rarely incorporated into crisis leadership training and response systems (McNulty et al., 2018). Research has demonstrated that leaders can learn to intentionally regulate these emotional responses and thereby increase their capacity for decision-making in complex scenarios (McNulty et al., 2018; Damasio, 1994; Barrett & Gross, 2001).

4. The six steps of the POP-DOC Loop

4.1. Perceive

A common critique of the OODA Loop was its reactive nature (Breher, 2005): Observe as the first step focused on reacting to one’s adversary. To perceive, the alternative suggested in the POP-DOC Loop, is to engage in active awareness building. The difference between observe and perceive accounts for the process of attaining awareness, which requires intentional internal reasoning and understanding. In other words, one could observe something and not comprehend its meaning or significance. As it pertains to leadership, this perceiving also involves many actors operating in complex environments, whereas OODA is one person centric. In a crisis situation, such as that brought on by COVID-19, perceiving is a critical starting point for leaders of businesses, governments, and other organizations. Developing awareness of a situation active engagement in the changing realities of the external environment and its impact on the organization itself.

In the midst of crisis, the leader must overcome the amygdala hijack (Goleman, 1995) and ascend out of the “emotional basement” (Ashkenazi et al., 2009; Marcus, McNulty, Henderson, & Dorn, 2019, p.96) to respond to fast-moving circumstances and demands (McNulty et al., 2018). The senses, information absorbing, and data assessment help the leader make sense of the situation, a complex cognitive process. The amygdala hijack obscures that functioning. Perceiving is intentional, a focused undertaking that is purposefully launched. This is not simply the accumulation of data. Bazerman (2015) noted that these skills are essential: training and experience build this capability. The brain achieves perception by “matching expectations against incoming sensory data” (Eagleman, 2011, p. 48). That is, the brain perceives through exceptions to expectations. In the POP-DOC Loop, perceiving is both literal and figurative: it refers to the accumulation and initial sorting of data as well as the nascent comprehension of the situation. Kahneman (2011) described the predilection of the brain’s “fast” system for coherence (e.g., a lack of exception to the expected scenario): it constructs a plausible narrative based on the evidence at hand. If able to do so, the brain does little questioning of the quality of the evidence and stops looking for more. Kahneman called this phenomenon WYSIATI, or what you see is all there is. So, satisfied, the brain has limited motive or interest in finding missing information.

This further distinguishes observing from perceiving. Perceiving prompts the search for what is unseen and unknown. Engaging the mind’s “slow” system (Kahneman, 2011), the leader asks about the opposite of the initial perception. This exercise corrects for overconfidence and framing effects. Probing for relevant statistical data may remedy misperceptions caused by base-rate neglect.

Accurate perceiving is key to successfully traversing the subsequent steps of the POP-DOC Loop. It guides the distinction between important and distracting information. Poor perception confounds situational awareness and the application of that understanding into effective decision-making.

4.2. Orient

The attention of this second step is on assembling information into patterns. Beyond simple understanding, those patterns guide subsequent actions. What are the critical stimuli and what are the subsequent repetitive responses? Tracking and connecting these data points is particularly difficult when analyzing complex problems.

In Boyd’s original formulation, orient referred to setting the physical direction of one’s aircraft in order to have the best chance of eluding or
defeating the enemy. In later iterations, Boyd refined orient to include a more broadly applicable mental orientation, composed of one’s genetic heritage, cultural traditions, new information, previous experience, and analysis and synthesis of what one has observed. There are a number of internal filters through which information passes, and these predilections affect sense making. Boyd (1976) advocated for two mental processes to guide orienting in the face of complexity and novelty: destructive deduction, in which constituent elements are separated from their normal domains of meaning, and constructive induction, in which new domains of meaning are created by finding fresh connections and meaning among the separated elements. When internal consistency is achieved with a “match up with reality,” new patterns are discerned. An intentional process of destruction and creation repeats, so that eventually, one’s model of the situation is consistent with observed reality and verified through external means.

