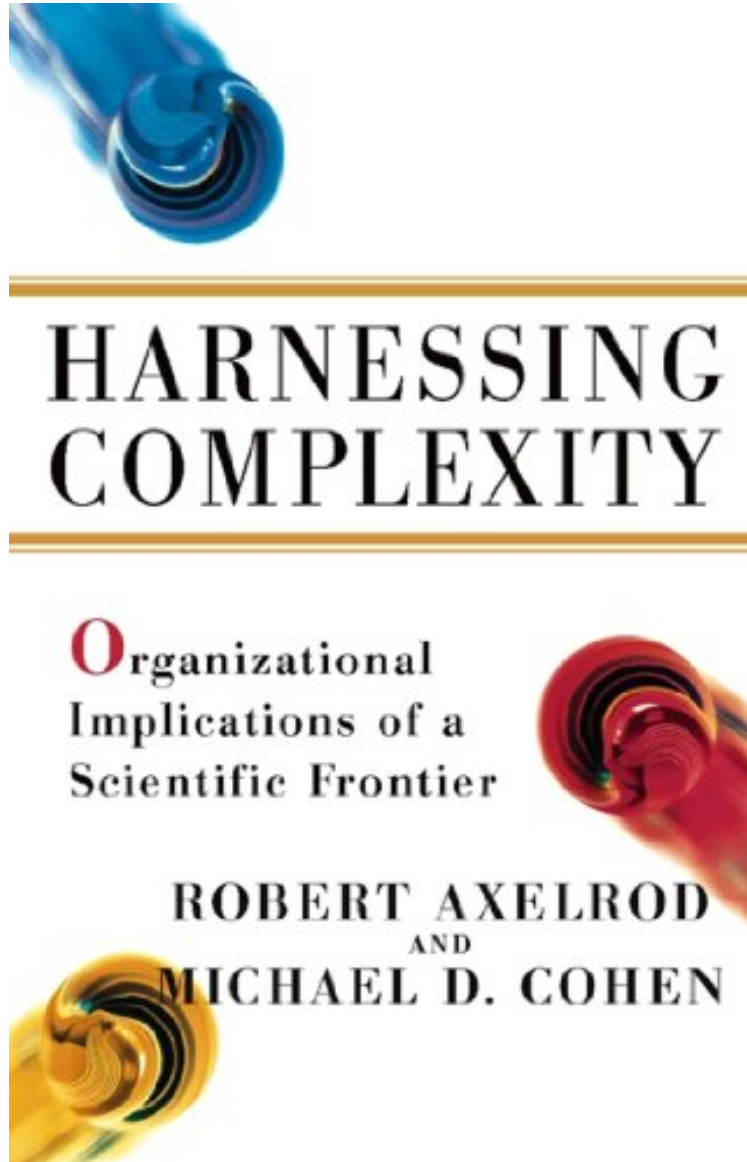


# Harnessing Complexity: Organizational Implications of a Scientific Frontier

*Michael D Cohen, Robert Axelrod*  
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**Michael D Cohen, Robert Axelrod : Harnessing Complexity: Organizational Implications of a Scientific Frontier** before purchasing it in order to gage whether or not it would be worth my time, and all praised Harnessing Complexity: Organizational Implications of a Scientific Frontier:

0 of 0 people found the following review helpful. Good change through directed evolutionBy PanchoComplexity is all around us. How can we use it to our advantage? The authors present a framework that allow "agents" (individuals,

organizations, programs, etc.) or systems (interacting collections of agents) learn from their environment and thereby take advantage of complexity to grow, profit or reproduce. The framework involves the continual improvement of "strategies" (instructions). This improvement happens through variation and selection. Some agents and systems allow modification of individual strategies, while others only allow change to agents, and implicitly, their package of strategies. The framework clearly works. Examples include evolution by natural selection, the Deming cycle, and wikis. All these bring about good change through the framework described here, even if not explicitly.

0 of 0 people found the following review helpful. ... fan of Axelrod's work (Cohen) these men are brilliant although I differ in my geo-politic as well as ... By Eric Perez I am a fan of Axelrod's work (Cohen) these men are brilliant although I differ in my geo-politic as well as cultural ideology. I suppose myself a diehard ultra-conservative less-than liberal.

2 of 2 people found the following review helpful. A beginner's view By Chris Brown As my first venture into the world of complexity and complex adaptive systems this was an interesting book. A lot of what I anecdotally thought about complexity was reinforced through the authors' own anecdotal examples. The examples were from a wide variety of situations, but were explained in a way to be understood by someone without a background in those various areas. However, I think the title was somewhat misleading. It seemed that a lot of the value of the book depended on having at least the initial, possibly intuitive, understanding of the interrelatedness of events, structure, and environment. The diversity of the areas affected by complexity would seem to make it difficult to formulate a simple step by step approach for using complexity. However, it would have been helpful if the authors spent some time on what initial or environmental conditions might have been changed in their examples and how those changes would have affected the end system.

