A systematic and network based analysis of data driven quality management in supply chains and proposed future research directions

Rohit Agrawal, Vishal A. Wankhede, Anil Kumar, Sunil Luthra, Krishan Kataria

Abstract

Purpose- This work aims to review past and present articles about data-driven quality management (DDQM) in supply chains (SCs). The motive behind the review is to identify associated literature gaps and to provide a future research direction in the field of DDQM in SCs.

Design/Methodology/Approach- A systematic literature review was done in the field of DDQM in SCs. SCOPUS database was chosen to collect articles in the selected field then an SLR methodology has been followed to review the selected articles. The bibliometric and network analysis has also been conducted to analyze the contributions of various authors, countries, and institutions in the field of DDQM in SCs. Network analysis was done by using the VOS viewer package to analyze collaboration among researchers.

Findings- The findings of the study reveal that the adoption of data-driven technologies and quality management tools can help in strategic decision making. The usage of data-driven technologies such as artificial intelligence and machine learning can significantly enhance the performance of supply chain operations and networks.

Originality/Value- The paper discusses the importance of data-driven techniques enabling quality in SCs management systems. The linkage between the data-driven techniques and quality management for improving the SCs performance was also elaborated in the presented study.

Keywords- Quality Management; Data-driven; Supply chain; Systematic literature review; Bibliometric.

Paper type- Review Paper

1. Introduction

Big data is emerging in almost all sectors of the global economy. From retailer, wholesaler, manufacturer, and enterprise, all are utilizing data to enhance their performance (Chavez et al., 2017; Bag et al., 2020a). With the adoption of Industry 4.0 technologies such as Big data (BD),

Cyber-physical system (CPS), Artificial Intelligence (AI), etc., firms are enhancing their quality management system in supply chain network (Kumar et al., 2020; Vigneshvaran and Vinodh, 2020; Dhamija and Bag, 2020). Supply chain managers and practitioners are utilizing the generated data from Industry 4.0 technologies to enhance supply chain capabilities (Yu et al., 2018; Bag et al., 2020b).

Data-driven SCs enhance the SCs process and explore many digital technologies to enhance their performance and survive in the market (Chavez et al., 2017; Babatunde, 2020; Brunetti et al., 2020). Many digital technologies are available, such as predictive analytics, robotics, and IoT sensors, to smooth the process (Nica, 2019; Zoppelletto et al., 2020). Quality management (QM) is an essential aspect of SC management. Firms must develop a sound quality management system in their SCs for the seamless flow of products and information (Viet et al., 2020; Grandinetti et al., 2020). Considering increasing data-driven technologies and QM tools, this work analyzes the importance of data-driven technologies and quality management in supply chain management. From the literature, it is seen that an increasing count in the research publications in the area of DDQM in SCs, and in response to that, this work explores research activity in the area of DDQM in SCs. The vital contribution in this study is the development of a research framework to support DDQM in the SCs domain. The research questions of this study are:

RQ1. What are the different applications of data-driven quality management (DDQM) in various domains of SCs?

RQ2. What are the present research trends in the area of DDQM in SCs?

RQ3. What are the future research activities which can be done in the field of DDQM in SCs?

To address these research questions, the following objectives have been formulated for this study:

- To collect and review articles pertaining to DDQM in various domains of SCs.
- To analyze different applications of DDQM in SC
- To analyze the research trends in the field of DDQM in SCs
- To propose future research directions in the field of DDQM in SCs.

To achieve these objectives, this work starts with identifying and collecting articles pertaining to DDQM in various domains of SCs. The presented work focused on the review of past and present articles on DDQM in SCs. A systematic literature review was done in the field of DDQM in SCs. SCOPUS database was chosen to collect articles in the selected field then an SLR methodology has been followed to review the selected articles. SCOPUS database was considered for article collection because it is one of the largest databases consisting of many journals and conferences and a wide variety of publishers (Chiarini et al., 2020; Sharma et al., 2020). The bibliometric and network analysis has also been conducted to analyze the contributions of various authors, countries, and institutions in the field of DDQM in SCs. Network analysis was done by using the VOS viewer package to analyze collaboration among researchers. Further, discussion on findings was presented along with limitations and future research direction, which could help the industrial practitioners and researchers adopt data-driven and quality management techniques to enhance supply chain operations and networking.

This paper includes seven sections. Section 1 consists of the introduction on the topic followed by the research question. A systematic literature review methodology and review of articles about different sectors of DDQM in SCs are given in sections 2 and 3. Bibliometric provides in section 4. Section 5 includes network analysis in the field of DDQM in SCs. Section 6 and 7 include discussion and future directions.

2. **Systematic Literature Review**

A systematic literature review (SLR) is a method to analyze the past and current studies in the field and identify the gaps in the literature (Tranfield et al., 2003; Vinodh et al., 2020). Many authors are using SLR in a different field to analyze the current trends in the research work. Cherrafi et al. (2017) used SLR methodology to identify barriers of green lean adoption, Kamble et al. (2018) used SLR methodology to review frameworks for sustainable I4.0, and Sihag and Sangwan (2020) analyses energy consumption of machine tools using the SLR approach. Chiarini et al. (2020) used SLR methodology to review Industry 4.0 articles linked with the TQM concept. Figure 1 shows the process used.

2.1 **Selection of keywords**

The present study focuses on a systematic review of articles about DDQM in SCs. One major concern while collecting articles is the selection of keywords. In this study, the following keywords were selected to collect articles about DDQM in SCs.

“Data driven” AND “Quality” AND “Supply chain”, “Data driven” AND “Quality” AND “Logistics”, “Data driven” AND “Quality” AND “Transportation”, “Data driven” AND “Performance” AND “Supply chain”, “Data driven” AND “Performance” AND “Logistics”, and “Data driven” AND “Performance” AND “Transportation”.

Figure 1: SLR methodology framework used in the study

2.2 Collection of Articles on data-driven quality management in supply chain

This study includes journals, conferences, and book chapters. Exclusion criteria were Non-refereed Conferences and Journals. The SCOPUS database was used to selected keywords, as shown in Table 1.

Table 1: Search results of articles

Input keywords	Available papers
"Data driven" AND "Quality" AND "Supply chain"	43
"Data driven" AND "Quality" AND "Logistics"	106
"Data driven" AND "Quality" AND "Transportation"	135
"Data driven" AND "Performance" AND "Supply chain"	94
"Data driven" AND "Performance" AND "Logistics"	290
"Data driven" AND "Performance" AND "Transportation"	389
Total	**1057**

2.3 Refinement of Articles and Further Shortlisting

A total of 1057 articles were appeared by giving selected keywords. On further refining articles by removing duplicate articles that appeared in different keywords search, a total of 597 articles were shortlisted for bibliometric and review analysis.

3. Data-driven quality management in supply chain

Many studies (Lin et al., 2005; Bag et al., 2020c; Chiarini, 2020) show that quality management practices significantly influence the firm's performance. Lin et al. (2005) presented an empirical study and showed the influence of quality management practices on different firm performance levels. Bag et al. (2020c) show the integration of artificial technologies in the business market helps in enhancing a firm's performance. Chiarini (2020) presented a review on the integration of Industry 4.0 technologies with quality concepts to improve a firm's performance.

Recent studies (Soares et al., 2017; Basheer et al., 2019; Vinodh and Wankhede, 2020) show the relationship between quality management principles and supply chain performance. Hong et al. (2018) analyze the importance of supply chain and quality management practices on the firm's operational performance.

This section consists of various studies available in the field of DDQM in SCs. This section is further sub-divided into nine sub-section based on multiple aspects of DDQM in SCs. This section shows various aspects of DDQM in SCs such as machine learning algorithm for SCM, data-driven airport management, data-driven transportation model, data-driven railway network, data-driven sustainable supply chain management, digital SCM, data-driven SCM, quality management in SCM, data-driven agriculture SCM.

3.1 **Review on machine learning algorithm for SCM**

Machine learning algorithms help in analyzing a large volume of real-time data for effective decision making. The adoption of machine learning in supply chain management can help in strategic decision making. In this regard, Smith et al. (2002) examined the theoretical background of nonparametric regression models. Further, they investigated the application of heuristic forecast generation models to assess seasonal ARIMA models' performance. The results showed no significant improvement in seasonal ARIMA model performance using nonparametric regression linked with heuristic forecast generation methods. Othman et al. (2015) developed a data-driven agent-based model of scaling and congestion dynamics of Singapore rapid transit systems to deliver comprehensive congestion dynamics through analytical modeling. The authors estimated the sufficient capacity of fast transit trains. Moreover, the crowdedness of all 121 stations had been estimated. The results revealed that an increase in the current population beyond 10% leads to an exponential decline in service quality. Also, incentivizing the travelers to bring down the congested hours may result in improving the service quality. Since the developed model is inter-dependent, the holistic model could be developed from the perspective of transportation.

