Marine Corps 1st Lieutenant Kristen Dang, platoon commander with Combat Logistics Company Alpha, Combat Logistics Battalion 3, Combat Logistics Regiment 3, discusses plan during Jungle Warfare Exercise 22, at Landing Zone Dodo, Okinawa, Japan, February 16, 2022 (U.S. Marine Corps/Federico Marquez)

Choosing Your Problems

By Michael A. Baker

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Complex problem-solving has long played a central role in the military tradition. As with most traditions, problem-solving approaches tend to evolve slowly even under environmental pressure. Whether in governance, the military, or industry, every practitioner responsible for complex planning and decisionmaking faces increasingly intense peer competition, accelerating innovation, and asymmetric threats. Winning in the complex competitive environment requires reexamining weaknesses and limitations in conventional practice. Recent U.S. military decisionmaking best practice examples, including Army design methodology and the joint competition continuum, represent progress in the face of competition and environmental complexity.[1] Unfortunately, current approaches inadvertently

propagate idealized traditional notions about intensely complex problems, with potentially disastrous consequences.

Planning and decisionmaking best practices targeting the complex competitive environment continue to promote a traditional "problem-elimination" mindset, leading practitioners to design and pursue idealized problem-free endstates.[2] That mindset exacerbates cognitive bias and introduces risk by failing to distinguish vision from concrete goals. This critique targets the way practitioners design and consider objectives or goals, not the tremendous and crucial effort practitioners put into identifying, understanding, and managing risks, problems, or contingencies.

The proposed alternative to problem elimination—problem selection—encourages practitioners to identify and pursue a future state for the relative desirability of its anticipated problems. Under any resource, knowledge, and capability constraint, organizations will manage certain problems more successfully than others. Practitioners must consider preferred, even desirable, problems while avoiding singular focus on eliminating undesirable ones.

The sections below lay out how a shift toward problem-selection thinking and away from problem-elimination thinking will help practitioners pursue vision and mitigate cognitive bias to better influence the future in the complex competitive environment. The expensive U.S. failure to adequately plan for the postwar aftermath in Iraq and enormously unproductive pendulum swings common in strategic policy and organizational problem-solving decisions provide historical context and evidence for the value of problem-selection over problem-elimination thinking.

The Challenge: End State Versus Vision in Military Best Practices

Changing the problem-elimination mindset begins with the way practitioners learn to frame their goals. Army Techniques Publication 5-0.1, *Army Design Methodology*, which explicitly instructs leaders on "critical and creative thinking abilities . . . to understand and solve problems," includes the phrase "end state" at least 90 times. The publication characterizes an endstate as the commander's desired future—the "desired end state"—providing a model example for practitioners:[3]

The country of Newland is a friendly democracy that no longer oppresses its people, threatens its neighbors, or provides sanctuary for criminal and terrorist organizations. The society has replaced the Newland defense force as the source of power for the democratic government. The Newland defense force is replaced with an army and navy that serve the society and protect the country from external aggression. Local and national police forces serve the population by providing law and order for society. World democracies support the new government by providing legitimacy and capabilities to the government of Newland and the society. In turn, the new government of Newland supports the rule of law among nations and human rights.[4]

Newland represents a theoretical placeholder for any destination to which the training audience might deploy, whether heading to the Middle East or the next fight. Notably, this model endstate does not include any notion of problems. By highlighting an endstate without problems, practitioners learn to conflate achievable operational outcomes with something more akin to vision. Is the example's endstate actually achievable? Although the distinction between endstate and vision appears semantic, it has important implications for understanding and addressing problem-elimination pitfalls.

Complex problem-solving frameworks must promote a distinction between concrete goals and vision. Whereas vision captures distant, aspirational, and ideal future conditions, concrete goals—as explicitly intended with endstates in doctrine—must be achievable and less distant. A great vision statement serves as a call to action, an animating force leveraged through inspired leadership, and a guidepost for initiative. Great vision statements almost never literally describe a future environmental state.[5] Failure to distinguish

between idealized vision and concrete goals leads practitioners into a cognitive trap as they visualize and plan with future problems obscured.[6]

Although the 2019 Joint Doctrine Note 1-19, *Competition Continuum*, helps discourage problem-elimination thinking by downplaying endstates as "unhelpful in the context of enduring competitions for strategic advantage," the term still finds its way into the guidance.[7] Despite asserting that "campaigning through cooperation is usually an enduring activity with no discrete start or end point," the guidance goes on to state:

Commanders and staffs must have an understanding of the environment . . . to derive a range of feasible and productive military options that lead to sustainable and acceptable outcomes for the U.S. and its partner.[8]

Calling on practitioners to pursue "sustainable and acceptable outcomes" contradicts the document's attempts to deemphasize endstates as unhelpful. The implication of an enduring outcome additionally undermines the document's principal notion of campaigning under "evolving strategic conditions," which defines the competition continuum itself.[9] Like design methodology, competition continuum accidentally nudges practitioners toward idealized notions about endstates while simultaneously overlooking the importance of vision. The document unintentionally promotes a classically optimistic problem-elimination mindset embracing traditional endstates over its expressly intended message of campaigning.

Promoting abstract or idealized thinking about objectives limits practitioners' imagination when it comes to both next steps and inspired leadership. Aaron Rapport demonstrates that more abstract or distant thinking about goals amplifies cognitive bias toward focusing on desired outcomes, while ignoring potential problems. Decisionmakers must push back against the notion of endstates when framing outcomes and instead separately embrace two important and distinct concepts encapsulated within

Figure 1. The Path Toward Vision
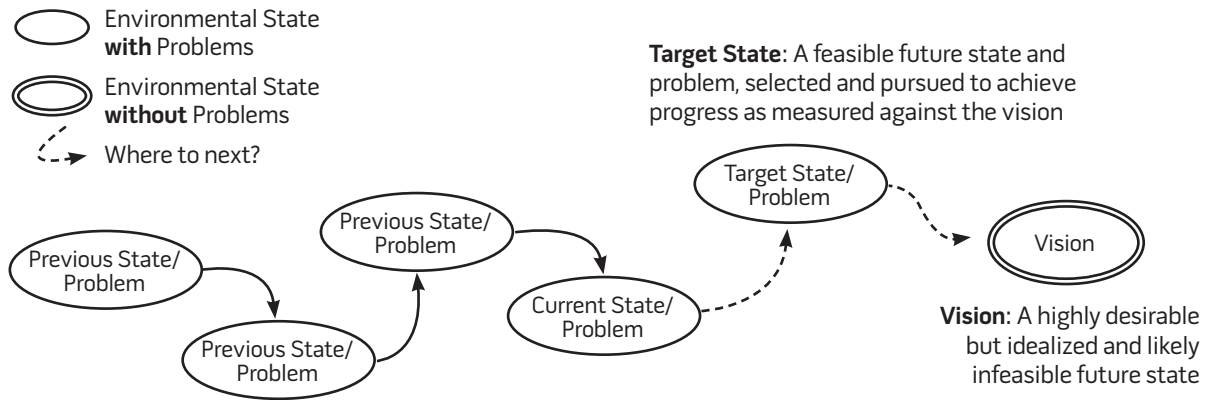
The path toward vision, distinguishing target states with problems from the idealized vision. The path is invariably characterized at each step by problems in the complex competitive environment.

it—realistically achievable "target states," which include anticipated problems, and a more forward-looking idealized vision. Concretely framed realistic target states help avoid what Rapport calls abstract construal bias. Practitioners will tend to focus on feasibility, not desirability, when pursuing objectives, while still leveraging idealized goals as vision (figure 1).[10]

Choose Your Problems

To distance practitioners from problem elimination and better align complex decisionmaking with the complex competitive environment, practitioners should strive to frame decisions as exercises in problem selection. Rather than designing courses of action (COAs) to

eliminate current problems in pursuit of idealized endstates, practitioners should leverage idealized vision as a guidepost for designing desirable but achievable target states while energetically forecasting and embracing future problems.

Starting with understanding the current state and its problems, practitioners should investigate potential future states and problems—the "Next State" in figure 2—along with potential COAs for achieving those states, along with the problems those COAs entail. While traditional criteria for evaluating COAs and risks remain valid, the relative value of each next state also depends on its relevance to progress toward the vision and the desirability of its problems. The decisionmaker selects

a COA along with its anticipated next state/problem, designating a target state/problem. Throughout the process, decisionmakers steer the environment toward their vision by designing and selecting actions and target states with problems.

