

Wise executives tailor their approach to fit the complexity of the circumstances they face.

A Leader's Framework for Decision Making

by David J. Snowden and Mary E. Boone

In January 1993, a gunman murdered seven people in a fast-food restaurant in Palatine, a suburb of Chicago. In his dual roles as an administrative executive and spokesperson for the police department, Deputy Chief Walter Gasior suddenly had to cope with several different situations at once. He had to deal with the grieving families and a frightened community, help direct the operations of an extremely busy police department, and take questions from the media, which inundated the town with reporters and film crews. "There would literally be four people coming at me with logistics and media issues all at once," he recalls. "And in the midst of all this, we still had a department that had to keep running on a routine basis."

Though Gasior was ultimately successful in juggling multiple demands, not all leaders achieve the desired results when they face situations that require a variety of decisions and responses. All too often, managers rely on common leadership approaches that work well in one set of circumstances but fall short

in others. Why do these approaches fail even when logic indicates they should prevail? The answer lies in a fundamental assumption of organizational theory and practice: that a certain level of predictability and order exists in the world. This assumption, grounded in the Newtonian science that underlies scientific management, encourages simplifications that are useful in ordered circumstances. Circumstances change, however, and as they become more complex, the simplifications can fail. Good leadership is not a one-size-fits-all proposition.

We believe the time has come to broaden the traditional approach to leadership and decision making and form a new perspective based on complexity science. (For more on this, see the sidebar "Understanding Complexity.") Over the past ten years, we have applied the principles of that science to governments and a broad range of industries. Working with other contributors, we developed the Cynefin framework, which allows executives to see things from new viewpoints, assimilate complex

concepts, and address real-world problems and opportunities. (*Cynefin*, pronounced ku-nev-in, is a Welsh word that signifies the multiple factors in our environment and our experience that influence us in ways we can never understand.) Using this approach, leaders learn to define the framework with examples from their own organization's history and scenarios of its possible future. This enhances communication and helps executives rapidly understand the context in which they are operating.

The U.S. Defense Advanced Research Projects Agency has applied the framework to counterterrorism, and it is currently a key component of Singapore's Risk Assessment and Horizon Scanning program. Over time, the framework has evolved through hundreds of applications, from helping a pharmaceutical company develop a new product strategy to assisting a Canadian provincial government in its efforts to engage employees in policy making.

The framework sorts the issues facing leaders into five contexts defined by the nature of the relationship between cause and effect. Four of these—simple, complicated, complex, and chaotic—require leaders to diagnose situations and to act in contextually appropriate ways. The fifth—disorder—applies when it is unclear which of the other four contexts is predominant.

Using the *Cynefin* framework can help executives sense which context they are in so that they can not only make better decisions but also avoid the problems that arise when their preferred management style causes them to make mistakes. In this article, we focus on the first four contexts, offering examples and suggestions about how to lead and make appropriate decisions in each of them. Since the complex domain is much more prevalent in the business world than most leaders realize—and requires different, often counterintuitive, responses—we concentrate particularly on that context. Leaders who understand that the world is often irrational and unpredictable will find the *Cynefin* framework particularly useful.

Simple Contexts: The Domain of Best Practice

Simple contexts are characterized by stability and clear cause-and-effect relationships that

are easily discernible by everyone. Often, the right answer is self-evident and undisputed. In this realm of “known knowns,” decisions are unquestioned because all parties share an understanding. Areas that are little subject to change, such as problems with order processing and fulfillment, usually belong here.

Simple contexts, properly assessed, require straightforward management and monitoring. Here, leaders *sense*, *categorize*, and *respond*. That is, they assess the facts of the situation, categorize them, and then base their response on established practice. Heavily process-oriented situations, such as loan payment processing, are often simple contexts. If something goes awry, an employee can usually identify the problem (when, say, a borrower pays less than is required), categorize it (review the loan documents to see how partial payments must be processed), and respond appropriately (either not accept the payment or apply the funds according to the terms of the note). Since both managers and employees have access to the information necessary for dealing with the situation in this domain, a command-and-control style for setting parameters works best. Directives are straightforward, decisions can be easily delegated, and functions are automated. Adhering to best practices or process reengineering makes sense. Exhaustive communication among managers and employees is not usually required because disagreement about what needs to be done is rare.