ALi and Wang (2017) proposed a data-driven pricing model by utilizing the big data concept for food supply chain management. Sensors were deployed to monitor time and temperature data to predict the real shelf life of food products. This study suggests future direction can be done exploring other big data approaches to optimize the food supply chain. Further, Bhavsar et al. (2017) use a machine learning algorithm for analyzing transportation-related data. The study

shows that a machine learning algorithm can enhance data analytics in the transportation model. A framework was proposed by Jung et al. (2018) in which both static and dynamic models were found to be highly accurate and scalable. An extension of this algorithm by adding various features such as weather, wind etc. could be developed in the future.Further, Fu and Chien (2019) developed a data-driven framework based on a machine-learning algorithm to forecast electronics components' demand. The study presented an empirical survey of the leading distributor of semiconductors for validation. The results validated the developed framework and also provides flexible decision making for agile SC.

Cavalcante et al. (2019) attempted a hybrid machine learning technique and simulation to determine its applications in resilient supplier selection, enabling decision-making support. The results showed an improvement in delivery reliability and resilience. In the future, the developed decision-making model could be further enhanced for tackling supply chain risk issues. Liu et al. (2020) presented the surrogate mechanism as supervised learning in which ensembles of decision trees trained on historical data of original equipment manufacturers from SMEs. The proposed mechanism was then applied to the real-world supply chain and shown effective performance with lower prediction errors. Moreover, the authors also developed a web-based feasibility tool to enable real-time use of prediction models.

A literature analysis on machine learning applications for agriculture supply chain performance enabling sustainability was conducted by Sharma et al. (2020). Ninety-three research articles were considered for review in which benefits from machine learning techniques to achieve sustainability in supply chain performance was highlighted. Finally, the framework depicting the role of a machine learning algorithm in the real-time environment was developed based on literature analysis. A data-driven model for automotive industries considering a machine learning algorithm was presented by Tufano et al. (2020). The authors used a clustering algorithm to analyze and categorize product families. Logistics KPIs were used to analyze the performance of different clustering algorithms used in operations. Leung et al. (2020) developed a predictive model to forecast e-commerce demand. The authors have created a four-level framework by integrating the time series method with an adaptive neuro-fuzzy inference system.

3.2 **Review on data-driven airport management**

As air traffic is increasing globally. Managing air traffic is becoming challenging nowadays. Data-driven airport management helps in enhanced operational performance and smooth passenger flow. In this regard, Baspinar et al. (2017) presented a different data-driven method for modeling air traffic flow networks and analyzing the delay in propagations. The authors have used historical flight data to explore the other models. Further, the study compares the different data-driven models to analyze the performance.

A framework based on data-driven to predict airport acceptance rates for enhancing the airport planning to overcome traffic was presented by Murça and Hansman (2018). The framework included interdependencies between the systems to improve system performance. The authors have developed an optimization model for the allocation of capacity. The results reveal that the proposed model outperforms and provides a 9.7% reduction in delays. Further, Marla et al. (2018) analyze the aircraft routing problem by considering different models to make robust airline scheduling. A methodology was proposed by Carmona et al. (2020) to assess and characterize the aircraft operation performance in complex systemized terminals considering standard route structure and actual traffic. The proposed model identified the recurrent patterns of the standard routes and then analyzed these routes to produce recurrent patterns. The developed model was validated at a Multi-airport system by performing simulations utilizing historical traffic data. Further, Kumar and Anbanandam (2020) presented a framework to analyze freight transportation companies based on environmentally responsible practices. The study uses AHP based method to analyze responsible environmental practices, and further VIKOR has been used to compare and analyze different freight transportation companies.

3.3 **Review on data-driven transportation model**

The transportation model is an important aspect of current globalization. An effective transportation model helps in expanding the business more excellently. In this regard, Zhang et al. (2011) surveyed a data-driven intelligent transportation system. The author addressed the functionality and implementation issues of the data-driven smart transportation system. Moreover, the authors also identified exceptional cases affecting the development of it. Ehmke et al. (2016) introduced the shortest path algorithm for estimating arrival time distribution at path nodes by integrating sampling for travel speed variability. Also, the authors recommended the method for converting speed data into time-dependent emissions values. The findings

demonstrated the usefulness of the proposed algorithm and helped overcome the challenges associated with big data.

Sakib et al. (2018) addressed passenger accessibility and transport enablers for sustainable development by analyzing 79 passenger ports. They used open-access data and assessed port ship and infrastructure accessibility and multimodality. Moreover, the study contributed to establishing relevant passenger port performance indicators for enhancing regional competition and leanness towards sustainability. Wang et al. (2019) assessed the route choice behavior of taxi drivers using GPS vehicle positioning data. The authors aimed to explore the possibility of incorporating route choice selected by taxi drivers into the traveler's system. Thus, an experimental study was performed to determine the validity of the driver's information about routes by developing a framework. The developed framework successfully processed the information about routes selected by drivers and respective travels time. In the future, the model could be enhanced by collecting more relevant data to estimate the travel time.

The data-driven hybrid control framework was proposed by Wang et al. (2019) for improving the transit performance of public transportation systems using adaptive control strategies for vehicles. The framework comprises a data-driven control module, optimization module, and performance module. The random forest method was used in the data-driven control module to see the possibility of intervention in the bus line operation. The framework was validated with the data of the transit route in China. The findings showed the model's effectiveness in fulfilling the requirements of real-time control in complex traffic situations. Further, Pereira and Frazzon (2020) studied the demand and supply in the Omni-channel retail supply chain using a data-driven integrated approach of operational planning simulation-based optimization and machine learning demand forecasting.

3.4 **Review on the data-driven railway network**

Increasing demand for transportation has created significant pressure on the railway network to provide more trains with high loading capacity. The government is supporting an energy-efficient railway system to need the present needs. In this regard, De Martinis and Corman (2018) presented a review of energy-efficient railways operations. The study also showed case studies on electric trains of Switzerland to analyze the challenges and to enhance the efficiency of train operations. Saki et al. (2019) introduced a novel framework into railway condition

monitoring systems involving massive data. The edge processing unit of the framework classifies the Internet of things into maintenance critical and non-critical data transmission unit. A travel pattern method was deployed for the transmission of maintenance non-critical data.

Bukhsh et al., (2019) proposed a predictive model that utilizes railway data and provides meaningful insights. The study uses a machine-learning algorithm to predict maintenance needs. The authors also provided a detailed explanation of the prediction model to enhance interpretability. The presented research can help in improving maintenance planning. Further, Barbour et al. (2020) presented an approach to automatically clean the data and remove noisy and incomplete data for rail dispatch data. The results reveal that the data reconciliation approach helps data pre-processing for modeling and analyzing rail dispatch data.

3.5 **Review on data-driven sustainable SCM**

Sustainable SC is gaining significant importance nowadays to balance the social, economic, and environmental performance of SC (Bag et al., 2020b). In this regard, Tufano et al. (2018) presented a decision support tool for effective planning and implementation of a centralized kitchen. The proposed model helps in effective decision making in material flow by considering various criteria. Lee and Jung (2019) analyzed the scope and concept of social sustainability through network analysis. The study shows that consideration of social sustainability includes minimum innovation and more imitation rates.

The predictors of sustainable performance were analyzed by Raut et al. (2019) using big data analytics. Three hundred sixteen responses were collected from Indian experts involved in the implementation of sustainable practices in manufacturing firms. The study uses a structural equation model and artificial neural network to analyze the survey data. The results reveal that management leadership and government policies are the two significant predictors for big data analytics in sustainable practices. Further, Resat (2020) presented a sustainable approach for the last-mile delivery system. The study used an integrated approach of the MCDM method and a mixed-integer linear programming model for last-mile delivery in the metropolitan city. The study provides various performance indicators of last-mile delivery and presented a multi-objective model for sustainable logistics. Further, the authors validated the proposed approach through a Turkish firm's case study.

An approach was presented by Balali et al. (2020) to address sustainability challenges associated with transportation routes. The different transportation route is compared by quantifying various

factors such as cost, fuel consumption, emissions, and trip duration. The proposed method helps in the effective selection of transportation route considering the sustainability aspect. Further, Del Giudice et al. (2020) aimed to assess the impact of circular economy practices on the firm's performance. The survey data was collected from 378 Italian firms and analyzed data using multiple regression analysis. Finally, Kayikci (2020) aimed to present a data streaming decision-making framework to enhance the sustainable performance of logistics. The author made a causal relationship to interpret environmental performance level. The author considered several attributes to analyze the sustainable performance of logistics. The study uses a fuzzy AHP approach to analyze considered attributes.

3.6 **Review on digital supply chain management**

Supply chain firms are exploring many digital technologies to enhance their performance and to survive in the market. Many digital technologies are available such as predictive analytics, robotics, and IoT sensors, to make the process smooth. The data-driven application systems and RFID concepts had been used for the design (Zhang et al., 2011). The authors performed a literature analysis of related concepts, namely, simulation, dynamic data-driven, RFID, and supply chain management. The study provided a detailed understanding of the requirement of such dynamic RFID systems for supply chain management also created a strong foundation of designing, assessing, implementing, and validating using data-driven application systems.

