Strategy as Problem-Solving

Andrew Carr

Follow this and additional works at: https://press.armywarcollege.edu/parameters
ABSTRACT: This article proposes a new definition of strategy as problem-solving that challenges the focus on goals and assumptions of order within many post–Cold War approaches to strategy. It argues that the military needs strategy to diagnose the complex problems of the twenty-first century before they can be solved. Inspired by practitioners such as Andrew Marshall and George F. Kennan, this new definition clarifies what strategists do and offers a logic for distinguishing the use of the term strategy. Practitioners will also find problem-solving tools and pedagogies they can adopt today.

Keywords: complexity, Andrew Marshall, George F. Kennan, problem-solving, strategy

Life brims with problems. Many problems are mundane and can be solved by following an instruction manual. Other problems are unique but can be broken down into manageable parts and reliably solved by experts. By contrast, some problems are genuinely complex and require strategy to solve. For instance, when a government seeks to overcome a peer competitor, a society grapples with an unstable environment, or a military confronts the “essential Clausewitzian problem” of how to use force to achieve a political outcome.¹

During the Cold War, problem-solving language was common among US strategists such as George F. Kennan and Andrew Marshall. In Kennan’s famous “Long Telegram,” he explained that the “problem of how to cope with” the Soviet Union required the “same thoroughness and care as solution of [a] major strategic problem in war.” He compared the strategist’s task to a “doctor” analyzing a difficult patient.² Marshall likewise described his approach to strategy as one of “diagnosis,” centered on a “way of thinking about things, the structure of the problems, that is very important.”³ Mie Augier, who worked with Marshall, assessed that his “vision and work lies in the idea of problem-driven research: the interest in, and ability to use, elements of ideas from many different disciplines to understand a particular problem.”⁴

Inspired by such thinkers, I propose a new definition of strategy as problem-solving. America’s leaders need strategy because there are no
reliable or repeatable solutions to problems such as China, climate change, or war. To make headway on these complex problems, strategists must first diagnose them and identify and interrogate their key dispositions through probing, sensemaking, and seeking feedback. A strategist helps to determine which problems matter and why they are challenging to enable clarity as to the trade-offs needed, the resources required, and the potential pathways to overcome them. Effective strategy is a sustained process of confronting the problems that impede organizational or national thriving. This definition of strategy is more modest than popular approaches, yet its focus on practical outcomes and operating under uncertain conditions better suits these contested times.

This four-part argument for strategy as problem-solving begins by showing how it offers a distinct approach to many post–Cold War theories of strategy. I then adopt Dave Snowden’s Cynefin framework to explain what a “strategic problem” is, arguing that the kinds of problems we face and, in turn, how we try to solve them depend on the nature of our environment. Part three discusses how strategists diagnose problems and the steps involved in that process. The final section outlines three advantages to viewing strategy as problem-solving:

- Clarity about what should and should not be called strategy and what strategists do.
- Access to problem-solving tools practitioners can adopt straightaway.
- The opportunity to use reliable pedagogical methods such as the case method and problem-based learning to teach problem-solving skills.

The Lost Art of Problem-Solving

The term strategic problems is common to the academic literature yet surprisingly under-explored. Bernard Brodie, in his classic paper “Strategy as a Science,” argues that “the whole purpose of this article to bring home is that what is needed in the approach to strategic problems is genuine analytical method.” So, too, Thomas G. Mahnken and Joseph A. Maiolo’s widely adopted Strategic Studies: A Reader tells us, “theory offers the student of strategy a conceptual toolkit to analyze strategic problems.” In their book Successful Strategies, Williamson Murray and Richard Hart Sinnreich describe how strategists “have found a solution
to complex and seemingly insoluble strategic problems.” Readers will look in vain, however, for conceptual guidance as to what a strategic problem is. While these scholars (most of whom once worked with Marshall) keep the language of problem-solving alive, their way of thinking is out of sync with many contemporary approaches to strategy.

Three decades ago, at the start of the post–Cold War period, officials and scholars anticipated an increasingly orderly world where “the rule of law supplants the rule of the jungle,” and US primacy was unquestioned. This worldview, in turn, shaped the strategic theories that rose to prominence. The Lykke model, published in 1989, assumes a reliable environment on which to apply its “literal formula” of “Ends + Ways + Means = Strategy.” Grand Strategy, which enjoyed a renaissance in the 2000s, requires high degrees of “order and consistency” and “predictable terrain” to be effective. Many Western armed forces promoted the operational level as a space where military expertise could be left alone to solve military concerns.

