

## Viscosity Models and the Diffusion of Controversial Innovation

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As March has indicated in his foreword to this book, the promise of computational models in organizational theory has not been fulfilled. One reason is that too much was promised, such that computational models could not possibly deliver. I have argued elsewhere that computational models are particularly good at developing theory—that is, suggesting the logical consequences of a set of assumptions (Krackhardt, 2000). Most human-generated theories are limited to hopelessly simplistic linear additive assumptions about social phenomena, phenomena we all accept to be complex, dynamic, with feedback loops that make systemic behaviors very difficult to predict from a linear model. But, computational models do not prove these theories they help develop; they are not empirical by that standard. They merely help the researcher to answer logical “what if” questions. Expectations that computational models can *demonstrate* or *prove* anything beyond theory building is asking too much of them and will lead to disappointment.

The other downfall of computational models has been that they have often concluded the obvious, conclusions that could have been derived easily by a human’s limited linear thinking. However, there have been historical examples to counter this problem, such as March and Cohen’s Garbage Can model. It is in this spirit, of developing a theory of diffusion of innovation that incorporates nonlinear dynamics and of developing a theory that has nonintuitive implications for the diffusion process, that I write this chapter.

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