Decision Making And Problem Solving

A Leader's Framework for Decision Making

by David J. Snowden and Mary E. Boone

From the Magazine (November 2007)

Summary. Reprint: R0711C Many executives are surprised when previously successful leadership approaches fail in new situations, but different contexts call for different kinds of responses. Before addressing a situation, leaders need to recognize which context… **more**

Read more on **Decision making and problem solving** or related topic **Leadership qualities**

Tweet
Post
Share
Save
Print

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.

Understanding Complexity

Complexity is more a way of thinking about the world than a new way of working with mathematical models. Over a ...

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.

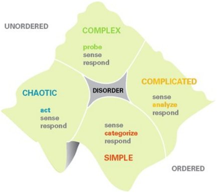
Simple contexts, properly assessed, require straightforward management and monitoring. Here, leaders *sense, categorize,* and *respond*. That is, they assess the facts of the situation, categorize them, and then base their response on established practice. Heavily process-oriented situations, such as 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 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.

The Cynefin Framework



The Cynefin framework helps leaders determine the prevailing operative context so that they can make appropriate choices. …

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 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 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.

Tools for Managing in a Complex Context

Given the ambiguities of the complex domain, how can leaders lead effectively? Open up the discussion. Complex …

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 reestablish 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.

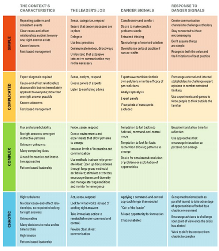
Moreover, leaders who are highly successful in chaotic contexts can develop an overinflated self-image, becoming legends in their own minds. When they generate cultlike adoration, leading actually becomes harder for them because a circle of admiring supporters cuts them off from accurate information.

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.

Decisions in Multiple Contexts: A Leader's Guide



	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 Unknowables 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

Effective leaders learn to shift their decision-making styles to

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

match changing business environments. Simple, ...

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 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.

A version of this article appeared in the November 2007 issue of *Harvard Business Review*.

DS

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.

MB

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).

Tweet Post Share Save Print

Partner Center

Harvard Business Review

Subscribe

Explore HBR
The Latest
All Topics
Magazine Archive
The Big Idea
Reading Lists
Case Selections
Video
Podcasts
Webinars
Data & Visuals
My Library
Newsletters
HBR Press
HBR Ascend

HBR Store
Article Reprints
Books
Cases
Collections
Magazine Issues
HBR Guide Series
HBR 20-Minute Managers
HBR Emotional Intelligence Series
HBR Must Reads
Tools

About HBR
Contact Us
Advertise with Us
Information for Booksellers/Retailers
Masthead
Global Editions
Media Inquiries
Guidelines for Authors
HBR Analytic Services
Copyright Permissions

Manage My Account
My Library
Topic Feeds
Orders
Account Settings
Email Preferences
Account FAQ
Help Center
Contact Customer Service

Follow HBR
Facebook
Twitter
LinkedIn
Instagram
Your Newsreader

Harvard About Us | Careers | Privacy Policy | Cookie Policy | Copyright Information | Trademark Policy

You have 1 free article left this month.

Subscribe for unlimited access.