Building upon this process of trial and error, the “perceive” of the POP-DOC Loop has an additional function. Since patterns are repetitive, they will persist as long as the conditions that prompt them remain consistent. Furthermore, one could conjecture what changes could prompt shifts in the patterns. Applied to the current COVID-19 pandemic, dutiful orientation provides richer situation awareness by building a more robust understanding of the patterns of the pandemic’s impact on the world around the leader, and taking stock of what those ongoing patterns – or disruptions in those patterns – could mean for their organization. As applied to leader situational awareness, this is in an important precursor to subsequent decisions and operations.

4.3. Predict

The third phase of the POP-DOC Loop is the most challenging, in part because the fast system of the brain “makes us see the world as more tidy, simple, predictable, and coherent than it really is” (Kahneman, 2011, p. 204). The priming effect results in the fast system of the brain allowing unnoticed stimuli to have a significant effect on thinking (Kahneman, 2011, p. 225). High confidence in a prediction does not correlate to high probability that it is true (p. 212). Nevertheless, the difficulty in predicting should not be confused with its importance.

Predicting prompts attention to patterns that foretell the progression of the situation and the potential impact of interventions. It guides leaders as they anticipate and prepare for what likely will happen next. In the ideal, if pattern identification were perfect, all subsequent decisions and actions taken would be perfect. In reality, when information is incomplete and understanding is at best limited, these predictions provide an informed guide that adjusts as new information becomes available. The ongoing pandemic represents an environment where our collective understanding of the situation around us is dynamic and requires re-calibration frequently as new information (on the disease’s medical implications, societal responses, and potential future pathways) emerges. The leader aspires to the best possible outcome in the situation, and the predictions chart pathways to best case and worst-case scenarios.

How can brain science both improve predictive abilities while also tempering the tendency to become overly confident and speculative? Kahneman (2011, p. 240-241) argued that the human mind is prone to trusting intuitive predictions over statistically driven predictions. Because the brain seeks cognitive ease and coherence, our intuitive predictions can make sense to us even when they are inaccurate. It is easy to confuse this confidence with validity. “Sufficient regularities” temper intuitive predicting, prompting the leader to learn from mistakes and thereby, discern the inclinations to over trusting what seems to be true. Algorithms, even crude ones, are likely to outperform human intuition. Immune to predictive biases, algorithms are more likely to stick with the facts devoid of emotions.

Breton and Rousseau’s work on the C-OODA Loop (cognitive) (2005) offers three different decision-making levels in which predictability and leader thinking varies (Klein, 1993; 1997 as cited by Breton & Rousseau, 2005). Klein’s recognition-primed decision (RPD) model conforms to these three levels (Kahneman, 2011, p. 236–237). The first level is simple match. Cognitively, the brain’s fast system generates an initial plan or response drawing upon associative memory and experience. The elements and relationships between them are easily recognized and straightforward. Complexity is minimal and there is a normal course of action. The second level is diagnosis, when a number of hypotheses are developed and tested for probability and feasibility. Because this analysis is less exacting, relationships between elements are more complex than in simple match and causal relationships are unknown. The third level is to evaluate and implement courses of action. Consequences become more apparent as complexity, dynamism, ambiguity, and risk factor into the equation. Alternative hypotheses are tested. The slow system deliberately activates to evaluate if the plan will work. That check can happen on three levels, combining intuition, experience, and action (Ibid).

How do these insights apply to the predict step of the POP-DOC Loop? Imagination can be both an asset and a distraction. For the seasoned leader, this imagination becomes a tempered competency. Intuition is informed by unconscious factors that derive from the leader’s experience. That experience allows the leader to play out contingencies even before they are executed, predicting what is likely to succeed, what is likely fail, and why. The process encourages systematic and prudent trial and error. In this step, predict what might work, give it a test run, assess if it achieved the desired results, and if it does, expand it. If it doesn’t, go a different route.

The predict phase is best informed when the leader gathers input from others stakeholders and team members. Through this socializing process, insights, experience, and anticipated problems and solutions expand.

