



The New Sciences and the Learning Organization Part 6A: Thinking for a Change

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“Human beings are extremely well equipped with consciousness and the capacity of foresight. ... But the biggest difference, of great significance to business, is that human learning ... can be passed down, via the social system, to future generations. In this sense, learning becomes part of the genetic structure. ... human social systems not only learn behaviors but incorporate them into their cultural DNA.”

— Richard T. Pascale, Mark Millemann, and Linda Gioja, **Surfing the Edge of Chaos: The Laws of Nature and the New Laws of Business** (2000)

Throughout this newsletter series, we have been examining what the new sciences tell us about how individuals and teams learn within organizations. In this final set of newsletters, we will connect the different pieces of the new sciences

into a way of thinking and acting for organizational learning. We believe that an understanding of the new sciences is critical for creating organizations that can learn at the speed of change. Even though most organizations focus energy on creating products and services, and making money, they are still governed by the principles of the new sciences. The reason is that organizations are not about processes, products, or services; organizations are about the people who use processes to produce products and services. Without people, there is no organization. Human beings are living systems who exist in the living systems that we know as organizations. These living systems are governed by the principles of the new sciences.

It seems easy to say that organizations are about the people who do the work. All you have to do is to walk around an organization to see that this is, in fact, true. What is more difficult to reconcile is that most leaders don't treat people in the way that the new sciences tell us people should be treated. Most leaders still believe in treating people according to the *industrial model*, called *social engineering*. According to Pascale, Millemann, and Gioja, “*Social* is coupled with *engineering* to denote that most leaders today, in contrast to their nineteenth century counterparts, recognize that people need to be brought on board. But they still go about it in a preordained fashion.” Simply put,

most leaders still believe in the traditional industrial model for managing people, which has three premises:

- Those near the top of the organization know what must be done. People just have to wait to be told what to do.
- All change is predictable. We just have to plan, and everything will work out. Any problems are due to people who just don't understand what they need to be doing, or their inability to do what is being asked of them.
- Once everyone has been told what has to be done, everyone will *buy in, or else!* We just have to make sure that people understand their roles and responsibilities, and then we can hold them accountable. If they don't buy in, we can threaten them, or deal with them as performance problems.

The problem here is not with the traditional industrial model of *social engineering*. This model works extremely well when the situation is predictable, and the complexity of the situation is relatively low. For example, when you use a computer software program, you want someone to tell you how to use it. You want an easy-to-follow, step-by-step set of instructions. The traditional industrial approach is exceptional at meeting this challenge. However, if you want to sell people in an organization on using a new computer system, you probably won't get buy in by telling them that it will help them in their work, or that they'd

better use it *or else*. More than likely, you will get a superficial form of buy in that eventually translates into sabotage, resistance, and a lot of complaining about the new computer system. Pascale, Millemann, and Gioja call this type of challenge an *adaptive challenge*. And this kind of challenge needs a completely different approach that uses the principles of the new sciences.

All living systems, including human systems, are *complex adaptive systems*. According to Pascale, Millemann, and Gioja, "A complex adaptive system is formally defined as a system of independent agents that can act in parallel, develop models as to how things work in their environment, and, most importantly, refine those models through learning and adaptation. The human immune system is a complex adaptive system. So is a rain forest, a termite colony, and a business." Humans are not machines; they are highly complex as individuals. In groups, they are even more profoundly complex. This means that you cannot predict human behaviour in the same ways that you can predict what a machine will do. Thus, you cannot use a *industrial model* to manage people effectively. You need to use an *adaptive model* to tap into people's aspirations and intelligence. Notice that we did not say to *manage people*. The new sciences tell us that we cannot manage people. What we can do is use our knowledge of the new sciences to help engage people in the process, so that they manage themselves. And this requires a very different way of thinking from everyone in an organization, not just the leaders. According to Pascale, Millemann, and Gioja, an adaptive model for living systems — complex adaptive

systems — follows four premises:

- Stability that has become rigid is death to an organization, because this inflexibility puts the organization at maximum risk to unpredictable changes in the environment. The more rigid and inflexible the organization, the less resilient it is to change, and thus the less able it is to work with new challenges.
- Threats to the organization's well-being are compelling opportunities for the organization to move to the *edge of chaos*. This is a condition of high excitement, experimentation, and turmoil. When you are at the edge of chaos, you know what you have to do, but you don't know how to do it. So, you are *learning* how to get what you want. This learning process is extremely chaotic and messy. Often, people feel like they are on a roller coaster of highs and lows mixed together in a soup of uncertainty. However, this is precisely the type of learning experience required to build resilience and flexibility to change.
- At the edge of chaos, living systems self-organize to create new ways of working and new ways of being. This is the gift of complex adaptive systems; they produce *emergent properties*. An emergent property of a system is a new state or condition that cannot be predicted by looking at the parts of the system. You can see the emergent property only once the system is running. For example, people by themselves can behave very rationally. However, in groups, their behaviour is unpredictable. Depending on the context and circumstances, the emergent property can take different forms.

People can behave altruistically — or create riots.

- Complex adaptive systems are not predictable. The challenge is to understand the system well enough that you can change it to produce the outcome you want. If you do it right, you often get more than you expected. Complex adaptive systems always produce surprises (emergent properties). Whether you use the industrial model or the adaptive model, you will still get a surprise. When you use the industrial model, you might be surprised and perplexed to find that people don't buy in a way that taps into their internal commitment. When you use the adaptive model, you often get an astonishing surprise: people not only buy in, but they become internally committed, and they create a new system that is far more resilient to change.

"Igniting the potential of a complex adaptive system is — on purpose — not a smooth process. The journey's ups and downs are all necessary for the unfreezing and resocialization experience. ... The experience, the emotions, and the achievements alter a company like no bumpless highway could."

— Richard T. Pascale, Mark Millemann, and Linda Gioja, **Surfing the Edge of Chaos: The Laws of Nature and the New Laws of Business** (2000)

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