

The SAGE Handbook of  
**Complexity and  
Management**



Edited by  
Peter Allen,  
Steve Maguire and  
Bill McKelvey



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Handbook of  
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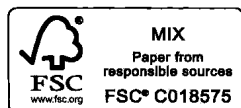
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**James S. Baldwin** joined the Sheffield University Management School (SUMS) in January 2005 as a Lecturer in Operations and Project Management, then the Advanced Manufacturing Research Centre with Boeing as a Senior Research Fellow in 2010. He project managed a recent 3-year, £350k, research project investigating the evolution and classification of aerospace supply chains. This research, sponsored by both the ESRC and Boeing, was a collaborative project between SUMS, the AMRC with Boeing (Sheffield), the Complex Systems Management Centre, Cranfield University, and key players in the aerospace supply chain. James is currently project managing a €7.3m EU funded, series of work packages involving several European universities and industrial partners (15 in total), the main objective of which

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**Steven C. Banks** is Chief Architect with BAE Systems Advanced Information Technologies. Dr Banks did his undergraduate work at the California Institute of Technology, and received his PhD from the University of Colorado in Computer Science. His publications span computer science, artificial intelligence, artificial societies, operations research, policy analysis, neuroscience, machine learning, and climate studies. Dr Banks introduced the concept of ‘exploratory modeling’ for decision analysis purposes based on the use of iterative computational experiments to develop information about the ensemble of plausible futures. Methods for exploratory modeling he developed were applied to robustness analysis with models, leading to robust decision methods such as Robust Adaptive Planning. That work also contributed to other policy related methods and topics including exploratory analysis, long term policy analysis, and capabilities based planning. The unifying vision behind Dr. Banks’ research has been the use of multiple models, including both ensembles of alternatives and collections of symbiotic models that can be combined opportunistically for a given purpose. Multi-model methodologies have significant implications for issues of model identification, model estimation, and uncertainty analysis. And combined with the concept of robust inference, these approaches provide a means to support practical decisions without adopting unrealistic assumptions.

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**David Byrne** (PhD, AcSS) is Professor of Sociology and Social Policy at Durham University in the UK. He has worked as an academic and as a community development researcher. His interests are in the intersection of methods and methodology with the application of social science in practice. Complexity theory, coupled with critical realism, gives him a framework for doing this kind of work. Publications include *Complexity Theory and the Social Sciences* 1998, *Interpreting Quantitative Data* 2002, *The Sage Handbook of Case Based Methods* (edited with Charles Ragin) 2009, and *Applying Social Science* (forthcoming). The main substantive focus of his research is on the implications of transitions from industrial to post-industrial society with specific application to city regions with a primarily industrial past.

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**Glenda Eoyang** is founding Executive Director of the Human Systems Dynamics Institute and its network of Associates; Director and faculty member of the Center for Human Systems Dynamics at The University of St Thomas in Minnesota; an associate of the Center for Evaluation, Planning, and Assessment at Queen's University in Kingston, Ontario, Canada; Scientific Advisor to the Plexus Institute; member of the Circle of Scholars of The Union Institute and University; and recipient of the Organization Development Network's *Sharing the Wealth Award* (2009). As a pioneer in the field of human systems dynamics, she applies principles of self-organizing systems to help people thrive in unpredictable environments. Since 1988, she has provided training, consulting, coaching, research, evaluation, and facilitation for complex change in public and private sectors. Her approach to systems thinking focuses on a lively integration of theory and practice as she helps people see and influence patterns that emerge within and around individuals, teams, organizations and communities. Current projects reflect her passion for effective complex change: prevention of child abuse and neglect, complex dynamics of conflict and peace, integrated and equitable human services, evaluation of systemic change, and adaptive action to replace strategic planning in times of chaos and uncertainty. Her published works include *Coping with Chaos: Seven Simple Tools* (Lagumo, 1996), *Facilitating Organization Change: Lessons from Complexity Science* with Ed Olson (Jossey-Bass/Pfeiffer, 2003), and *Voices from the Field: An Introduction to Human Systems Dynamics* (HSD Press, 2003) an edited collection of stories about how practitioners apply human systems dynamics in various contexts.

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