

The Harvard Professor and Thinkers50 member explains the importance of adopting a mindset of 'execution as learning'.

Thought Leader Interview:

Amy Edmondson

by Karen Christensen

You have compared today's organizations to 'complex adaptive systems'. Please explain.

A complex adaptive system contrasts with a mechanical system. With a mechanical system, cause and effect are clear and linear: if you push on a certain lever, a particular part of the system will be affected in a predictable way. In contrast, complex adaptive systems have multiple interrelating parts with complex relationships, so that if you push on a lever over here, what happens 'over there' is not predictable and is likely to be non-linear; it could even lead to an extreme reaction.

This makes these systems sound a bit chaotic, but they are also dynamic and adaptable. Much like the systems found in nature, they self-regulate — they change in response to both internal and external triggers. Examples include an embryo, an ant colony and a hospital. What these things have in common is that they encompass a number of similar elements (cells/ants/people) and they self-organize in reaction to internal and external disruptions. The human body is another prime example: if I eat a turkey sandwich and a banana for lunch, my body will figure out how to get these diverse inputs reallocated into my cells.

Like their counterparts in nature, organizations are complex adaptive systems. We err when we think of the modern organization as a machine. A long time ago, it was all about designing an assembly line or a work process and assuming it would behave as we intended, in a linear and predictable way. It could also stay stable for an extended period of time, reliably producing results. But organizations are made up of human beings who are complex adaptive systems in their own right, and who increasingly do knowledge work rather than physical work, which means organizations have become even more complex and (more or less) adaptive systems. Understanding the organic and highly-interrelated nature of organizational systems is an important mindset for today's leaders, because they have to recognize that they can't control results anymore — they can only influence them.

Until recently, the word 'team' has been used as a noun; but you believe we should focus on 'teaming' as a verb. Please explain.

The knowledge required to successfully carry out work now takes many forms and resides in many locations, and things change too

TEAMING IS CRITICAL TO SUCCESS WHEN ANY OF THE FOLLOWING CONDITIONS ARE PRESENT:

- When the work requires people to juggle multiple objectives with minimal oversight.
- When people must be able to shift from one situation to another while maintaining high levels of communication and tight coordination. This situation literally defines the practice of teaming.
- When it is helpful to integrate perspectives from different disciplines.
- When collaborating across dispersed locations.
- When pre-planned coordination is impossible or unrealistic due to the changing nature of the work.
- When complex information must be processed, synthesized and put to good use quickly.

quickly to rely on static structures like stable teams. Rather than focusing on building great teams to accomplish static tasks and goals, leaders should focus on *teaming* as a verb: teaming is a dynamic activity that involves coordinating and collaborating without the benefit of stable team structures. This approach is needed because many organizations now demand a level of staffing flexibility that makes stable teams (composed of the same individuals for a period of time) increasingly rare.

Of course, teaming still relies on old-fashioned teamwork skills, such as recognizing and clarifying interdependence, establishing trust, and figuring out how to coordinate activities; but there usually isn't any time to build a foundation of familiarity and shared experience through working together. In the realm of teaming, people need to develop a new capability for sharing crucial knowledge quickly; they must learn to ask questions clearly and frequently; and they must make the small adjustments through which different skills and knowledge are woven together into timely products and services.

Why should managers care about teaming?

Because it is the engine of organizational learning. By now, we all know that organizations need to constantly learn in order to thrive in a world of continuous change; but *how* they learn is not as well understood. One key way learning happens is through teaming: products and services are created by interdependent people and processes, and for organizations to improve and innovate, crucial learning must take place within these smaller, focused units of action. And because the environment keeps changing, people need to keep working together to figure out

new ways of doing things. This is why teaming is at the heart of organizational learning.

You have said that today's most effective leaders differ significantly from their counterparts in yesterday's routine-intensive organizations. How so?

The primary difference lies in the mindset. Even though I believe most managers today understand the need for horizontal collaboration, flexibility and learning, it is all-too-easy to continue to work with a mindset that I call 'organizing to execute'. Organizing to execute implicitly values *control* and *efficiency* over innovation, experimentation and learning. Many leaders might have an espoused theory that 'innovation is critical', yet on a deeper level, they still believe it's their job to have all the answers and to tell people what to do (and how to do it.) That is no longer a viable approach: today's most effective leaders empower and enable complex work that gets done through complex collaborations.

What should managers replace the mindset of 'organizing to execute' with?

