The adaptable corporation

Article at a glance

Most companies are far better at executing their current activities than at adapting to long-term changes in the business environment. Very few can do both well.

Three barriers to adaptability are deeply rooted in the nature of organizations: inflexibility in the mental models of their managers; organizational complexity, driven by the demands of execution; and mismatches between current resources and future opportunities.

Overcoming these barriers requires a rethinking of what GE's former CEO Jack Welch has called an organization's "social architecture"—the combination of individual behavior, structure, and culture—which determines a company's long-term performance.

McKinsey&Company

The **adaptable** corporation

To survive, organizations must execute in the present and *adapt to the future. Few of them manage to do both well.*

Eric D. Beinhocker

Any business faces two basic demands: it must execute its current activities to survive today's challenges and adapt those activities to survive tomorrow's. Since both executing and adapting require resources, managers face an unending competition for money, people, and time to address the need to perform in the short run *and* the equally vital need to invest in the long run. This problem raises an important question— is it possible to do both well or is there an inevitable trade-off between executing and adapting?

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Executing versus adapting

Tom Peters and Bob Waterman were among the first popular writers to draw attention to the managerial implications of this challenge, in 1982's *In Search of Excellence,*[1] where they argued that organizations must simultaneously be "tight" in executing and "loose" in adapting. This dialectic has been a central theme in management literature ever since: James Collins and Jerry Porras, for example, note the importance of both control and creativity in *Built to Last,*[2] Richard Foster and Sarah Kaplan examine the need to balance operating versus innovating in *Creative Destruction,*[3] and Michael Tushman and Charles

O'Reilly paint their vision of an "ambidextrous" organization that can operate as well as innovate in *Winning through Innovation.*[4] One of the best-known and most-cited academic papers on the topic, written in 1991 by Stanford's James March, used the memorable terms "exploration" versus "exploitation."[5]

Each writer's language and nuances may be different, but it is no coincidence that the yin-yang theme of opposing challenges keeps cropping up. The evidence suggests that most companies are far better at the executing half of the dialectic than at the adapting half. Very few do both well.

In two major studies, published in 2002 and 2005 respectively, Robert Wiggins, of the University of Memphis, and Tim Ruefli, of the University of Texas at Austin, show that while many companies can manage short-term bursts of high performance, only a few sustain it in the longer run. The authors stratified a sample of 6,772 companies over 23 years into superior, modal (middle), and inferior performers in their industries.

[1] Thomas J. Peters and Robert H. Waterman Jr., *In Search of Excellence: Lessons from America's Best Run Companies*, New York: HarperBusiness, 2004.

[2] James C. Collins and Jerry I. Porras, *Built to Last: Successful Habits of Visionary Companies*, New York: HarperCollins, 1997.

[3] Richard Foster and Sarah Kaplan, *Creative Destruction: Why Companies That Are Built to Last Underperform the Market—And How to Successfully Transform Them*, New York: Currency, 2001.

[4] Michael L. Tushman and Charles A. O'Reilly III, *Winning through Innovation: A Practical Guide to Leading Organizational Change and Renewal*, revised edition, Boston: Harvard Business School Press, 2002.

[5] James G. March, "Exploration and exploitation in organizational learning," *Organization Science*, 1991, Volume 2, Number 1, pp. 71–87.

Only 5 percent of these companies remained in the superior stratum for 10 years or more.[6]

Wiggins and Ruefli concluded that the short-term performers were successful executers that lost their way when the environment shifted. All sources of competitive advantage are temporary, and very few companies can create new sources of advantage after their historic sources decline.

Taking another angle on the problem, Foster and Kaplan point out (in *Creative Destruction*) that only a very small population of companies has endured for a very long time: for example, of the original Forbes 100 companies, in 1917, only 13 have survived independently to the present day. These companies must in some sense be highly adaptable, having endured the Depression, World War II, globalization, and enormous changes in markets and technologies. Yet as the authors observe, the long-term survivors, with the exception of GE, have been mediocre to poor performers relative to their industries and the overall market.

We thus have, on the one side, high-performing executers that can't sustain their performance and, on the other, long-term adapters that don't perform well. Companies that can both execute and adapt are very rare indeed. Wiggins and Ruefli found that fewer than 0.5 percent of the companies in their sample stayed in the top stratum for more than 20 years. Only three companies—American Home Products, Eli Lilly, and 3M, or 0.04 percent of the whole—made it to the 50-year mark. (This sample didn't include multibusiness companies, such as GE.)