Nevertheless, problems can arise in simple contexts. First, issues may be incorrectly classified within this domain because they have been oversimplified. Leaders who constantly ask for condensed information, regardless of the complexity of the situation, particularly run this risk.

Second, leaders are susceptible to *entrained thinking*, a conditioned response that occurs when people are blinded to new ways of thinking by the perspectives they acquired through past experience, training, and success.

Third, when things appear to be going smoothly, leaders often become complacent. If the context changes at that point, a leader is likely to miss what is happening and react too late. In the exhibit “The *Cynefin* Framework,” the simple domain lies adjacent to the chaotic—and for good reason. The most frequent collapses into chaos occur because

David J. Snowden (snowded@mac.com) is the founder and chief scientific officer of Cognitive Edge, an international research network. He is based primarily in Lockeridge, England.

Mary E. Boone (mary@maryboone.com) is the president of Boone Associates, a consulting firm in Essex, Connecticut, and the author of numerous books and articles, including *Managing Interactively* (McGraw-Hill, 2001).

success has bred complacency. This shift can bring about catastrophic failure—think of the many previously dominant technologies that were suddenly disrupted by more dynamic alternatives.

Leaders need to avoid micromanaging and stay connected to what is happening in order to spot a change in context. By and large, line workers in a simple situation are more than capable of independently handling any issues that may arise. Indeed, those with years of experience also have deep insight into how the work should be done. Leaders should create a communication channel—an anonymous one, if necessary—that allows dissenters to provide early warnings about complacency.

Finally, it's important to remember that best practice is, by definition, past practice. Using best practices is common, and often appropriate, in simple contexts. Difficulties arise, however, if staff members are discouraged from bucking the process even when it's not working anymore. Since hindsight no

longer leads to foresight after a shift in context, a corresponding change in management style may be called for.

Complicated Contexts: The Domain of Experts

Complicated contexts, unlike simple ones, may contain multiple right answers, and though there is a clear relationship between cause and effect, not everyone can see it. This is the realm of "known unknowns." While leaders in a simple context must sense, categorize, and respond to a situation, those in a complicated context must sense, *analyze*, and respond. This approach is not easy and often requires expertise: A motorist may know that something is wrong with his car because the engine is knocking, but he has to take it to a mechanic to diagnose the problem.

Because the complicated context calls for investigating several options—many of which may be excellent—good practice, as opposed to best practice, is more appropriate. For example, the customary approach to engineering a

Understanding Complexity

Complexity is more a way of thinking about the world than a new way of working with mathematical models. Over a century ago, Frederick Winslow Taylor, the father of scientific management, revolutionized leadership. Today, advances in complexity science, combined with knowledge from the cognitive sciences, are transforming the field once again. Complexity is poised to help current and future leaders make sense of advanced technology, globalization, intricate markets, cultural change, and much more. In short, the science of complexity can help all of us address the challenges and opportunities we face in a new epoch of human history.

A complex system has the following characteristics:

- It involves large numbers of interacting elements.
- The interactions are nonlinear, and minor changes can produce disproportionately major consequences.
- The system is dynamic, the whole is greater than the sum of its parts, and solutions can't be imposed; rather, they arise from the circumstances. This is

frequently referred to as *emergence*.

- The system has a history, and the past is integrated with the present; the elements evolve with one another and with the environment; and evolution is irreversible.
- Though a complex system may, in retrospect, appear to be ordered and predictable, hindsight does not lead to foresight because the external conditions and systems constantly change.
- Unlike in ordered systems (where the system constrains the agents), or chaotic systems (where there are no constraints), in a complex system the agents and the system constrain one another, especially over time. This means that we cannot forecast or predict what will happen.

One of the early theories of complexity is that complex phenomena arise from simple rules. Consider the rules for the flocking behavior of birds: Fly to the center of the flock, match speed, and avoid collision. This simple-rule theory was applied to industrial modeling and production early on, and it promised much; but it did not deliver in

isolation. More recently, some thinkers and practitioners have started to argue that human complex systems are very different from those in nature and cannot be modeled in the same ways because of human unpredictability and intellect. Consider the following ways in which humans are distinct from other animals:

- They have multiple identities and can fluidly switch between them without conscious thought. (For example, a person can be a respected member of the community as well as a terrorist.)
- They make decisions based on past patterns of success and failure, rather than on logical, definable rules.
- They can, in certain circumstances, purposefully change the systems in which they operate to equilibrium states (think of a Six Sigma project) in order to create predictable outcomes.

