

## Editors' introduction

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### Complex approaches for a complex world

The dramatic shift from the Industrial to the Information Age marking the beginning of the twenty-first century has come with a radical increase in global complexity promising both unprecedented uncertainty and unexpected new opportunities. It is surely no accident that along with the accelerating interconnectivity and resulting global interdependency in economies, technologies, cultural productions, and resources, there has emerged a corresponding intense interest in exploring the nature of complex systems across a wide gamut of fields in the sciences, mathematics, philosophy, and cultural studies. Known generically under the broad term "complexity theory," this research actually began at the end of World War II but has been picking up considerable steam in the past twenty years mainly due to an explosion in computational potency and sophistication as well as advances in mathematics and interdisciplinary collaborations.

These varied and sundry studies of complex systems have not only been changing the way we need to think about our increasingly complex world but are also offering new methods for effectively navigating through it as well. To be sure, there has been an increasing interest in complexity in organizational and management education that has led to a growing recognition that real world systems can't be completely designed, controlled, understood or predicted as tradition would have it. Yet the leaders of business, government, and other institutions have not necessarily kept pace with the many new developments coming out of the sciences of complex systems. On the contrary, it seems that when organizations do indeed succeed, it's frequently been *in spite of* not *because of* the way they've been led, organized, and structured. The fact remains that the majority of organizations are still being managed as if they were simple, linear, equilibrium-seeking, and isolated systems, whereas complexity research has decidedly demonstrated that thriving organizations are better understood as complex, nonlinear, far-from-equilibrium, and in vital contact with multiple environments.

### From "being" to "becoming"

Another vital issue is a change of position from that of "being" to that of "becoming" – as Ilya Prigogine put it. Traditionally, we have seen

the world in terms of a set of interacting agents or components, and the act of understanding has been associated with the identification and "calibration" of these. But the new view of the complexity sciences tells us that we live in an evolving and changing world in which any such structure is already the past, and what instead matters most may be the "perturbations" on the edge of the current structure which have a potential for a kind of structural instability that can lead to qualitative change. We may almost say that whatever can be conceived of clearly is not reality. It is at best a momentary, snapshot of reality that hides from view the processes of change and transformation that are really occurring within. Individuals, groups and organizations are all participating in a permanent, imperfect learning process in which they, their interactions and the meanings they ascribe to them are all changing over time. What we are interested in here in *E:CO* is how we can understand and live with this creative evolution.

### An international and interdisciplinary conversation

To help bridge the gap between the old way of thinking and managing and what complexity theory is offering with its new constructs, methods, and applications, this new journal, *Emergence: Complexity and Organization (E:CO)* is being offered as an international and interdisciplinary conversation about human organizations as complex systems and the implications of complexity science for those organizations. *E:CO* will be encouraging multidisciplinary contributions from all sectors of social and natural sciences and practice. Although peer-reviewed articles will be at the heart of our content, with an emphasis on communicating across boundaries, *E:CO* will also contain content in other formats including, e.g., reports, pertinent news on complexity applications in organizations, book reviews, opinion pieces, and so forth. The overall objective will be to provide information, knowledge, insights, and methods to enable organizations to become more dynamic, more adaptive, and more fostering of the emergence of innovative ways of thinking, responding, and growing.

While others explore complexity itself, as revealed through mathematical models and simulations, *E:CO* explores the emerging understanding of human systems that is informed by complexity. A recent report produced for the European Union dis-

tinguishes between “mathematical complexity” being the world of models and simulations and the emerging discipline of “social complexity” which recognizes the distinctiveness of human systems. For example the ability of humans to hold multiple identities in parallel and the pattern recognition base of human decision making challenge the application of agents operating under rules. Engineered and emergent views of human systems can coexist, creating a useful tension that drives organizational evolution. However, neither community can leverage complexity alone. Academic discussions about complexity are often biased towards quantitative research and mathematical models that are inappropriately prescribed for systems comprised of actors endowed with free will, who are simultaneously part of and aware of the system. The metaphors of complexity have a usefulness of their own, but too often they are applied without adequate reference to the mechanisms, models and mathematics behind them. Hence, *E:CO*’s niche will specifically be at the intersection of three gaps:

- The distance between academic theory and professional practice; and
- The space between the mathematics and the metaphors of complexity thinking; and
- The disparity between formal idealizations and actual human organizations.