Why is adapting *and* performing well so hard? The answer is that the demands of execution create deep barriers to adaptability, and these barriers afflict every organization. Overcoming them requires a fundamental rethinking of what GE's Jack Welch calls an organization's "social architecture"—the combination of individual behavior, structure, and culture—which shapes long-term performance.

Barriers to adaptability

Any organization faces many potential barriers to adaptability, some specific to itself. We will focus, however, on three that are deeply rooted in the nature of organizations and thus widely shared.

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[6] Robert R. Wiggins and Timothy W. Ruefli, "Sustained competitive advantage: Temporal dynamics and the incidence and persistence of superior economic performance," *Organization Science*, 2002, Volume 13, Number 1, pp. 81–105; and Wiggins and Ruefli, "Schumpeter's ghost: Is hypercompetition making the best of times shorter?" *Strategic Management Journal*, 2005, Volume 26, Number 10, pp. 887–911.

People: The price of experience

Much has been written about recent research in behavioral economics showing that managers and other decision makers are not as perfectly rational as traditional economic theory assumes.[7] This research tends to focus on common biases and errors, which affect the quality of decision making. Such biases can undermine adaptability; the well-studied bias of overoptimism, for example, can make organizational-change efforts seem less urgent.[8] What is less well known is that behavioral research also offers insights into why people become set in their ways and have difficulty adapting to change.

We've all had the experience of arguing with people and believing that the evidence for our position is crystal clear, though the other person "just doesn't get it." Why is it that people sometimes "just don't get it," even in the face of overwhelming evidence?

The answer may lie in the way we learn and categorize information in our mental models.[9] Many cognitive scientists believe that one important way people learn involves condition-action (or if-then) rules. A child might, for example, learn that, "If the stove is hot, then don't touch." Through experience, we accumulate a storehouse of such rules. Our environment gives us feedback about which do and don't work. Over time we tend to give more weight to those that have worked

*Mental models become more rigid, more **locked in,** and more averse to novelty as we gain experience*

in the past. Mental models also organize rules into complex hierarchies and webs of relationships. A child, for example, might have a hierarchy of rules related to hot things, with a general rule—"don't touch"—as well as subcategories of specific forms of behavior for ovens, radiators, food, bathwater, and the like.

This set-up of rules, weightings, and hierarchies has tremendous benefits. It enables us to learn from experience, to make decisions using ambiguous information, and to make inferences across experiences. (A child might, for example, categorize a radiator as *like* an oven; both are hot and not to be touched.) But the downside is that our mental models tend to become more rigid, more locked in, and more averse to novelty as we gain experience.

[7] Charles Roxburgh, "Hidden flaws in strategy," *The McKinsey Quarterly*, 2003 Number 2, pp. 26–39 (www .mckinseyquarterly.com/links/21100).

[8] Dan Lovallo and Daniel Kahneman, "Delusions of success: How optimism undermines executives' decisions," *Harvard Business Review*, July 2003, Volume 81, Number 7, pp. 56–63 (www.hbr.com).

[9] John H. Holland, Keith J. Holyoak, Richard E. Nisbett, and Paul R. Thagard, *Induction: Processes of Inference, Learning, and Discovery*, Cambridge, MA: MIT Press, 1986.

When we are young and inexperienced, our hierarchies of rules are fairly shallow, so our views of the world are relatively general. This way of thinking has advantages and disadvantages. The advantage is that such mental models are easy to change: new experiences are readily absorbed, and reorganizing the hierarchy of rules isn't very difficult, because there isn't much to reorganize. The disadvantage is that we are less likely to respond correctly in unfamiliar situations. Hence the stereotype that young people are more adaptable but also more likely to behave inappropriately.

As we gain experience, our rule hierarchies fill up and the situation reverses: we have a larger collection of specific experiences and more feedback on what has and hasn't worked. Our mental models grow into complex structures of categories, interlinked rules, and weightings. We become less likely to perceive experiences as totally new and instead try to relate them to previous ones, which we group into existing categories. Once in a while, we encounter something outside our experience and must then create a new category or rearrange an existing one. As mental models become more complex over time, major rearrangements become more difficult. Reorganizing an older, more experienced mental model resembles reorganizing General Motors, whereas reorganizing a younger, less experienced model is more like reorganizing a start-up. Mental models tend to settle over time, and bigger and bigger shocks are needed to shake them up.