What unites these post–Cold War approaches to strategy are two related assumptions. First, they are goal-focused, defining a specific end that resources and activity are directed toward. Second, they have an “assumption of order” emphasizing “underlying relationships between cause and effect . . . to produce prescriptive and predictive models and design interventions.” These approaches urge us to plan for and organize the rational alignment of resources toward our goals with efficiency as a primary value.

Although these assumptions make sense in many environments, they are not universal. The world of the 2020s embodies many of the dynamics of “complex systems” that operate through very different patterns of order. In complex environments, we cannot assume linear and causal paths, apply a ready-made best practice, or expect an enduring “victory.” Indeed, having fixed goals in a complex world is unhelpful because complex worlds are not fixed. What we seek and how we seek it will continually evolve.

While focusing on goals may be “the most common pop-culture advice for setting strategy,” it has proven about as helpful as “a coach who shouts ‘Win the Game!’ instead of giving advice on how to play.” Business studies literature has begun to focus on problem-solving as the core work of strategy to generate that advice. Richard Rumelt publicized this reorientation in his book *The Crux*, arguing, “A strategy is a mixture of policy and action designed to surmount a high-stakes challenge. . . . It is a form of problem-solving, and you cannot solve a problem
you do not understand or comprehend.” Before we can apply ideas from earlier eras (US policy in the Cold War) or different domains of activity (business) to address national and military strategic concerns, we need a framework to distinguish a “strategic problem” from nonstrategic problems.

**Why Do Some Problems Require Strategy?**

Cognitive scientists and psychologists have extensively studied human problem-solving for decades in laboratory or controlled conditions. What counts as a problem, and how we might attempt to solve it, depends considerably on our environment. To understand the different types of problems we may face, we can use the Cynefin framework, which “help[s] us to know what kind of system context we find ourselves in . . . determine the appropriate actions to take, and the methods and tools that are fit for that particular systemic context.” The Cynefin framework identifies four different “domains” or “systems” distinguished by the level of order found within them—“Clear,” “Chaotic,” “Complicated,” and “Complex.” Systems in this context are “a set of things . . . interconnected in such a way that they produce their own pattern of behaviour over time.”

“Clear” systems produce problems that can be solved in a repeatable and consistent fashion through specific steps. To answer a math equation, a student uses a formula. To bake a cake, a cook follows a recipe. Many day-to-day elements of military conduct involve clear problems and a definable “best practice” of standards, techniques, and procedures, a quality exemplified by tactical-level doctrine.

Second, in diametric opposition to the coherence of clear systems, are “Chaotic” systems. Within chaotic environments there is “the absence of effective constraints for decision support,” for instance, in the immediate aftermath of a natural disaster. Little to no order is present in the system, and strategy is not much help as leaders must act first and analyze later. Thankfully, such systems will return to a degree of order over time.

Third are “Complicated” systems, for which problem-solving may involve unique or unknown tasks. These systems reflect an underlying stable order and should be amenable to reductionist techniques guided by expertise. For example, despite the immensely difficult and new challenges in building the space station and developing the COVID-19 vaccine, the experts solving these problems could rely on universal physics, chemistry, and reliable methods for proceeding. The operational level is roughly analogous to a complicated system in that
each campaign involves unique organizational and logistic challenges, but experts can develop solutions through tried and tested methods.

Finally, we come to “Complex” systems, where levels of order vary considerably between and within systems over time. We cannot assume repeatable and enduring causal relationships; expertise can only take us partway to a solution. This type of system is where we find “strategic problems.” To understand what strategic problems involve, the core principles of complex systems should be understood:

1. Complex systems are nonlinear, meaning there is no direct relationship between inputs and outputs. Endless resources can be devoted to a task with seemingly no effect until, suddenly, there is a rapid change. Small, well-timed inputs can also have outsized effects.

2. The level of order is never static. As such, the best we can hope for is “pockets of order” with patterns disposed to our interests.

3. The actors within complex systems adapt and change over time based on feedback. Actors that are better able to adapt and more attuned to environmental feedback will outperform actors lacking these qualities.