Further, Zhang et al. (2018) developed a framework for smart production logistics systems using Industrial IoT and CPS. The authors implemented a self-organizing configuration by using the data-driven model. The authors validated the feasibility of the framework in the Chinese engine manufacturing organization deploying Industrial IoT and evaluated its performance. The developed model helped reduce energy consumption and manufacturing time and helped improve the efficiency of the production logistics system.

The relationship between advanced digitalization in Industry 4.0 and cyber-physical production network in manufacturing systems was analyzed by Nica (2019) using a structural equation modeling approach. The data was extracted from top analytics firms, namely, PWC, McKinsey, IoT analytics, Capgemini, AI group, etc., and evaluated top business goals, leading technologies, and average quality gain from smart factories. Li et al. (2020) identified the influencing factors of online service supply chains using machine learning and big data analytics technique and the formulation of optimal pricing strategies. The findings of the study showed improvement in the

efficiency of optimization of big data samples of online service supply chains. Further, Ivanov and Dolgui (2020) presented an idea of digital supply chain twin, which indicates real-time network states for any given moment. The authors combined the model-based and data-driven approaches to uncover the interrelationship of risk data, performance assessment, and disruption modeling. The supply chain shocks and variations due to the Covid-19 pandemic created a need to develop a digital supply chain twin for quick post-pandemic recoveries. The findings of the study contributed to the research and development of supply chain risk management by improving reactive decisions for global companies.

3.7 **Review on data-driven supply chain management**

Data-driven technologies enhance supply chain management (Sony et al., 2020; Cunha et al., 2020). Usage of data-driven technologies is being explored to improve the performance of SCs. Tannock et al. (2007) developed a supply chain model builder and presented its concept and working in the article. The authors suggested that data-driven simulation is helpful in improvement in SCs. Tribone et al. (2014) presented the projects and reports showing the effect of temporal and simple spatial data for vehicles and customers on targeted improvements in institutional service and process by utilizing the focused and collaborative design.

An approach was presented by Lee et al. (2016) to analyze the interaction risk caused by the supplier to the manufacturer. The study showed a supply chain simulation model of the assembly to order industry. The study results reveal that when lead time is considered performance criteria, the outperformance of decremented demand over incremental demand is found. Similarly, when the fulfillment rate is considered as performance, so the reverse result is achieved. Further, Papadopoulos et al. (2016) performed a literature review on big data and RFID adoption in supply chain management. The authors identified recent trends in literature considering tactical, strategic, and operational levels of decision making. In the future, the study could be enhanced by considering the intangible benefits of RFID and the application of big data for improving performance.

Abdelaty et al. (2017) identified data integration and technical barriers preventing effective utilization of historical data while implementing a data-driven process to assess the performance of the pavement treatments. The authors provided a set of suggestions to aid state highway organizations in enforcing pavement asset management. Taube et al. (2017) formulated a mixed-

integer linear program for plant-location problems and developed various hierarchical breakdown methods and genetic algorithms. The European retailer industry was used as a case study for determining the performance of the models. The findings were further analyzed using the meta-modeling method, which delivered insights on the performance drivers of the proposed model. Also, Qi et al. (2017) performed decomposition analysis and evaluation of link-level electric vehicle energy consumption considering real-world traffic conditions. Based on the decomposition analysis, the data-driven model was constructed to evaluate electric vehicle energy consumption.

A new approach was proposed by Günther et al. (2017) to create a dynamic driving cycle statistically matching with the real-life operation of buses in urban public transportation. The study was conducted in the city of Hamburg, based in Germany. The results of the analysis confirmed the accuracy of the developed approach. Further, Ma and Qian (2017) analyzed and enhanced the traffic assignment model to identify the statistical features of origin and destination demand, flow, and cost. The study helps in analyzing the probability distribution of flow for recurrent traffic. The study suggested that future work can be done to analyze probability distribution for origin-destination demand and route choice model to best fit the traffic data for considered locations. Sharma et al. (2018) presented a data-driven policy for maintenance and inspection activity of track geometry. The study finds both preventive and spots corrective maintenance for 33 months of inspection data. The authors used Markov chains to model aggregate track deterioration and used the Bernoulli process to spot geo-defects. The results reveal 10% savings in total maintenance cost.

A data-driven integrated evolutionary algorithm was proposed by Doolun et al. (2018) for multi-objective location assignment decisions in the automotive green supply chain. Five alternatives of the integrated algorithm were assessed, and performance was compared with the existing multi-objective hybrid particle swarm optimization algorithm. The results confirmed the superiority of the proposed algorithm. The study also identified the best alternative of the algorithm for tackling issues in the automotive electronic parts supply chain in Malaysia. Further, Govindan et al. (2018) summarized big data attributes, effective practices for implementation and implementation, and evaluation methods. The study also analyzed various opportunities to enhance big data analytics for supply chain management and logistics.

The impact of the data-driven supply chain on the financial performance of the firm was analyzed by Yu et al. (2018). The authors consider a Chinese manufacturing firm to collect and analyze data. The study uses structural equation modeling to analyze data and found that a data-driven supply chain has a significant effect on financial performance. Yi and Shirk (2018) introduced an optimal charging decision-making framework for automated and connected electric vehicles. The developed framework aimed to deliver charging strategies, i.e., amount of charged energy and charging station choice. The optimal strategy was found by applying a dynamic programming algorithm. Based on the simulation results, the performance of the model was assessed. Ehm (2018) studied integrated disassembly planning and scheduling using a data-driven approach. The author addressed the problem using AND/OR graphs based on general product design assumptions. Further, the generated artificial data was used to analyze both machine scheduling and operations sequence planning for the disassembly of heterogeneous products. Based on the disassembly process graphs, a mixed-integer program was developed to indicate parallel and alternative operations.

The influence of big data-driven retail SC performance in India was investigated by Gawankar et al. (2019). In this regard, the authors studied the existing supply chain performance measures and their influence on organizational performance and delivered valuable retail supply chain outcomes practicing big data analytics. Further, Irfan and Wang (2019) analyzed the effects of data-driven capabilities on integrating SCs and the performance of the organizations involved in food and beverage businesses in Pakistan. The authors adopted structural equation modeling methodology to test the data-driven capabilities influence on competitive performance. The findings revealed that supply chain integration significantly influences the data-driven capabilities.

The factors influencing data-driven SCM were analysed by Tseng et al. (2019). The study uses exploratory analysis to validate the factors and revealed that social development possesses the highest significant effect. Singh and El-Kassar (2019) analyze the enhancement in sustainable capabilities of a firm by adopting big data technologies and green SCM practices. The authors also examine the degree to which green supply chain management influences big data technologies. The results reveal that big data technologies enhance the sustainable practices of the firm.

Kamble and Gunasekaran (2020) conducted a comprehensive literature review on big data-driven SC performance measuring systems. The authors extracted 66 papers to utilize performance measurement systems to assess the big data-driven SCs performance. Based on the literature analysis, a framework was developed to guide the managers in establishing a performance measurement system in their organization. Further, Seitz et al. (2020) proposed the data-focused supply allocation to customers using the forecasting bias method. The study quantified the trade-offs between the long-term and short-term benefits of the proposed approach giving decision support for defining the forecast bias influence on allocation. The study was further validated in the semiconductor industry and showed an increase in allocation efficiency. Cheng et al. (2020) proposed an intelligent supplier evaluation model related to data-driven vector regression in the global supply chain. The authors utilized an integrated MCDM technique to acquire each supplier label. The obtained labels were then used to train the support vector regression model. Further, the developed model performance was compared with the available commercial models in which proposed model accuracy was superior to the existing models.

3.8 **Review on quality management in SCM**

Quality management is an essential aspect of SCM. To compete in the global market, firms must develop a sound quality management system in their supply chain for the seamless flow of products and information. In this regard, Nabhani and Shokri (2009) adopted six sigma concepts in food service to reduce the waste activity. Authors have used statistical tools to analyze defects and to remove defects. The results reveal a 40% reduction in defect and an increase in sigma level. Si et al. (2013) presented some guidelines to deal with distributions related to measurement errors. The study specified permissible limits for errors, and if the performance of measurement error not satisfying to the allowable limit, then the performance can't be ensured by monitoring data. Further, the authors have provided numerical examples to show the practical applicability of the presented guidelines.

The relation between data-driven supply chain, customer satisfaction, and manufacturing capabilities was analyzed by Chavez et al. (2017). The authors collected data from Chinese manufacturing firms and analyze survey data using structural equation modeling. The study results reveal the strong relation between data-driven supply chain and manufacturing capabilities, which enhances customer satisfaction. Wamba and Akter (2019) presented a

dynamic supply chain analytics capability model and analyzed its impact on firm performance. The developed model was analyzed by collecting data from experts and analyzed through structural equation modeling. The study helps in enhancing the firm's performance in terms of SCs.

