Call for Papers
Special Issue of the *Journal of Operations Management*

*The Effects of COVID-19 on Global Supply Chains: Responsiveness, Resilience, and Restoration (3Rs)*

**Background and Objectives:**

The rapid and wide spread of the Novel Coronavirus Disease (COVID-19) created huge uncertainties in demands and disruptions in global supply chains. First, it is a great challenge to provide medical supplies (such as masks and protective clothing etc.) and equipment (for checking, testing, and monitoring the disease etc.) to meet the needs of treatment, protection, and control (World Health Organization, 2020). Second, it is equally challenging to meet consumer’s daily needs for food and other consumer items under the restricted movements of people and material during the COVID-19 outbreak (MOFCOM, 2020).

Third, epidemic control efforts have interrupted flows of finished goods and raw materials from Chinese factories to many parts of the world and later from other countries to China and other destinations. For example, Wuhan is an established global industrial cluster in automotive and parts, optical-electronics, and bio-medicine and medical equipment industries (Wuhan Statistics Bureau, 2019). The blockage of people and material movement from Wuhan City disrupted many supply chains which need goods from suppliers in the Wuhan region. It is a huge challenge to keep global supply chains going while some parts of the supply chain have stopped operations.

Fourth, the spread of COVID-19 into the US and Europe has blocked the movement people and materials globally. The resulting supply-chain disruptions have caused delivery delays and shortages of goods and material. At the same time, the demands for certain products used for epidemic control have increased dramatically, and the demand patterns for many consumer goods have become less predictable. After the disruptions to prevent the spread of the virus, companies will face the challenge of restarting their supply chains.

To deal with the above challenges, many companies have worked closely with governments, hospitals, other health-care organizations, and their trading partners to fight the pandemic. In this process, companies in logistics, retailing, manufacturing industries, e-commerce, food service, and health care all have played very important roles. Some have displayed better capabilities than others in coping with this crisis. Our initial observations and case studies indicate that companies that have higher levels of adoption of digital technologies, wider global supply-chain networks, and omni-channel distributions are better positioned to respond to supply chain uncertainty, and are more resilient to supply-chain disruptions.

Some notable examples have already emerged. Armed with extensive digital technologies, some logistics service providers have been able to overcome adverse conditions to provide essential supplies to hospitals and consumers. Companies have used industrial internet platforms to procure medical supplies from global sources to meet the needs of hospitals and consumers. Home delivery companies have integrated the resources and capabilities of restaurants and food suppliers to
provide take-away meals, semi-finished food, and food ingredients to consumer homes. Companies with control of the appropriate raw-material supply chain have built factories to supply needed products such as hand sanitizers. Manufacturers have exploited their design and supply-chain expertise, adapted their production equipment, retrained workers. This has allowed them to switch to producing vital equipment such as ventilators and masks. There is growing collaboration between government, non-profit, and for-profit enterprises to expedite medical supplies. Many global companies have had to adjust their outsourcing and manufacturing activities to cope with the supply-chain disruptions and uncertainty in demands. While some companies have performed well in response to the disruptions through digital technology application, supply chain digitization, and business model innovation, others have been devastated.

What can we learn from the innovative practices and experiences of dealing with such a large-scale disruption in supply chains? What are the key lessons learned in terms of selecting and managing supplier/customer relationships, designing global supply networks, and adopting new digital technologies and big data analytics. What are the long term impacts of COVID-19 on the structures of global supply chains and the strategic positioning of major supply chain players?

This special issue will focus on analyzing the new practices of logistics and supply chain management (SCM) deployed during the COVID-19 pandemic. It will try to uncover the key success factors and lessons from these innovative practices, and from existing literature on humanitarian supply chain and logistics management (Ye et al., 2019), disaster relief management (Gupta et al., 2016), humanitarian response capacity assessment (Acimovic and Goentzel, 2016), demand forecasting and order planning (Laan et al., 2016), supply network assessment (Stauffer et al., 2020), and logistical operations for epidemic control (Dasaklis et al., 2012).

We aim to gain deeper understanding of how the adoption of technological innovations, business model innovations, and innovations in collaboration mechanisms and methods of operations improvement/optimization helps companies enhance responsiveness, resilience, and restoration (3Rs) in supply chains. We also would like to investigate how the 3Rs can advance a firm’s sustainable competitive advantage in the marketplace, and how COVID-19 will impact global supply chain network design and the positioning of key players from different countries after the pandemic.

Scope of Topics:

A variety of issues and topics can be examined in this special issue from the perspectives of how to enhance the 3Rs of supply chain through innovations in network structures and business models enabled by digital technologies and big data analytics. The issues addressed may include supply chain network design, demand forecasting, supply and demand matching, allocation and rationing, facility location, transportation scheduling, last mile delivery, etc. Some research questions/topics may include but are not limited to:

1. How does the adoption of digital technologies and big data analytics enable different players in the supply chain (manufacturers, retailers, distributors, food service providers, and healthcare providers) to enhance the 3Rs of supply chain operations during and post-COVID-19?
2. How does the supply chain network structure and power position of firms in the supply
chain influence the firm’s capabilities to integrate and redeploy resources to help provide critical medical equipment and materials?

3. How does the adoption of different types of technologies influence the flexibility and responsiveness of logistics service providers, allowing them to make fast and reliable delivery of medical supplies and consumer goods needed by citizens?

4. How do government agencies and non-profit organizations collaborate with for-profit enterprises and leverage their technologies to manage the supply and distribution of medical supplies and essential goods?

5. How do adoptions of omni-channel and digital technologies by retailers influence responsiveness to consumer demands? How do collaborations among e-commerce and logistics companies influence the ability of retailers to meet the challenges of delivering fast-moving goods to consumers’ homes?

