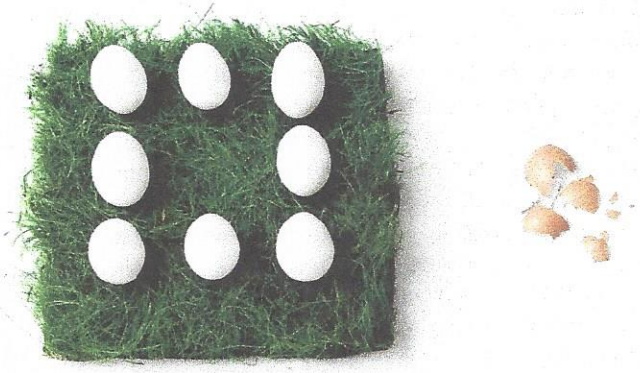
Quick Takes



1. How to Prepare for a Crisis You Couldn't Possibly Predict

→ by CHRIS CLEARFIELD and ANDRÁS TILCSIK

ON THE MORNING of May 18, 2012, at precisely 11:05 AM, Nasdaq planned to execute the first trade in Facebook's hotly anticipated initial public offering. The opening trade was an auction of sorts—buyers and sellers entered orders, and Nasdaq calculated a price that would cause as many shares as possible to change hands. As the start of trading approached, hundreds of thousands of orders poured in. But when 11:05 arrived, *nothing happened.*

With billions of dollars poised to change hands and the spotlight on, Nasdaq managers scrambled to diagnose the problem, dialing into an emergency conference call to troubleshoot. After a few minutes, a group of programmers narrowed the problem down to something called the validation check, a safety feature they built into the computer program years earlier. Despite the check's warning that something was amiss, managers decided to push forward anyway.

When the validation check was removed, trading started, but the work-around caused a series of failures. It turned out the check had initially picked up on something important: a bug that caused the system to ignore orders for more than 20 minutes, an eternity on Wall Street. Traders blamed Nasdaq for hundreds of millions of dollars of losses, and the mistake exposed the exchange to litigation, fines, and reputational costs.

Most of us don't oversee huge IPOs, but sooner or later, every team faces an unexpected crisis: Technology breaks, a competitor makes a disruptive move, a promising project fails, a key employee quits, consumers have a negative reaction to a new product—the list goes on.

Some teams are good at handling the unexpected, but most aren't. Under stress and time pressure, it's difficult to stay calm, diagnose a problem, and come up with solutions.

Over the past five years, we have studied dozens of unexpected crises in all sorts of organizations and interviewed a broad swath of people—executives, pilots, NASA engineers, Wall Street traders, accident investigators, doctors, and social scientists—who have discovered valuable lessons about how to prepare for the unexpected. Here are three of those lessons.

Learn to stop. When faced with an unexpected event, we often want to push through and keep going. But sticking to a plan in the face of surprising new information can be a recipe for disaster. This has played a role in many failures, from the Facebook IPO to the *Deepwater Horizon* oil spill.

Instead, managers need to foster norms that help people overcome the sense of defeat that comes from halting an ongoing process or giving up on a planned course of action. A young trader on Wall Street, for example, told us that he'd never received as much praise from senior managers as when he stopped an apparently profitable trade after realizing that he didn't fully understand it. Such feedback helps create norms that one day might prevent an unexpected event from turning into a meltdown.

NILS HENDRIK MUELLER/GETTY IMAGES

Sticking to a plan in the face of surprising new information can be a recipe for disaster.

It's even better if the praise is public. Consider this story shared by researcher Catherine Tinsley and her colleagues:

> *"An enlisted seaman on an aircraft carrier discovered during a combat exercise that he'd lost a tool on the deck. He knew that an errant tool could cause a catastrophe if it were sucked into a jet engine.... He reported the mistake, the exercise was stopped, and all aircraft aloft were redirected to bases on land, at a significant cost. Rather than being punished for his error, the seaman was commended by his commanding officer in a formal ceremony for his bravery in reporting it."*

This is an incredible response: Celebrate the guy whose mistake forced us to call off the whole exercise and scour every inch of a huge deck to find a lost tool! Would that happen in your organization? Would you celebrate someone who told you to abandon your plan because he'd made an error?

Symbolic gestures like the deck ceremony convey a powerful message: If you see a problem with pushing ahead, then stop. Stopping gives us a chance to notice unexpected threats and figure out what to do before things get out of hand.