A data-driven concept that integrates the product's quality characteristics in data analytics was proposed by Viet et al. (2020). Based on the study, the authors redesign the production and transportation model. Through a case, study the authors verified the redesigned model. Further, Patyal et al. (2020) deployed a six sigma methodology for handling the customer complaints related to the Indian chemical company. The authors followed DMAIC method to address the customer complaints. The findings of the study revealed prioritization and optimization of the process parameters in which humidity was found to be with the least influence on the manufacturing of chemical X, whereas parameter shift-type had maximum influence. Since the study focussed on only one product analysis in manufacturing, other aspects of a product such as transportation, downstream, and suppliers' side could be studied in the future.

3.9 **Review on data-driven agriculture supply chain management**

The adoption of data-driven technologies in the agriculture supply chain provides smooth operations flow throughout the system. Tao et al. (2017) proposed a novel scheduling optimization approach for agricultural products SC limited to small scale supply chain by using big data. The large-scale SC with complex structure was optimized using the developed evolutionary algorithm by performing experiments at 12 various scale test situations. The findings demonstrated the effectiveness of the proposed algorithm. A framework was developed by Yadav et al. (2020) based on IoT to analyze the agriculture supply chain. The authors provided various KPIs for assessing the sustainable performance of the agriculture supply chain. The study used the entropy method to analyze weights of different performance measures, and TOPSIS was used to prioritize the considered KPIs. The study reveals that flexibility and responsiveness are the top two KPIs for the sustainable performance of the agriculture supply chain.

Kamble et al. (2020) reviewed literature about data-driven sustainable agriculture supply chain to realize its significance and developed depicting supply chain visibility and resources for achieving sustainable performance. Further, Kamble et al. (2020) identified and analyzed

blockchain technology enablers for deployment in the agriculture supply chain. The authors identified thirteen enablers about blockchain technology in the agriculture supply chain and analyzed it using ISM and DEMATEL approach. The study reveals that traceability and audibility were the top enabling blockchain technology deployed in the agriculture supply chain.

4. Bibliometric Analysis

The bibliometric study was conducted to analyze the relevant contributions made by authors, institutes, and countries in the research field. Many research publications are available on the bibliometric analysis in various fields using many software packages such as Publish and Perish, HistCite, Gephi, and R module (Fahimnia et al., 2015). R package has been used for bibliometric study and VOS viewer for analyzing the research network and collaboration. The articles published year-wise in data-driven quality management in the supply chain are presented in Figure 2.

Figure 2: Year-wise publications on DDQM in SCs

It can be observed from figure 2 that the research in the field of DDQM in SCs has an increasing trend. The bibliometric analysis is further categorized into four different studies: a document study, authors study, country analysis, and word analysis.

4.1 Document Study

Five hundred ninety-four articles were refined for bibliometric stud, and the comprehensive bibliometric information is available in Table 2.

Table 2: Summary result from bibliometric analysis

Description	Results
Overall bibliometric information	
Timespan	1979:2021
Sources (Journals, Books, etc.)	348
Documents	594
Average years from publication	6.9
Average citations per documents	8.503
Average citations per year per doc	1.215
References	10839

Document Types	
Article	223
Book chapter	6
Conference paper	314
Conference review	44
Editorial	1
Review	6
Document Contents	
Keywords Plus (ID)	3789
Author's Keywords (DE)	1212
Authors	
Authors	1347
Author Appearances	2026
Authors of single-authored documents	26
Authors of multi-authored documents	1321
Authors Collaboration	
Single-authored documents	69
Documents per Author	0.441
Authors per Document	2.27
Co-Authors per Documents	3.41
Collaboration Index	2.52

Table 2 shows the description of 594 research articles published in the field of DDQM in SCs from 1979 to 2021. It can be seen that a total of 348 sources were available, including journals and conferences. The keywords used were in 3789. 1347 authors have published a research article in the field of DDQM in SCs, and the collaboration index between authors was found to be 2.52. The top publishing source in the area of DDQM in SCs is presented in Table 3.

Table 3: Top five publishing source in the area of DDQM in SCs

Journals	No. of Articles
Transportation Research Record	35
IEEE Transactions on Intelligent Transportation Systems	19
Transportation Research Part C: Emerging Technologies	19
IEEE Access	12
Journal of Enterprise Information Management	7
Journal of Transportation Engineering Part A: Systems	7
Computers and Operations Research	5
International Journal of Production Economics	5
International Journal of Production Research	5
Journal of Cleaner Production	5

Table 3 shows that Transportation Research Record, IEEE Transactions on Intelligent Transportation Systems, and Transportation Research Part C: Emerging Technologies were the top three publishing sources in the field of data-driven quality management in SCs.

4.2 **Authors Statistics**

The author's data were analyzed from the SCOPUS database using the R package. The top authors in the area of data-driven quality management in SCs are presented in Table 4. Wang Y, Zhang Y, and Chen Y were the top three authors in the field of DDQM in SCs.

Table 4: Top ten contributing author in the field of DDQM in SCs

Authors	Articles
Wang Y	13
Zhang Y	12
Chen Y	11
Liu Y	11
Wang Z	11
Li J	09
Li X	09
Zhang D	09
Zhang X	08
Liu Z	08

Authors Dominance Factor (DF) was analyzed to see the dominance of authors in their research articles. DF can be calculated as a ratio of multi-authored articles where the author position is first to the author's total multi-authored articles. Authors DF can be calculated using the ratio given (Sharma et al., 2020). The DF of authors is shown in Table 5.

Table 5: Contributing author's dominance factor

Author	Dominance Factor	Tot Articles	Single-Authored	Multi-Authored	First-Authored	Rank by Articles	Rank by DF
Wang Z	0.6363	11	0	11	7	5	1
Zhang X	0.625	8	0	8	5	9	2
Chen Y	0.4545	11	0	11	5	3	3
Zhang D	0.444	9	0	9	4	8	4
Liu Y	0.2727	11	0	11	3	4	5
Liu Z	0.25	8	0	8	2	10	6

Li X	0.222	9	0	9	2	7	7
Zhang Y	0.166	12	0	12	2	2	8
Li J	0.111	9	0	9	1	6	9
Wang Y	0.077	13	0	13	1	1	10

4.3 **Institutions Statistics**

The institution's data were analyzed from the SCOPUS database using the R package. The top contributing towards research in the area of DDQM in SCs is presented in Table 6. Massachusetts Institute of Technology United States, University of California United States, and the University of Toronto Canada were the top contributing institutes publishing articles in the field of DDQM in SCs.

Table 6: Top contributing organization in the field of DDQM in SCs

Affiliations with Country	**Articles**
Massachusetts Institute of Technology, United States	23
University of California, United States	19
University of Toronto, Canada	13
Nanyang Technological University, Singapore	12
Zhejiang University, China	12
Tsinghua University, China	11
University of Michigan, United States	11
University of Virginia, United States	11
National Institute of Industrial Engineering (NITIE), India	10
New York University	10

4.4 **Country Wise Statistics**

Country-wise data were analyzed from the SCOPUS database using the R package. The top contributing countries towards research in the area of DDQM in SCs are presented in Table 7. USA, China, and Germany were the top contributing countries publishing articles in the field of DDQM in SCs.

Table 7: Top ten countries publishing articles in the field of DDQM in SCs

Country	**No. of Articles**
USA	741
China	424
Germany	107
UK	104

Italy	82
Canada	61
India	55
Netherlands	55
Australia	53
France	45

Corresponding author's countries data were analyzed from the SCOPUS database using the R package. The top contributing Corresponding author's countries towards research in the area of DDQM in SCs is presented in Table 8. USA, China, and Korea were the leading Corresponding author's countries with 100, 46, and 17 articles in the field of DDQM in SCs. Single country publication (SCP) and multiple country publication (MCP) were considered to analyze the Corresponding author's countries.

Table 8: Corresponding author's countries in the field of DDQM in SCs

Country	Articles	Frequency	SCP	MCP	MCP Ratio
USA	100	0.3367	80	20	0.2
China	46	0.15488	28	18	0.3913
Korea	17	0.05724	13	4	0.2353
Germany	12	0.0404	8	4	0.3333
Italy	12	0.0404	11	1	0.0833
Canada	11	0.03704	6	5	0.4545
United Kingdom	11	0.03704	6	5	0.4545
Netherlands	10	0.03367	8	2	0.2
Georgia	7	0.02357	7	0	0
Singapore	6	0.0202	2	4	0.6667

Countries data were analyzed to identify countries that received the highest citations in the field of DDQM in SCs. The top ten countries having the highest citation is shown in Table 9. The USA, China, and the United Kingdom were the top countries with the highest citation with 2241, 924, and 411 citations.

Table 9: Top ten countries having highest citations in the field of DDQM in SCs

Country	Total Citations	Average Article Citations
USA	2241	22.41
China	924	20.09
United Kingdom	411	37.36
Malaysia	333	166.50
Germany	330	27.50

Korea	261	15.35
Netherlands	248	24.80
Belgium	211	52.75
Canada	195	17.73
Italy	162	13.50

4.5 **Citations Statistics**

The citation was analyzed in the field of DDQM in SCs from the SCOPUS database and using the R package. Table 10 shows the year-wise citation received in the field of DDQM in SCs.