At immediate and very local levels of action and decisionmaking, problem elimination does meaningfully apply. Problem elimination clearly serves as a valid tool in circumstances such as eliminating an immediate existential threat, repairing a piece of equipment, or delivering urgently needed supplies. However, when more distant and increasingly complex horizons dominate, practitioners must include problem selection when framing next states because any

Figure 2. Problem-Selection Planning and Decisionmaking
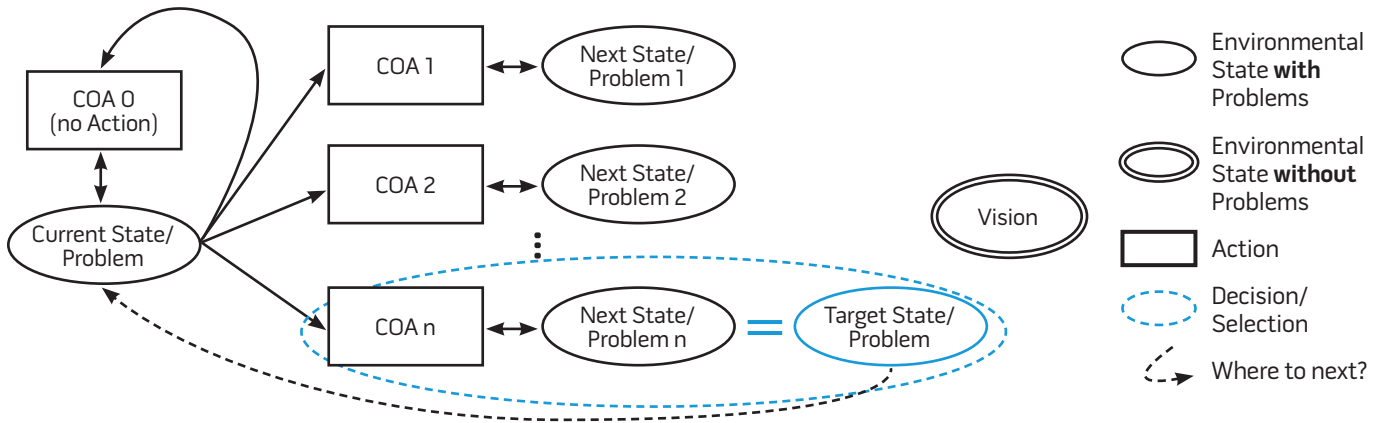
Target State/Problem becomes Current State/Problem in selecting next action

Operations Specialist 2nd Class Daisy Alvarado performs radio talker duties during simulated naval surface fire support drill in combat information center aboard guided-missile destroyer USS *Higgins*, South China Sea, October 13, 2022 (U.S. Navy/Donavan K. Patubo)

intervention in the complex competitive environment guarantees new problems. The idealized endstate is inappropriate for decisionmaking in complex competitive environments for this reason.

Polarities, Problems, and Structure. Meaningfully anticipating problems in response to actions in the complex competitive environment is much easier said than done, but even highly complex and chaotic environments exhibit cyclical patterns, trends, and observable actions and reactions. Economies have boom-and-bust cycles, coalitions form to overcome common threats, and divergent perceptions of intractable problems drive recognizable divisions across the political divide.[11] Structural patterns provide a foothold for analysis that can potentially

facilitate decisionmakers' option and goal framing, such as forecasting adversarial responses and weighing the costs of reacting to a provocation. Such patterns also help illustrate serious pitfalls with problem elimination.

With environmental structures exhibiting polarity, eliminating the current problem introduces a structurally inevitable companion problem that problem-elimination thinking obscures. In contrast, polarity highlights the strength of problem selection. By deliberately choosing expected problems, problem-selection practitioners will likely anticipate the companion problem and deliberately pursue the problem they can expect to best manage.

Polarities. Barry Johnson defines a *polarity* as a system with characteristics

that drive enduring and unsolvable problems for decisionmakers.[12] A polarity is a pair of structural elements—two poles—with ever-present tension. In Wendy Smith and Marianne Lewis's paradox theory of management, "contradictory yet interrelated elements" of the environment inherently generate real and enduring tensions as with quality versus cost, stability versus change, or flexibility versus structure. Smith and Lewis describe them as "elements that seem logical individually but inconsistent and even absurd when juxtaposed."[13] Each pole exhibits interrelated problems and desirable properties such that, paradoxically, eliminating the problems of one pole introduces the problems of the other. The paradox traps decisionmakers