Leaders who want to apply the principles of complexity science to their organizations will need to think and act differently than they have in the past. This may not be easy, but it is essential in complex contexts.

new cell phone might emphasize feature A over feature B, but an alternative plan—emphasizing feature C—might be equally valuable.

Another example is the search for oil or mineral deposits. The effort usually requires a team of experts, more than one place will potentially produce results, and the location of the right spots for drilling or mining involves complicated analysis and understanding of consequences at multiple levels.

Entrained thinking is a danger in complicated contexts, too, but it is the experts (rather than the leaders) who are prone to it, and they tend to dominate the domain. When this problem occurs, innovative suggestions by nonexperts may be overlooked or dismissed, resulting in lost opportunities. The experts have, after all, invested in building

their knowledge, and they are unlikely to tolerate controversial ideas. If the context has shifted, however, the leader may need access to those maverick concepts. To get around this issue, a leader must listen to the experts while simultaneously welcoming novel thoughts and solutions from others. Executives at one shoe manufacturer did this by opening up the brainstorming process for new shoe styles to the entire company. As a result, a security guard submitted a design for a shoe that became one of their best sellers.

Another potential obstacle is “analysis paralysis,” where a group of experts hits a stalemate, unable to agree on any answers because of each individual’s entrained thinking—or ego.

Working in unfamiliar environments can help leaders and experts approach decision making more creatively. For instance, we put retail marketing professionals in several military research environments for two weeks. The settings were unfamiliar and challenging, but they shared a primary similarity with the retail environment: In both cases, the marketers had to work with large volumes of data from which it was critical to identify small trends or weak signals. They discovered that there was little difference between, say, handling outgoing disaffected customers and anticipating incoming ballistic missiles. The exercise helped the marketing group learn how to detect a potential loss of loyalty and take action before a valued customer switched to a competitor. By improving their strategy, the marketers were able to retain far more high-volume business.

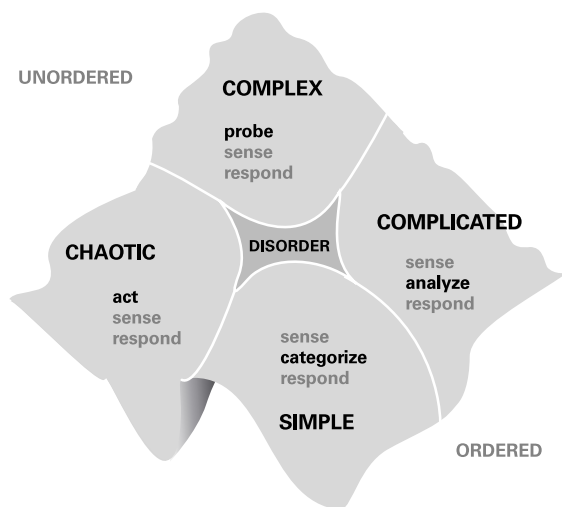
Games, too, can encourage novel thinking. We created a game played on a fictional planet that was based on the culture of a real client organization. When the executives “landed” on the alien planet, they were asked to address problems and opportunities facing the inhabitants. The issues they encountered were disguised but designed to mirror real situations, many of which were controversial or sensitive. Because the environment seemed so foreign and remote, however, the players found it much easier to come up with fresh ideas than they otherwise might have done. Playing a metaphorical game increases managers’ willingness to experiment, allows them to resolve issues or problems more easily

The Cynefin Framework

The Cynefin framework helps leaders determine the prevailing operative context so that they can make appropriate choices. Each domain requires different actions. *Simple* and *complicated* contexts assume an ordered universe, where cause-and-effect relationships are perceptible, and right answers can be determined based on the facts. *Complex* and *chaotic* contexts are unordered—there is no immediately apparent relationship between cause and effect, and the way forward is determined based on emerging patterns. The ordered world is the

world of fact-based management; the unordered world represents pattern-based management.

