
Guest editorial: Managing maturity of global supply chains: learning from COVID-19 pandemic

Guest editorial

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1. Introduction

The emergence of the COVID-19 pandemic has brought huge challenges for global supply chains to keep their continuity amid this impacting and unexpected event. Several industries and services have faced disruptions and losses. This has created high concerns regarding how to better manage supply chains in the face of events of similar magnitude.

Practitioners and researchers have carried out discussions related to resilience in global supply chains through various discussion forums, workshops and webinars, among other forms. Undoubtedly, the COVID-19 outbreak represents a unique opportunity to learn how to make the decision-making process more assertive to better prepare supply chains for the future (Van Hoek, 2020). Research that provides insights into how to respond to COVID-19 and other widespread emergencies at the firm level has already been published (Rapaccini *et al.*, 2020). The current nature of supply chains has been described as “intertwined” because of their interconnected and competitive activities, and the survival of individual firms depends heavily on the survivability of intertwined supply networks (Ivanov and Dolgui, 2020). Few supply chains have matured to the point of exhibiting built-in resiliency and other characteristics necessary to ensure survivability in the face of the COVID crisis, trade wars and other large-scale generational supply chain disruptions.

Taking into consideration maturity management as an important element to understand the capabilities and performance attributes of global supply chains, this special issue aimed to identify relevant practical and theoretical contributions related to how to manage the maturity dimensions of global supply chains seeking to generate more resilience against disruptive situations. Yet, the purpose of this special issue was to understand how capable global supply chains are to be resilient and create contingency solutions in crises such as this historic pandemic.

Maturity management has been studied with different lenses from the management field to enable organizational excellence and performance. For example, the lens of maturity management has been used to study supply chains (Lockamy and McCormack, 2004; Söderberg and Bengtsson, 2010; Varoutsas and Scapens, 2015), project management (Albrecht and Spang, 2016; Görög, 2016; Anantatmula and Rad, 2018), continuous improvement (Fryer and Ogden, 2014), Supply Chains 4.0 (Frederico *et al.*, 2020; Facchini *et al.*, 2020; Caiado *et al.*, 2020), performance measurement (Van Aken *et al.*, 2005) and knowledge management (Lotti Oliva, 2014). However, none of these studies has explored maturity in terms of global supply chains and their response capacity amid impacting and unexpected events such as COVID-19.

Thus, this special issue sought to publish papers that clearly demonstrate the practical and theoretical impacts of maturity in global supply chains in the context of sudden disruptive events such as COVID-19. Some suggested research areas, but not limited to, were proposed to encourage authors to contribute to the issue, as listed below:



- How to effectively measure the maturity of global supply chains aiming to enhance their resilience in crises and contingency situations?
- Which dimensions of maturity must be considered to effectively lead global supply chains to higher maturity stages in terms of managing crises amid impacting and sudden events?
- How can maturity management help global supply chains to be more responsive to unexpected events?
- How strong is the relationship between the dimensions of supply chain maturity and the interdependent nature of modern supply chains? In other words, is there a benefit to having a higher unit of analysis than the firm, such as intertwined supply networks or a more ecological-based perspective?
- Which capabilities should be developed to obtain more mature and resilient global supply chains?
- How may the rethinking of sourcing and localization strategies contribute to making global supply chains more mature and capable to create effective contingency initiatives?
- Which practices in global supply chains can collaborate and contribute to higher levels of maturity and resilience to better handle impacting events?
- How does digital transformation impact the maturity and responsiveness of supply chains seeking to better respond to events similar to COVID-19's magnitude?
- How does the COVID-19 pandemic has impacted the level of maturity of global supply chains from different types of business perspectives?

2. Contributions to the special issue

Five contributions were accepted for publication in this special issue. Those contributions approached maturity management in supply chains from different perspectives.

The first contribution titled “An integrated SWOT-AHP-fuzzy TOPSIS approach for maturity management following the COVID-19 outbreak: lessons learned from fast fashion” aimed to identify agility factors pertinent to retail maturity management linked to the resilience aspect. The main contribution of this research consisted in determining 14 agility and resilience SWOT factors for maturity management, considering the prioritization of six relevant strategies. The study also evidenced that changes and adaptations must be undertaken by approaching different actors, ranging from the supply/manufacturing side to global retail locations. The main outcome of this study is the provision of a better understanding of the internal and external factors of maturity management for fast-fashion retailers.

