



Inaugural Editorial

Transforming Trends of Operations Management Research

Bibhas C. Giri

Department of Mathematics, Jadavpur University, Kolkata 700032, India
E-mail: bcgiri.jumath@gmail.com

Received: 1 September 2022; **Revised:** 6 September 2022; **Accepted:** 6 September 2022; **Published:** 19 September 2022

I would like to begin by expressing my gratitude to the researchers and professionals who make up the operations management research community for their assistance in launching the Universal Journal of Operations Management (UJOM), an open-access journal published by Universal Wiser Publisher. Starting a new journal from scratch is never easy. I would like to express my sincere appreciation to the journal's Associate Editors, Editorial Board Members, and Youth Editorial Board Members for helping to shape it and working tirelessly to raise its standards. As I take over the journal's Editor-in-Chief position, I have my own thoughts and personal vision for the future of this journal that I want to share with you.

As you know, operations management (OM) encompasses all processes that convert the input into the finished goods and services intended to meet the requirements of the end customers (Chase et al., 2008; Knod & Schonberger, 2001; Russell & Taylor, 2019). Fundamentally, OM enables organisations to efficiently acquire and utilise resources while operating under constraints in line with organisational goals (Krajewski et al., 2019). In a broader sense, OM deals with the design and execution of the activities across the value chain to meet the needs of the customers and society, thereby generating a surplus for the members of the chain extended from the point of origination to the point of consumption (Chopra, 2019). Traditionally, OM was meant for a narrow scope of production purposes, and the focus was on achieving efficiency in conversion and cost control only. However, over time, the domain of OM has been extended significantly. The field of OM has now become a dynamic domain (Hayes, 2000). Modern OM has evolved from conventional manufacturing focus to service orientation; from shop floor activities to enterprise-wide integration of primary and support processes; from a departmental affair to supply chain activities; from a mere efficiency focus to effectiveness, agility, and optimisation goals with considerations for sustainable development; from standard operating procedure and inspection to knowledge management and real-time governance and prevention; from manual activities to the technology-enabled value chain; and from an emphasis on capacity ("availability to order") to capability building ("capable to promise") approach. Given the dynamic nature of the broad domain of OM with rapid transformations of the concepts and practices on a regular basis, the stated field has garnered the attention of millions of researchers and practitioners. UJOM aims to keep track of dynamic developments in the extended arena of OM. UJOM intends to provide a scholarly platform for researchers and practitioners to showcase their research work and aid the growth of the discipline of OM. In upcoming issues, the journal is excited and curious to look into specific areas of interest while continuing to provide a scholarly outlet for the ongoing extensions of the traditional concepts and practices in the sub-domains of OM such as Logistics and Supply Chain Management, Project Management, Production and Service Management, Quality Management, as well as models and applications of Operations Research in solving real-life problems.

Copyright ©2022 Bibhas C. Giri
DOI: <http://doi.org/10.37256/ujom.1220221886>
This is an open-access article distributed under a CC BY license
(Creative Commons Attribution 4.0 International License)
<https://creativecommons.org/licenses/by/4.0/>

The first area of interest is technology-driven operations management. The present age (aka Industry 4.0) is characterised by the integration of digital and physical spaces through cyber-physical interaction, massive developments in information and communication technology, artificial intelligence and automation, and advanced analytics that influence the efficiency and effectiveness of business operations (Biswas & Sen, 2016, 2017; Choi et al., 2022). The phenomenal progress in technology development and the subsequent impact on market transformation have posed unprecedented opportunities and challenges for decision-makers and executors and have incited a redesign and realignment of business operations (Oztemel & Gursev, 2020; Tang & Veulenturf, 2019; Yin et al., 2018). In fact, OM can be redefined as an enterprise-wide (extended from end supplier to end consumer) collaborative digital capability for disseminating customer values. The emergence of disruptive technologies has necessitated the importance of revisiting the domain of OM from the following perspectives:

- a. How are disruptive technologies like the Internet of Things (IoT), Blockchains, Artificial Intelligence, Digital Twin, Augmented and Virtual Reality, Digital Manufacturing, 3D Printing, Cloud-based Operations, and 5G and Beyond reshaping the OM in industries?
- b. How does technology help organisations provide value to customers through process improvement, quality enhancement, resource optimisation, and competitive advantage?
- c. How does technology support firms in demonstrating resilience and mitigating risk?
- d. How does technology foster inclusive growth?
- e. How does technology act as an enabler for effective and efficient management of business operations?
- f. How does technology help with collaboration and coordination, and real-time governance of business operations?
- g. To what extent are organisations capable (in terms of digital infrastructure, knowledge, analytical capability and use of tools and techniques, innovativeness, etc.) of embracing technological changes?
- h. What will be the policy implications for the successful adoption and adaptation of advanced technologies, organisational changes, and knowledge management?

The world is heading toward Society 5.0 with the growing development and use of technology during this expanding age of Industry 4.0. The movement started in Japan to bring the values of technology to the mass level for the improvement of quality of life through the creation of a holistic ecosystem of human-centric technologies (Deguchi et al., 2020; Fukuyama, 2018). In a broad sense, Society 5.0 movements are initiated to solve social problems. The big goal is to achieve the sustainable development goals set by the United Nations. Over the last few decades, there has been an increasing trend of research entailing the realignment and redesign of OM to achieve sustainability (Wijnsma, 2021). Sustainability stands on three fundamental pillars, such as society, the economy, and the environment. Organisations need to not only earn profits but also take care of the environment and, subsequently, society (Sauvé et al., 2016). There has been a shift of focus from the conventional linear economy to the circular economy. The concept of circular economy has grown in popularity, with an emphasis on the all-around transformation of operational activities (Vanalle et al., 2017). To this end, technology plays a critical role in helping firms conduct operational activities that are eco-friendly, economical, and have societal values (Dubey et al., 2019; Stock & Seliger, 2016; Wang et al., 2016). In this regard, UJOM is keen to be a part of this movement and encourages research on topics such as: changing dimensions of OM for sustainable development and inclusive growth; sustainable operations (e.g., green process, sustainable supplier selection, green product development, management of carbon footprint, energy efficient and carbon neutral operations, sustainable product development and project management, social operations management, crowdsourcing, alternative materials, agri-product value chain management, occupational safety and health, climate change and operations management, waste reduction through lean and agile processes, reliability and prognostics, sustainable supply chain management among others); building sustainable entrepreneurship, strategic drivers and complexities in the successful execution of sustainable operations and policy implications for inclusive development.

The assessment and mitigation of disruption risk and resilience will be the third major area of focus. One of the competitive strengths of business operations is their ability to assess, predict, and show resilience to disruption risk under extreme uncertainty. Since 2020 (early phase), the world has been under the fatal impact of COVID-19 on socio-economic and cultural well-being. The world has been struggling to safeguard lives and livelihoods (Biswas et al., 2022). Almost all types of industries have been affected by COVID-19 directly or indirectly. To add to the health risk, social distancing, and unpredicted closure of operations, decision-makers have been compelled to reform the strategies.

Perhaps the only silver lining is a slight reduction in carbon footprint and improved environmental health (Chakraborty & Maity, 2020; Collivignarelli et al., 2020; McDonnell et al., 2020; Tobias et al., 2020; Zambrano-Monserrate et al., 2020). To this end, we look forward to receiving scholarly work (utilising decision analytics models and empirical approaches) and perspectives on the impact of COVID-19 on various functional areas of operations and supply chain management, assessment of socio-economic impact and implications for business operations, operational and strategic decisions for safeguarding food security and livelihoods, planning and execution of humanitarian supply chains, and challenges and ways forward for resilience and inclusive growth.

Fourth, we are open to ongoing research aimed at expanding the body of literature on decision science, operations research (OR), and computational intelligence through the development, extensions, and applications of various models. A specific interest in this regard is big data-driven cloud-based operations management and the framework for successful administration.