4.4. Decide

Decide is commitment to a course of action. It is the leap from analysis to action. Failure to advance to a decision risks paralysis by analysis. Moving too quickly or without adequate analysis risks failure. Doing so at the right time and with adequate support is an important leader judgement call. The move implicitly tests the accuracy of predictions.

Indecision is also an option, though it is by default a decision in its own right. In some measure, decision making processes are explained by Eagleman’s notion of the brain as a team of rivals: an emotional system and a rational system (2011, p. 111). According to Eagleman, there are no purely rational or emotional decisions: both systems are engaged in decision-making and must be balanced. It is incumbent on the leader and team members to understand and regulate their emotions, just as they attend to the hard data that drive decisions.

The process by which decisions are reached could also complicate the advance from analysis to action (Marcus, McNulty, Henderson, & Dorn, 2019, pp. 122-123). Regardless, a decision is often required. The COVID-19 pandemic has demonstrated that there can be immense costs to not actively transitioning into a state of decision-making – not making a decision is a decision itself. Rogers & Benko, 2006 laid out a framework for establishing decision models and assigning clear decision roles, arguing that “a good decision executed quickly beats a brilliant decision executed slowly.” The “Walk in the Woods” is another model of systematic, multi-stakeholder negotiation, consensus building, and conflict resolution. The process includes four steps: Self-interests, factors that motivate stakeholders; Enlarged interests, points upon which they agree and disagree; Enlightened interests, imaginative solution building; and Aligned interests, generating agreement based on shared interests. When incorporated into group decision making and problem solving, the Walk in the Woods facilitates efficient and effective decision-making (Marcus, McNulty, Henderson, & Dorn, 2019, pp. 201-217).
4.5. Operationalize

Socializes and activates the decisions of the previous step. While Boyd’s OODA was inspired by the solo pilot, POP-DOC is inspired by leaders with expansive operations that coalesce in a crisis scenario. It is therefore critical to establish connectivity of effort among the many stakeholders required to execute the plan of action and the many others affected by its implementation. To secure the necessary commitment and support, it is critical for the leader to establish a convening narrative that motivates and informs operational success. Operationalizing involves relationships, partnerships, and systems joined together to offer the best chance to generate the greatest number of positive consequences. The COVID-19 crisis has provided numerous examples of these positive consequences of operationalizing decisions in a way that creates shared motivation and involves leading across and beyond historical operating barriers such as garment makers and others voluntarily converting their manufacturing capacity to produce personal protective equipment (Ferry, 2020).

Pillay observed that distinct neural patterns factor in the deciding function and in the operationalizing function. Making a decision is one level of commitment. Putting it into action requires higher order risk-taking and raising the potential for precariously visible failure. What can help in making that leap? Pillay recommends action-oriented questions that include verbs that prompt movement. The word “differently” can also stimulate those regions of the brain associated with forward-looking action. For example, a leader could ask “What must we do differently to carry out this decision?” This linguistic clue orients the brain toward action (Pillay, 2011, p. 144–146).

4.6. Communicate

Key to Situational Awareness. It is fundamental to each step of the POP-DOC Loop and emphasized as the final step in the process, launching onto the next round. It is information in that informs the prior steps and information out that tests perceptions, patterns and predictions, just as it projects decisions and recruits support for operations. It includes the many platforms upon which communication occurs, its sources, validity, and utility. Not all communication is of equal value. It requires understanding the distinction between what is value-added and what is distracting; in a world where the volume of information to synthesize is ever-growing, this distinction is critical.

In after-action reviews and analyses of crisis scenarios, communication frequently is cited as an operational deficiency. This includes decision-making without proper information, failure to keep stakeholders informed about the situation, and in the worst cases, inaccurate information that hampers SA.

The communication in gathered in this final step of the POP-DOC Loop informs what will happen in the next round. When the intended objectives were achieved, the decisions and operations of the first round can be continued and potentially expanded. When it is learned that the perceptions, patterns and predictions were inaccurate, and that the decisions and operations did not accomplish their intentions, adjustments and changes can be made.

