Guest editorial: Sourcing strategies and supply chain operations under the impact of COVID-19

1. Introduction

The pervasive spread of Corona Virus Disease (COVID-19) across the world was started in the beginning of 2019 and continued with sourcing disruptions. While overcoming from the earlier pandemics and natural disasters, the companies have learned that they should share resources collaboratively (Haque and Islam, 2018) and not rely on a single supply base (Linton and Vakil, 2020) to ensure uninterrupted supplies. Further, more relaxed tariffs and multimodal regulations enable the managers to reduce operational costs (Haren and Simchi-Levi, 2020), and they achieve it by strategizing it in the form of contract or lean manufacturing (Cozzolino *et al.,* 2012), offshoring and outsourcing (Hernandez and Haddud, 2018). However, these strategies do not prove sustainable, as the supply gets disrupted by such an unprecedented pandemic (Yang *et al.,* 2018). During the initial spreading stage of this pandemic, the logistics service providers have tried all possible sourcing alternatives globally and locally, by paying a higher cost to ensure smooth and flawless material movements. But, these attempts also proved to be ineffective by mid-2019, as global lockdown has impeded the logistic movements and material supplies globally which enforced major manufacturers either to cut their production or suspend the operations temporarily (Stauffer *et al.,* 2018). Thus, the practitioners are insisted to rethink for resilient solutions that ensure uninterrupted supplies under pandemic situation. Also, they are expected answer, "Do contemporary sourcing strategies are competent enough to fight against pandemic such as COVID-19?"

The temporary suspension of public transportations left the migrant people unfulfilled with necessities. Depending upon the intensity of the spread of the virus, the travel access, and people's movement restrictions differed geographically. Certainly, technology and data analytics play a vital role here for the people and local commodity movements (Kamble *et al.,* 2019; Mkansi *et al.,* 2019), but how can this technology ensures quick, safe and secure transportation in such pandemic environment is awaited challenge to address. Substantial literature is available focusing on supplier risk evaluation and mitigations to reduce disruptions with respect to disaster relief supply chain (Maghsoudi *et al.,* 2018) and humanitarian operations (Anparasan and Lejeune, 2017). The uncertainty due to COVID-19 spread raises difficulty to predict its impact, as the outbreak started with a small scale and dispersed quickly beyond geographies (Ivanov, 2020). In an attempt to explore viable alternatives to overcome this pandemic impact, Ivanov and Dolgui (2020) suggested an application of intertwined supply networks as a possible survival solution. They assess supply chain performance and identify the factors of risk mitigation. More rational sourcing plans and recovery policies are expected to protect the businesses from such unforeseen global pandemic (Kumar, 2020). Therefore, it becomes imperative to re-look at the sourcing strategies and risk-mitigation theories that design sustainable supply chains to withstand epidemics and gain control over global supplies. Further it is needed to assess, "How does the Post COVID-19 economy look like?"

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Many incidences during the ongoing pandemic hinted toward either shortages or nonavailability of various materials sourcing at the point of requirement or consumption. May it be face masks and shields, hand sanitizers, surgical-grade materials, and equipment, other essential goods including groceries, perishable and nonperishable food items and other daily need items. This has motivated the editor(s) to propose this Special Issue (SI) to address the highlighted research questions pertaining to global sourcing and supply chain operations.

2. Contribution toward literature

The proposed objective of this SI was to review, assess and analyze the impact of COVID-19 on global sourcing, logistics and supply chain operations. Out of suggested themes, the accepted papers contributes toward SI with diverse research aspects, such as i) identification of sourcing risk factors for startups (Sreenivasan and Suresh, 2021); ii) impact of logistics performance and economies (Atayah *et al.,* 2021); iii-iv) rethinking sourcing, distribution and supply chain network design strategies toward achieving sustainability (Badulescu *et al.,* 2021); v) comparison of global vs. local sourcing (Koerber and Schiele, 2021); vi-vii) role of technology in food security for a agro-food supply chain and sample collection model has been proposed during COVID-19 by Joshi and Sharma (2021) and Chakravatri *et al.* (2021), respectively.