The very nature of the fifth context—*disorder*—makes it particularly difficult to recognize when one is in it. Here, multiple perspectives jostle for prominence, factional leaders argue with one another, and cacophony rules. The way out of this realm is to break down the situation into constituent parts and assign each to one of the other four realms. Leaders can then make decisions and intervene in contextually appropriate ways.



Based on a graphic by Debra Johnson

and creatively, and broadens the range of options in their decision-making processes. The goal of such games is to get as many perspectives as possible to promote unfettered analysis.

Reaching decisions in the complicated domain can often take a lot of time, and there is always a trade-off between finding the right answer and simply making a decision. When the right answer is elusive, however, and you must base your decision on incomplete data, your situation is probably complex rather than complicated.

Complex Contexts: The Domain of Emergence

In a complicated context, at least one right answer exists. In a complex context, however, right answers can't be ferreted out. It's like the difference between, say, a Ferrari and the Brazilian rainforest. Ferraris are complicated machines, but an expert mechanic can take one apart and reassemble it without changing a thing. The car is static, and the whole is the sum of its parts. The rainforest, on the other hand, is in constant flux—a species becomes extinct, weather patterns change, an agricultural project reroutes a water source—and the whole is far more than the sum of its parts. This is the realm of “unknown unknowns,” and it is the domain to which much of contemporary business has shifted.

Most situations and decisions in organizations are complex because some major change—a bad quarter, a shift in management, a merger or acquisition—introduces unpredictability and flux. In this domain, we can understand why things happen only in retrospect. Instructive patterns, however, can emerge if the leader conducts experiments that are safe to fail. That is why, instead of attempting to impose a course of action, leaders must patiently allow the path forward to reveal itself. They need to probe first, then sense, and then respond.

There is a scene in the film *Apollo 13* when the astronauts encounter a crisis (“Houston, we have a problem”) that moves the situation into a complex domain. A group of experts is put in a room with a mishmash of materials—bits of plastic and odds and ends that mirror the resources available to the astronauts in flight. Leaders tell the team: This is what you have; find a solution or the astronauts

will die. None of those experts knew a priori what would work. Instead, they had to let a solution emerge from the materials at hand. And they succeeded. (Conditions of scarcity often produce more creative results than conditions of abundance.)

Another example comes from YouTube. The founders could not possibly have predicted all the applications for streaming video technology that now exist. Once people started using YouTube creatively, however, the company could support and augment the emerging patterns of use. YouTube has become a popular platform for expressing political views, for example. The company built on this pattern by sponsoring a debate for presidential hopefuls with video feeds from the site.

As in the other contexts, leaders face several challenges in the complex domain. Of primary concern is the temptation to fall back into traditional command-and-control management styles—to demand fail-safe business plans with defined outcomes. Leaders who don't recognize that a complex domain requires a more experimental mode of management may become impatient when they don't seem to be achieving the results they were aiming for. They may also find it difficult to tolerate failure, which is an essential aspect of experimental understanding. If they try to overcontrol the organization, they will preempt the opportunity for informative patterns to emerge. Leaders who try to impose order in a complex context will fail, but those who set the stage, step back a bit, allow patterns to emerge, and determine which ones are desirable will succeed. (See the sidebar “Tools for Managing in a Complex Context.”) They will discern many opportunities for innovation, creativity, and new business models.

Chaotic Contexts: The Domain of Rapid Response

In a chaotic context, searching for right answers would be pointless: The relationships between cause and effect are impossible to determine because they shift constantly and no manageable patterns exist—only turbulence. This is the realm of unknowables. The events of September 11, 2001, fall into this category.

In the chaotic domain, a leader's immediate job is not to discover patterns but to stanch the bleeding. A leader must first *act* to establish

order, then sense where stability is present and from where it is absent, and then respond by working to transform the situation from chaos to complexity, where the identification of emerging patterns can both help prevent future crises and discern new opportunities. Communication of the most direct top-down or broadcast kind is imperative; there's simply no time to ask for input.

