Editorial

Investigating decision-making in logistics management in the era of disruptive technologies: editorial contribution

Introduction

During the past century, logistics as an industry and academic discipline has been experiencing revolutionary growth and development (Liao-Troth *et al.*, 2012). The literature in the domain of decision-making in logistics management has been focussing on understanding the role logistics and logistics managers play in creating value for the customer and other associated stakeholders (Walters, 1999). To achieve the desired objectives, logistics managers are often seen to undertake mainly three strategic decisions at the firm level (Wanke and Zinn, 2004). The first stream of decision-making involves resolving the dilemma between make to order vs make to stock decisions. Process technology, obsolescence, lead-time ratio, delivery time and perishability are some of the key variables affecting this decision-making (Soman *et al.*, 2004; Van Donk, 2001). The second stream of decision-making is whether the manager would deploy push or pull inventory logic as a strategic decision. The push decision is based on the basic of demand planning and forecasting, whereas the pull decision is based on the demand itself (Davis *et al.*, 2014). Different studies have tried to explain the factors behind the logic and its possible implications to strategic decision-making in logistics management (Abad, 2003). The third strategic decision is whether to adopt a centralised inventory system or a decentralised one. Freight considerations, transportations costs, location node issues and inventory turnover are some of the relevant variables that may affect inventory decentralisation decisions (Abdul-Jalbar *et al.*, 2003; Zinn *et al.*, 1989). Based on these strategic decisions, logistics system across the supply chain gets configured. This configuration of logistics systems makes a critical contribution towards managing disruptions such as COVID-19 and recovery of supply chains post such disruptions (Singh *et al.*, 2020; Choi, 2020).

Scholars have stressed the importance of investigating and understanding the evolution of logistics with digital revolution that is being currently experienced due to the emergence of disruptive technologies (Daduna, 2019; Liu *et al.*, 2020). Christensen (1997) first termed disruptive technology and explained it as a type of technology to replace the existing mainstream technology in unexpected ways (Liu *et al.*, 2020). These disruptive technologies have often been simpler and usually easier to use and handle (Dhillon *et al.*, 2001), making them economically and operationally appealing to managers. Big data (Nagendra *et al.*, 2020a, b), artificial intelligence (Rodriguez-Espindola *et al.*, 2020), blockchain (Wamba *et al.*, 2020), 3D printing (Mohr and Khan, 2015), Internet of Things (IoTs) and smart robots for automation (Goldsby and Zinn, 2016) are different examples of the disruptive technologies.

This paper forms part of a special section "Decision Making in Logistics Management in the Era of Disruptive Technologies", guest edited by Vijay Pereira, Gopalakrishnan Narayanamurthy, Alessio Ishizaka and Noura Yassine.

The authors thank all the reviewers who spent their invaluable time to review the articles on time, which enabled us to complete this special issue successfully. Authors would also like to thank Dr. Tuhin Sengupta and Ms. Elena Koumi for sharing feedback on the initial call for papers and offering support on the literature review, respectively. Finally, the authors thank the editor-in-chief of International Journal of Logistics Management, Prof. Britta Gammelgaard and journal's senior associate editors and associate editors for accepting our special issue proposal and offering clear guidance in the review and publication process.

The International Journal of Logistics Management
Vol. 32 No. 2, 2021
pp. 305-319

0957-4093
DOI 10.1108/IJLM-05-2021-487

These disruptive technologies are expected to dominate the industries and transform the value delivery process with their new and exciting features at affordable prices (Aryal *et al.*, 2018).

Disruptive technology constitutes one of the most important developments applied in the logistics sector, as it significantly disrupts and shifts established operating models and decision-making systems (Wamba *et al.*, 2020). Disruptive technologies are influencing the way logistics managers are making the three strategic decisions discussed above along with several other new decisions which are crucial in this new normal era (Forbes Insights, 2018; Singh *et al.*, 2020; Choi, 2020). For instance, disruptive technologies enable real-time sharing of information across the supply chain (Gammelgaard, 2019) and thereby question the applicability of earlier adopted processes in logistics management including the traditional demand forecasting techniques and inventory management approaches. The volume of data that is available at the disposal of logistics managers for decision-making is growing exponentially, especially with integration of digital production technologies and IT-enabled management processes. The processing capacity to conduct advance analytics on the large datasets for making intelligent decisions are also becoming available to logistics managers. Artificial intelligence and machine learning algorithms are being deployed to automate decisions that were earlier made by logistic managers based on their limited past experience. Blockchain introduces decentralised digital ledger that increases the certainty and security of data available for decision-making in logistics management. These disruptive technologies are completely changing the nature of competitive advantage that a supply chain can attain by working on its logistics and the associated decisions. Further, addressing multiple strategic decisions in logistics-related problems involve multiple rules, which require an integrated and smart approach to achieve better results (Petrović *et al.*, 2018). Therefore, the transformation introduced by these disruptive technologies to decision-making in logistics management has to be researched for achieving the following three objectives:

(1) Falsify previous results that are not applicable after the introduction of disruptive technologies in logistics management,

(2) Confirm the validity of already existing results in this disruptive technologies context and

(3) Develop new approaches/frameworks for decision-making in logistics management by incorporating the features offered by disruptive technologies

To encourage research focussing on these objectives, we announced in early 2019 a call for papers for the special issue to be published in *International Journal of Logistics Management* (IJLM), focussing at the intersection of logistics management and disruptive technologies for making intelligent decisions. Through the call for papers titled '*Decision-Making in Logistics Management in the Era of Disruptive Technologies*', we invited conceptual and empirical papers that were using a variety of methods to answer research related to one of the indicative themes listed below:

(1) What are the drivers and barriers of adopting disruptive technologies in logistics management for decision-making?

(2) What are the prerequisites that the logistics function in a supply chain should satisfy before embracing disruptive technologies for efficient and effective decision-making?

(3) What are the quantitative and qualitative inputs that disruptive technologies for decision-making in logistics management can offer? How can they improve the decisions made?

(4) How is the decision-making in logistics management impacted by implementation of disruptive technologies?

(5) What are the risks and uncertainties in relying on disruptive technologies for decision-making in logistics management?

(6) How should the existing decision-making frameworks in logistics management be adapted to capture the changes and transformations introduced by disruptive technologies?

(7) What can these disruptive technologies offer for decision-making in inventory management between the point of origin and the point of consumption?

(8) What can these disruptive technologies offer for improving the decision-making in reverse logistics?

(9) How are these disruptive technologies enabling the shift from linear way of thinking about supply chains to complex adaptive ecosystems and networks consisting of nodes and links?

(10) How can disruptive technology driven decision-making in logistics management contribute towards achieving sustainability dimensions?

Call for papers also clarified that the above themes/questions were only indicative and not exhaustive in any manner. We expected the submissions received in response to call for papers to develop or challenge the existing literature or theories, so that it adds new knowledge on this topic and fall in line with the IJLM's focus. In this editorial, we capture the review process adopted and summarize the final set of papers that were accepted for publication as part of this special issue.

Review of related literature

Until recently, logistics decision-makers heavily relied on businesses' past internal and external data as well as managers' tacit knowledge for making predictions. Due to the intense global competition and the uncertainty, logistics sector has started deploying a variety of disruptive technologies and mechanisms, aiming to become more efficient and effective (Hofmann and Rusch, 2017). Experts claim that disruptive and data-driven technologies are implemented faster in transport and logistics rather than other sectors (Deloitte, 2015a, b; Balan, 2018), forcing significant changes and improvements by transforming them into digital forms. Hence, the logistics sector and their corresponding supply chain have altered their operations in ways never predicted, to deal with the variety of complexities of the contemporary business environment (Özemre and Kabadurmus, 2020).

To understand the adaptations that logistics management and its associated decision-making has undergone due to the intervention of disruptive technologies, we reviewed the relevant literature published in operations management, production management, supply chain management, logistics management, technology management and information management-related journals. The relevant articles were identified by searching for keywords "logistics, logistics management" and "disruptive technology/ies, big data, big data analytics, Internet of Things, IoT, blockchain, AI, Artificial Intelligence, Industry 4.0" and "decision or decision-making". After the initial screening, articles that were purely focussing on logistics management, decision-making and disruptive technologies, and those discussing decision-making in logistics management without the integration of a disruptive technology were excluded from the review. Table 1 summarizes the shortlisted 21 articles by