Recent advances in the study of complexity have given scientists profound new insights into how natural innovation occurs and how its power can be exploited. Now two pioneers in the field, Robert Axelrod and Michael D. Cohen, provide leaders in business and government with a guide to complexity that will help them make effective decisions in a world of rapid change. Building on evolutionary biology, computer science, and social design, Axelrod and Cohen have constructed a unique framework for improving the way people work together. Their approach to management is based on the concept of the Complex Adaptive System, which can describe everything from rain forests to the human gene pool, and from automated software agents to multinational companies. The authors' framework reveals three qualities that all kinds of managers must cultivate in their organization: Variation What is the best way to manage the development of software? Should the problem be broken up into small pieces for programmers working independently, thus enhancing variation, or should there be a centralized hierarchy of programmers ruled by a chain of command? The authors show how the decentralized creation of variation combined with the centralized maintenance of standards was the key to the success of the Linux "open source software" project, which brought together thousands of volunteers in cyberspace to produce an operating system that can outperform Microsoft's. Interaction Why did northern Italy prosper while southern Italy remained poor? Recognizing the internal interactions of a Complex Adaptive System -- be it a national region, a company, or a nonprofit group -- reveals vital networks of trust. Axelrod and Cohen explain that in successful adaptive systems, rich networks of horizontal linkages foster cooperation and provide an advantage over other less cooperatively networked groups. In the case of Italy, voluntary associations created networks of trust in the Middle Ages that became northern Italy's critical advantage over the south. Selection Is a Pulitzer Prize better than a National Book Award? How can foundations and corporations design competitions that have a positive effect on the evolution of excellence? The authors' framework makes clear that the worst selection processes are mired in orthodox standards that have not adapted to a new environment. The best selection processes, on the other hand, are created and run by leaders who understand how the standards they use can transform their organization and its environment. This simple, paradigm-shifting analysis of how people work together will transform the way we think about getting things done in a group. *Harnessing Complexity* is the essential guide to creating wealth, power, and knowledge in the 21st century.

From Publishers Weekly In a world where companies are forced to adapt to an ever more quickly changing marketplace, where people from diverse backgrounds must work together in order to solve problems rapidly and the future is hard to predict, wouldn't it be wonderful if all this complexity could work to your advantage? Axelrod (*The Evolution of the Corporation*) and Cohen (a consultant to the Xerox Palo Alto Research Center), both professors at the University of Michigan, aim to draw on the principles of evolutionary biology, computer science and social design to explain the functioning of "complex adaptive systems" (specifically businesses), and how to improve them. They explore such abstract issues as whether to encourage variation in a rapidly changing situation (whether it refers to a diversity of products or problem-solving approaches, variety is defined as "the raw material for adaptation"); the impact of manipulating interactions (with respect to time as well as both physical and conceptual space) in an organization; and how to select and support the most viable individuals, teams, systems or business strategies that emerge. Although their schematic approach and well-drawn anecdotal examples yield pragmatic insights, Axelrod and Cohen rely on somewhat idiosyncratic terminology to make their key points: "Agents of a variety of types use their

strategies in patterned interaction, with each other and with artifacts" (authors' emphasis). While most managers are aware of complexity theory and are eager to learn how to adapt it to their organizations, some may be put off by the convoluted language used here. Agent, Raphael Sagalyn. (May) Copyright 2000 Reed Business Information, Inc. From Booklist Management theorists are increasingly turning to complexity science in their search for answers to questions about organizational behavior. Axelrod and Cohen are professors of public policy. Their perspective on complexity is on building effective teams from complex groups of individuals. Axelrod is the author of the groundbreaking *The Evolution of Cooperation* (1984) and its follow-up, *The Complexity of Cooperation* (1997). Cohen has served on the external faculty at the Santa Fe Institute, a leading research facility in the field of complexity. Drawing on their research done for a report on national information policy by the Highlands Forum under the aegis of the Department of Defense, the authors offer numerous business, political, and cultural applications for their model of complex adaptive systems. Clarifying the differences between complexity and chaos theories, they trace the principles of complex adaptive systems to evolutionary biology, computer science, and social design; and they outline three key processes of such systems: variation, interaction, and selection. David Rouse Copyright copy; American Library Association. All rights reserved Bruce Abell a managing director of the Santa Fe Center for Emergent Strategies Very very impressive! Enables readers to sense the power of the concepts. Useful for people who want an introduction to complex adaptive systems and how Axelrod and Cohen's framework might be applied.