For the last many years, there has been another aspect of OM under the spotlight, such as people focus (Loch & Wu, 2007). According to Croson et al. (2013):

Behavioural operations must have an element of both operations and behaviour. The value of behavioural operations lies in recognising that almost all contexts studied within operations management contain people. There are managers making decisions, employees working on and improving processes, and customers buying products. (pp. 1-5)

Fifth, for the last many years, there has been another aspect of the psychology and behavioural side of the OM that has been increasingly noticed in published research work. UJOM calls for research in this regard related to biases in the decision-making process and their impact on operational effectiveness and efficiencies, social preferences, and other cornerstones for success in the light of behavioural operations management.

Lastly, the sixth area of interest is the development of OM/OR models and frameworks for interdisciplinary applications.

In summary, the upcoming issues of UJOM will focus on technology-driven and analytical operations management models and their applications in sustainable development for organisations and society while demonstrating resilience to disruptions, in addition to enclosing the behavioural aspects with interdisciplinary applications. Through regular and special issues that include regular and commentary articles, reviews, and case studies based on the real-life challenges of the world, the journal will highlight the most recent advancements in the indicated field. We are confident that UJOM will become the preeminent academic venue for experts in operations management research and practice.

References

- Biswas, S., & Sen, J. (2016). A proposed framework of next generation supply chain management using big data analytics. In *Proceedings of National Conference on Emerging Trends in Business and Management: Issues and Challenges*. <https://ssrn.com/abstract=2755828>
- Biswas, S., & Sen, J. (2017). *A proposed architecture for big data driven supply chain analytics*. ArXiv. <https://doi.org/10.48550/arXiv.1705.04958>
- Biswas, S., Majumder, S., & Dawn, S. K. (2022). Comparing the socioeconomic development of G7 and BRICS countries and resilience to COVID-19: An entropy–MARCOS framework. *Business Perspectives and Research*, 10(2), 286-303. <https://doi.org/10.1177/22785337211015406>
- Chakraborty, I., & Maity, P. (2020). COVID-19 outbreak: Migration, effects on society, global environment and prevention. *Science of The Total Environment*, 728, 138882. <https://doi.org/10.1016/j.scitotenv.2020.138882>
- Chase, R. B., Jacobs, F. R., & Aquilano, N. J. (2008). *Operations management for competitive advantage* (11th ed.). McGraw-Hill Irwin.
- Choi, T. -M., Kumar, S., Yue, X., & Chan, H. -L. (2022). Disruptive technologies and operations management in the Industry 4.0 era and beyond. *Production and Operations Management*, 31(1), 9-31. <https://doi.org/10.1111/poms.13622>
- Chopra, S. (2019). *Supply chain management: Strategy, planning and operation, global edition* (7th ed.). Pearson.
- Collivignarelli, M. C., Abbà, A., Bertanza, G., Pedrazzani, R., Ricciardi, P., & Miino, M. C. (2020). Lockdown for CoViD-2019 in Milan: What are the effects on air quality? *Science of The Total Environment*, 732, 139280. <https://doi.org/10.1016/j.scitotenv.2020.139280>