Table 1.
Review of the related literature

Year	Author(s)	Logistics	Decision-making	Disruptive technologies	Research objective	Disruptive technology	Decision-making context in logistics	Findings
2015	Ilie-Zudor *et al.*	X	X	X	Examination of challenges and potential of big data in heterogeneous business networks and their implementation on a logistics solution	Big data	Decision-making based on a new predictive-analysis based model called "ADVANCE", for hub and depot operations	Overview of contemporary big data usage; available technical means enable a feasible process transparency solution to be comprised today even with incomplete data, yet sensitivity exists to inadequate policy changes
2016	Goldsby and Zinn	X	X	X	Encourage logistics research community to get involved and research business actions, inform strategy and shape the next generation of competition	3D Printing, IoT	Business models development of companies to leverage opportunities from disrptive technologies	Not applicable
2017	Hofmann and Rusch	X	X	X	Define "Industry 4.0" and discuss its impact and implications in the context of logistics management	Cyber-physical systems, IoT, internet of services, smart factory	Implications on logistics management concepts like Kanban systems and Just-in-Time/Just-in-Sequence	Companies should individually define what Industry 4.0 means to them – there is not a common aggred-upon definition and understanding of the term Industry 4.0; varity of benefits has been identified like decentralisation, reduced bullwhip effects and shortened cycle times; majority of implications found on the operative level of logistics management (real-time information flows, improvements in flexibility)
2017	Witkowski	X	X	X	Presentation of "smart" solutions which could be considered as "innovative" in areas like technology and organisation in logistics companies, and in entire supply chains	IoT, big data, Industry 4.0	Implementation of innovative IT solutions in logistics	Majority of companies implement a variety of innovations (e.g. technical and organisational), focus on customer satisfaction (become increasingly demanding), and realisation that Industry 4.0 technologies create opportunities for those customer needs and for the development of logistics and supply duty chains, etc
2017	Kache and Seuring		X	X	Contribute to theory development in SCM by investigating the potential impacts of big data analytics on information usage in a corporate and supply chain context	Big data	Challenges and opportunities provided by big data Analytics application in supply chains and the effect on their management	Identification of 43 opportunities and challenges linked to the emergence of big data analytics from a corporate and supply chain perspective

(*continued*)

Year	Author(s)	Logistics	Decision-making	Disruptive technologies	Research objective	Disruptive technology	Decision-making context in logistics	Findings
2018	Balan	X	X	X	To examine in what contexts and by what means of different mechanisms the implementation of future advanced ICTs might have a disruptive impact on maritime transport sector	IoT, big data, cloud computing and autonomous ships/vessels	ICT maritime opportunities	Identification of the different factors and components of the mechanism which leads the disruptive impacts of the different types of ICT technologies on maritime transportation
2018	Hopkins and Hawking	X	X	X	Document the role and impact of Big Data Analytics and the internet of Things of large logistics firms' strategies to improve driver safety, lower operating costs, and reduce their vehicles' environmental impact	Big data, IoT	Implementation and gained benefits of Big Data Analytics and Internet of Things to obtain benefits in the Logistics sector	BDA and IoT applications like camera-based technologies and remote control centres that capture live data enable improved driving behaviours, driving safety and efficiency
2018	Queiroz and Telles	X		X	Recognition of the current state of big data analytics on different organisational and supply chain management levels in Brazilian firms	Big data	Analysis of the implementation of BDA projects in Brazilian firms in logistics and supply chain management	Identification of knowledge of Brazilian firms regarding BDA, difficulties and barriers to BDA projects adoption, and the relationship between supply chain levels and BDA knowledge
2018	Wamba *et al.*	X	X	X	Provide a significant opportunity to the logistics and supply chain management community to affect practices through the research of how BDA capabilities can be exploited by organisations to provide appropriate insights	Big data	Big data analytics investigation on how it impact logistics and supply chain management	BDA (big data analytics) is one of the most promising topics and can provide plenty opportunities for academic and practitioners research
2019	Winkelhaus and Grosse	X	X	X	To stringently unify diverse approaches in research to a Logistics 4.0-framework to generate a new picture of the state of logistics research	IoT, cyber-physical systems, big data, cloud-based systems, mobile-based systems, social media-based systems, blockchain, additive manufacturing and human-machine interactions	Role of logistics in the development towards individualisation	Mass customisation and associated trends lead to rising complexity and higher demands on logistics systems; picture of the state of the art of the research conducted regarding Logistics 4.0; humans are important in the development of Logistics 4.0, etc

(*continued*)

Table 1.

Table 1.