Table 10: Year-wise citation in the field of DDQM in SCs

Year	No. of Articles	Average total citation per article	Average total citation per year	Citable Years
2011	13	84.538	9.393	9
2012	12	14.916	1.864	8
2013	30	19.80	2.828	7
2014	36	33.611	5.601	6
2015	65	17.538	3.507	5
2016	91	12.604	3.151	4
2017	94	13.287	4.429	3
2018	129	9.899	4.949	2
2019	201	4.323	4.323	1
2020	187	1.818		0

The citation analysis aims are to identify the article that received the highest citations. Table 11 shows the top ten articles that received the highest global citation in the area of DDQM in SCs, whereas Table 12 shows the top ten articles that received the highest local citation in the area of DDQM in SCs. The global citation refers to the citation received by an article from the entire SCOPUS database. The local citation refers to the citation received by articles from considered articles.

Table 11: Top ten most global cited documents in the area of DDQM in SCs

Cited References	Total Citations	TC per Year
Zhang et al. (2011)	689	68.9
Smith et al. (2002)	660	34.7368
Nampak et al. (2014)	196	28
Goetz et al. (2015)	193	32.1667
Gopalakrishnan et al. (2017)	187	46.75

Kneebone and Berube (2013)	173	21.625
Whiting et al. (2011)	147	14.7
Jebur et al. (2014)	137	19.5714
Chen et al. (2015)	131	21.8333
Rodriguez-Galiano et al. (2014)	115	16.4286

Table 12: Top ten most local cited documents in the area of DDQM in SCs

Cited References	Citations
Breiman (2001)	14
Ayalew and Yamagishi (2005)	7
Guzzetti et al. (1999)	7
Williams and Hoel (2003)	7
Okutani and Stephanedes (1984)	6
Van Den Eeckhaut et al. (2006)	6
Waller and Fawcett (2013)	6
Wamba et al. (2015)	5
Ivanov et al. (2019)	5
Pradhan (2013)	5

From Table 11, it is found that Zhang et al. (2011), Smith et al. (2002), and Nampak et al. (2014) were the top three articles that received the highest global citation of 689, 660, and 196 in the area of DDQM in SCs. Similarly, from Table 12, it can be seen that Breiman (2001), Ayalew and Yamagishi (2005), and Guzzetti et al. (1999) were the top three articles that received the highest local citation of 14, 7, and 7 in the area of DDQM in SCs. The network representation of the global citation network is presented in Figure 3.

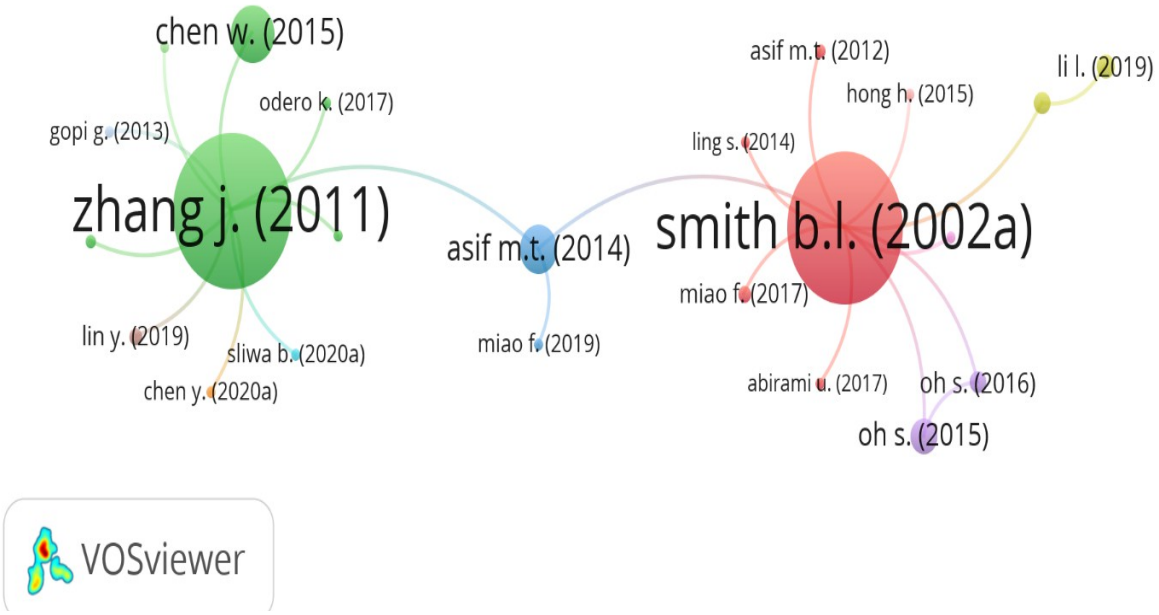

Figure 3: Global citation network in the field of DDQM in SCs

4.6 **Keywords Statistics**

Keyword statistics were analyzed in the field of DDQM in SCs from the SCOPUS database and using the R package. Various authors have used different keywords in their study. Therefore, it is essential to analyze the most frequent keywords used in the field of DDQM in SCs. The overlay visualization of the keywords is presented in Figure 4.

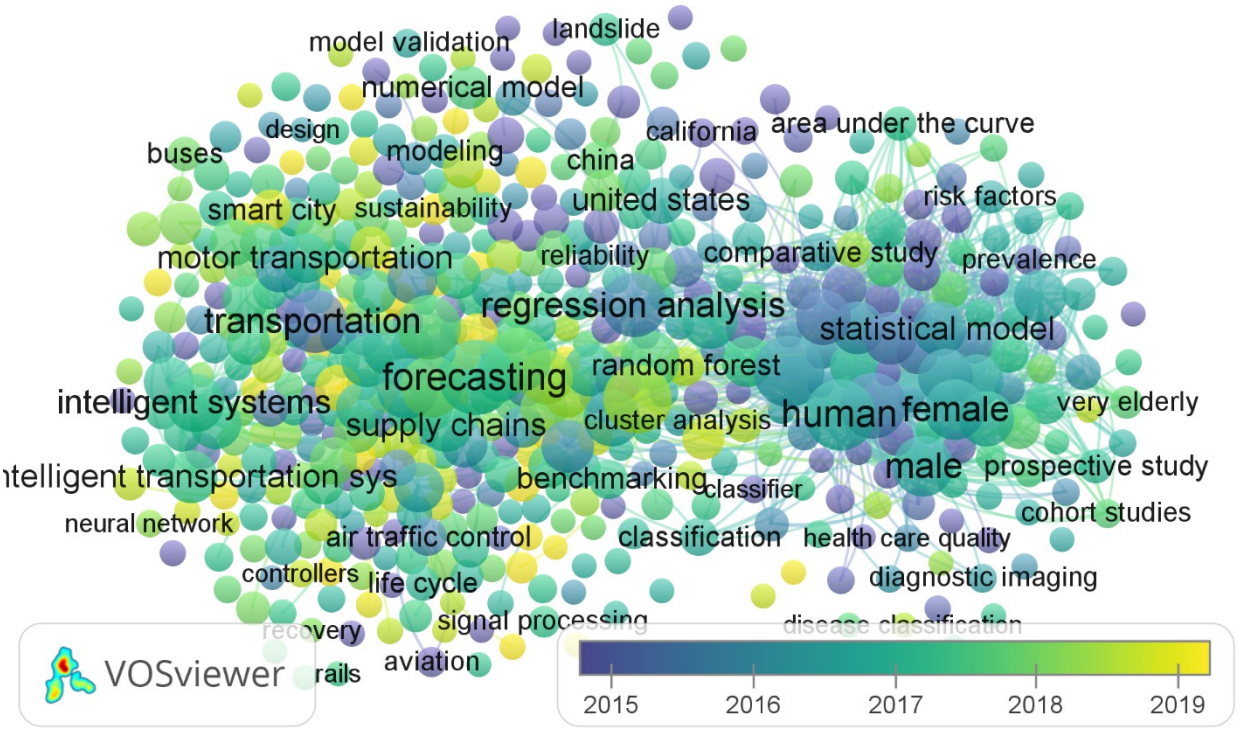

Figure 4: Overlay visualization of top keywords in the field of DDQM in SCs

5. Network Analysis

Network analysis was done by collecting the author's details from the SCOPUS database and utilizing the VOS viewer package. Network analysis helps in analyzing collaboration among researchers. It includes co-citation analysis and collaboration among various country authors.

5.1. Co-citation Analysis

Co-citation means two articles are getting citations together by another article. The SCOPUS database was used to collect citation information and is fed to VOS viewer for graphical representation of co-citation analysis as represented in Figure 5.

