Today, operations and supply chain management involve adapting to changes in complex global networks of organizations. Because organizations adapt and can exist in a complex environment with myriad relationships and interactions (Miller and Page, 2007), it is a natural step to situate operations and supply chain issues within a complex adaptive systems paradigm (Choi et al., 2001; Pathak et al., 2007; Nair et al., 2009). One of the greatest contributions of the complex adaptive systems perspective may be its ability to incorporate increasing realism and empirical data into research models that can be understood in a practical business setting (Anderson, 1999). This has been demonstrated with research across diverse application areas (ecology, social retirement models, and zoology) with models that display increasing realism (VanWinkle, Rose, & Chambers, 1993; Grimm, 1999; Grimm et al., 2005; Axtell, 2003; Epstein and Axtell, 2006), and in uses of complex empirical data from business organizations (Nilsson & Darley, 2006; Braha and Bar-Yam, 2007; Saavedra, Reed-Tsochas and Uzzi, 2008).

There have been recent advances that extend models of organizational adaptation in complex combinatorial landscapes (Levinthal, 1997; Rivkin and Siggelkow, 2007) to complex production systems (Ethiraj and Levinthal, 2004; Ethiraj, 2007). Addressing the questions of adaptability in individual organizations could have important lessons for the study of operations and supply chains as has been demonstrated for manufacturing strategy (Levinthal and Warglien, 1999), supply base management (Choi & Krause, 2006), and manufacturing network relationships (Lomi and Patterson, 2007). There is still room for gaining further insights on a wide variety of topics that are of immediate concern for operations and supply chain management researchers and practitioners.

This special issue particularly encourages empirically grounded interdisciplinary insights (Saavedra, Reed-Tsochas and Uzzi, 2009) that have significant implications for furthering the field. We encourage the submission of high-quality papers that take an approach based on complex adaptive systems to important operations and supply chain questions. Potential topics include, but are not limited to, the following:

- A complex adaptive systems and networks perspective on managing upstream supply and downstream demand in extended value chains
- Co-evolution of supply chain strategy and supply network structure
- Manufacturing and service system design by considering the co-evolution of various factors such as markets, industries, products, macro-economic environment, regulatory environment, and customer preferences.
- Adaptive diffusion and assimilation of administrative innovations (e.g. JIT, TQM, Lean) and technological innovation (e.g. manufacturing technology, information technology)
- Capacity management by considering the complexity and adaptivity within the network of resources
- Complex adaptive nature of inter-personal and cross-functional relationships for operations management
- Adaptive operational learning in organizations
- Managing quality by considering its multiple dimensions and their complex adaptive interactions.
- Effective management of cross-functional and inter-organizational teams by considering aspects of complexity, adaptive behavior and social networks.

From methodological standpoint we are open to a wide-variety of approaches. These include, but are not limited to, the following:

- Empirically grounded approaches to agent based modeling, analytical modeling, bifurcation diagrams, cellular automata, computational mechanics, fitness modeling (NK models), network analysis, neural networks, statistical mechanics, stochastic modeling, and system dynamics.
- Analyses of data capturing networks, cross-sectional, and longitudinal aspects of operations and supply chain management by means of state-of-the art of statistical techniques. We are particularly interested in papers that analyze “big data” and investigate operations and supply chain management issues by considering the growing body of electronic records of activities and interactions among agents.
- Behavioral experiments
- Case studies and action research

In keeping with the practice at JOM, we welcome papers that are theory driven and empirically based. Manuscripts must adhere to the submission guidelines for the Journal of Operations Management (http://wpcarey.asu.edu/JOM/). Submitted papers will be reviewed by the guest editors for suitability before being sent to reviewers. The guest editors along with the Editors-in-Chief will make all decisions as to the manuscripts’ suitability for the special issue.

Please submit manuscripts via email to Dr. Anand Nair at nair@broad.msu.edu or to Dr. Felix Reed-Tsochas at felix.reed-tsochas@sbs.ox.ac.uk. The deadline for submission is October 30, 2015.

References


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Dr. Anand Nair is an Associate Professor at the Broad College of Business, Michigan State University. His current research interests are in the areas of administrative innovations, networks, operations strategy, technological innovation, and healthcare management. Dr. Nair's methodological orientation for research includes empirical analysis using econometric and psychometric methods, behavioral experiments, case research, and computational experiments using complexity theory and complex adaptive systems approach. He serves as an Associate Editor of the Journal of Operations Management and the Decision Sciences Journal. His publications have appeared in several journals, including the Journal of Operations Management, Decision Sciences Journal, European Journal of Operational Research, and IEEE Transactions on Engineering Management.

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