doi.org/10.1016/j.scitotenv.2020.139280

- Croson, R., Schultz, K., Siemsen, E., & Yeo, M. L. (2013). Behavioral operations: The state of the field. *Journal of Operations Management*, 31(1-2), 1-5. <https://doi.org/10.1016/j.jom.2012.12.001>
- Deguchi, A., Hirai, C., Matsuoka, H., Nakano, T., Oshima, K., Tai, M., & Tani, S. (2020). What is Society 5.0? In Hitachi-UTokyo Laboratory (Ed.), *Society 5.0* (pp. 1-23). Springer. https://doi.org/10.1007/978-981-15-2989-4_1
- Dubey, R., Gunasekaran, A., Childe, S. J., Papadopoulos, T., Luo, Z., Wamba, S. F., & Roubaud, D. (2019). Can big data and predictive analytics improve social and environmental sustainability? *Technological Forecasting and Social Change*, 144, 534-545. <https://doi.org/10.1016/j.techfore.2017.06.020>
- Fukuyama, M. (2018). Society 5.0: Aiming for a new human-centered society. *Japan Spotlight*, 27(5), 47-50. https://www.jef.or.jp/journal/pdf/220th_Special_Article_02.pdf
- Hayes, R. H. (2000). Toward a “new architecture” for POM. *Production and Operations Management*, 9(2), 105-110. <https://doi.org/10.1111/j.1937-5956.2000.tb00327.x>
- Knod, E. M., & Schonberger, R. J. (2001). *Operations management: Meeting customers' demands* [CD]. McGraw-Hill/Irwin.
- Krajewski, L. J., Malhotra, M. K., & Ritzman, L. P. (2019). *Operations management: Processes and supply chains* (12th ed.). Pearson.
- Loch, C. H., & Wu, Y. (2007). Behavioral operations management. *Foundations and Trends® in Technology, Information and Operations Management*, 1(3), 121-232. <https://doi.org/10.1561/0200000009>
- McDonnell, A., Chalkidou, K., Yadav, P., & Rosen, D. (2020, June 17) *Understanding the impact of COVID-19 on essential medicine supply chains*. Center for Global Development. <https://www.cgdev.org/blog/understanding-impact-covid-19-essential-medicine-supply-chains>
- Oztemel, E., & Gursev, S. (2020). Literature review of Industry 4.0 and related technologies. *Journal of Intelligent Manufacturing*, 31, 127-182. <https://doi.org/10.1007/s10845-018-1433-8>
- Russell, R. S., & Taylor, B. W. (2019). *Operations and supply chain management* (10th ed.). John Wiley & Sons.
- Sauvé, S., Bernard, S., & Sloan, P. (2016). Environmental sciences, sustainable development and circular economy: Alternative concepts for trans-disciplinary research. *Environmental Development*, 17, 48-56. <https://doi.org/10.1016/j.envdev.2015.09.002>
- Stock, T., & Seliger, G. (2016). Opportunities of sustainable manufacturing in Industry 4.0. *Procedia CIRP*, 40, 536-541. <https://doi.org/10.1016/j.procir.2016.01.129>
- Tang, C. S., & Veelenturf, L. P. (2019). The strategic role of logistics in the industry 4.0 era. *Transportation Research Part E: Logistics and Transportation Review*, 129, 1-11. <https://doi.org/10.1016/j.tre.2019.06.004>
- Tobías, A., Carnerero, C., Reche, C., Massagué, J., Via, M., Minguillón, M. C., Alastuey, A., Querol, X. (2020). Changes in air quality during the lockdown in Barcelona (Spain) one month into the SARS-CoV-2 epidemic. *Science of The Total Environment*, 726, 138540. <https://doi.org/10.1016/j.scitotenv.2020.138540>
- Vanalle, R. M., Ganga, G. M. D., Filho, M. G., & Lucato, W. C. (2017). Green supply chain management: An investigation of pressures, practices, and performance within the Brazilian automotive supply chain. *Journal of Cleaner Production*, 151, 250-259. <https://doi.org/10.1016/j.jclepro.2017.03.066>
- Wang, S., Wan, J., Zhang, D., Li, D., & Zhang, C. (2016). Towards smart factory for industry 4.0: A self-organized multi-agent system with big data based feedback and coordination. *Computer Networks*, 101, 158-168. <https://doi.org/10.1016/j.comnet.2015.12.017>
- Wijnsma, S. (2021). *Sustainable supply chains: Bridging the gap between environmental economics and operations management* (Doctoral thesis, University of Cambridge). Apollo. <https://doi.org/10.17863/CAM.78714>
- Yin, Y., Stecke, K. E., & Li, D. (2018). The evolution of production systems from Industry 2.0 through Industry 4.0. *International Journal of Production Research*, 56(1-2), 848-861. <https://doi.org/10.1080/00207543.2017.1403664>
- Zambrano-Monserrate, M. A., Ruano, M. A., & Sanchez-Alcalde, L. (2020). Indirect effects of COVID-19 on the environment. *Science of The Total Environment*, 728, 138813. <https://doi.org/10.1016/j.scitotenv.2020.138813>