Do, monitor, diagnose. Sometimes stopping isn't an option. If we don't keep going, things will fall apart immediately. What can we do then? To answer that question, University of Toronto professor Marlys Christianson painstakingly analyzed video recordings of dozens of emergency department teams that participated in a simulation. The exercise involved a medical manikin hooked up to a computer that simulated the responses of a real patient.

All teams had to manage the same crisis: A boy with asthma was brought into the hospital and, a few minutes later, stopped breathing. Doctors sealed a bag-valve mask over the boy's face and squeezed the bag to force air into his lungs, but the bag-valve mask didn't help. Unbeknownst to the teams, the bag was broken; it looked fine, but it supplied no oxygen. By the time most teams figured this out and replaced the bag, it was too late.

But a few teams did solve the problem. "The most striking thing about those teams was a pattern—a cycle—of moving from tasks to monitoring to diagnosis and then back to tasks again," Christianson told us.

This cycle starts with a *task,* such as intubating the patient. The next step is *monitoring:* You check if performing the task had the expected effect. If it didn't, then you move onto the next step and come up with a new possible *diagnosis.* And then you go back to tasks because you need to *do* something—for example, administer medications or replace the bag—to test your new theory.

But many teams failed to complete the cycles. "The teams that didn't do well often had really long stretches of task talk," says Christianson. "Or they'd just go task, monitoring, and back to task. So they never figured it out."

When dealing with a crisis, it's easy to be overwhelmed by tasks. Too often, we just keep our heads down, focus on the task at hand, and push ahead. Cycling from doing to monitoring to diagnosing—and then back to doing—is more effective, and practicing this cycle can help teams prepare for the unexpected.

Know something about everybody else's job. Some teams, such as film crews and SWAT teams, face surprises all the time. If the layout of a house that a SWAT team enters is different from what the officers expected, they still press on. When the power goes out at a filming location, film crews figure out how to resume shooting as soon as possible. How do they do it?

According to researchers Beth Bechky and Gerardo Okhuysen, one critical factor that enables these teams to handle surprises is that members are familiar with everyone else's work and understand how their various tasks fit together.

In the film industry, this knowledge comes from how people progress through their careers. Many rookies start as production assistants and work on tasks that cut across different departments, from costumes to lighting and sound. SWAT teams achieve something similar through cross-training. New officers, for example, need to learn how to use a sniper's rifle and scope even if they aren't planning to become a sniper. They don't need to become an expert marksman, but they need to understand what snipers see and how they work.

This is an unusual approach; most organizations emphasize deep specialization in one's work rather than familiarity with everyone else's. But cross-training helps teams change their plans on the fly because it allows team members to shift responsibilities and step into

Following a few basic crisis-response principles is more effective than having a detailed *a priori* plan in place.

one another's roles. It also means that people know how the jobs of different team members fit into the bigger picture. This gives teams a better understanding of what kinds of changes to a plan are advisable—or even possible—when a crisis strikes.

Consider Nasdaq's fiasco in light of these lessons. When the trading program and the validation check didn't match, Nasdaq managers decided to remove the validation check—the equivalent of driving around the lowered gates of a railroad crossing. Rather than stopping, they pushed forward. Rather than going through cycles of doing, monitoring, and diagnosing, they charged ahead without diagnosis—without understanding *why* the validation check stopped the trading. And rather than knowing something about everybody else's job, managers knew very little about the programmers' work—including how the validation check was implemented. In fact, before that day, the manager who proposed bypassing the validation check had never even *heard* of the validation check.

There is a better way. Just a few months before the Facebook IPO, the Kansas-based BATS stock exchange encountered a similar technical challenge as Nasdaq—managing the real-time failure of an IPO. When they faced a serious technical error, managers at BATS took a step back and canceled the offering. They monitored the situation, diagnosed the problem, and decided that stopping was the most prudent thing to do. And though the canceled IPO was embarrassing, BATS wasn't censured by regulators, nor did it cause hundreds of millions of dollars of losses to investors.

It probably helped that the CEO of the exchange was a technologist who understood the technical aspects of the problem. Though the decision to stop ran counter to the original plan, it prevented the kind of knock-on errors that Nasdaq caused when it charged into the unknown.