4. These interactions can form emergent phenomena that move the system into new patterns and dispositions.  

A complex system’s problems cannot be solved in the same way as clear or complicated problems. As Jennifer Berger and Keith Johnston observe, “the rules are different in a complex world . . . and they fight against our reflexes.” The problems of a complex world are by nature “ill-defined,” meaning there is “no clear problem definition, their goal state is not defined clearly, and the means of moving towards the (diffusely described) goal state are not clear.” Problem-solving in a complex world cannot begin with identifying goals and then discussing preferred solutions. Instead, we first need to tease out the nature of the problem and the environment we are in (such as its patterns, dispositions, and ways we can influence it). According to C. F. Kurtz and David Snowden, “The decision model in this space is to create probes to make the patterns or potential patterns more visible before we take any action. We can then sense those patterns and respond by stabilizing those patterns that we find desirable.” I have adopted the term diagnosis here to capture this effort to sense and interpret.
To be clear, not everything that is “difficult” or “challenging” involves a complex system. Yet there is reason to believe that the current international order is a more genuinely complex environment than the order three decades ago. There has been an expansion of important actors, a diffusion of power across those actors, and a profusion of avenues for connection and feedback between these actors.

For students of strategic theory, the world described by complexity theorists should sound familiar. For instance, compare the descriptions of acting in a complex world with the account Lawrence Freedman provides in the opening of his magisterial history of strategy: “The picture of strategy that should emerge from this book is one that is fluid and flexible . . . there is rarely an orderly movement to goals set in advance. Instead, the process evolves through a series of states, each not quite what was anticipated or hoped for, requiring reappraisal and modification.”

Several scholars have drawn explicit links between complexity theory and classic strategic theory, especially in the writings of Carl von Clausewitz.

In a famous 1992 article, Alan Beyerchen set out to show that “in a profoundly unconfused way, [Clausewitz in On War] understands that seeking exact analytical solutions does not fit the nonlinear reality of the problems posed by war.” In the years since, scholars such as Everett Carl Dolman have used complexity science to ground their analyses of strategy. Sean T. Lawson and Antoine Bousquet have charted the growing embrace of complexity thinking in modern conceptions of warfare. Additionally, in 2022, B. A. Friedman revisited the burgeoning scientific literature on complexity, finding that “subsequent advances in complexity science not only confirmed Beyerchen’s assertions but have offered the opportunity to extend them.” While strategic theory and complexity science are both ways of grappling with uncertain environments, how do strategists actually help us solve the problems we face in complex systems?

How Do Strategists Solve Strategic Problems?

Under strategy as problem-solving, the strategist’s primary contribution is the diagnosis of complex problems. Diagnosis attempts to frame, map, and probe a complex problem to identify the level of order, dispositions, and pathways for potential resolution. The word itself emerges from the Greek diagignōskein, meaning “to distinguish,” with the root word,
gignōskein, meaning “to recognize” or “to know,” and is commonly associated with medical practice today.

Perhaps the best-known example of strategic diagnosis is George Kennan's 1946 Long Telegram. Written while Kennan was a diplomatic official based in the Soviet Union, it likens the task of analyzing the Soviet Union to how a “doctor studies [an] unruly and unreasonable individual.” Drawing on Russian history, economics, politics, and philosophy, Kennan concluded that “(1) Soviet power, unlike that of Hitlerite Germany, is neither schematic nor adventunstic [sic]” and “(2) Gauged against Western World as a whole, Soviets are still by far the weaker force. Thus, their success will really depend on degree of cohesion, firmness and vigor which [the] Western World can muster.” This diagnosis enabled the Truman administration to develop a solution centered on “a long-term, patient but firm and vigilant containment of Russian expansive tendencies.” Kennan did not tell Washington, DC, the goals it should seek, nor did he provide mission statements to guide it. Instead, he wanted US government officials to understand their adversary’s nature and pursue a geopolitical environment with patterns of order disposed to US interests.

The process of diagnosis should be iterative, changing over time with each problem as we better understand it. Marshall famously did not have a set methodology for Net Assessments during his time at the Pentagon. Still, there are at least two common elements strategists use to diagnose problems: identification and interrogation. First, we need to identify what problem we are trying to solve. In 1944, Joseph Stalin provided the Soviet Union with a long-term advantage by realizing his most important problem was not how to defeat Nazi Germany but, instead, how to position the Soviet Union for the postwar environment, leading to a focus on rapid territorial gains in Eastern Europe. As this example suggests, problem identification must be an active step that explores problems presented to us as well as working to discover future problems that we might preempt and potentially to create problems for our adversaries. Marshall’s career provides two other examples of successful problem identification. In the 1970s, he identified ways to create significant problems for the Soviet Union through competitive strategies, such as stoking technological arms races that could damage the Soviet economy. Two decades later, he stewarded efforts to discover the forthcoming revolution in military affairs, enabling the United States to gain a significant operational advantage.
Second, we need to *interrogate* the system at work: the mindsets, dispositions, and patterns behind the specific problem. Where goal-focused strategies get us to concentrate on what we can do, interrogating a complex environment requires us to analyze the broader context and interaction of various actors. As Robert Jervis observes in his book on politics and complexity, “One hand cannot clap; we need to look at the goals, resources and policies of those with whom the actor is dealing.”