The second article, which is titled “A systematic review of AR/VR in operations and supply chain management: maturity, current trends and future directions” has brought a relevant contribution to the issue by providing a systematic insight into the current maturity of augmented reality (AR) and virtual reality (VR) in operations and supply chain management (OSCM), considering the context of COVID-19. This research evidenced that there has been a significant growth in publications over the past 25 years approaching the adoption of AR/VR in OSCM. The research findings demonstrated that AR/VR are still in the introduction and growth phase and that they have yet to reach their maturity. Moreover, the study has also shown that there is a limited utilization of AR/VR as drivers in facilitating sustainable practices in OSCM and that the potential applications of these technologies for the recovery phase of supply chains in the post-COVID-19 era require special attention.

The third publication brought a relevant contribution by approaching strategies for improving maturity and resilience in medical oxygen supply chains (MOSC), which is a key factor in the COVID-19 context. This contribution is titled “Modelling the strategies for improving maturity and resilience in medical oxygen supply chain through digital technologies”. This study aimed to identify and prioritize the solutions based on digital technologies to overcome the issues faced during the COVID-19 pandemic in India. The findings showed that Internet of Things-based tagging system technology is the best solution, followed by horizontal and vertical integration of SCs in making a resilient and digitized MOSC capable of handling general bottlenecks during a pandemic situation. This research significantly contributes to industry practitioners by providing insights on how to effectively manage the resources available with the aim to improve the resilience of MOSCs.

The fourth article has approached maturity management in supply chains by studying the link between supply chain resilience research and practice gaps in the context of COVID-19. This article is titled “Bridging the supply chain resilience research and practice gaps: pre and post COVID-19 perspectives”. This review paper has presented the industry challenges of the COVID-19 pandemic, including future steps for developing resilient supply chains in a new normal scenario. It has also contributed by providing a framework for designing cost-effective survivable supply chains that may help to endure future disruptions.

The fifth contribution titled “Does COVID-19 influence the maturity management of industrial sectors? Evidence from global data” studied maturity management by researching how the COVID-19 pandemic has impacted the maturity of all industrial sectors globally. For this purpose, the authors gathered time-series daily index data from S&P sectors from October 2019 to June 2020 and from Bloomberg databases. The findings of the research have evidenced that the information technology sectors outperformed the other industrial sectors. In contrast, the utility sector showed the worst performance during the pandemic period. Furthermore, the real estate sector demonstrated a higher level of systematic risk pattern than other sectors. The results also evidenced that almost every sector has been significantly and negatively affected by this pandemic, with exception of the consumer discretionary sector, which demonstrated to be immune to it.

3. Theoretical and practical implications of the special issue

As identified in the different contributions of this special issue, the management of maturity elements in supply chains is crucial to achieve effective resilience amid disruptive situations such as the COVID-19 pandemic.

The five papers on this special issue have approached maturity management by considering the context of the COVID-19 pandemic from different perspectives and making the following contributions:

- determining the resilience and agility factors that increase the maturity of fast fashion supply chains;
- establishing how disruptive technologies such as virtual and AR can contribute to developing more resilient and mature supply chains;
- identifying research and practice gaps in supply chain resilience by connecting this topic with cost-effective and sustainable supply chain themes and showing how these key strategies enhance supply chain maturity and survivability;
- studying strategies focused on supply chain digitalization and integration for enhancing resilience in MOSCs amid a pandemic situation; and
- determining the impact of different industrial sectors from the lens of their maturity management to the performance response amid the COVID-19 pandemic.

Although this special issue has not covered all expected topics, as listed in Section 1, it brought a relevant contribution that positions the theme of supply chain maturity within the context of significant disruptions. This may encourage new research developments that may aim at investigating further the management of maturity in supply chains amid disruptive, unexpected and impactful events. Moreover, it provides relevant insights to practitioners by bringing a different perspective to support decision-making processes regarding maturity elements that enhance the performance of supply chains amid disruptive events.

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