6. How do food service companies such as restaurants collaborate with online-to-offline home delivery platforms to meet the challenges of delivering food to consumers’ homes?

7. How are AI, big data analytics, and optimization techniques used in critical operations and supply chain decisions in demand forecasting, supply and demand matching, allocation and rationing, transportation scheduling, and last mile delivery?

8. What are best practices for restoring production capacity and restarting the supply chain after disruptions or complete shutdowns of operations?

9. How to cope with the huge bullwhip effects caused by distortions in demand and disruptions of production and transportation activities?

10. What are major new forms of mismatches between supply and demand in terms of timing, location, quantity, quality, etc., and how to cope with these different forms of mismatches?

11. What decision tools (such as simulations and system-dynamics models) have been observed to encourage systems thinking by making it easier for decision makers to anticipate the consequences of their actions?

**Requirement for empirical methodologies:**

In line with the expectations of *JOM*, authors must adopt empirical methodologies. We encourage in-depth case studies on how to apply digital technologies and big data analytics to improve and innovate key processes and optimize supply chain decisions, how to introduce new collaboration mechanisms and build innovative business models. We also look for papers which use secondary data to test and validate empirical and analytical models. Surveys and experiments can also be used to collect primary data to test and validate empirical and analytical models. The unique situation of the COVID-19 pandemic offers many opportunities for important, natural experiments.

**Relevance to researchers and practitioners:**

Papers in this special issue will provide managerial insights and guidelines for practitioners to improve responsiveness, resilience, and restoration of supply chains. Papers that reveal and analyze best practices and/or lessons learned through case studies and analyses of secondary or primary data are welcome. We also welcome papers that analyze the current literature in the relevant areas (humanitarian supply chains, disaster-relief supply-chain management, logistics operations for epidemic control, etc.), identify gaps between current practices and the academic literature, and suggest fruitful directions for future research. (For guidance on conceptual papers
and literature reviews in JOM, see Browning and de Treville, 2018.) We encourage authors to submit papers that examine the effect of digital technologies and big-data analytics on the 3Rs and the performance of firms.

Extreme conditions provide new insights that cause fields to advance. Our goal is to distill learning from current challenges to advance the fields of SCM and operational innovation by exploring and suggesting new paths of business transformations enabled though adoption of digital technologies, big-data analytics, and innovations in the design of supply chain networks and governance mechanisms. We also hope that the papers in this special issue can be used to develop potential training materials and decision tools that will provide managerial guidelines for business executives to implement innovative applications of new technologies and business models in new settings, and avoid faults and pitfalls in efforts to manage disruptions and disasters.

Special Issue Guest Editors:

Hau L. Lee
Dr. Hau L. Lee is the Thoma Professor of Operations, Information and Technology at the Stanford Graduate School of Business. His areas of specialization include global value chain innovations, supply chain management, global logistics, inventory modeling, and environmental and social responsibility. He was the founding director of the Stanford Institute for Innovations in Developing Economies, and is a co-director of the Stanford Value Chain Innovation Initiative. He has published widely in journals such as Management Science, Operations Research, Harvard Business Review, Sloan Management Review, Supply Chain Management Review, Production and Operations Management, IIE Transactions, and Interfaces, etc. He has served on the editorial boards of many international journals. From 1997-2003, he was the Editor-in-Chief of Management Science. In 2006, he was President of the Production and Operations Management Society. He was elected to the National Academy of Engineering in 2010.

Xiande Zhao
Dr. Xiande Zhao is JD.COM Chair Professor in Operations and Supply Chain Management at China Europe International Business School (CEIBS). His recent research interests mostly focus on supply chain and business model innovations, supply chain finance, digital supply chain, and supply chain optimization using big data. He has published over 150 journal articles in leading journals including Journal of Operations Management, Production and Operations Management, Journal of Consumer Research, European Journal of Operations Research, International Journal of Production Research and International Journal of Production Economics. He is an Associate Editor for Journal of Operations Management, Decision Sciences, and a Senior Editor of Production and Operations Management. He is also the co-Chief Editor for Journal of Data, Information and Management. He is the founder and honourable president of Association of Supply Chain and Operations Management (ASCOM), and was the President of Asia Pacific Institute of Decision Sciences (APDSI). He also received more than 10 academic awards including the Jack Meredith best paper award from Journal of Operations Management.

Xiang Li
Dr. Xiang Li is a professor with the School of Economics and Management, Beijing University of Chemical Technology. His recent research interests mostly focus on transport management,

**Chris Voss**

Dr. Chris Voss is Professor of Operations Management at Warwick Business School and Emeritus Professor of Operations Management at London Business School where he has served as deputy dean. His recent research has included supply-chain management, service supply chains, architecture and modularity, e-services, and service innovation. He has published in leading journals including *Journal of Operations Management*, *Journal of Supply Chain Management*, *Production and Operations Management*, *IEEE Transactions*, *Journal of Product Innovation Management*, *Decision Science Journal*, *International Journal of Operations and Production Management*, *International Journal of Journal of Production Economics*, and *Journal of Service Research*. He is Associate Editor of the *Journal of Service Research*. He was co-founder and long-term chair of the *European Operations Management Association*, and serves on several editorial boards. He has received many academic awards including distinguished scholar of the OM division of the Academy of Management.

**Deadlines:**

The full-paper submission: **April 30, 2021**

First Round Review and decisions: **May 30, 2021**

Second Round Revision Submission: **August 31, 2021**

Final round review and decisions: **October 30, 2021**

We welcome manuscripts on an earlier schedule where possible.


**References:**