Unfortunately, most leadership "recipes" arise from examples of good crisis management. This is a mistake, and not only because chaotic situations are mercifully rare. Though the events of September 11 were not immediately comprehensible, the crisis demanded decisive action. New York's mayor at the time, Rudy Giuliani, demonstrated exceptional effectiveness under chaotic conditions by issuing directives and taking action to re-

establish order. However, in his role as mayor—certainly one of the most complex jobs in the world—he was widely criticized for the same top-down leadership style that proved so enormously effective during the catastrophe. He was also criticized afterward for suggesting that elections be postponed so he could maintain order and stability. Indeed, a specific danger for leaders following a crisis is that some of them become less successful when the context shifts because they are not able to switch styles to match it.

Moreover, leaders who are highly successful in chaotic contexts can develop an overinflated self-image, becoming legends in their own minds. When they generate cultlike adoration, leading actually becomes harder for them because a circle of admiring supporters cuts them off from accurate information.

Tools for Managing in a Complex Context

Given the ambiguities of the complex domain, how can leaders lead effectively?

- **Open up the discussion.** Complex contexts require more interactive communication than any of the other domains. Large group methods (LGMs), for instance, are efficient approaches to initiating democratic, interactive, multidirectional discussion sessions. Here, people generate innovative ideas that help leaders with development and execution of complex decisions and strategies. For example, "positive deviance" is a type of LGM that allows people to discuss solutions that are already working within the organization itself, rather than looking to outside best practices for clues about how to proceed. The Plexus Institute used this approach to address the complex problem of hospital-acquired infections, resulting in behavior change that lowered the incidence by as much as 50%.
- **Set barriers.** Barriers limit or delineate behavior. Once the barriers are set, the system can self-regulate within those boundaries. The founders of eBay, for example, created barriers by establishing a simple set of rules. Among them are pay on time, deliver merchandise quickly, and provide full disclosure on

the condition of the merchandise. Participants police themselves by rating one another on the quality of their behavior.

- **Stimulate attractors.** Attractors are phenomena that arise when small stimuli and probes (whether from leaders or others) resonate with people. As attractors gain momentum, they provide structure and coherence. eBay again provides an illustrative example. In 1995, founder Pierre Omidyar launched an offering called Auction Web on his personal website. His probe, the first item for sale, quickly morphed into eBay, a remarkable attractor for people who want to buy and sell things. Today, sellers on eBay continue to provide experimental probes that create attractors of various types. One such probe, selling a car on the site, resonated with buyers, and soon automobile sales became a popular attractor.
- **Encourage dissent and diversity.** Dissent and formal debate are valuable communication assets in complex contexts because they encourage the emergence of well-forged patterns and ideas. A "ritual dissent" approach, for instance, puts parallel teams to work on the same problem in a large group

meeting environment. Each team appoints a spokesperson who moves from that team's table to another team's table. The spokesperson presents the first group's conclusions while the second group listens in silence. The spokesperson then turns around to face away from the second team, which rips into the presentation, no holds barred, while the spokesperson listens quietly. Each team's spokesperson visits other tables in turn; by the end of the session, all the ideas have been well dissected and honed. Taking turns listening in silence helps everyone understand the value of listening carefully, speaking openly, and not taking criticism personally.

- **Manage starting conditions and monitor for emergence.** Because outcomes are unpredictable in a complex context, leaders need to focus on creating an environment from which good things can emerge, rather than trying to bring about predetermined results and possibly missing opportunities that arise unexpectedly. Many years ago, for instance, 3M instituted a rule allowing its researchers to spend 15% of their time on any project that interested them. One result was a runaway success: the Post-it Note.

Decisions in Multiple Contexts: A Leader's Guide

Effective leaders learn to shift their decision-making styles to match changing business environments. Simple, complicated, complex, and chaotic contexts each call for different managerial responses. By correctly identifying the governing context, staying aware of danger signals, and avoiding inappropriate reactions, managers can lead effectively in a variety of situations.