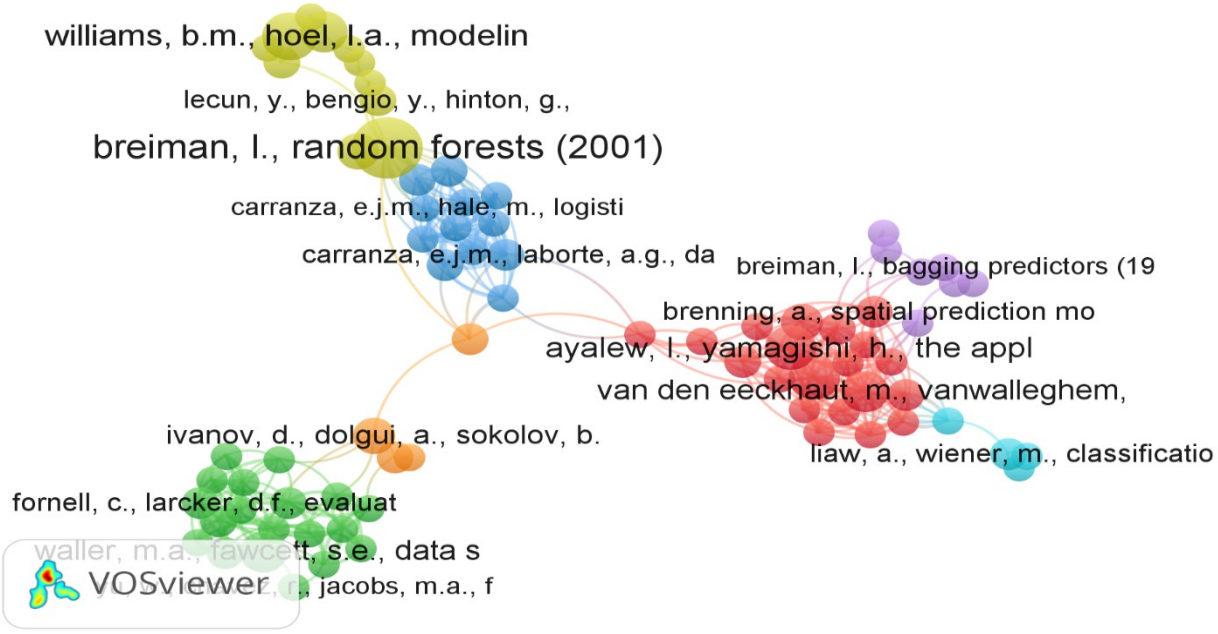

Figure 5: Co-citation analysis in the field of DDQM in SCs

5.2 **Country Collaboration**

The graphical representation of country collaboration is presented in Figure 6. Country collaboration helps in analyzing the collaboration of researchers among different country's research groups.

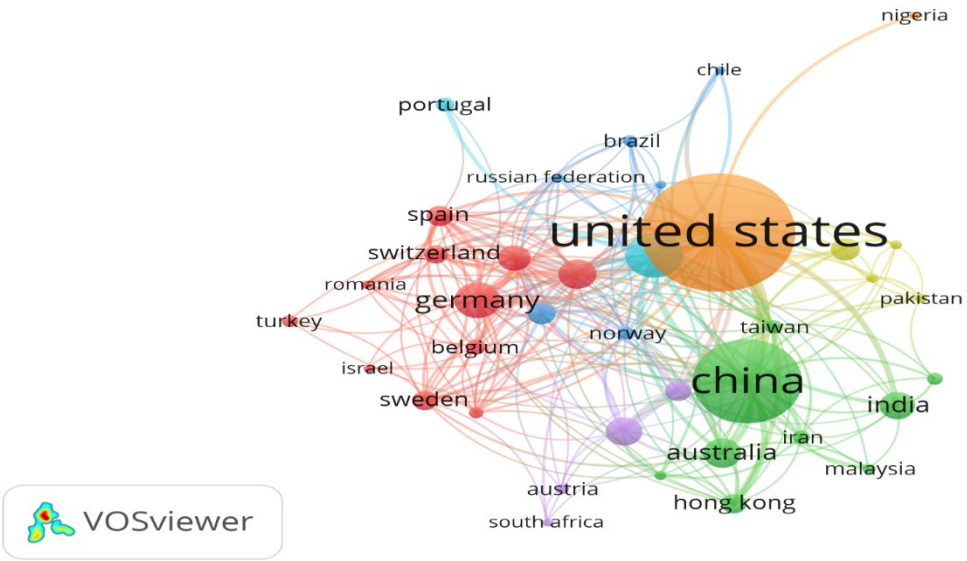

Figure 6: Country author collaboration

6. Discussion of Findings

The present study analyses the literature about DDQM in SCs management. In this regard, an SLR and bibliometric analysis of data-driven and quality management in supply chain management was done, identifying 594 articles from the SCOPUS database. To begin SLR, articles, conference proceedings, and book chapters published from significant publishers like IEEE, Springer, Elsevier, etc., were considered. The shortlisted articles were further systematically reviewed from different perspectives concerning DDQM in SCs management, such as machine learning algorithm in SCM, airport management, transportation model, railway network, sustainable SCM, digital SCM, data-driven SCM, quality management in SCM, and agriculture SCM. The shortlisted articles helped to identify the different perspectives.

Further, additional useful information on this research was extracted using bibliometric analysis. In this study, four major groups, i.e., document type, authors, countries, and word analysis was formed for bibliometric analysis. The top journals, influential organizations, leading authors and countries, and significant research trending were recognized. Leading journals in the field of DDQM in SCs were Transportation Research Record, IEEE Transactions on Intelligent Transportation Systems, Transportation Research Part C: Emerging Technologies, IEEE Access, Journal of Enterprise Information Management, Journal of Transportation Engineering Part A: Systems, Computers and Operations Research, International Journal of Production Economics, International Journal of Production Research and Journal of Cleaner Production. Moreover, the co-citation analysis in the area of SC data-driven and QM depicted top trending topics. The leading institutions researching QM and data-driven SCM are Massachusetts Institute of Technology, United States, University of California, United States, University of Toronto, Canada, Nanyang Technological University, Singapore, Zhejiang University, China Tsinghua University, China, University of Michigan, United States, University of Virginia, United States, National Institute of Industrial Engineering (NITIE), India and New York University. The cluster analysis was carried out to realize the research network among authors.

The adoption of machine learning in supply chain management can help in strategic decision-making (Smith et al., 2002). A data-driven agent-based model of scaling and congestion dynamics of Singapore rapid transit systems developed to deliver comprehensive knowledge of

congestion dynamics through analytical modeling (Othman et al., 2015). The big data approaches can help optimize the food supply chain and maintain quality (Li and Wang, 2017). The data-driven framework based on a machine learning algorithm was developed to forecast demand for electronics components (Fu and Chien, 2019). The previous studies also revealed the importance of the hybrid technique of machine learning and simulation to determine its applications in resilient supplier selection, enabling decision-making support (Cavalcante et al., 2019). Moreover, the predictive model developed to forecast e-commerce also helped achieve quality management in logistics (Leung et al., 2020). The previous studies also highlighted the use of data for proposing the delay propagation model for air transportation networks (Baspinar and Koyuncu, 2016). The different data-driven methods for modeling air traffic flow networks had been observed along with the delay in propagation analysis (Baspinar et al., 2017). The prediction of airport acceptance rates for enhancing the airport planning to overcome traffic was found in previous studies (Murça and Hansman, 2018). The data-driven quality management was also seen in aircraft routing problems wherein different models were considered to make robust airline scheduling (Marla et al., 2018). A framework suggested by Kumar and Anbanandam (2020) analyzed the freight transportation companies based on environmental data, which provides the direction to ensure quality management in SCs. The application of various algorithms observed in supply chain management ensuring quality, such as shortest path algorithm, route choice behavior using GPS data, and adaptive control strategies for vehicles (Ehmke et al., 2016; Wang et al., 2019). Moreover, railway condition monitoring systems were observed to have huge data for which the framework was developed to classify the IoT data into maintenance data. A travel pattern method was deployed for the transmission of maintenance non-critical data (Saki et al., 2019). The previous studies suggested developing a data streaming decision framework to enhance the sustainable performance of logistics (Kayikci, 2020). The quality management was ensured by implementing a dynamic RFID SCM system (Zhang et al., 2011). The usage of data-driven technologies such as artificial intelligence and machine learning is being explored to enhance the performance of SC (Tannock et al., 2007). The authors suggested that data-driven simulation is helpful in improvement in SCs. To compete in the global market, firms must develop a sound quality management system in their supply chain for the seamless flow of products and information (Nabhani and Shokri, 2009). There exists a relation between data-driven SCs, customer satisfaction, and manufacturing capabilities (Chavez et al.,

2017). A future direction research framework has been developed and is presented in Figure 7. The developed framework consists of data-driven tools in the first layer, which helps in data collection. The second layer includes the collected data. Data collection is mostly based on process data, quality data, logistics data, and assets data. Layer three includes data-driven technologies through which data can be analyzed, and the required information can be gathered. It includes machine learning, deep learning, artificial intelligence, and big data analytics. Finally, the fourth layer shows performance improvement in supply chain management in SCM logistics, SCM operations, predictive maintenance, and enhanced SCM network coordination.