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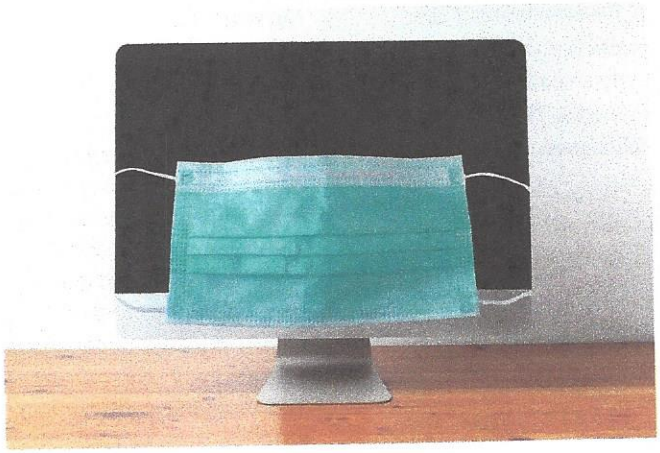

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2. What Organizations Need to Survive a Pandemic

→ by NITIN NOHRIA

MUCH OF THE organizational thinking about disease outbreaks, and about crisis management in general, has focused on preparation. With the sudden emergence of a deadly new coronavirus, organizational preparedness is key. In recent years, many companies, for example, have created risk management teams to develop detailed contingency plans for responding to a pandemic. This is necessary but not sufficient. In the complex and uncertain environment of a sustained, evolving crisis, the most robust organizations will not be those that simply have plans in place but those that have continuous sensing and response capabilities. As Darwin noted, the most adaptive species are the fittest.

Consider the organizations described in the table on the next page. Which one would fare better in a sustained crisis such as a pandemic?

Organization 2 is clearly better positioned to respond to evolving, unpredictable threats. We know from complexity theory that following a few basic crisis-response prin-

ciples is more effective than having a detailed *a priori* plan in place. In fires, for instance, it's been shown that a single rule—walk slowly toward the exit—saves more lives than complicated escape plans do.

I'm not saying that companies should not have comprehensive risk-mitigation plans. They *should* be asking questions about their supply chains and internal organization such as, "What's our response if one component goes down? What's our response if two components go down? Do we have redundant computer systems?" But just as important, companies need to ask, "What real-time sensing and coordinating mechanism will we use to respond to events we can never fully anticipate?"

Companies shouldn't rely solely on a specialized risk management team to see them through a sustained crisis. What if the team gets taken out? Instead, they need to develop the ability to rapidly evaluate ongoing changes in the environment and develop responses based on simple principles. This means that companies need a global network of people drawn from throughout the organization that can coordinate and adapt as events unfold, reacting immediately and appropriately to disruptions such as lapses in communication inside and outside the organization and losses of physical and human resources. (If a main office overseas suddenly drops out of a company's network, who is going to jump in?) This network needs to quickly cycle through a process of sensing threats, coordinating, responding, and then sensing again. It needs to engage in creative and collaborative yet disciplined problem solving on the fly, even as members of the crisis network move around or drop out.

This is exactly what marine expeditionary forces do, to great effect. One reason the marines are so nimble is that they practice. Companies should do likewise. A firm could establish a globally dispersed group with shifting membership that would devote, say, half a day every other month to engaging in crisis simulations. What would the group do, for instance, if 30% of the company's factory workforce in Asia dropped out? What if the United States closed its borders? How would the team respond to an "unthinkable" scenario? The goal is not to create specific rules for responding to specific threats but to practice new ways of problem solving in an unpredictable and fast-changing environment.

Which Organization Will Fare Better?

ORGANIZATION 1	ORGANIZATION 2
Hierarchical	Networked
Centralized leadership	Distributed leadership
Tightly coupled (greater interdependence among parts)	Loosely coupled (less interdependence)
Concentrated workforce	Dispersed workforce
Specialists	Cross-trained generalists
Policy and procedure driven	Guided by simple yet flexible rules

As for the two organizations described in the table, advantage in a crisis will go to the one that can leverage its capabilities and cooperate with other members of the community—even competitors. Companies should think about applying an open-source model to crisis response. Just as they invite partners and competitors to codevelop innovative products, they should look at whether codeveloped crisis responses would be better than proprietary ones. If they'd lose certain capabilities in a crisis and competitors would lose others, are there mutually beneficial opportunities for trade and collaboration?

Finally, many leaders think crisis management is not their job. That's why they hired risk-mitigation and security experts. But creating organizations that are strong in the face of uncertainty requires a new mindset—and that must be driven from the top down. By developing a culture and mechanisms that support superior adaptive capability, companies will inoculate themselves against a range of threats, not just pandemics. They'll become more resilient and competitive in the complex and uncertain business of business.

EDITOR'S NOTE: *This is an updated version of an article originally published in the May 2006 issue of* Harvard Business Review *under the title "The Organization: Survival of the Adaptive."*

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