Year	Author(s)	Logistics	Decision-making	Disruptive technologies	Research objective	Disruptive technology	Decision-making context in logistics	Findings
2019	Daduna	X	X	X	Identification of potential blockchain applications and present a framework to categorise the identified areas of application according to their effects on companies' organisational structures and processes; resulting structural changes in logistics processes	Additive manufacturing, autonomous driving, use of humanoid, semi-humanoid and mobile robots	Interdependencies arising in the current developments associated with the Fourth Industrial revolution	Economic, technical and ecological advantages with the use of additive manufacturing (reduced material consumption); reduction of market entry barriers for new entrants due to low required capital expenditure; limited potential investment risks, etc
2019	Pournader *et al.*	X		X	Contribute to researching hidden transformative powers of blockchain technology such as increased supply chain transparency and freight tracking by reviewing the latest academic debates, industry use cases and possible future trends that might emerge in logistics and transport domain	Blockchain, IoT and RFID	Application of blockchain technologies on transport management and logistics regarding the 4T model: trade, technology, trust, traceability/ transparency	Elaborate discussion and findings regarding blockchain and production, procurement, sustainable supply chain management, supply chain risk management and opportunism (existing research), using the proposed 4T structure and identified its implications for the supply chain, logistics and transport literature
2019	Boldosova and Luoto		X	X	Explore the role of storytelling in data and interpretation decision-making and individual-level adoption of business analytics	Big data	Companies' BDA adoption and their interrelation with the behaviour of individuals within the company	BA (business analytics) data-driven storytelling is a narrative sense making heuristic which has a positive influence on human behaviour towards BA use; organisations can exploit this situation as BA data-driven stories improve the quality of individual data interpretation and thus increase individual utilisation of BA daily
2019	Calatayud *et al.*		X	X	Bridge the gap between practitioner and academic literature on topics like ICT developments (will be autonomous and have predictive capabilities) and contribute to both practice and theory by seeking to understand how such developments will help to address key supply chain challenges and opportunities	Artificial intelligence, IoT	Applications and benefits of ICT technologies (AI and IoT) on supply chains – self-thinking supply chains	IoT and AI are the most frequently associated technologies with the anticipated autonomous and predictive capabilities of future supply chains; demonstration of their capabilities in aiding supply chain challenges and opportunities

(*continued*)

Table 1.

Year	Author(s)	Logistics	Decision-making	Disruptive technologies	Research objective	Disruptive technology	Decision-making context in logistics	Findings
2019	Hsiao and Chang	X	X	X	Explore the value of DVA (digital voice assistants) in logistic service	Digital voice assistants, artificial intelligence	DVA practices and applications in logistics industry and trasportation	Implied common problems and expectations of current operators in the delivery of goods and their expectations of DVA
2020	Ghadge *et al.*		X	X	Analysis of the impact of Industry 4.0 implementation on supply chains and the development of an implementation framework by considering drivers and barriers for the Industry 4.0 paradigm	Big data, autonomous robots, cloud technology, IoT, additive manufacturing, augmented reality, business intelligence and cybersecurity	Implementation of Industry's 4.0 technologies on traditional supply chains and logistics	Industry 4.0 is predicted to bring new challenges as well as opportunities for the future supply chains
2020	Ozemre and Kabadurmus		X	X	Presentation of a novel framework for strategic decision-making using Big Data Analytics methodology	Big data	Decision-making using a proposed Big Data Analytics methodology (CRISP-DM: Cross Industry Standard Process for Data Mining)	By using a hypothetical case, the proposed methodology is validated as the results show that the methodology makes accurate trade forecasts and helps to conduct strategic market analysis effectively; RF (random forest) performs better that the ANN (artificial neural networks) regarding forecast accuracy
2020	Tönnissen and Teuteberg	X	X	X	Examine whether blockchain leads to the removal of intermediaries in supply chains, thus lead to disintermediation or reintermediation; examine which tasks of an intermediary in a supply chain will be replaced by blockcahin or become superfluous; what effects does disintermediation and reintermediation have on a supply chains	Blockchain	Blockchain's interaction with an operational supply chain and intermediaries' tasks possible replacement	Blockchain does not lead to the removal of intermediaries in operational supply chains; intermediation is more likely where a new central intermediary determines the rules; number of actors in the operational supply chain will possibly increase; a logistics blockchain service provider could develop into a new intermediary; impact of blockchain technology on logistics industry, etc.
2020	Wamba *et al.*		X	X	Examination of the potential influence of blockchain on supply chain performance	Blockchain	Relationship between blockchain and supply chain performance and its adoption	Knowledge sharing and trading partner pressure play an important role in blockchain adoption and that supply chain performance is significantly influenced by supply chain transparency and blockchain transparency

(*continued*)

Table 1.

Year	Author(s)	Logistics	Decision-making	Disruptive technologies	Research objective	Disruptive technology	Decision-making context in logistics	Findings
2020	Wamba-Taguimdje *et al.*		X	X	Analysis of the influence of Artificial Intelligence on firm performance, notably by building on the business value of AI-based transformation projects	Artificial intelligence	Business value of AI-enabled transformation projects in organisations	AI's technologies like chatbots and self-learning algorithms allow individuals to better understand their environment and act accordingly; AI can optimise existing processes and improve automation, information and transformation effects, and also detect and interact with humans; enhanced business value through AI use
2020	Jain *et al.*	X	X	X	Explore the much talked but less understood issue of "blockchain in logistics industry" in modern perspective	Blockchain	Understanding of blockchain technologies and customer's acceptance of blockchain technologies in logistics and supply chain	Customers' testing of acceptance of blockchain technology reveal model fit where PEOU (perceived ease of use), PU (perceived usefulness) and attitude are the major constructs of the model that realise the substantial gains in logistics process efficiency

presenting their objectives, disruptive technologies considered, decision-making context in logistics and their findings.