5. Application and managerial implications

The POP-DOC Loop is a method for Situational Awareness trial and error. When leaders operate in a volatile, uncertain, complex and ambiguous scenario, there are inevitably many factors that are known and far more that are unknown. Some of those unknowns are accessible, and it is up to the leader to ask the right questions to bring them into awareness. Other unknowns require further investigation and analysis. Nevertheless, a crisis situation requires quick SA and timely decision making and operationalization. Time matters in a crisis, and it is measured in lost lives, property, business, and viability.

Acquiring SA via the POP-DOC Loop is not accomplished in one run through the steps. It often is a repetitive and continuous process. For example, in the 2009 H1N1 crisis, leaders traversed rapid sequences of analysis and action as new modeling, epidemiological data, and population information filtered into the Centers for Disease Control and Prevention. During Hurricane Sandy in 2012, FEMA opened unprecedented lines of communication to bring information in through social media and dispatch information out about resources for emergency assistance, housing, and gasoline supplies. Going through the POP-DOC steps, the agency adjusted processes for situational assessment and for dispensing disaster assistance. The Transportation Security Administration, during the 2016 aviation security and wait line crisis, created innovative alliances with airlines and airports. The agency was thereby able to collect, for the first time, data on anticipated passenger volume and required workforce adjustments. Those alliances and the resulting operational changes significantly reduced wait lines and the dangers of large soft targets in airports, a significant concern following the terrorist attacks in the pre-security area of the Brussels airport.

The POP-DOC Loop equally applies to leadership of the COVID-19 response. By the time the virus reached the United States, there was already ample information to perceive about the evolution of the coronavirus in China and the strain on health care resources in Italy. Modelers were able to work the numbers and orient leaders to the hazards that lie ahead, projecting and predicting how it would affect population health. That information was presented to governors across the country, many of whom decided early on to adopt social distancing strategies in their states. Correlations are already being found between the timing of those decisions and resulting cases and deaths per million. Placing those decisions into operation – with unprecedented actions – demanded imaginative leadership as well as ample communication to foster public compliance. As the rate of new cases levels and moderates, and as businesses resume operations, continued cycles through the POP-DOC Loop provides leaders guidance for ongoing analysis and decision-making.

6. Future research

The POP-DOC Loop may have additional applications. These include as a method for discerning shifts in market conditions arising from technological, demographic, and other contextual factors. Integrating POP-DOC into a dynamic capabilities framework (Teece, Pisano, & Shuen, 1997), for example, may lead to more robust coordination, learning, and reconfiguration. A thorough exploration of this potential, however, is beyond the scope of this paper.

7. Conclusion

The POP-DOC Loop outlined here builds upon previous scholarship on SA. It integrates prior concepts and practices into a coherent model and integrated structure. In doing so, the POP-DOC Loop addresses three key limitations of prior models. First, it expands the application of SA and decision-making models beyond adversarial combat situations to serve leaders facing a variety of crisis scenarios in which command and control is not present, including leaders in dynamic business environments responding to the COVID-19 pandemic. Secondly, the POP-DOC Loop builds upon previously identified steps and activities, and places them into an ongoing adaptive sequence of repetitive processes intended toward frequent assessment and adjustment. Finally, this model incorporates human factors and recent brain science to explain, anticipate, and account for the complexities of social phenomenon. Crises fundamentally are about people: leaders, followers and the many people affected in the process. The better we understand them, the better will we achieve actionable Situational Awareness that makes a difference.

Situational Awareness is a dynamic and ever-changing process. By its very nature, leadership is an imperfect art, in which imagination...
requires risky decisions combined with unknowable outcomes. This is true of all types of leadership, including in the vital exercise of strategy development. It is especially true in crisis leadership. The POP-DOC design provides leaders a framework to rapidly identify and address the unintended or negative consequences of their analysis, decisions, and actions. This process of continuous improvement assists them in reaching the best possible outcome in a crisis.

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