Figure 3. Information Systems Polarity
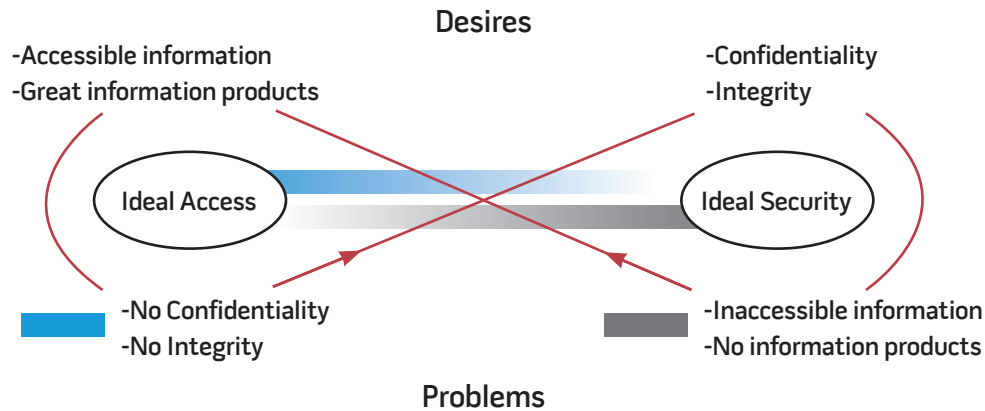
The two poles, access and security, are characterized by specific desired attributes and problems in tension. Problem elimination drives practitioners away from problems and toward solutions, frequently triggering cyclic behavior. Barry Johnson's polarity management illustrations take this form without the problem spectrum.*

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* Based on Barry Johnson, "Reflections: A Perspective on Paradox and Its Application to Modern Management," *The Journal of Applied Behavioral Science* 50, no. 2 (May 2014).

relying on problem-elimination thinking. It also drives destructive cyclic behavior as the problems from one element repeatedly drive the decisionmaker to the opposite pole for a solution.

Johnson recalls a well-known information systems example from his consultation for the Department of Defense Chief Information Officer (DOD CIO). Figure 3 illustrates the inherent polarity between information access and information security. Achieving the ideal from one perspective—information consumers gaining perfect access to information—invariably exposes problems compelling movement toward the other—security managers eliminating access to address vulnerabilities. In Johnson's account, the individuals at DOD CIO working this problem from opposite perspectives each sought diligently to protect the Nation, but they found they were having to protect it from one another.[14] By recognizing the need for enduring problem management versus problem elimination, practitioners can avoid the polarity trap and instead pursue a middle course, balancing desired system characteristics against desired problems.

Problem Elimination Versus Problem Selection in Polarities. With problem-elimination thinking, polarities represent dangerous traps perpetually

plaguing decisionmaking, policy, and organizational design in complex environments. For Johnson, if the challenge "is a polarity you must manage, applying traditional problem-solving skills will increase the problem rather than help it."[15] Decisionmakers must recognize that they are dealing with a polarity to manage, not a problem they can solve to achieve an ideal endstate. Johnson perfectly summarizes problem-elimination's vulnerability:

Whenever there is a push for a shift from one pole of a polarity to the other, it is because those pushing are:

1) Experiencing or anticipating the downsides of the present pole which they identify as the "problem," and,

2) They are attracted to the upsides of the other pole which they identify as the "solution."[16]

Johnson notes that viewing polarities "as 'problems to solve' radically undermines our ability to [execute]. We define the problem as what we are going 'from' and the solutions as what we are going 'to.'"[17] Problem-elimination thinking drives organizations into destructive pendulum swings oscillating between two idealized endstates. Practitioners' core failure in this situation is an inability

to recognize the requirement to move toward problems and solutions, not solutions alone.

Figure 4 illustrates the pendulum swinging between two poles, A and B, representing environmental states with problems. The intermediate state, C, represents conditions in the system where both elements of the polarity are present along with some degree of their associated problems. With problem-elimination thinking, decisionmakers in state A never consider state C, because failing to eliminate current problems contradicts the idealized endstate at B. In fact, problem-elimination thinking can encourage only COAs that achieve the state at the opposite extreme of the pendulum. While in reality possible COAs and intermediate challenges are limitless, the decisionmaker can envision and therefore only consider one next state—a structurally predefined endstate eliminating the current problem.

