

Supply Chain Analytics in the 2020s

- Special issue call for papers for Logistics Research -

Background of the special issue

Over the past decade, the interest in using analytics and new data sources in supply chain management has increased significantly. While supply chain management has always been technology-oriented and data-intensive, the ongoing explosion of data and analytics methodologies has opened many avenues to advance decision-making along the supply chain (Alicke et al. 2016). Today, most companies claim that their activities along the supply chain, e.g., from planning, sourcing, and manufacturing, to warehousing and transportation, leverage a certain degree of quantitative methods. As a result, companies can design and run smarter, cheaper, and more flexible supply chains (Hoberg 2020). However, many benefits are very context-specific (Waller and Fawcett 2013). For example, benefits can be observed in areas making use of automated, high-frequency decisions, such as demand forecasting, inventory planning, picking, or routing. Other supply chain activities benefit from the different Vs of big data (e.g., volume, variety, or velocity). Finally, new algorithms and optimization approaches can improve scheduling and routing. All this improved supply-chain-decision making, often supported by artificial intelligence (AI) and machine learning (ML) approaches, is commonly referred to as supply chain analytics (Souza 2014).

Against all these advances, more research is needed to deeply embed supply chain analytics into all decision-making processes. To ensure a wide application in the new decade we require research that (i) understands the value of analytics in supply chain management, (ii) assess data requirements for supply chain analytics, (iii) develops new supply chain analytics methodologies and (iv) ensures that supply chain analytics processes are well integrated into business processes. It is the objective of this special issue to provide a forum for papers that contribute to these themes.

Purpose and prospective themes of the special issue

This special issue focuses on how supply chain analytics can improve decision making for supply-chain related processes. The topics to be discussed in this special issue include but are not limited to the following:

(i) Understand value of supply chain analytics like

- Effects of digitization and automation on efficiency, effectiveness, and flexibility in supply chains
- New supply chain business and operating models enabled by analytics
- Revenue potential of supply chain analytics
- Limitations of existing supply chain analytics methods

(ii) Assess data requirement to apply supply chain analytics like

- Supply chain information across company boundaries and related options
- Behavioral aspects of the supply chain actors when applying analytics
- Level and granularity of information of advanced methods

(iii) Develop new supply chain analytics methodologies such as

- Machine learning for supply chain decision making
- Role of different data sources for supply chain decision making
- Mutual synergy between traditional OR-based and data-driven methods for supporting supply chain decisions
- Internet of things (IoT) and its impact on supply chain decision making
- Advanced tracking and tracing technologies and applications in the supply chain context
- Smart supply chain contracts

(iv) Ensure integration of supply chain analytics in companies, for example

- Skills required for supply chain analytics
- Organizational models and responsibility for supply chain analytics
- Human factors in Supply Chain Analytics (e.g., human-machine interaction)
- The role of collaboration in data-driven supply chain management

Timeline

- November 30, 2020: Optional submission of extended abstract (800 to 1,000 words): Submit to: Suhling, Anne <suhling@BVL.de>
- January 15, 2021: Feedback on extended abstract
- March 09, 2021: Meet the Editors (<https://tum-conf.zoom.us/j/96986109259>, Code: SCA, 17.00 CET)
- June 30, 2021: Submission deadline for full paper
- August 30, 2021: First round of decision
- June 2022: Final decision

Please note that papers can already be submitted to the SI. Papers will already be made available directly online upon acceptance.

About the journal

Logistics Research is a peer-reviewed open access journal published by the German Logistics Association BVL. The journal features fundamental and applied research in the fields of logistics and supply chain management from an interdisciplinary perspective spanning from logistics management to logistics engineering. The journal presents analytical, conceptual, empirical and/or experimental work that advances the development of logistics theory and innovative logistics practices as well as the integration of the various associated disciplines such as management and social sciences, economics, behavioral sciences, operations research, informatics, and other relevant engineering sciences. More information can be found on the website: <https://www.bvl.de/lore/about-the-journal>

Guest editors

Questions about expectations, requirements, the appropriateness of a topic, etc., should be directed to the guest editors of the special issue.

- Ana Barbosa-Povoa (University of Lisbon, Portugal, apovoa@tecnico.ulisboa.pt).
- Behzad Behdani (Wageningen University, The Netherlands, behzad.behdani@wur.nl)
- Kai Hoberg (Kühne Logistics University, Germany, Kai.Hoberg@the-klu.org)
- Pedro Amorim (FEU Porto, Portugal, pamorim@fe.up.pt)
- Alexander Hübner (TU Munich, Germany, Editor-in-Chief of Logistics Research, alexander.huebner@tum.de)

References

Alicke, Rachor and Seyfert (2016): Supply Chain 4.0—the next-generation digital supply chain, McKinsey, available at <https://www.mckinsey.com/business-functions/operations/our-insights/supply-chain-40--the-nextgeneration-digital-supply-chain>

Hoberg K. (2020) Supply Chain and Big Data. In: Schintler L., McNeely C. (eds) Encyclopedia of Big Data. Springer, Cham, doi.org/10.1007/978-3-319-32001-4_242-1

Souza (2014): Supply chain analytics, Business Horizons, Vol 57(5), p. 595-605.

Waller and Fawcett (2013): Data Science, Predictive Analytics, and Big Data: A Revolution That Will Transform Supply Chain Design and Management, Journal of Business Logistics, Vol. 34: p. 77-84.