It should be replaced with a mindset that I call 'organizing to learn', which, at its core, requires a leader to recognize that she doesn't know everything. That sounds simple, but the human mind works against us in this respect: our brains tell us that they see 'reality', leaving us confident that our view of things is the right one. Organizing to learn involves a genuine humility about the limits of what you know. This mindset is driven by a sense of curiosity and commitment to accomplishing amazing things, but knowing that you can't do it alone — that you need to create conditions whereby people can jump in and learn as they go. Of course, this mindset is not appropriate for every work situation, because there are times when the answers are straightforward; but it is vital for a growing number of scenarios.

Organizing to learn is a way of leading that encourages critical teaming behaviours to promote 'collective learning'. Collective learning includes such activities as sharing and analyzing information; obtaining and reflecting on feedback from customers or others; and active experimentation. Individual behaviour within such an environment includes:

- asking questions;
- sharing information;
- seeking help;
- experimenting with unproven actions;
- talking about mistakes; and
- seeking feedback.

You have identified four pillars of teaming; please summarize them.

The first is *speaking up*, because teaming depends on honest, direct conversations between individuals. Speaking up is particularly important when confronting problems or failures

of any kind. When people are willing to engage with each other openly, they are better able to make sense of the larger shared work and more likely to generate ideas for improvements.

The second pillar is no surprise: *collaboration*. Teaming requires a collaborative mindset and behaviours — both within and outside a given unit of teaming — to drive the process. It involves discussing what’s working and what’s not, and perpetually seeking input and feedback. This stems from genuinely valuing what others bring to the shared task.

The third pillar is *experimentation*, which means expecting not to be right the first time, and learning from the results. It involves reaching out to others to assess the impact of one’s actions on them, and also testing the implications of one’s ideas with respect to what others are thinking.

The fourth and final pillar is *reflection* — the habit of critically examining the results of our actions to assess results and uncover new ideas. Some teams engage in this on a daily basis, others at a natural break in the project — such as at half-time for sports teams.

What are some of the barriers to teaming?

One big one is what Stanford Social Psychologist **Lee Ross** calls ‘naïve realism’. As indicated earlier, we believe that we see reality as it is, rather than reality as filtered through our own experiences. That doesn’t get us into much trouble until we are in an important situation and encounter someone who sees things very differently, in a way that is essentially incompatible or at odds with the point we’re trying to make. When this happens, our natural instinct is to think the other person is missing the point — not that we, too, might be missing something important.

Obviously conflicts are bound to occur, but the reason naïve realism is problematic is that, instead of thinking, “Oh, isn’t this interesting; this person sees things differently!”, we think, “Oh no; this person is being difficult and stubborn, and is not as competent as I am.” We tend to engage in what are called ‘interpersonal attributions’ — which are, for the most part, unhelpful. Once I have more or less concluded that ‘you are the problem,’ I am automatically less equipped to do what it takes to engage in helpful behaviours — such as really listening and exploring the possibility that my own view might be limited in important ways.

Another big barrier to teaming is the fact that silence is much easier than speaking up. When leaders fall into a ‘do it my way’ management style, it silences nearly everyone except the person with the loudest voice. But silence in today’s environment can be deadly; it means good ideas and possibilities don’t bubble up, and problems don’t get addressed.

What is the Process Knowledge Spectrum, and what role does it play in all of this?

By process knowledge, I mean knowledge about how to produce a desired result, regardless of whether that is an automobile, a

ORGANIZING TO EXECUTE VS. ORGANIZING TO LEARN		
Management Approach	Organizing to Execute	Organizing to Learn
Hiring	Conformers, rule followers	Problem solvers, experimenters
Training	Learning before doing	Learning from doing
Measuring Performance	Did YOU do it right?	Did WE learn?
Structuring Work	Separate expertise	Integrate expertise
Employee Discretion	Choose among options	Experiment through trial and error
Empowerment Means	Employees can deviate	There is no script: improvise from the script in special circumstances
Process Goal	Drive out variance	Use variance to analyze and improve
Watercooler Talk	The weather	The work
Business Goal	Make money now	Make money later
Works When	Path forward is clear	Path forward is not clear

hamburger or a successful surgery. The more knowledge we have about how to achieve the desired result — for instance, how to cure strep throat — the more ‘mature’ the knowledge; the less knowledge we have — for example, how to create an affordable car with no carbon footprint — the less mature the knowledge.

