

POM Special Issue

Responsive and Flexible Manufacturing Ecosystems: Stand-by Capability, Hybrid Manufacturing Approaches, and Reshoring

Guest editors: **Elliot Bendoly and Christopher S. Tang**

Manuscript submission deadline: **December 1st, 2021**

Background: Technological advancements have transformed global supply chain operations (Lee 2004). However, these transformational changes have not come without risk. The Covid-19 pandemic exposed underlying vulnerabilities associated with outsourcing and offshoring when disrupted supply was unable to meet volatile demand. The prolonged shortages of many critical products stoked public fear in the U.S. and prompted a call for *reshoring* to improve supply chain responsiveness during emergencies.

Whether due to innovation, shifting social preferences or natural crises, manufacturers lacking sufficient responsiveness to demand and supply shocks run the risk of being squeezed out by more flexible elements of their respective industries (Craig et al. 2018, Sodhi and Tang 2017, Vickery et al. 2016, Sodhi et al. 2012, Bendoly et al. 2012, Bendoly et al. 2009, Bharadwaj et al. 2007). This is clearly not a challenge faced by an individual firm alone, but by the entire ecosystem comprised of focal firms, their upstream and downstream partners and consumers along the supply chain. This challenge also involves national and local governments, poised to establish and promote policies for improving the responsiveness of firms, their supply chains as well as their associated intellectual property.

Further, from a tactical perspective, to truly advance a firm's responsiveness, the concept of flexible manufacturing systems must be "expanded" to capture the role of flexibility in operational management, production capacity and production capability. This should include the deployment of *standby capabilities* that can be converted into production capacity when needed, *hybrid approaches* to manufacturing (e.g. leveraging both conventional mass production and additive manufacturing tactics), changes to organizational bureaucracy, and a broader perspective of the value of market and innovation ideas that go well beyond the walls of individual organizations (Babich and Hilary 2020, Tang and Veelenturf 2019, Olson and Tomlin 2019, Kumar et al. 2018, Kouvelis et al. 2009). To improve responsiveness to market change, there is a need to leverage consumers as co-producers, and establish novel alliances and partnerships (which include mergers and acquisitions). These engagements entail broader perspectives of knowledge management and require alternatives to conventional information technology management decisions and approaches.

We refer to this expanded collection of harnessed entities and tactics as a firm's "**flexible manufacturing ecosystem.**" The proper configuration of such an ecosystem can not only ensure a firm's financial sustainability, it may also enable a greater localization of supply chain relationships (reshoring) as well as associated benefits to community and environmental commitments and goals. However, such efforts to advance responsiveness and flexibility through efforts that broaden these ecosystems must also take into consideration the challenges, costs and risks of doing so. The best ecosystems recognize these issues, and are characterized by configurations whose benefits far outstrip such costs; Not merely by chance, but because sufficient intelligence is used in their design.

Call for submissions: This special issue calls on researchers to consider novel paradigms for managing manufacturing capabilities, emblematic of flexible manufacturing ecosystems. Areas of focus include but are not limited to the following:

- Advanced integration of consumer feedback and sentiment to anticipate new product design and development opportunities.
- Advanced crowdsourcing efforts of external innovation ideas for incorporation in New Product Development (NPD) efforts.
- Full integration of enterprise and extended-enterprise data to identify risks and opportunities in manufacturing planning.
- Hybridization of mass-production / mass-customization efforts through the integration of additive manufacturing, internet of things, autonomous vehicles (including drones), and advanced robotics to complement conventional manufacturing approaches.
- Organizational changes in employee training and role orientation (e.g. away from product-specific designations and towards flexible technology roles).
- The rationalization or reshoring of supply chains to better accommodate and respond to frequent changes in local demand.

In this call, we are open to submissions that leverage any methodological approach, including normative modeling, controlled laboratory experiments, large-scale survey efforts, secondary data examinations, field and case studies. However, preference will be given to research efforts that make use of real-world data describing organizational practice, either for direct empirical examination or to strongly motivate other applied methods.

Deadlines

Manuscript submissions: December 1st, 2021

Initial (first-round) decisions: March 1st, 2022

Revised paper resubmissions: June 1st, 2022

Authors are encouraged to contact the editorial team in case of doubt regarding the fit of the paper to the editorial scope of this special issue. Manuscripts that are submitted prior to the submission deadline will receive immediate consideration.

Please follow the detailed submission guidelines provided at

http://www.poms.org/journal/author_instructions/

The paper should be submitted to manuscript central (<https://mc.manuscriptcentral.com/poms>). While submitting the paper, please be sure to identify in Step 1 that the paper is being submitted for the special issue. In the Department Editor list, please choose this special issue.

Guest Editors

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