The discussion on accepted paper wise contribution is detailed here.

- The startups belonging to all the sectors of the economy were affected severely due to COVID-19 as they faced problems concerning their operations and marketing. These startups faced major challenges due to drastic reductions in demand. The situation resulted in disturbances in sourcing networks. The paper titled "Modeling the Enablers of Sourcing Risks faced by Startups in COVID-19 era" attempted to identify the enablers of sourcing risks. The finding from the research established that the "insufficient fund" is a critical sourcing risk. The presented research has the potential to extend further into different geography and different size of economies.
- The second research on the "Impact of COVID-19 on Financial Performance of Logistics Firms from the G-20 countries" established that the logistics firm's performance from 14 countries was found to be significantly higher. The findings of this research demonstrate the importance of logistics during difficult times of pandemics by different levels of management and economies. There are some economies such as Germany, Korea, Russia, Mexico, UK and Saudi Arabia whose logistics performance was found to be negative.
- The third paper that presents "Sustainable partner selection for Collaborative Networked Organizations (CNO) with risk consideration in the context of COVID-19" discusses how CNO contribute to "ensuring longevity and business continuity in the face of a global crisis such as COVID-19". This paper presented a multicriteria decision-making method for sustainable partner selection based on the sustainability pillars: economic, environmental and social, to build a sustainable CNO. The paper presents an approach to the partner selection process for a sustainable CNO under current conditions and uncertain future conditions.
- An empirical study has been carried out to investigate the impact of COVID-19 on global sourcing strategies. The findings predict that there is increase in transcontinental sourcing and relative decline in continental sourcing trend.
- Along with upstream sourcing the downstream supply chain distribution channel is also disrupted which needs to be balanced. A framework has been proposed considering entities involved in end-to-end supply chain such as sourcing, manufacturing, distributors and retailers to develop sustainable strategies during COVID-19.

- The interrupted supplies and sourcing have insisted agri-practitioners and farmers to look at more resilient solution to avoid food wastages. The role of technologies has been explored in sixth paper which identifies the digitalization, logistics and infrastructure as critical success factors in a pandemic situation to design a sustainable supply chain.
- In an epidemic environment, the risk of disease spread increases and therefore the people movement has been restricted. Such a scenario seeks help of technology in healthcare sector to collect the samples and report deliveries.

Recently, many SI has been witnessed enhancing and recording literature that explores the impact of COVID-19 on various supply chain aspects and operations management. But, this SI uniquely contributes by assessing global operations and sourcing strategies under the impact of COVID-19 within agro-food, retail, shipping, healthcare and MSMEs.

3. Research and practical implications

A summary on the adopted research methods along with its research and managerial implications are discussed in this section. In the initial phase of COVID-19, the MSMEs and startups were facing lots of sourcing issues to combat the unforeseen and unexperienced situation due lack of literature support. Therefore, the first paper identifies the enablers of sourcing risks faced by the Startups. The researchers may validate them and then the policymakers may use them to further explore different problems and to determine suitable solutions mitigating the sourcing risk under pandemic. The second paper assesses the financial performance of global logistics firms, those supplying food, medicines and other essentials pre-and-post COVID-19. The logistics practitioners and stakeholders may get meaningful insights from the findings and design policies exempting necessary commodity movements. Further, it is helpful for the governments as well to tackle with ports, shipments, global tariffs and charges to boost up the economy and fight against disruption in future. The third paper used AHP-TOPSIS to predict suppliers who can offer a sustainable sourcing. The derived framework is useful for the managers to create robust CNO assessing customer risk and risk during force majeure.