When process knowledge is mature, as in a manufacturing setting, uncertainty is low: employees can follow a prescribed set of directions and get a certain result. At the other end of the spectrum are innovation operations, where little is known about how to obtain the desired result. This includes ambitious goals like curing cancer or designing the next generation of green vehicles, along with smaller-scale ambitions like designing a new kitchen gadget or implementing a new IT system. Because prior

experience in achieving the goal is limited, making progress requires risk taking and experimentation.

In the middle are complex operations. For example, hospitals, where some knowledge is mature — such as the procedure for drawing blood — but much knowledge, such as how to treat a rare disease or the mix of patients to expect on any given day, is unknown or in flux. In these settings, teaming is particularly valuable.

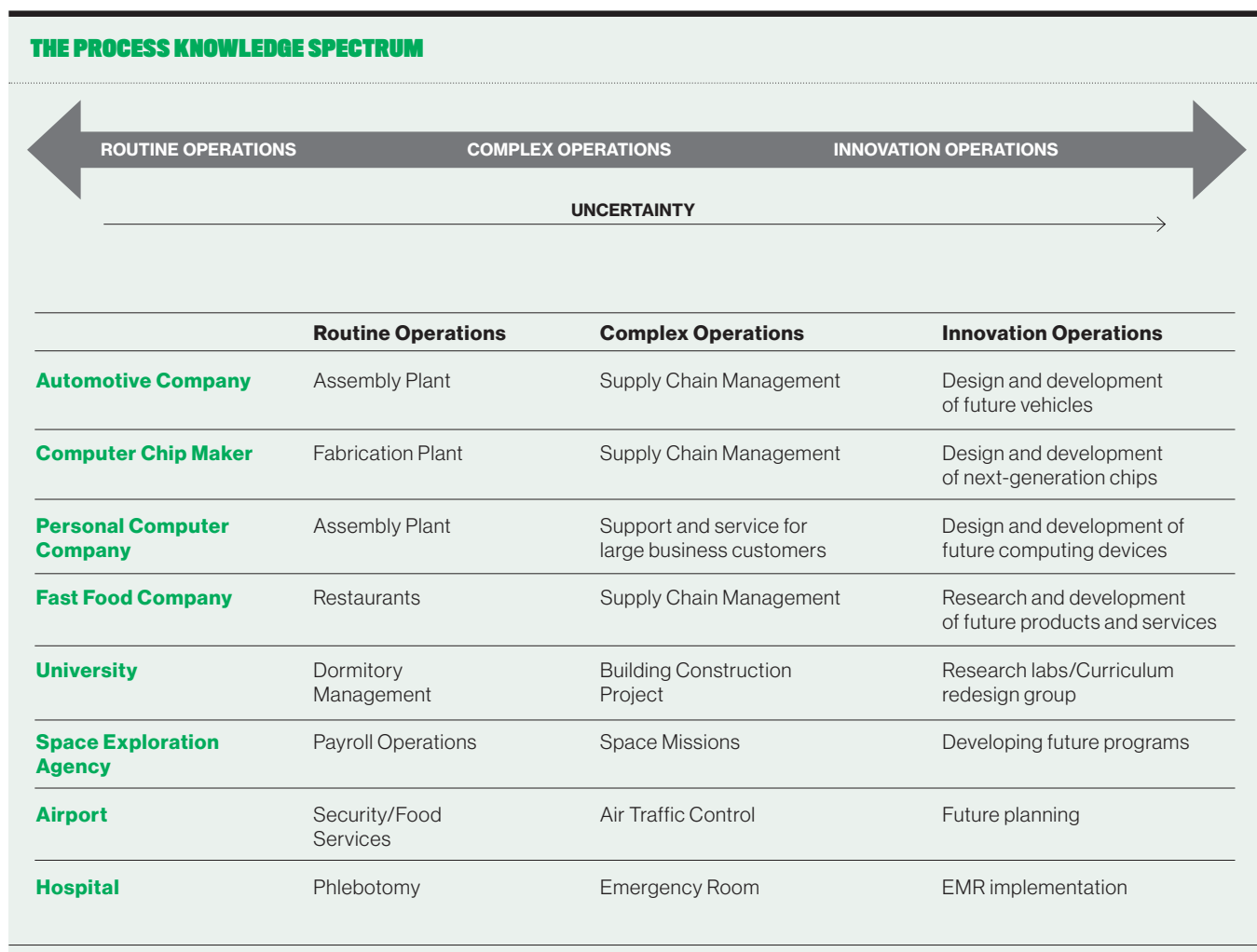
Although most organizations encompass all three contexts in their operations — routine work, complex systems and innovation — one usually dominates the culture and the managerial approach. Unfortunately, most managers don't consciously think about where their work sits on the Process Knowledge Spectrum, so they often fail to recognize when a shift in the environment

calls for a different approach.