Articles in the special issue

We received 19 full paper submissions and evaluated the individual submissions for their fit to the scope of the special issue by specifically checking if their contribution were at the intersection of three literature sets – logistics management, decision-making and disruptive technologies. One submission was desk rejected by the guest editors, as it was not fitting to the scope of the special issue. Each of the remaining 18 submissions was sent out to at least two reviewers for evaluation. After receiving the review reports from the reviewers, the guest editors carefully read the individual submissions in the light of review reports and made a decision to reject five submissions and invite the remaining 13 submissions to incorporate the suggestions made by the reviewers. Out of these 13 submissions, seven were accepted for publication in this special issue. We believe that these seven accepted articles, with their varying research objectives and methods, advance the field of research at the intersection of logistics management, decision-making and disruptive technologies. We also feel that they open up several interesting new avenues for future research in this exciting domain. We have summarized the keywords, research objective, method and contribution of all the accepted articles in Table 2.

Final remarks and avenues for future research

The articles in this special issue address multi-faceted decision-making challenges and presents solution approaches for logistics management in the era of disruptive technologies. We believe this to be one of the initial special issues linking disruptive technologies to the domain of operations, logistics and supply chain management. The special issue offers new insights on the impact disruptive technologies can have on decision-making in logistics management that opens up interesting avenues for future research, as listed below:

(1) Disruptive technology related

- What are the values/capabilities offered by different types of disruptive technologies to decision-making in logistics management (i.e. mapping the value to decisions)?
- How and when can the capabilities offered by different disruptive technologies enable the implementation of transparency in making decisions related to logistics management across the supply chain?
- What can be the impact of enhanced tracking and monitoring of shipments using disruptive technologies on decision-making related to logistics management?

(2) Logistics/transportation related

- How can disruptive technologies be used to decide between optimal modes of logistics across the supply chain?
- What role can disruptive technologies play in decision-making associated with last-mile logistics?

(3) Logistics manager related

- What are the behavioural attitudes of logistics managers that restrict the adoption of different types of disruptive technologies?

Table 2.
Summary of research articles accepted for publication in this special issue

Authors (Year)	Title	Keywords	Research objective	Method	Contribution
Chen and Lu (2021)	Shipment sizing for autonomous trucks of road freight	Logistics strategy, Logistics industry, Logistics cost	To provide relevant information on autonomous truck technology and to help logistics managers gain insight into assessing optimal shipment sizes for autonomous trucks	Review and numerical experiments	Examined AT cost estimates and theoretically revised the conceptual models to illustrate the implications of ATs on shipment sizing problems
Del Giudice *et al.* (2021)	Supply chain management in the era of circular economy: the moderating effect of big data	Supply chain processes, Sustainability	To explore the moderating role of big data-driven supply chain on the relationship between circular economy practices and firm performance for a circular supply chain	Online survey and multiple regression	Inferred that three categories of circular economy practices (design, relationship management, and HR management) play a crucial role in enhancing firm performance and clarified the moderating role of big data in those relationships
Dong *et al.* (2021)	The impact of emerging and disruptive technologies on freight transportation in the digital era: current state and future trends	Emerging technologies, Disruptive technologies, Logistics, Freight transportation Systematic literature review, Digital era, Decision-making	To provide a systematic literature review of the current state of affairs as well as future trends and aims to support stakeholders' decision-making in logistics management in the era of disruptive technologies	Systematic literature review of published research on the topic in the past twelve years	Identified 3D printing, artificial intelligence, automated robots, autonomous vehicles, big data analytics, blockchain, drones, electric vehicles, and the internet of Things as the emerging technologies

(*continued*)

Table 2.