If we are in a complex system, we must “probe, sense, respond” and try to clarify “the inclinations of the system” to find our way.

Stephan Frühling observes that in war, “Patterns . . . arise through self-organization and show ‘retrospective coherence’: they can be identified ex-post, but cannot be predicted. . . . Information can be gained by probing the system and observing reactions.” For these reasons, a good diagnosis is not handed down in some grand document but is continually refined through experimentation and feedback carried out by other parts of the organization.

Good diagnosis is often a process of finding the right questions. One of Marshall’s core “beliefs” was that “most analysis spends far too little time on what the real questions are . . . poor, mediocre answers to good questions are more important, more useful, than splendid answers to poor questions.” Good questions identify areas where we can seek feedback, probing how the system responds and helping to identify where potential “attractors” sit—the leverage points that shape a complex system’s dispositions.

Assistance with finding those key points and navigating complex systems is found within several academic fields that have embraced the study of complexity. The literature on problem-solving and critical thinking highlights the importance of questioning our key assumptions, exploring whether they are necessary, and developing new “frames” to organize them.

So, too, design-thinking literature emphasizes a sustained interrogation of the “central paradox . . . that makes the problem so hard.” Only when we have the right questions and diagnosis of the specific problems we face can our strategic answers—the “ends” we seek—begin to be meaningful. One Office of Net Assessment
analyst recalled Marshall telling him, “You keep giving me solutions. Stop giving me solutions. Why don't you tell me what the problem is.”

A Fresh Lens: Strategy as Problem-Solving

Any useful idea must pass the “so what” test. How can defining strategy as problem-solving help those who make or teach strategy? Three benefits stand out:

- Clarity about what should and should not be called strategy and what strategist do.
- Access to problem-solving tools practitioners can adopt straightaway.
- The opportunity to use reliable pedagogical methods such as the case method and problem-based learning to teach problem-solving skills.

Concerns over the lost meaning of strategy are well known. The first benefit of this framework is the clarity it provides in explaining what counts as strategy. This paper follows the work of philosopher Stephen Toulmin, who argued that “domains have to be identified not by the types of objects with which they deal, but rather by the questions which arise about them.” Strategy, in general, is the purposeful attempt to diagnose and solve complex problems wherever they may be found.

Domains do matter for the types of strategic practices that are pursued. We may therefore distinguish military strategy by its unique concern with diagnosing how to link force to the achievement of political goals. This is the “essential Clausewitzian problem,” as Richard K. Betts tellingly puts it. Following this logic, we can also describe a line of effort as maritime strategy or cyber strategy when it involves diagnosing complex problems specific to one of these environments. Moving wider afield, business strategy emerges when individuals and groups seek to navigate the complex adaptive systems known as markets. Entering a new industry, succeeding in competition, or reforming a large organization can raise complex problems. So, too, political strategy describes efforts to navigate international orders and domestic political environments that fit the characteristics of a complex system. Strategy is an orientation toward solving complex problems.
Everything else, if it deals with “Clear,” “Chaotic,” or “Complicated” problems, should not be called strategy, however important it may be.

With clarity about what strategy is, we then have a firm idea about what the strategist’s role is: to diagnose complex problems. A compelling diagnosis allows other parts of organizations to undertake their equally important roles. Decisionmakers such as presidents and generals take the diagnosis and decide which problems to prioritize, identify how values and principles will shape behavior, and allocate resources to implement specific solutions. This is the realm of policy and politics, which sets the values, ambitions and boundaries of any solution. So, too, the execution of the strategy by officials and public servants is essential. A military may attack a target; a diplomat may negotiate with a foreign partner. This management arena ensures that implementation occurs in line with the decisionmaker’s requirements. None of these roles can function in isolation. Feedback from those making and implementing decisions must consistently flow back to the strategists to inform their work.