Figure 7: Future direction framework for DDQM in SCs

6.1. Implications of the study

6.1.1. *Implications for industry practitioners and researchers*

The fourth industrial revolution technologies such as IoT, big data, artificial intelligence, cloud computing, and cyber-physical systems brought many opportunities to improve SC performance. In this regard, the application of these technologies was observed in previous studies concerning

supply chain management. The previous studies showed the use of a machine learning algorithm in SC decision making for ensuring quality. Thus, this would enable the industry practitioners to take appropriate measures concerning data-driven quality management in SCM systems. Moreover, various data-driven techniques were suggested in previous literature for improving the performance of logistic systems such as rail transportation, air traffic network, and agricultural supply chain.

For researchers, the implications have been derived in terms of establishment of the appropriate tool for collecting and analyzing the Big data and quality aspects related to sustainable SCM and establishing analytical and conceptual framework revealing advantages, principles, applications, and critical performance dimensions of data-driven technologies concerning quality in supply chain management. The researchers can also investigate the influential factors affecting data-driven quality management in SCM systems to improve its performance.

6.1.2. *Implications for managers*

The present study provides an opportunity for the manager to explore the role of big data and data management across supply chains to improve its performance. The findings of the study indicate that considering data-driven techniques for analyzing the data enables an organization to establish manufacturing competencies. Establishing DDQM in SCs systems not only determine the full scale of supply chain network decisions but also allow managers to focus on quality aspects related to it. In today's big data scenario, supply chain managers should focus on quality assurance across cross-functional databases to provide high-quality supply chain systems.

The present study also demonstrated the importance of data-driven techniques, i.e., machine learning algorithms, to improve performance and detect the quality aspects of various logistics sectors. This would help managers to take appropriate measures for determining the manufacturing capabilities.

6.1.3 *Theoretical implications*

The supply chain quality is enhanced by supply chain information integration, resilience, and relationship management. In the current turbulent business scenario, the supply chain quality management practices can play a significant role in the survival of the organization and performance improvement. Due to the quick variation in global economics, organizations face

the most significant challenges in responding to customer demand and competitiveness. Thus, to understand the role of data in supply chain quality management, the present study aimed to investigate the DDQM in SCs related literature from previous studies. The present study also performed a bibliometric analysis to analyze the relevant contributions made by authors, institutes, and countries in the research field. The SLR of literature was conducted to study the DDQM in SCs from different perspectives concerning data-driven and quality management in SCM such as machine learning algorithm in SCM, airport management, transportation model, railway network, sustainable SCM, digital SCM, data-driven SCM, quality management in SCM and agriculture SCM. The present study would help understand the theoretical aspects pertaining to quality management in supply chain with big data. The study also guided towards the application of big data techniques, i.e., machine learning, in improving the supply chain.

6.1.4 *Practical implications*

The present study performed the literature analysis on DDQM in SCs in the form of SLR and bibliometric analysis to realize the relationship between data-driven techniques for ensuring quality management in the context of SC performance. The application of disruptive technologies such as IoT, big data, artificial intelligence, cloud computing, and cyber-physical systems was observed in previous studies concerning supply chain management. The previous studies showed the use of a machine learning algorithm in SC decision making for ensuring quality. This would enable the industry practitioners to take appropriate measures concerning data-driven quality management in SCM systems. The various data-driven techniques were suggested in previous literature for improving the performance of logistic systems such as rail transportation, air traffic network, and agricultural supply chain. The present study demonstrated the importance of data-driven techniques in managing the quality in SCs. The industry practitioners should note that data-driven approaches enhance product quality and improve supply chain performance associated with quality management practices. These comprise of improving on-time delivery rates and reduction of cycle time.

6.2. Unique Contribution of the Research

The unique contribution of the study is a systematic literature review along with a bibliometric analysis of the literature about the DDQM in SCs. The present study aimed to realize the

relationship between data-driven techniques for ensuring quality management in the context of SC performance. This current research deals with the SLR of literature from different perspectives concerning data-driven and quality management in SCM, such as machine learning algorithms in SCM, airport management, transportation model, railway network, sustainable SCM, digital SCM, data-driven SCM, quality management in SCM and agriculture SCM. Additionally, the bibliometric analysis was carried out using R programming software, and the VOS viewer tool is given four major groups, i.e., document type, authors, countries, and word analysis. Using bibliometric analysis, top journals, influential organizations, leading authors and countries, and significant research trending were identified.

7 Conclusion

Data-driven supply chain enhances the supply chain process and analyses the SC data to improve SC planning and operations. SC firms are exploring many digital technologies to improve their performance and to survive in the market. Quality management is an essential aspect of SCM. To compete in the global market, firms must develop a QM system in their SC for seamless product and information flow. The present study deals with the literature review about the data-driven and quality management SCM. SLR and bibliometric analysis of data-driven and quality management in supply chain management was done by identifying 594 articles from the SCOPUS database. The SLR considered articles, conference proceedings, and book chapters published from major publishers like IEEE, Springer, Elsevier, etc. The shortlisted articles were further systematically reviewed from different perspectives concerning data-driven and quality management in SCM, such as machine learning algorithms in SCM, airport management, transportation model, railway network, sustainable SCM, digital SCM, data-driven SCM, quality management in SCM and agriculture SCM. Moreover, the bibliometric analysis was carried out using R programming software, and the VOS viewer tool is given four major groups, i.e., document type, authors, countries, and word analysis. Using bibliometric analysis, top journals, influential organizations, leading authors and countries, and significant research trending were identified.

7.1. Future research directions

The paper discusses the importance of data-driven techniques enabling quality in supply chain management systems. The linkage between the data-driven methods and quality management for improving the supply chain performance could be investigated in the future with structural equation modeling. Adequate selection of transportation routes could be made with the help of big data analysis. The influence of circular economy practices could be investigated on the organizational supply chain performance. The applications of data driven quality management in supply chain systems could be identified for uncertain situations. Moreover, the use of RFID systems could be studied to track the real-time data from the supply chain system, ensuring low defects pertaining to quality. The cross-sector performance analysis could be performed on the supply chain to understand the potential of data driven quality management.

References

Abdelaty, A., Jeong, H. D., & Smadi, O. (2018), "Barriers to implementing data-driven pavement treatment performance evaluation process", *Journal of Transportation Engineering, Part B: Pavements*, Vol. 144 No. 1, pp. 04017022.

Ayalew, L., & Yamagishi, H. (2005), "The application of GIS-based logistic regression for landslide susceptibility mapping in the Kakuda-Yahiko Mountains, Central Japan", Geomorphology, Vol. 65 No. 1-2, pp. 15-31.

Babatunde, O.K. (2020), "Mapping the implications and competencies for Industry 4.0 to hard and soft total quality management", *The TQM Journal*. (DOI: 10.1108/TQM-07-2020-0158)

Bag, S., Gupta, S., Kumar, A., & Sivarajah, U. (2020c), "An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance", *Industrial Marketing Management*, Vol. 92, pp. 178-189.

Bag, S., Wood, L. C., Mangla, S. K., & Luthra, S. (2020b), "Procurement 4.0 and its implications on business process performance in a circular economy", *Resources, Conservation and Recycling*, Vol. 152, pp. 104502. (DOI: 10.1016/j.resconrec.2019.104502)

Bag, S., Wood, L. C., Xu, L., Dhamija, P., & Kayikci, Y. (2020a), "Big data analytics as an operational excellence approach to enhance sustainable supply chain performance", *Resources, Conservation and Recycling*, Vol. 153, pp. 104559. (DOI: 10.1016/j.resconrec.2019.104559)

Balali, V., Fathi, S., & Aliasgari, M. (2020), “Vector Maps Mobile Application for Sustainable Eco-Driving Transportation Route Selection”, *Sustainability*, Vol. 12 No. 14, pp. 5584.

Barbour, W., Kuppa, S., & Work, D. B. (2020), “Enhanced data reconciliation of freight rail dispatch data”, *Journal of Rail Transport Planning & Management*, Vol. 14, pp. 100193.

Basheer, M., Siam, M., Awn, A. and Hassan, S. (2019), “Exploring the role of TQM and supply chain practices for firm supply performance in the presence of information technology capabilities and supply chain technology adoption: a case of textile firms in P”, *Uncertain Supply Chain Management*, Vol. 7, pp. 275-288.

Baspinar, B., & Koyuncu, E. (2016), “A data-driven air transportation delay propagation model using epidemic process models”, *International Journal of Aerospace Engineering*. (DOI: 10.1155/2016/4836260)

Baspinar, B., Koyuncu, E., & Inalhan, G. (2017), “Large scale data-driven delay distribution models of european air traffic flow network”, *Transportation research procedia*, Vol. 22, pp.499-508.

Bhavsar, P., Safro, I., Bouaynaya, N., Polikar, R., & Dera, D. (2017), “Machine learning in transportation data analytics”, In *Data analytics for intelligent transportation systems* (pp. 283-307). Elsevier. (DOI: 10.1016/B978-0-12-809715-1.00012-2)

Breiman, L. (2001), “Random forests”, *Machine learning*, Vol. 45 No. 1, pp. 5-32.

Brunetti, F., Matt, D.T., Bonfanti, A., De Longhi, A., Pedrini, G. and Orzes, G. (2020), "Digital transformation challenges: strategies emerging from a multi-stakeholder approach", *The TQM Journal*, Vol. 32 No. 4, pp. 697-724.