Authors (Year)	Title	Keywords	Research objective	Method	Contribution
El-Kassar *et al.* (2021)	An Economic Production Model with Imperfect Quality Components and Probabilistic Lead times	Economic production quantity, Probabilistic lead time, Imperfect quality components, Reorder point	To investigate a production process that requires *N* kinds of components for the production of a finished product, where the components are received from different suppliers at varying lead times and are of perfect and imperfect quality	Mathematical modelling	Developed the model to determine optimal production/ordering policy by considering the probabilistic nature of lead times and quality of components
Hecker (2021)	Implementation of 3D printing and the effect on decision-making in logistics management	Logistics services, Management research, Decision-making, Logistics competences	To present a conceptual service development methodology showing the impact of 3D printing as a disruptive technology to the service portfolio	Expert surveys and case study	Designed a methodology for logistics managers to identify the potential of 3D printing and to implement its potential by modifying the current service portfolio
Ozdemir *et al.* (2021)	The Role of Blockchain in Reducing the Impact of Barriers to Humanitarian Supply Chain Management	Blockchain, Humanitarian supply chain management, Barriers to humanitarian supply chain management, Intuitionistic fuzzy multi-criteria decision making	To investigate the role of blockchain in reducing the impact of barriers to humanitarian supply chain management using a list of blockchain benefits	Intuitionistic fuzzy decision making trial and evaluation laboratory (IF-DEMATEL) and intuitionistic fuzzy analytic network process (IF-ANP)	Proposed a multi-criteria decision framework to explain the role of blockchain in decreasing the impact of barriers in humanitarian supply chain management
Sundarakani *et al.* (2021)	Robust Facility Location Decisions for Resilient Sustainable Supply Chain Performance in the Face of Disruptions	Robust optimisation, Facility relocation, Global supply chain network, COVID-19 disruptions, Digital twin, Disruptive technologies	To investigate establishing or moving distribution facilities in the global supply chain by considering costs, fulfilment, trade uncertainties, risks under environmental trade-offs and disruptive technologies	Robust optimisation and mixed Integer linear programming (ROMILP) method with a case study application	Examined sustainable dimensions along the global logistics corridor and investigated the global container traffic perspective

- Why are certain specific disruptive technologies less adopted by logistics managers in comparison to others?

(4) Green logistics related

- What and how much impact disruptive technologies can have on decision-making associated with the reduction of logistics carbon footprint?
- How can disruptive technologies contribute towards sustainable performance measurement/management of logistics?

(5) Context related

- How does the preference towards the adoption of different types of disruptive technologies for decision-making in logistics management change between industries, countries, mode of logistics, product characteristics and businesses (B2B to B2C)?
- How can global logistics and its associated supply chain benefit by adopting disruptive technologies, especially when the countries involved in the supply chain are at different levels of maturity in infrastructure and institutions?

These avenues for future research are indicative and we believe answering such important questions by anchoring to disruptive technologies will contribute towards making logistics and its associated management decisions more intelligent.

Vijay Pereira
Strategic and International Human Capital Management, NEOMA Business School, Reims Campus, Reims, France

Gopalakrishnan Narayanamurthy
Operations and Supply Chain Management, University of Liverpool Management School, Liverpool, UK

Alessio Ishizaka
Decision Analysis, NEOMA Business School, Rouen Campus, Mont-Saint-Aignan, France, and

Noura Yassine
Applied Mathematics, Beirut Arab University, Beirut, Lebanon

References

Abad, P.L. (2003), "Optimal pricing and lot-sizing under conditions of perishability, finite production and partial backordering and lost sale", *European Journal of Operational Research*, Vol. 144 No. 3, pp. 677-685.

Abdul-Jalbar, B., Gutiérrez, J., Puerto, J. and Sicilia, J. (2003), "Policies for inventory/distribution systems: the effect of centralization vs. decentralization", *International Journal of Production Economics*, Vol. 81, pp. 281-293.

Aryal, A., Liao, Y., Nattuthurai, P. and Li, B. (2018), "The emerging big data analytics and IoT in supply chain management: a systematic review", *Supply Chain Management: International Journal*, Vol. 25 No. 2, pp. 141-156.

Balan, C., (2018) "The disruptive impact of future advanced ICTs on maritime transport: a systematic review", *Supply Chain Management*, Vol. 25 No. 2, doi: 10.1108/SCM-03-2018-0133.

Boldosova, V. and Luoto, S. (2019), "Storytelling, business analytics and big data interpretation: literature review and theoretical propositions", *Management Research Review*, Vol. 43 No. 2, pp. 204-222.

Calatayud, A., Mangan, J. and Christopher, M. (2019), "The self-thinking supply chain", *Supply Chain Management*, Vol. 24 No. 1, pp. 22-38.

Chen, C. and Lu, Y. (2021), "Shipment sizing for autonomous trucks of road freight", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 413-433.

Choi, T.M. (2020), "Innovative 'bring-service-near-your-home' operations under Corona-virus (COVID-19/SARS-CoV-2) outbreak: can logistics become the messiah?", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 140, 101961.

Christensen, C.M. (1997), *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Chicago.

Daduna, J.R. (2019), "Disruptive effects on logistics processes by additive manufacturing", *IFAC-PapersOnLine*, Vol. 52 No. 13, pp. 2770-2775.

