

CALL FOR PAPERS

Special Issue of *System Dynamics Review* celebrating the 60th anniversary of the field

Guest Editors: Nelson Repenning, John Sterman (MIT Sloan School of Management)

The field of system dynamics was founded by Jay Forrester 60 years ago. The 2017 conference of the System Dynamics Society will celebrate this milestone and, in conjunction, the *System Dynamics Review* seeks contributions for a special issue commemorating this anniversary. Whereas the 50th anniversary special issue celebrated the achievements of the field in its first half-century, for the 60th anniversary special issue we seek papers that look forward to the next 50 years. We particularly welcome work that provides new approaches to important theoretical and methodological issues, application areas, modeling practice, education, empirical methods and integration of different approaches to modeling the dynamics of complex systems. We also encourage descriptions of exemplary applications and other developments that explore important paths for the future of the field, including the integration of dynamic modeling with modern approaches to data analytics, parameter estimation, machine learning and optimization, and the integration of system dynamics with new developments in economics, political science, psychology, sociology and other disciplines.

The goal of system dynamics is to build rigorous, reliable scientific knowledge of important dynamic phenomena, build theoretical understanding, and evaluate and implement policies for improvement. To do so system dynamics modelers seek to capture important feedbacks among the actors and entities in the system, to use decision rules for those actors and entities based on realistic behavioral decision-making principles, often grounded in first-hand field study or laboratory experiments, to represent important accumulation and state-transition processes, and to use the widest range of empirical data to specify the model, estimate parameters, and build confidence in the results.

System dynamics models can therefore be implemented using a variety of different simulation architectures that vary in their representation of time (continuous or discrete), state variables (continuous or discrete), and uncertainty (stochastic or deterministic). Such models can be instantiated using deterministic or stochastic nonlinear differential equations, compartment models, agent-based simulations, discrete event simulations, dynamic network analysis, econometric models, and other methods. We welcome studies of dynamic phenomena based on qualitative or quantitative field study, laboratory or field experiments, and other data sources and methods. Appropriate contributions could advance methodology, develop a novel theory to explain important dynamic phenomena, test existing theories or show real-world impact. If the work addresses an important issue, takes a dynamic, endogenous perspective, captures the behavioral decision making of the actors in the system, is rigorously grounded in data, and is fully documented and replicable, we welcome it for consideration, no matter what software or modeling formalisms are used.

Inquiries about proposed papers are welcome; the guest editors will provide feedback on proposals. A 2-stage procedure will be followed. Initially authors are requested to submit an extended abstract (2 pages maximum). These will then be reviewed by the editors and selected authors will be invited to submit a full paper, which will go through normal peer review. Inquiries and extended abstracts should be directed to the editors for the special issue, Nelson Repenning and John Sterman, at SD60th@mit.edu. Final papers should follow the journal's [Guidelines](#) for each category of contribution and transmitted via the [System Dynamics Review online submission system](#).

Timetable:

Extended abstracts due October 31, 2016.

Send questions and abstracts to SD60th@mit.edu.

Full papers due May 15, 2017.