

Big Data and the Bright Future of Simulation – the Case of Agent-Based Modeling



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Big Data may be an ugly word describing a diverse reality, but it also points to a bright future for simulation in general, and Agent-Based Modeling (ABM) in particular. As companies are struggling to make sense of the staggering amounts of data they have been amassing, data-driven simulation will be the backbone of how value is discovered and captured from data. Drawing from successful applications of ABM, I will make it explicit that what used to be an afterthought of simulation modeling (calibration) is now the cornerstone of the Big Data edifice.

Eric Bonabeau is Founder, CEO and Chief Scientific Officer of Icosystem Corp., and one of the world's leading experts in complex systems and distributed adaptive problem solving. His book *Swarm Intelligence* (Oxford University Press) has been a scientific bestseller for fifteen years and provided the inspiration for another bestseller, Michael Crichton's *Prey*. His articles in *Harvard Business Review* and *MIT Sloan Management Review* have all been exploring the limits of human decision making in a complex, decentralized and unpredictable world. His commercial experience includes years of research and development in U.S. and European telecommunications and software companies. He sits on the advisory board of a number of Fortune 500 corporations.

Prior to his current position, Bonabeau was the CEO of Eurobios, then a joint venture with Cap Gemini Ernst & Young applying the science of complex adaptive systems to business issues. He has been a research director with France Telecom R&D, an R&D engineer with Cadence Design Systems, and the Interval Research Fellow at the Santa Fe Institute. Bonabeau was Co-Editor-in-Chief of the journals *Advances in Complex Systems* (World Scientific) and *ACM Transactions on Adaptive and Autonomous Systems* (ACM Press), and serves as a member of the editorial board of several scientific journals. In addition to *Swarm Intelligence* and more than one hundred scientific articles, Eric is the co-author of *Self-Organization in Biological Systems* (Princeton University Press), a best-selling biology textbook. He has a Ph.D. in Theoretical Physics from Paris-Sud University in France, and is an alumnus of two premier universities: École Polytechnique and École Nationale Supérieure des Télécommunications.