When framing instead with problem-selection thinking, state C represents just one of three next state alternatives illustrated in the figure. Because COA selection is deliberately informed by both potential next states and next problems, the decisionmaker can decide in this case between retaining the current problem, pursuing the problem at the opposite side of the polarity, or any

Figure 4. Intermediate Problems and States

Polarity State A

Polarity State B

Intermediate State C

Polarity Problem A

Polarity Problem B

Intermediate problems and states
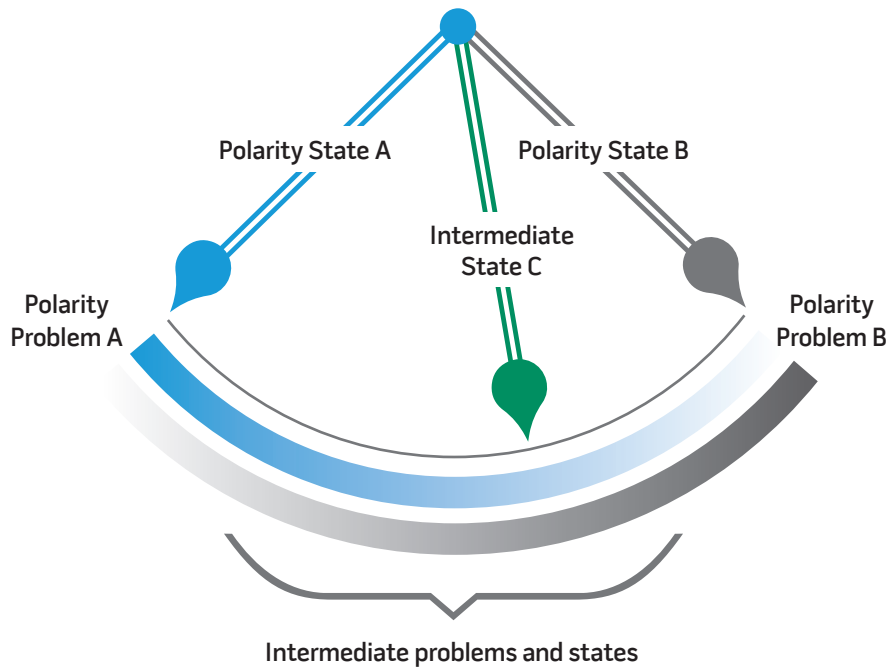
Problem-elimination framing drives pendulum swings between states A and B because each eliminates the problems of the other. State C represents an intermediate state with intermediate problems. State C is ignored in problem-elimination thinking because it does not completely eliminate the problem.

number of intermediate problems from which to determine the target state. The fundamental distinction between problem-elimination and problem-selection thinking is how practitioners frame what they are driving toward. Problem-elimination thinking moves toward a solution as a means to eliminate a problem without also considering the problems introduced by the solution. Problem-selection thinking moves toward a set of problems informed by vision and ability to manage problems.

Polarity in Defense Acquisition. Department of Defense acquisition notoriously exhibits characteristics of the problem-elimination pendulum. As characterized by Joseph Pegnato, "The procurement pendulum has always swung between two extreme poles. At one extreme the procurement system is being reformed generally to ease the purchase of war munitions. At the other extreme procurement system controls are tightened due to a scandal largely caused by the reforms or previously relaxed rules."[18]

The Defense Acquisition System rides a pendulum influenced significantly by the political nature of acquisition policy in the steady presence of media sensationalism.[19] Still, problem-selection framing encourages thinking to dampen the cycle. By self-consciously selecting materiel desires in a way that leads to desired problems, leadership can drive the pendulum toward problems the organization seeks to manage and avoid the problem-elimination carnival ride.

Problem Selection in the Complex Competitive Environment. Army design methodology and the competition continuum serve to update best practices that previously contributed to expensive failures, such as the chaos following the toppling of Saddam Hussein. The updates attempt to address problem-framing challenges by eliminating the operational phasing construct, which led to postconflict problems by encouraging abstract framing about target states. However, in conflating endstate with vision, current guidelines cannot address Rapport's cognitive bias and the tendency

to underestimate costs of postconflict operations. In Rapport's words, by realistically framing target states, "the details and feasibility of initial military operations will be salient, and policymakers will be more conscientious about guiding the development of combat plans and estimating their potential costs."[20]