This is not an ageist argument; certainly there are 20-year-old fuddy-duddies and adaptable people of 70. But in broad terms, the structures of mental models change over time, and each stage of development has its strengths and weaknesses.

The implications for organizational adaptability are critical. Companies tend to be organized as hierarchies, with the most experienced, successful people on top. This arrangement presents a trade-off: the mental models at the top are usually among the best for execution in a stable environment. These executives have extensive experience and a large storehouse of specific responses that are quite likely to be appropriate.

Yet when the environment changes significantly, such individuals may have difficulty recognizing the change and then, once they do, may draw too heavily on what has worked in the past. This kind of inertia helps to explain the *hero-rogue syndrome*: a CEO executes successfully in one environment, is lauded by the press and investors, and then falls off a cliff when the environment changes. It also helps to explain why many turnarounds involve wholesale changes in top management: it is often easier and faster to change which people occupy the executive suite than to change their mental models.

Structure: The risk of complexity catastrophes

Organizations can be viewed as a form of network in which webs of people interact. A very general phenomenon in networks, called a *complexity catastrophe*, helps explain why large organizations often find it harder than small ones to adapt.[10]

The idea is simple. In any network with more than one connection per node, as the number of nodes grows, the number of connections or interdependencies grows even faster. (A three-node network where everything is connected to everything else has three connections, for instance, but a four-node network has six.) The more interdependencies, the more potential for conflicts that constrain the range of solutions. Getting three friends to agree on where to meet for dinner might be easy, for example, but getting six friends to agree is much more difficult because one, say, likes meat, another is a vegetarian, yet another has to stay near home, and so on. Conflicting constraints make change difficult because a positive change in one part of the network can ripple through and have a negative impact somewhere else. Highly interdependent systems, such as large software programs, jet engine designs, and international trade agreements, can sometimes become so complex that they go into gridlock and change becomes impossible. That is a complexity catastrophe.

An example of a complexity catastrophe in the business world was Dell's assault on the PC industry in the 1980s and '90s. In 1984 a 19-year-old Michael Dell, using $1,000 raised by selling his stamp collection, started a company that 13 years later eclipsed IBM, Compaq, HP, Fujitsu, and other corporate giants to become the world's leading seller of PCs. A natural question is, if Dell's low-cost, customer-friendly business model was so successful, why didn't any of these larger, better-resourced competitors imitate it? Companies can often succeed in changing one dimension of their business model, but simultaneously changing multiple dimensions inevitably leads to conflicting constraints. In order for the incumbents to move to a direct sales model for consumers they would have had to manage conflicts with their existing retail channels, for example, as well as simultaneously change their manufacturing and logistics systems and brand positioning. As a start-up, Dell had more degrees of freedom than the established players, making it easier for it to create a new business model than for the incumbents to adapt theirs.

*Highly interdependent systems can sometimes become so complicated that they go **into gridlock** and change becomes impossible*

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[10] Stuart Kauffman, *At Home in the Universe: The Search for the Laws of Self-Organization and Complexity*, New York: Oxford University Press, 1995.

As an organization's size and complexity grow, its degrees of freedom drop. Yet size and complexity are just what execution demands. Scott Page, of the University of Michigan, has studied why some organizations are complex and hierarchical while others are simple and flat. He concludes that organizations evolve in response to the problems they have to solve. Complex problems that must be divided into lots of chunks and then carefully sequenced and coordinated require deep hierarchical organizations with many managers and traffic cops. Simpler tasks can be solved by simpler, flatter organizations.[11] The execution tasks of most large companies tend to be quite complicated, whether the challenge is getting oil from remote parts of the world into the cars of millions of consumers or coordinating risks in a global bank. This complexity of execution inevitably leads to interdependencies and organizational complexity, which in turn create the potential for gridlock: a complexity catastrophe.

Resources: The path to dependence

In 1959, long before the idea of a tension between exploration and exploitation became popular in management circles, Edith Penrose, an economist at the London School of Economics, published a slim but influential volume: *The Theory of the Growth of the Firm*.[12] Penrose viewed this growth as a process of search and exploration. Management teams seek out new opportunities in the environment and then use corporate resources to exploit them.