A structured interview has been conducted, in the fourth paper to analyze the current and future scope of sourcing in EU. The purchasing would benefit from treating transcontinental as distinct strategy over the continental (within-EU) one. However, the study is confined to EU geography and should be extended further. The fuzzy-DEMATEL approach has been adopted to analyze the causal relationships among factors affecting food security which could be adopted by the agri-policy makers under pandemic situation. The offered recommendations are helpful to design resilient strategy to prepare supply chains against food security under-and-post COVID-19. The collected data are on the perception basis which needs validation for its practical acceptance before investing into IT infrastructure and digitization. A structural equation modeling (SEM) approach is applied to mitigate the supply chain risks involved during pandemic. This is the only study that considers all supply chain entities altogether, determining individual policies to safe-guard global operations. The study could be further explored to manage essential inventories and commodities to mitigate the social impact of COVID-19. The last study presents the drone application to determine the dynamic locations of collection centers for COVID samples. An integrated Mixed-integer linear programming (MILP) and Genetic Algorithm (GA) based model is developed to determine the hospital locations nearby the patients. This would help to ensure the safe movements through technology and isolate the patients to resist the COVID spreads.

This SI includes various research methods such as empirical studies i.e. SEM, case studies, statistical, mathematical and analytical modeling, i.e. fuzzy-DEMATEL, AHP-TOPISIS, MICMAC, etc. The research contribution is expected to enhance with other approaches, addressing the challenges that are and will be faced by the global logistics-SCM industry. The studies demonstrating novel methods and approaches to such pandemic problems impacting supply chain performance would also be a desirable research arena. Certainly, these studies and findings would be of use to the economists, government agencies, practitioners and individual victims of COVID-19 to manage operations across different geographies to combat the supply chain and logistics disruptions.

4. Future research arenas

The paper of Atayah *et al.* (2021) can be further extended by comparing the economic impact of strategic sourcing with global slowdown vs. lockdown, i.e. pandemic scenario. Also, other factors such as traffic, infrastructure, IT trackings and custom clearance processes influence logistics performance. The method of the third paper can be further extended considering interdependency among economic, environmental and risk factors affecting sourcing. Employees of the industry are advised to work from home and not to travel. Many countries have temporarily suspended tourism, pilgrimage travel, students' migration and diplomats/convoys movements. Public gatherings and events such as marriages, mega-sports, performances, concerts, movies and educational institutes are also affected. Such gatherings are either getting canceled, or postponed. It will certainly impact the intention of movement for the time being (Stepchenkova *et al.*, 2019) and social balancing aspects, which need to be re-assessed.

The local communities and government authorities play a vital role to ensure supply. For example, the Indian government is rescuing the situation by using public rail transportation to distribute essential goods among civilians. Such efforts enforce reliance on public transportation systems and encourage local logistics opportunities. Therefore, research exploring government policies to handle such situations can help to redesign the public distribution and logistics policies. No one-dimensional logistic approach or solution can work in such a situation since a pandemic controlled the entire transportation environment (Dasaklis *et al.*, 2012). Hence, existing logistics approaches are required to relook to develop more harmonized logistics models for humanitarian controlled travel under epidemic. Based on the included papers, the following research questions can be derived, finding the answer to these provides research directions ahead:

RQ1. What should be action plans and readiness of the government and logistics agencies in response to overcome the economic crisis and fight against the COVID-19 disruption in the future?

RQ2. Can we develop a more robust method that precisely predicts the expected inputs and assess the social impact of COVID-19 on sourcing risk?

RQ3. Is it possible to substitute global sourcing by a local one?

RQ4. The situations changed as time moved from the first to the second wave of COVID-19 and therefore, it is required to investigate that do the less or nonaffected countries of the continent or geographies may consider the COVID-19 situation as an opportunity to fulfill the anticipated sourcing of necessary items?

A scenario-based comparisons for different business inspired disruptions, infectious diseases and natural calamities would be helpful in designing policies with preventive measures. Further, the researchers are also expected to gain insights from this SI, consider

contemporary supply chain issues, have a relook at the existing theories and suggest appropriate practices and models that can help a quick reclamation from such unforeseen problems in the future.

Bhavin Shah
Operations and Supply Chain Management Group, Indian Institute of Management Sirmaur, Sirmaur, India
Pankaj Dutta
Shailesh J. Mehta School of Management, Indian Institute of Technology, Mumbai, India
Angappa Gunasekaran
California State University, Los Angeles, California, USA, and
Surendra Kansara
SIOM, Symbiosis International (Deemed University), Pune, India

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Further reading

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