Problem selection would have contributed to better decisionmaking in the immediate aftermath of hostile activities during the Iraq War. The postconflict phase in Iraq was a "debacle that was foreseeable and indeed foreseen by most experts."[21] Still, Donald Rumsfeld and General Tommy Franks effectively selected that problem—the tenuous security and stability of postconflict Iraq—over an alternative—the political and resource costs of a large troop presence to follow the operational endstate. The secretary of defense and U.S. Central Command commander made the decision to halt the continued flow of troops into theater, for which planners had clearly anticipated a need.[22] They based the decision on the desirability of drawing down troops along with overly optimistic and abstract thinking about Iraqi stability, apparently without concern or ownership of widely expected consequences.[23] Under problem-selection thinking, decisionmakers would necessarily evaluate the two problems against each other, illuminating alternatives or at a minimum embracing ownership of expected problems resulting from the selection.

Michael Mazarr comments on widespread confusion and limitations in current best practices for considering risk in the development of strategy for complex competitive environments. He distinguishes "classic, data-driven risk analysis . . . promising a degree of mathematical reliability it could never deliver" with an improved but not-yet-defined model addressing the challenge of "decision makers simply [refusing] to take seriously the potential consequences of their hoped-for plan."[24] He uses four basic elements to characterize any improved approach to risk in such environments, asserting the risk process should not become too technical or detached from the process of developing strategy, should generate the right dialogues, should be grounded in the right organizational

Lieutenant Colonel Joshua Brown, commander of 1st Squadron, 91st Cavalry Regiment, 173rd Airborne Brigade, discusses and plans upcoming operations alongside company commanders and officers of 2nd Battalion, 12th Brigade Polish army in Hohenfels Training Area, Germany, during Saber Junction 19, September 27, 2019 (U.S. Army/Ryan Lucas)

culture, and should be framed in terms of managing uncertainty.[25] Problem-selection provides an applicable frame for integrating Mazarr's criteria.

Problem-selection thinking promotes dialogue around expected problems and requires a cultural shift away from problem-elimination thinking toward embracing problems. Working to identify preferred problems serves to steer practitioners away from abstract construal bias and improves uncertainty management by broadening the search space for options and including preferred

problems within target states. In effect, problem-selection thinking enhances practitioners' understanding of future problems. Whereas decisionmaking and problem-framing practices traditionally emphasize risks as problems to eliminate or avoid, emphasizing pursuit of certain problems as preferable and inherent to the environment might revolutionize preparedness in the face of uncertainty.

Conclusion

Current best practices motivate decisionmakers and planners facing complex

competitive environments to focus energetically on problem elimination. Practitioners are inadvertently encouraged to frame their goal as an endstate—a set of desired conditions without problems—and to conflate endstate with vision. This problem-elimination thinking creates a situation where real outcomes are confused with idealistic vision. Such framing contributes to cognitive bias, prioritizing desirability over feasibility when designing outcomes while also blinding practitioners to future problems.[26] The problem-elimination

mindset further encourages consideration of limited objectives by predefining the goal as the present state minus the present problem.

In contrast, thinking in terms of problem selection reinforces desirable debiasing behaviors in the context of decisionmaking. It discourages approaches in which practitioners imagine strategic action literally culminating in an idealized endstate. In reality, any action drives environmental responses and new problems.[27] Problem-selection thinking promotes framing concrete rather than abstract targets for which practitioners naturally perform better feasibility analysis and preparation while also elevating leadership with genuine vision.[28] Problem-selection thinking encourages consideration of multiple competing objectives in decisionmaking, expanding the search space for both actions and goals.[29] Ultimately, forecasting and choosing problems within objectives encourages reframing as the environment evolves.

While practitioners work toward improved planning and decisionmaking practices for the complex competitive environment's intractable challenges, cultural bias toward problem elimination and idealized endstates represents a counterweight to progress. Shining light on cognitive bias in decisionmaking and pushing back against problem-elimination thinking may help decisionmakers avoid the costly decisions and unproductive pendulum swings famously plaguing strategic and policy decisions. Focusing practitioners on concrete objectives as stepping stones toward clear ideal vision—overtly embracing problems in contrast to singularly moving away from them—will mitigate cognitive bias and elevate visionary leadership. Getting there requires discussion around this challenge, additional analysis into its effectiveness in application, and the desire to move the cultural mindset beyond endstates. **JFQ**

Notes

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[8] Ibid., 7. Emphasis added.

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[16] Ibid., 7.

[17] Ibid., xvii.

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