By resources, Penrose primarily meant physical assets and talent, but modern theorists have extended her definition to include less tangible but equally important resources, such as knowledge, brands, reputations, and relationships. In short, resources are whatever management uses to exploit opportunities.

This theory has two implications. First, the particular opportunities that management wants to exploit determine a company's resources. A team that sees opportunities in nanotechnology, for example, will find the relevant researchers and machines and then attempt to build a brand and a reputation for expertise in that field.

The flip side is that a company's resources define and limit its ability to explore. Say that a management team is running a fish-processing plant and the CEO wakes up one day enamored of nanotechnology. The opportunity may exist, but the company's resources (canning machines, its workers' skill at filleting fish, and a brand such as Taste o' the Sea) confine its real opportunities to fish processing.

[11] Scott E. Page, "Two measures of difficulty," *Economic Theory*, 1996, Volume 8, Issue 2, pp. 321–46.
[12] Edith Penrose, *The Theory of the Growth of the Firm*, revised edition, Oxford: Oxford University Press, 1995.

According to Penrose, management's job is to search for profitable business plans. Naturally, the search is limited to plans the managers believe they can execute. The organization's resources determine what those plans will be. But in executing a plan, management changes a company's configuration of resources. As the company hires people, invests in assets, and so on to execute its current plan, those actions define its future opportunities. A coevolutionary loop thus links the resources a company employs to execute today with the business plans of tomorrow.

Another important barrier to innovation is the coevolution of plans and resources, which creates what researchers call "path dependence" in the structure of organizations. In other words, history matters because decisions that helped companies execute in the past constrain their ability to adapt in the future. A company therefore might be stuck with the wrong resources to go in a given direction because reconfiguring them would take too much time and money.

Creating an adaptive social architecture

Thus three critical and widespread barriers to adaptability are a lack of flexibility in individual mental models, complexity catastrophes, and path dependence in resources. Overcoming these barriers isn't easy—if it were, far more than 0.5 percent of all companies would perform well over many decades. But by understanding the nature of the barriers, we can begin to address them.

Companies have two ways of overcoming these barriers. One is what Jack Welch called the "hardware" of an organization (its structure and processes), the other the "software" (norms and culture). The two sides must be consistent and mutually reinforcing to create a coherent social architecture.

Organizational hardware

The hardware fixes for the adaptability problem, though challenging, are in many ways the easier ones. Companies can use three key approaches:

- Reduce hierarchy.
- Increase autonomy.
- Encourage diversity.

Reducing the level of hierarchy can help to prevent a small number of mental models from dominating the organization, while increasing the level of autonomy helps to reduce interdependencies and to lower the risk of complexity catastrophes. Encouraging a diversity of mental models, resources, and business plans increases the odds that if the environment shifts, a company will have, somewhere inside it, the ability to respond.
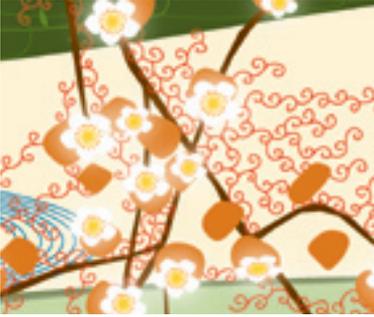
Achieving this kind of shift requires changes not only in the organizational chart but also in important processes. Human resources (HR), for example, must support diverse mental models through hiring, training, and career paths. Likewise, strategic planning must support experimentation, and budgeting must promote appropriate trade-offs between efficiency and flexibility.[13]

In the 1990s, many organizations went down this path, chopping out layers of hierarchy and giving business units more autonomy. For some companies, these moves brought greater adaptability, but for many they created execution and control problems that forced the corporate center to reassert itself and often negated gains in adaptability. Why? Because hardware is only half of the story; an adaptable social architecture also requires critical changes to organizational software.

Organizational software

Flatness, autonomy, and diversity are diametrically opposed to the control, coordination, and consistency that successful execution requires. But the software of norms and culture can help organizations have their adaptive cake and execute it too.

