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Complexity leadership: Enabling people and organizations for adaptability

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> "We've got 21st century technology and speed colliding head-on with 20th and 19th century institutions, rules and cultures."
> -Amory Lovins

In 2010, IBM's CEO Study reported that the rising rate of complexity associated with increasing volatility, uncertainty and interconnectedness was the biggest challenge facing organizational leaders around the globe. In this environment, the world is operating in fundamentally different ways. As Sam Palmisano, head of IBM at the time described, incremental changes are no longer sufficient because "events, threats and opportunities aren't just coming at us faster or with less predictability; they are converging and influencing each other to create entirely unique situations." These contexts require adaptability and new ways of leading. Despite this, executives indicated that their organizations were not equipped to deal with complexity, and over half the CEOs doubted their ability to manage it.

Since that time complexity has only increased. If in 2010 we saw economies topple from complexity due to the Global Financial Crisis, in recent years it is as if the very foundations of what we know about management are being pulled out beneath us. Organizations and entire industries are being affected, with increased connectivity allowing everyday people to network and drive large-scale political, social and market disruption. For some, these are exciting times and the opportunities to lead change have never been greater. For others, the lack of clarity and speed at which complexity is increasing feels overwhelming and chaotic. For the latter, there is a growing sense of dismay about what the future holds and the inability to control it.

The key to addressing this dismay lies in arming organizations and individuals with a new way of understanding what it takes to lead in a complex world. We must leverage what we know about managing organizations for efficiency and results while incorporating new knowledge about how to lead for adaptability. To do this, we look to the theory of complex adaptive systems in complexity science. Findings in complexity theory allow us to consider how principles of organizing emanating from the physical and biological sciences can inform our understanding of adaptability in organizational contexts.

In this article, we synthesize learning from a decade-long research/practice partnership into a model of *Complexity Leadership*. We begin by explaining what complexity is and why it is changing the way we need to lead in today's contexts. We then present what our research has revealed about effectively leading organizations and people for adaptability. We conclude by offering the complexity leadership model as an overarching framework for understanding and practicing leadership in a complex world.

WHAT IS COMPLEXITY?

Although many are feeling and experiencing complexity in the workplace and in their lives, it is harder for them to describe exactly what it is. Despite the name, the concept of complexity itself is really quite simple: Complexity is about *rich interconnectivity*. Adding the word "rich" to interconnectivity means that when things interact, they change one another in unexpected and irreversible ways. Complexity scholars like to describe this as the distinction between "complexity" and "complicated." Complicated systems may have many parts but when the parts interact they do not change each other. For example, a jumbo jet is complicated but mayonnaise is complex. When you add parts to a jumbo jet they make a bigger entity but the original components do not change—a wheel is still a wheel, a window is a window, and steel always remains steel. When you mix the ingredients in mayonnaise (eggs,

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oil, lemon), however, the ingredients are fundamentally changed, and you can never get the original elements back. In complexity terms, the system is not decomposable back to its original parts.

Once we understand this, we can see complexity all around us. It occurs when networked interactions allow events to link up and create unexpected outcomes, or *emergence*. As mentioned earlier, the Global Financial Crisis (GFC) is a complexity emergence event in that a variety of factors linked up in an interconnected system and produced an outcome that was largely unpredictable, other than in the short term, and had far-reaching effects. After it happened there was no going back—organizations and economies around the world had to operate in the new reality. Moreover, the impact can be long lasting. We are still feeling the effects of the GFC, and it influences decision-making and activities in our current contexts.

In today's environment, complexity is occurring on multiple levels and across many sectors and contexts. Although many forces are driving it, the underlying factors are greater interconnectivity and redistribution of power resulting from information flows that are allowing people to link up and drive change in unprecedented ways. Complexity is transforming entire industries, with many organizations ill prepared to respond to these threats. Leaders, caught in the demands of the moment, drive efficiency and results in the core business, while at the same time new competitors are emerging that can threaten traditional core businesses. The result is that virtually every major industrial sector is facing some form of potential disruption, be it telecom with free calling from WhatsApp, automotive with ride-sharing from Uber, or financial services with free trading from RobinHood.

Perhaps no one is feeling complexity more strongly than healthcare, where volatile regulatory environments, evolving pay structures, changing patient relationships, and wearable technologies are combining to create tremendous uncertainty with respect to where healthcare will go. As one healthcare CEO describes it:

> Although we are performing well right now, the decisions I make today are going to affect what happens with our organization in the next few years. If I send us down one path and it doesn't go that direction I could be positioning my organization for a situation it can't get out of. It's like being Christopher Columbus having to pack his ships for the new world. You don't know what you are going to face: Will the world be round or will it be flat? Will there be food. . .disease? Will we run into friends or enemies? About the only thing I can do in this situation is pack the 'must-haves,' those things that help prepare you for any eventuality. So that is what I spend my time thinking about is how I can arm my organization with the 'must-haves.'

The "Order" Response

In this new reality, it is more essential than ever for organizations to adapt—to pivot in real time with the changing needs of the environment. They must fit the mantra of complexity theorists that *it takes complexity to beat complexity*. Despite this, what we see in our data over and over again is that when faced with complexity, the natural proclivity of people and organizations is to respond with order—to turn to hierarchical approaches of leading and managing change top-down. Snapping back to previously successful, ordered solutions provides a sense of control that satisfies not only the needs of managers who have been trained in traditional leadership models, but also organizational members who look to leaders to take care of them and make things "right" again.

What we see in our research is that when confronted with complexity, organizations most often seek greater accountability. They demand "more from less" and instill better risk mitigation strategies. When these fail, they turn to greater regulatory control. These "order" responses can actually do more harm than good. An example is the recording industry's response to the emergence of Napster in the 1990s. From June 1999 to February 2001, the peer-to-peer music sharing entity grew from zero to over 26 million users. For the first time ever, individuals were able to gain access to their favorite songs without having to purchase entire CDs. But the Recording Industry Association of America (RIAA) responded by filing a suit for vicarious copyright infringement under the U.S. Digital Millennium Copyright Act. The result was that in July 2001, Napster was forced to shut down.

However, the battle was far from over. In the five years following the Napster defense, a massive litigation campaign was launched by the RIAA, with more than 30,000 lawsuits aimed at targeting alleged copyright scofflaws on peer-to-peer networks. The industry not only focused on the Napster clones, but also attacked on the consumer front—striking fear into the hearts of potential downloaders. Despite this large-scale crackdown, billions of copyrighted songs nevertheless continued to be shared. What the recording industry seemed to ignore was the impetus behind the Napster explosion. They had created an easy user interface to download music, and enabled users to select one song at a time—disrupting the industry forever.

In this situation, the leaders turned to order. They pulled back to "equilibrium," focusing on the world as they wished it to be, and not as it was. Because many organizations and industries are managed based on bureaucratic organizing principles emanating from the challenges of the Industrial Age, this is a common response. When faced with challenges and the need to make decisions, leaders are trained to jump into management mode and drive control. They are biased toward order. The problem with this is that order is the enemy of adaptability, and ordered responses can stifle out the interactive dynamics needed by organizations to respond effectively to complexity.

The Adaptive Response

In complex environments, instead of order we need an adaptive response. Adaptive responses resist the pull to order and capitalize on the collective intelligence of groups and networks. Organizations that enable an adaptive response do not turn to a top-down approach. Instead they engage networks and emergence.

Emergence is the creation of new order that happens when agents (e.g., people, technology, information, resources) in a networked system combine together in an environment poised for change to generate the emergence of something that did not exist previously. In the emergence