You describe the pinnacle of teaming as a state of 'execution as learning'. Please describe it, and how organizations can move towards it.

Execution as learning means getting work done while being highly engaged in the process of finding ways to do it better. Its defining attribute is the integration of constant, sometimes unremarkable, small-scale learning into day-to-day work. This can range from very small improvements on a production line, which shave a tenth of a second off a procedure, to scientists working in labs, trying to make big discoveries. In these cases, the workers see the work itself as an interesting puzzle at all times.

We tend to think of learning and execution as separate



entities: you get your work done, and you do your learning off line. You might do some training every now and then, to update your skills; or you might go to school for a long time to obtain a Law degree, and once you graduate, you begin to practice law. But that isn't how it works anymore in a fast-paced field of any kind: you need to be *constantly* learning.

Which organizations provide the best examples of execution as learning?

One that is great at it is **IDEO**, the product and service design consultancy. Its employees are on a different team for every project and may be on multiple projects at the same time. As a result, they get very good at a) getting up to speed and b) 'getting over' themselves. It's all about the project, and integrating each

THE PROCESS KNOWLEDGE SPECTRUM (CONT'D)

Routine operations: Whether you're making laptops, toasters or cars, every assembly plant relies on and applies well-developed and precisely codified process knowledge. There is no room for uncertainty. Learning is largely focused on improvement and making the existing process more accurate, less expensive and less time consuming. In short, success equals improved efficiency.

Complex operations: Uncertainty about arrival times, customers' specific needs and unpredictable interactions make these operations challenging. Although knowledge of how to produce most of the specific results exists in a reasonably mature state for some situations, many can be difficult to predict. The combination of tasks is thus constantly shifting; often, old and new tasks interact to produce novel, unexpected results. The most prominent form of learning in this context is problem solving, which may involve collecting data to better understand patterns of customer arrival and need, designing less chaotic operations. Perpetual problem solving is a way of life in these settings.

Innovation operations: The primary purpose here is to experiment and generate new possibilities. Success is found in novelty. The development of new, ground-breaking products is increasingly dependent upon collaborative teaming and presents a complex set of challenges. By definition, new product development means working without a blueprint. Designers, engineers, marketers and researchers actively and continually learn in order to come up with new products and services to help their companies remain competitive. Team boundaries may be porous; individuals may leave the project at different points during the process, and roles may shift as the project progresses. Failure along the way is frequent and expected.

other's personal experiences to come up with new, hopefully better, ideas. To say that people at IDEO speak up freely would be an understatement: letting a colleague know that you think a design is flawed is actually seen as a sign of respect.

Another truly exemplary organization is **Intermountain Healthcare**, a large integrated health care delivery system based in the southwestern U.S. that is probably the most magnificent learning organization I've come across. Teams of senior clinicians who are experts in different areas of medicine use their experience and research to develop a protocol — essentially a list of steps that staff should follow when treating patients with particular diseases. These protocols are then built into the hospital's computer systems to guide clinical decisions; but the 'secret sauce' for encouraging compliance is this: all clinicians are invited to use the protocol as a starting point, not as the law. Anytime a doctor's judgment suggests a different action than what is in the protocol, she should rely on her judgment. The only requirement? She must record what she actually did for the patient, feeding this information back into the system. This allows the expert teams to learn from physicians' on-the-job experience, and periodically, the teams study the data to discover what changes may be needed. Patients are given care that is rooted in knowledge of the latest medical literature, and at the same time, the system allows for a state-of-the-art to develop through an ongoing 'learning loop'. The protocols themselves keep improving and become more patient-specific.

What key challenges lie ahead for organizations who want to embrace teaming?

We face some monumental collaborative challenges: transforming health care delivery systems, creating radically new business models, designing innovative ecosystems for collaboration and learning new ways to live together in sustainable communities in the future, to name a few. Most of these challenges cannot be addressed by a single organization or even by single sectors working alone. Progress for our society will require teaming across disciplines, companies, sectors and nations. The most successful organizations will be the ones that constantly work to make their processes, products and services better, and in today's world, that requires teaming. **R**

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