Davis, A.M., Katok, E. and Santamaría, N. (2014), "Push, pull, or both? A behavioral study of how the allocation of inventory risk affects channel efficiency", *Management Science*, Vol. 60 No. 11, pp. 2666-2683.

Del Giudice, M., Chierici, R., Mazzucchelli, A. and Fiano, F. (2021), "Supply chain management in the era of circular economy: the moderating effect of big data", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 337-356.

Deloitte (2015a), "Shipping smarter", in *IoT Opportunities in Transport and Logistics*, available at: www2.deloitte.com/content/dam/insights/us/articles/iot-in-shipping-industry/DUP1271_IoT_Transportation-and-Logistics_MASTER.pdf (accessed 24 December 2020).

Deloitte (2015b), "Shipping smarter", in *IoT Opportunities in Transport and Logistics*, available at: www2.deloitte.com/content/dam/insights/us/articles/iot-in-shipping-industry/DUP1271_IoT_Transportation-and-Logistics_MASTER.pdf (accessed 4 June 2018).

Dhillon, G., Coss, D. and Hackney, R. (2001), "Interpreting the role of disruptive technologies in e-businesses", *Logistics Information Management*, Vol. 14 Nos 1/2, pp. 163-171.

Dong, C., Akram, A., Andersson, D., Arnas, P. and Stefansson, G. (2021), "The impact of emerging and disruptive technologies on freight transportation in the digital era: current state and future trends", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 386-412.

El-Kassar, A., Ishizaka, A., Temouri, Y., Sagheer, A. and Vaz, D. (2021), "An economic production model with imperfect quality components and probabilistic lead times", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 320-336.

Forbes Insights (2018), *Logistics 4.0: How IoT Is Transforming the Supply Chain*, Forbes, available at: https://www.forbes.com/sites/insights-inteliot/2018/06/14/logistics-4-0-how-iot-is-transforming-the-supply-chain/#286167a9880f (accessed 22 April 2019).

Gammelgaard, B. (2019), "Congratulations to IJLM on its first 30 years", *International Journal of Logistics Management*, Vol. 30 No. 1, pp. 2-7.

Ghadge, A., Er Kara, M., Moradlou, H. and Goswami, M. (2020), "The impact of Industry 4.0 implementation on supply chains", *Journal of Manufacturing Technology Management*, Vol. 31 No. 4, pp. 669-686.

Goldsby, T.J. and Zinn, W. (2016), "Technology innovation and new business models: can logistics and supply chain research accelerate the evolution?", *Journal of Business Logistics*, Vol. 37 No. 2, pp. 80-81.

Hecker, S. (2021), "Implementation of 3D printing and the effect on decision making in logistics management", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 434-453.

Hofmann, E. and Rüsch, M. (2017), "Industry 4.0 and the current status as well as future prospects on logistics", *Computers in Industry*, Vol. 89, pp. 23-34.

Hopkins, J. and Hawking, P. (2018), "Big data analytics and IoT in logistics: a case study", *The International Journal of Logistics Management*, Vol. 29 No. 2, pp. 575-591.

Hsiao, W.-H. and Chang, T.-S. (2019), "Exploring the opportunity of digital voice assistants in the logistics and transportation industry", *Journal of Enterprise Information Management*, Vol. 32 No. 6, pp. 1034-1050.

Ilie-Zudor, E., Ekárt, A., Kemeny, Z., Buckingham, C., Welch, P. and Monostori, L. (2015), "Advanced predictive-analysis-based decision support for collaborative logistics networks", *Supply Chain Management*, Vol. 20 No. 4, pp. 369-388.

Jain, G., Singh, H., Chaturvedi, K.R. and Rakesh, S. (2020), "Blockchain in logistics industry: in fizz customer trust or not", *Journal of Enterprise Information Management*, Vol. 33 No. 3, pp. 541-558.

Kache, F. and Seuring, S. (2017), "Challenges and opportunities of digital information at the intersection of big data analytics and supply chain management", *International Journal of Operations and Production Management*, Vol. 37 No. 1, pp. 10-36.

Liao-Troth, S., Thomas, S. and Fawcett, S.E. (2012), "Twenty years of IJLM: evolution in research", *International Journal of Logistics Management*, Vol. 23 No. 1, pp. 4-30.

Liu, W., Liu, R.-H., Chen, H. and Mboga, J. (2020), "Perspectives on disruptive technology and innovation: exploring conflicts, characteristics in emerging economies", *International Journal of Conflict Management*, Vol. 31 No. 3, pp. 313-331.

Mohr, S. and Khan, O. (2015), "3D printing and its disruptive impacts on supply chains of the future", *Technology Innovation Management Review*, Vol. 5 No. 11, p. 20.