Moreover, in recognition of the fact that complexity is a function of networked global interdependence, *E:CO* will remain vigilant in pursuing a wide diversity of inclusive perspectives that embrace not just so-called first world but also developing world issues, insights, and challenges.

### Reciprocal influences

**E**:CO is being built on foundations of the earlier journal, *Emergence*. In his closing editorial remarks of that journal, Michael Lissack, pointed out that complex systems can only be adequately described, modeled, characterized, and understood by conceptual maps that are equal to the task, that is, that possess the requisite complexity. In this regard, science has always walked a fine line between models that simplify the phenomena being modeled so as to render them susceptible of generalization and models that become so complex they are no longer a conceptual aid to what is under scrutiny. The study of complex systems only intensifies this concern, a concern that *E:CO* will remain cognizant of in its editorial policy. We will heed Lissack’s caution to present articles telling stories about complex systems that themselves possess the requisite complexity. This means that although simplifying and reductionist methods may at times be utilized, they will be done so in a manner that incor-

porates them into a wider, more complex framework. Hence, the constructs of context, situatedness, and environment will be highlighted.

Moreover, whereas in the past, it was true that the social sciences borrowed many of their constructs, methods, and models from the “hard” or natural sciences, complexity theory is offering the possibility of a reverse directionality of influence. This is similar to what happened in the nineteenth century when new statistical techniques were first developed in the social systems for studying aggregates and only later incorporated in the physical sciences. The fact is that organizations are a particularly apt place to study the dynamics of complexity since they abound in networks of connectivities, scaling phenomena, self-organization, and the consistent emergence of new structures with new properties. Organizations are also directly accessible and observable without the need for special devices observational technologies. As a result, *E:CO* will be emphasizing how the study of organizations themselves can push the frontiers of complexity theory.

### We’re throwing down the gauntlet

**E**ven as complexity is changing the way we must think about organizations, it is at the same time inspiring a rethinking of fundamental philosophical assumptions resting on outdated models of how systems function. In this regard there have been exciting new metaphysics proposed for complex systems with renewed emphasis on context, pluralism, and relativism. Consequently, *E:CO* intends to be a vital forum for a fundamental rethinking of the metaphysics of complexity while at the same time recognizing that new methods, constructs, formalisms are not ends in themselves but tools to the furtherance of not only theoretical knowledge, but practical applications as well.

Since the editors of *Emergence: Complexity, and Organization* are fully aware that we really are only at the beginning of this fascinating journey, we are throwing down the gauntlet and challenging our audience of scholars, researchers, theorists, thinkers, and practitioners to surprise us with your unexpected new takes on the relation of complexity to organizations, thrill us with your surprising insights, the novel patterns you discern, the innovative applications you propose. Stretch our minds, expand our imaginations, and inspire us. But do it with insight, imagination, intelligence, and rigor.

We also would like to recognize the contribution of Steve Barth in the development of the new journal vision, of potential subject editors and review board members, and in setting out the academic, practitioner and news format of the journal. In the end the

initial financial plans could not be pushed through, and so Steve's participation was not possible, but we want to recognize the work that he put into the venture. We also want to recognize the tremendous contribution that Kurt Richardson, our Managing Editor, has made to completing and fulfilling the plans for *E:CO*, and in actually getting the new journal out, and able to play a positive role in the emerging notions of complexity, organizations and structure.

*E:CO* itself will strive to be a forum for complexity that itself will be an emerging process, that its form, substance, and content will continue to emerge and adapt according to both our readers' concerns and transformations in the environment. We look forward with anticipation to the unexpected emergences within the theory of complexity. There is a great deal of work that needs to be done and *E:CO* has arrived to be one of the resources for getting the job done!

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