In February 2004, two bright Army analysts wrote an article published in ARMY Magazine about the need for a culture of innovation because of the risks of war. “Failure does not mean Chapter 11 and an updated resume,” wrote then-Brig. Gen. David A. Fastabend and defense analyst Robert H. Simpson. “Failure means death and destruction for ourselves, our comrades and all that we cherish.” Their groundbreaking discussion called for a cultural change to advance the importance of innovation. Indeed, the Army has innovated and developed new warfighting capabilities, in large part because the nation was at war. In war, a gap between expected and actual performance of a plan, tactic or system creates a demand signal for change.

As the current condition of war fades into something not exactly peace and not exactly war, it is not clear the Army wants to keep fighting the same way after having learned lessons from the operational experience. The demand signal for innovation is shifting from the requirements of current operations to political, bureaucratic and strategic factors. The challenge for senior leaders is to limit the extent to which the Army’s agenda for change is dictated by the first two factors and to encourage the organization to be relentless in identifying emerging performance gaps as it prepares for future conflict. This latter task, what we call “anomaly-seeking,” is a way to do it.

How can Army leaders create conditions in which the organization values and seeks information that challenges the “knowns” of military science? The answers to this question will help the U.S. military’s approach to the uncertain future. Rather than “adapt or die,” it should seek to “innovate to thrive.” The fundamental challenge to leading military innovation in peacetime is engineering the competitive context to discover and validate new military problems. To do so, we must foster a culture and develop processes that value falsification of closely held assumptions. Thus, we recommend foremost that war games and simulations be structured to value learning, which must include results that contradict expectations.

It is insufficient to rely on strategic leaders to do this through sheer force of will. Leaders are unlikely to advocate innovations that are not aligned with the dominant culture and strategy. Senior leaders, however, have the responsibility to shape culture, and they can influence the competitive context in which a new approach is evaluated. The assumptions upon which a culture is based are changed through the demonstration of viable and preferable alternatives. In the case of innovation, the competitive context in which a new approach is evaluated is this demonstration. Clearly, innovations were required to address the peace enforcement missions in Bosnia and Kosovo during the last half of the 1990s and also during the stability operation phases of Operations Enduring Freedom and Iraqi Freedom.
Theories are starting points for discovery. They determine what questions we ask, what kind of information we value and what methods we use. When we have a theory, we deduce expectations or hypotheses about the world. Theories are never true, because they have not yet been proven to be true—or false. Strong theories produce results that we expect. Anomalies are observations that contradict the expectations of theory. When we accumulate enough anomalies, we decide that the facts are no longer in accord with expectations, and the theory is discredited. “How many anomalies are enough to provoke this change?” is a question for which there is no simple answer.

Creating and seeking anomalies can be uncomfortable because it requires challenging assumptions we hold dear. To paraphrase the late historian Elting E. Morison, military organizations are societies built around and upon the prevailing concepts of war. A challenge to an established concept is a challenge to the organization’s social structure.

Militaries operate based on theories of competition. Because human systems—of which war is one—are adaptive, all theories of action in those systems must be provisional. We should therefore be comfortable with the idea that our concepts of war might be wrong. Indeed, in war, every theory of competition will eventually succumb to new facts. Yet, in peacetime, absent the undeniable evidence of operational military struggles and failures, military organizations must synthetically produce “new facts” of war.

Seek Anomalies in War Games, Simulations

Validating new military problems in times of peace is challenging but not impossible. Militaries have numerous resources for identifying new problems that may not yet be legitimated by the organization’s culture: the development of military strategy and doctrine; intelligence about the plans and capabilities of actual and potential adversaries; academic research; policy debates in government; innovations in industry and consumer technology; and conflict and other events in other nations. Elements of the new problem can be explored and tested through war-gaming and simulation. Emphasizing the importance of effective war-gaming, historian and author Williamson Murray, a former Army War College and U.S. Military Academy professor, wrote: “The services must ensure that ‘lessons learned’ analyses aim at more than merely validating current doctrine and processes.” In making this point, Murray cites the example of the French conduct of war games during the interwar period, when they “created a system in which exercises and study occurred within narrowly constrained limits that insured the sanctioned approach would again prove out.”

Lest we dismiss this as a foible of foreign militaries, consider the following: In the summer of 2002, the U.S. military conducted a major war game involving both live exercises and simulations. The red force in Millennium Challenge 2002 was commanded by retired Marine Corps Lt. Gen. Paul Van Riper. In the initial stages of the exercises, Van Riper employed a preemptive, low-tech strategy that destroyed 16 blue force vessels and led to the suspension of the exercise. When the game was restarted, both sides were instructed to adhere to a script.

In an interview for a 2004 NOVA broadcast called “The Immutable Nature of War,” Van Riper offered his perspective of what happened: “It started out as a free-play exercise, in which both red and blue had an opportunity to win the game. However, about the third or fourth day, when the concepts the command was testing failed to live up to their expectations, the command then began to script the exercise in order to prove these concepts.” The U.S. military must be open and honest in its design and interpretation of war games—which, in turn, supports its development of doctrine.

Recognizing that organizations are adept at ignoring inconvenient information, strategic leaders must also acknowledge that as humans we prefer information that reinforces our understanding of the world. We ignore or explain away observations that contradict our basic assumptions. Every war game, simulation, conflict that involves other nations and adversaries, and examination of strategy (even in fiction) is an opportunity to discover an anomaly. All of that is pointless, however, if we have not determined what information would cause us to question our assumptions. This is the science of anomaly-seeking. It
The identification and exploration of anomalies is essential to military innovation. By valuing information that falsifies our assumptions and by seeking those inconsistencies in war games and simulations, the U.S. military will be more likely to discover those anomalies. The irony is that in seeking relentlessly to prove our assumptions wrong, over time we are more likely to have the right assumptions.