	THE CONTEXT'S CHARACTERISTICS	THE LEADER'S JOB	DANGER SIGNALS	RESPONSE TO DANGER SIGNALS
SIMPLE	Repeating patterns and consistent events Clear cause-and-effect relationships evident to everyone; right answer exists Known knowns Fact-based management	Sense, categorize, respond Ensure that proper processes are in place Delegate Use best practices Communicate in clear, direct ways Understand that extensive interactive communication may not be necessary	Complacency and comfort Desire to make complex problems simple Entrained thinking No challenge of received wisdom Overreliance on best practice if context shifts	Create communication channels to challenge orthodoxy Stay connected without micromanaging Don't assume things are simple Recognize both the value and the limitations of best practice
COMPLICATED	Expert diagnosis required Cause-and-effect relationships discoverable but not immediately apparent to everyone; more than one right answer possible Known unknowns Fact-based management	Sense, analyze, respond Create panels of experts Listen to conflicting advice	Experts overconfident in their own solutions or in the efficacy of past solutions Analysis paralysis Expert panels Viewpoints of nonexperts excluded	Encourage external and internal stakeholders to challenge expert opinions to combat entrained thinking Use experiments and games to force people to think outside the familiar
COMPLEX	Flux and unpredictability No right answers; emergent instructive patterns Unknown unknowns Many competing ideas A need for creative and innovative approaches Pattern-based leadership	Probe, sense, respond Create environments and experiments that allow patterns to emerge Increase levels of interaction and communication Use methods that can help generate ideas: Open up discussion (as through large group methods); set barriers; stimulate attractors; encourage dissent and diversity; and manage starting conditions and monitor for emergence	Temptation to fall back into habitual, command-and-control mode Temptation to look for facts rather than allowing patterns to emerge Desire for accelerated resolution of problems or exploitation of opportunities	Be patient and allow time for reflection Use approaches that encourage interaction so patterns can emerge
CHAOTIC	High turbulence No clear cause-and-effect relationships, so no point in looking for right answers Unknownables Many decisions to make and no time to think High tension Pattern-based leadership	Act, sense, respond Look for what works instead of seeking right answers Take immediate action to reestablish order (command and control) Provide clear, direct communication	Applying a command-and-control approach longer than needed "Cult of the leader" Missed opportunity for innovation Chaos unabated	Set up mechanisms (such as parallel teams) to take advantage of opportunities afforded by a chaotic environment Encourage advisers to challenge your point of view once the crisis has abated Work to shift the context from chaotic to complex

Yet the chaotic domain is nearly always the best place for leaders to impel innovation. People are more open to novelty and directive leadership in these situations than they would be in other contexts. One excellent technique is to manage chaos and innovation in parallel: The minute you encounter a crisis, appoint a reliable manager or crisis management team to resolve the issue. At the same time, pick out a separate team and focus its members on the opportunities for doing things differently. If you wait until the crisis is over, the chance will be gone.

Leadership Across Contexts

Good leadership requires openness to change on an individual level. Truly adept leaders will know not only how to identify the context they're working in at any given time but also how to change their behavior and their decisions to match that context. They also prepare their organization to understand the different contexts and the conditions for transition between them. Many leaders lead effectively—though usually in only one or two domains (not in all of them) and few, if any, prepare their organizations for diverse contexts.

During the Palatine murders of 1993, Deputy Chief Gasior faced four contexts at once. He had to take immediate action via the media to stem the tide of initial panic by keeping the community informed (chaotic); he had to help keep the department running routinely and according to established procedure (simple); he had to call in experts (complicated); and he had to continue to calm the community in the days and weeks following the crime (complex). That last situation proved the most challenging. Parents were afraid to let their children go to school, and employees were concerned about safety in

their workplaces. Had Gasior misread the context as simple, he might just have said, "Carry on," which would have done nothing to reassure the community. Had he misread it as complicated, he might have called in experts to say it was safe—risking a loss of credibility and trust. Instead, Gasior set up a forum for business owners, high school students, teachers, and parents to share concerns and hear the facts. It was the right approach for a complex context: He allowed solutions to emerge from the community itself rather than trying to impose them.

• • •

Business schools and organizations equip leaders to operate in ordered domains (simple and complicated), but most leaders usually must rely on their natural capabilities when operating in unordered contexts (complex and chaotic). In the face of greater complexity today, however, intuition, intellect, and charisma are no longer enough. Leaders need tools and approaches to guide their firms through less familiar waters.

In the complex environment of the current business world, leaders often will be called upon to act against their instincts. They will need to know when to share power and when to wield it alone, when to look to the wisdom of the group and when to take their own counsel. A deep understanding of context, the ability to embrace complexity and paradox, and a willingness to flexibly change leadership style will be required for leaders who want to make things happen in a time of increasing uncertainty.

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