The second benefit of viewing strategy as problem-solving is that problem-solving is a relatively well-studied area that offers many practical tools. For practitioners, these tools include those from complexity science, such as the Cynefin model used here, which can help us find “the way out” of complex problems.\(^5\) Similarly, design thinking offers useful insights for problem-solving under complexity.\(^3\) Cognitive science and business literature also offer various problem-solving tools, such as:

- Visual tools (for example, Ishikawa diagrams and mind maps), which graphically display issues to identify key questions, assumptions, and steps in a process.
- Group dynamic tools (such as premortems or an Agreement-Certainty Matrix) that enable small groups to work through an issue creatively.
Data tools (such as RAND’s Delphi technique) that represent relationships, hierarchies, or weighted preferences to help quantify the problem faced or organizational preferences for a solution.54

Artificial intelligence is also emerging as a compelling aid to problem-solving.

A third and final benefit of the strategy as problem-solving approach is that it can be taught using pedagogical methods that get away from traditional lecture formats and provide students with active and authentic learning experiences. As Celestino Perez Jr., a promoter of problem-based learning, has argued, “strategy is performance; it is not simply a discipline one can read about.”55 Problem-based learning gives student groups problems to work through and solve. This method has long been used in medical schools and was trialed at the US Army War College, with a 2021 study finding it “an ideal instructional strategy for postgraduate and executive education environments.”56 Case method teaching, which business schools have used for over a century, utilizes the narrative method and in-depth real-world scenarios to enable students to practice pattern recognition and diagnosis while building teamwork and communication skills.57 Although most students will not become formal strategists, they will still benefit from these methods of instruction. Both the World Economic Forum’s Future of Jobs report and the Organisation for Economic Co-operation and Development have identified “Complex Problem Solving” as one of the most essential skills for employment in the future.58

**Problem Solved?**

In On War, Clausewitz set the bar for theory’s contribution as such: “Theory ought to throw a clear light on the mass of objects, that the mind may the easier find its bearings . . . it should show the relations of things to each other, separate the important from the trifling.”59 Defining strategy as problem-solving helps us to clarify what strategy is in an accessible way. It identifies what strategists do—diagnose complex problems—and how their role relates to other critical tasks, such as decision making and implementation. It also has readily available tools that practitioners in institutions and professional
military education environments can draw on today to use in their practice or teaching of strategy.

This proposed definition is not intended as the only or last word on how to understand strategy. Indeed, it is hopefully a way of redefining strategy in a more modest, practical conception that better suits the needs of working within large organizations. As Marshall observed of his career, “My notion is that you work on long-term and more or less permanent kinds of problems and issues, and try, through giving people better ways to think about those problems, to persuade them that this is the best way of looking at it.” That is a world away conceptually from the effort of some contemporary strategists who wish to fashion grand documents that unite entire societies and realize goals a half-century ahead.

While the conceptual outline for viewing strategy as problem-solving is provided here, there are still important questions to flesh out. Comparative and historical studies will be necessary to explore how different cultures think about solving strategic problems. Equally, there are opportunities to develop new problem-solving tools designed for the strategic problems of the twenty-first century. Just as Marshall developed Net Assessment to aid the United States in the Cold War, what tools can strategists develop to help us overcome today’s strategic problems?

The widespread human need for strategy did not emerge because we required someone to write down goals or set ambitions for us, nor can strategy be reduced to reductionist formulas befitting an orderly world. Strategy exists because the world brims with complex problems that we must address head-on. Today, when the stakes of modern problems facing the West include great-power competition, the risk of nuclear war, rapid changes in new technology, and the omnipresent challenge of climate change, we need the distinctive contribution of strategists as problem-solvers more than ever.

Andrew Carr

Andrew Carr is a senior lecturer in the Strategic and Defence Studies Centre at the Australian National University. His research focuses on strategy and Australian defense policy. His work has been published in Survival: Global Politics and Strategy, the Journal of Strategic Studies, International Theory, the Washington Quarterly, Australian Foreign Affairs, and Comparative Strategy.
Endnotes


54. For details about these tools, see S. Ian Robertson, *Problem Solving: Perspectives from Cognition and Neuroscience* (Abingdon, UK: Routledge, 2017); and Chevallier, *Strategic Thinking*. Return to text.


Disclaimer: Articles, reviews and replies, and book reviews published in *Parameters* are unofficial expressions of opinion. The views and opinions expressed in *Parameters* are those of the authors and are not necessarily those of the Department of Defense, the Department of the Army, the US Army War College, or any other agency of the US government. The appearance of external hyperlinks does not constitute endorsement by the Department of Defense of the linked websites or the information, products, or services contained therein. The Department of Defense does not exercise any editorial, security, or other control over the information you may find at these locations.