Nagendra, N.P., Narayanamurthy, G. and Moser, R. (2020a), "Satellite big data analytics for ethical decision making in farmer's insurance claim settlement: minimization of type-I and type-II errors", *Annals of Operations Research*, pp. 1-22.

Nagendra, N.P., Narayanamurthy, G. and Moser, R. (2020b), "Management of humanitarian relief operations using satellite big data analytics: the case of Kerala floods", *Annals of Operations Research*, In press, pp. 1-26.

Ozdemir, A.I., Erol, I., Ar, I.M., Peker, I., Asgary, A., Medeni, T.D. and Medeni, I.T. (2021), "The role of blockchain in reducing the impact of barriers to humanitarian supply chain management", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 454-478.

Özemre, M. and Kabadurmus, O. (2020), "A big data analytics based methodology for strategic decision making", *Journal of Enterprise Information Management*, Vol. 33 No. 6, pp. 1467-1490.

Petrović, G.S., Madić, M. and Antucheviciene, J. (2018), "An approach for robust decision making rule generation: solving transport and logistics decision making problems", *Expert Systems with Applications*, Vol. 106, pp. 263-276.

Pournader, M., Shi, Y., Seuring, S. and Koh, S.L. (2020), "Blockchain applications in supply chains, transport and logistics: a systematic review of the literature", *International Journal of Production Research*, Vol. 58 No. 7, pp. 2063-2081.

Queiroz, M.M. and Telles, R. (2018), "Big data analytics in supply chain and logistics: an empirical approach", *The International Journal of Logistics Management*, Vol. 29 No. 2, pp. 767-783.

Rodríguez-Espíndola, O., Chowdhury, S., Beltagui, A. and Albores, P. (2020), "The potential of emergent disruptive technologies for humanitarian supply chains: the integration of blockchain, artificial intelligence and 3D printing", *International Journal of Production Research*, In press, pp. 1-21.

Singh, S., Kumar, R., Panchal, R. and Tiwari, M.K. (2020), "Impact of COVID-19 on logistics systems and disruptions in food supply chain", *International Journal of Production Research*, In press, pp. 1-16.

Soman, C.A., Van Donk, D.P. and Gaalman, G. (2004), "Combined make-to-order and make-to-stock in a food production system", *International Journal of Production Economics*, Vol. 90 No. 2, pp. 223-235.

Sundarakani, B., Pereira, V. and Ishizaka, A. (2021), "Robust facility location decisions for resilient sustainable supply chain performance in the face of disruptions", *International Journal of Logistics Management*, Vol. 32 No. 2, pp. 357-385.

Tönnissen, S. and Teuteberg, F. (2020), "Analysing the impact of blockchain-technology for operations and supply chain management: an explanatory model drawn from multiple case studies", *International Journal of Information Management*, Vol. 52, 101953.

Van Donk, D.P. (2001), "Make to stock or make to order: the decoupling point in the food processing industries", *International Journal of Production Economics*, Vol. 69 No. 3, pp. 297-306.

Walters, D. (1999), "The implications of shareholder value planning and management for logistics decision making", *International Journal of Physical Distribution and Logistics Management*, Vol. 29 No. 4, pp. 240-258.

Wamba, S.F., Gunasekaran, A., Papadopoulos, T. and Ngai, E. (2018), "Big data analytics in logistics and supply chain management", *International Journal of Logistics Management*.

Wamba, S.F., Queiroz, M.M. and Trinchera, L. (2020), "Dynamics between blockchain adoption determinants and supply chain performance: an empirical investigation", *International Journal of Production Economics*, Vol. 229, 107791.

Wamba-Taguimdje, S.-L., Fosso Wamba, S., Kala Kamdjoug, J.R. and Tchatchouang Wanko, C.E. (2020), "Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects", *Business Process Management Journal*, Vol. 26 No. 7, pp. 1893-1924.

Wanke, P.F. and Zinn, W. (2004), "Strategic logistics decision making", *International Journal of Physical Distribution and Logistics Management*, Vol. 34 No. 6, pp. 466-478.

Winkelhaus, S. and Grosse, E.H. (2020), "Logistics 4.0: a systematic review towards a new logistics system", *International Journal of Production Research*, Vol. 58 No. 1, pp. 18-43.

Witkowski, K. (2017), "Internet of things, big data, Industry 4.0–innovative solutions in logistics and supply chains management", *Procedia Engineering*, Vol. 182, pp. 763-769.

Zinn, W., Levy, M. and Bowersox, D.J. (1989), "Measuring the effect of inventory centralization/decentralization on aggregate safety stock: the 'square root law' revisited", *Journal of Business Logistics*, Vol. 10 No. 1, p. 1.