An organization's norms are "should" or "ought" statements about what it regards as the right, appropriate, or expected thing to do in a given situation. Taken together, norms create an organizational culture. Just as Tolstoy famously said, "All happy families resemble one another, but each unhappy family is unhappy in its own way," the norms of companies that are both high performing and adaptive have a family resemblance. These norms fall into three categories:

- *Cooperating norms.* One of the key roles of a hierarchy is to enforce cooperation among individuals—in particular, to ensure that people coordinate tasks and share information. Norms that encourage trust, reciprocity, and shared purpose can achieve the same effect, but in a more flexible way.

- *Performing norms.* One of the arguments against increased autonomy is the diminution of senior management's centralized control over

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[13] Eric D. Beinhocker, "On the origin of strategies," *The McKinsey Quarterly*, 2000 strategy anthology: On strategy, pp. 167–76 (www.mckinseyquarterly.com/links/21101); and Eric D. Beinhocker and Sarah Kaplan, "Tired of strategic planning?" *The McKinsey Quarterly*, 2002 special edition: Risk and resilience, pp. 48–57 (www.mckinseyquarterly.com/links/21102).

performance. Companies can counter this problem by instilling norms that create strong expectations for individual performance, so that employees will go the extra mile, take the initiative, be honest and transparent, and believe that success will be rewarded.

- *Innovating norms.* Structures and processes that support experimentation and diversity must have norms to back them up. Vital innovating norms include the belief that facts matter more than hierarchy, that good ideas can come from anywhere, and (to borrow a phrase from Jim Collins and Jerry Porras) that "good enough never is."

Explore & Exploit Incorporated

An example will help to illustrate how the hardware and software sides of a business can work together to overcome the barriers to adaptability. Imagine a company called Explore & Exploit (E&E) Incorporated, which has a flat organizational structure of highly autonomous business units and minimal hierarchy within them. In addition, the organization has an innovating norm—"speak truth to power"—that encourages younger, more junior people to challenge senior colleagues by pointing to facts. This combination of structure and norms counters mental-model lock-in. In addition, E&E's HR policies encourage practices such as hiring people from a variety of backgrounds and rotating employees through businesses and experiences, thereby creating a natural diversity of mental models.

The autonomy of the units means that the organization has relatively few interdependencies. Changes and innovative ideas don't require approval from many parts of the organization, so there is less potential for complexity catastrophes. At other companies, the result might be fiefs and a lack of cooperation, but at E&E a deeply embedded "one-company" norm and a shared sense of purpose counteract this tendency. Furthermore, high expectations for individual performance, a competitive spirit among units, and a culture of accountability (backed by appropriate HR and budgeting systems) enable senior executives to manage near-term performance without centralizing control.

Finally, E&E's strategy process encourages the creation of "portfolios of initiatives": experiments in medium- and long-term growth opportunities.[14] The processes that support experimentation are backed by an innovating norm to "fail small and succeed big." One important benefit is that not all of E&E's resources address the near-term demands of the business; the company can array a diverse base of talent, assets, partnerships, and other resources to

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[14] Lowell L. Bryan, "Just-in-time strategy for a turbulent world," *The McKinsey Quarterly*, 2002 special edition: Risk and resilience, pp. 16–27 (www.mckinseyquarterly.com/links/21111).

exploit growth opportunities and hedge against shifts in the environment. E&E manages the cost implications of this approach by requiring its units not only to maintain vibrant portfolios of initiatives but also to be cost competitive with their industry peers. This pressure drives innovation in near-term execution as well as long-term adaptation.

Of course, E&E's management still faces difficult trade-offs between the near-term benefits of scale, greater coordination, and more centralized control, on the one hand, and the long-term risks of mental-model lock-in, complexity catastrophes, and resource stagnation, on the other. The company's intense performance culture tends to drive the organization to execute well in the near term, so senior managers see their job as tilting the bias back toward long-term adaptability, without sacrificing performance. They also realize that the deeply embedded cultural norms of E&E explain its ability to perform this double act—if the norms were just slogans on the wall, both adaptability and execution would suffer. The CEO and top team thus invest substantial time in propagating and reinforcing the norms.

Executing and adapting appear to be irreconcilable opposites, and the empirical data suggest that most companies are destined to favor the former over the latter. But understanding the sources of this schism can help us to see the outlines of a potential solution. By creating a social architecture that marries a flexible structure to a cooperative, performance-driven, and innovative culture, companies can begin to overcome the problems that keep organizations from adapting to an ever-changing environment. Q

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