Bukhsh, Z. A., Saeed, A., Stipanovic, I., & Doree, A. G. (2019), “Predictive maintenance using tree-based classification techniques: A case of railway switches”, *Transportation Research Part C: Emerging Technologies*, Vol. 101, pp. 35-54.

Carmona, M. A. A., Nieto, F. S., & Gallego, C. E. V. (2020), “A data-driven methodology for characterization of a terminal manoeuvring area in multi-airport systems”, *Transportation Research Part C: Emerging Technologies*, Vol. 111, pp. 185-209.

Cavalcante, I. M., Frazzon, E. M., Forcellini, F. A., & Ivanov, D. (2019), “A supervised machine learning approach to data-driven simulation of resilient supplier selection in digital manufacturing”, *International Journal of Information Management*, Vol. 49, pp. 86-97.

Chavez, R., Yu, W., Jacobs, M. A., & Feng, M. (2017), “Data-driven supply chains, manufacturing capability and customer satisfaction”, *Production Planning & Control*, Vol. 28 No. 11-12, pp. 906-918.

Chen, W., Guo, F., & Wang, F. Y. (2015), “A survey of traffic data visualization”, IEEE Transactions on Intelligent Transportation Systems, Vol. 16 No. 6, pp. 2970-2984.

Cheng, Y., Peng, J., Gu, X., Zhang, X., Liu, W., Zhou, Z., ... & Huang, Z. (2020), “An intelligent supplier evaluation model based on data-driven support vector regression in global supply chain”, *Computers & Industrial Engineering*, Vol. 139, pp. 105834.

Cherrafi, A., Elfezazi, S., Garza-Reyes, J. A., Benhida, K., & Mokhlis, A. (2017), “Barriers in Green Lean implementation: a combined systematic literature review and interpretive structural modelling approach”, *Production Planning & Control*, Vol. 28 No. 10, pp. 829-842.

Chiarini, A. (2020), "Industry 4.0, quality management and TQM world. A systematic literature review and a proposed agenda for further research", *The TQM Journal*, Vol. 32 No. 4, pp. 603-616.

Cunha, T.P., Méxas, M.P., Cantareli da Silva, A. and Gonçalves Quelhas, O.L. (2020), "Proposal guidelines to implement the concepts of industry 4.0 into information technology companies", *The TQM Journal*, Vol. 32 No. 4, pp. 741-759.

De Martinis, V., & Corman, F. (2018), “Data-driven perspectives for energy efficient operations in railway systems: Current practices and future opportunities”, *Transportation Research Part C: Emerging Technologies*, Vol. 95, pp. 679-697.

Del Giudice, M., Chierici, R., Mazzucchelli, A., & Fiano, F. (2020), “Supply chain management in the era of circular economy: the moderating effect of big data”, *The International Journal of Logistics Management*. (DOI: 10.1108/IJLM-03-2020-0119)

Dhamija, P., & Bag, S. (2020), “Role of artificial intelligence in operations environment: a review and bibliometric analysis”, *The TQM Journal*. Vol. 32 No. 4, pp. 869-896.

Doolun, I. S., Ponnambalam, S. G., Subramanian, N., & Kanagaraj, G. (2018), “Data driven hybrid evolutionary analytical approach for multi objective location allocation decisions: Automotive green supply chain empirical evidence”, *Computers & Operations Research*, Vol. 98, pp. 265-283.

Ehm, F. (2019), “A data-driven modeling approach for integrated disassembly planning and scheduling”, *Journal of Remanufacturing*, Vol. 12 No.9, pp. 89-107.

Ehmke, J. F., Campbell, A. M., & Thomas, B. W. (2016), “Data-driven approaches for emissions-minimized paths in urban areas”, *Computers & Operations Research*, Vol. 67, pp. 34-47.

Fu, W., & Chien, C. F. (2019), “UNISON data-driven intermittent demand forecast framework to empower supply chain resilience and an empirical study in electronics distribution”, *Computers & Industrial Engineering*, Vol. 135, pp. 940-949.

Gawankar, S. A., Gunasekaran, A., & Kamble, S. (2020), “A study on investments in the big data-driven supply chain, performance measures and organisational performance in Indian retail 4.0 context”, *International Journal of Production Research*, Vol. 58 No. 5, pp. 1574-1593.

Goetz, J. N., Brenning, A., Petschko, H., & Leopold, P. (2015), “Evaluating machine learning and statistical prediction techniques for landslide susceptibility modeling”, *Computers & geosciences*, Vol. 81, pp. 1-11.

Gopalakrishnan, K., Khaitan, S. K., Choudhary, A., & Agrawal, A. (2017), “Deep convolutional neural networks with transfer learning for computer vision-based data-driven pavement distress detection”, *Construction and Building Materials*, Vol. 157, pp. 322-330.

Govindan, K., Cheng, T. E., Mishra, N., & Shukla, N. (2018), “Big data analytics and application for logistics and supply chain management”, *Transportation Research Part E: Logistics and Transportation Review*, Vol. 114, pp. 343-349

Grandinetti, R., Ciasullo, M.V., Paiola, M. and Schiavone, F. (2020), "Fourth industrial revolution, digital servitization and relationship quality in Italian B2B manufacturing firms. An exploratory study", *The TQM Journal*, Vol. 32 No. 4, pp. 647-671.

Günther, R., Wenzel, T., Wegner, M., & Rettig, R. (2017), “Big data driven dynamic driving cycle development for busses in urban public transportation”, *Transportation Research Part D: Transport and Environment*, Vol. 51, pp. 276-289.

Guzzetti, F., Carrara, A., Cardinali, M., & Reichenbach, P. (1999), “Landslide hazard evaluation: a review of current techniques and their application in a multi-scale study, Central Italy”, Geomorphology, Vol. 31 No. 1-4, pp. 181-216.

Hong, J., Zhang, Y. and Shi, M. (2018), "The impact of supply chain quality management practices and knowledge transfer on organisational performance: an empirical investigation from China", *International Journal of Logistics Research and Applications*, Vol. 21 No. 3, pp. 259-278.

Irfan, M., & Wang, M. (2019), "Data-driven capabilities, supply chain integration and competitive performance", *British Food Journal*, Vol. 121 No. 11, pp. 2708-2729

Ivanov, D., & Dolgui, A. (2020), "A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0", *Production Planning & Control*, pp. 1-14. (DOI: 10.1080/09537287.2020.1768450)

Ivanov, D., Dolgui, A., & Sokolov, B. (2019), "The impact of digital technology and Industry 4.0 on the ripple effect and supply chain risk analytics", *International Journal of Production Research*, Vol. 57 No. 3, pp. 829-846.

Jebur, M. N., Pradhan, B., & Tehrany, M. S. (2014), "Optimization of landslide conditioning factors using very high-resolution airborne laser scanning (LiDAR) data at catchment scale", *Remote Sensing of Environment,* Vol. 152, pp. 150-165.

Jung, S., Hong, S., & Lee, K. (2018), "A Data-Driven Air Traffic Sequencing Model Based on Pairwise Preference Learning", *IEEE Transactions on Intelligent Transportation Systems*, Vol. 20 No. 3, pp. 803-816.

Kamble, S. S., & Gunasekaran, A. (2020), "Big data-driven supply chain performance measurement system: a review and framework for implementation", *International Journal of Production Research*, Vol. 58 No. 1, pp. 65-86.

Kamble, S. S., Gunasekaran, A., & Gawankar, S. A. (2018), "Sustainable Industry 4.0 framework: A systematic literature review identifying the current trends and future perspectives", *Process Safety and Environmental Protection*, Vol. 117, pp. 408-425.

Kamble, S. S., Gunasekaran, A., & Gawankar, S. A. (2020), "Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications", *International Journal of Production Economics*, Vol. 219, pp. 179-194.

Kamble, S. S., Gunasekaran, A., & Sharma, R. (2020), "Modeling the blockchain enabled traceability in agriculture supply chain", *International Journal of Information Management*, Vol. 52, pp. 101967.

Kayikci, Y. (2020), "Stream processing data decision model for higher environmental performance and resilience in sustainable logistics infrastructure", *Journal of Enterprise Information Management*. (DOI: 10.1108/JEIM-08-2019-0232)

Kneebone, E., & Berube, A. (2013), "Confronting suburban poverty in America", Brookings Institution Press.

Kumar, A., & Anbanandam, R. (2020), "Environmentally responsible freight transport service providers' assessment under data-driven information uncertainty", *Journal of Enterprise Information Management*. (DOI: 10.1108/JEIM-12-2019-0403)

Kumar, A., Singh, R. K., & Modgil, S. (2020), "Influence of data-driven supply chain quality management on organizational performance: evidences from retail industry", *The TQM Journal*. (DOI: 10.1108/TQM-06-2020-0146)

Lee, B. K., Zhou, R., de Souza, R., & Park, J. (2016), "Data-driven risk measurement of firm-to-firm relationships in a supply chain", *International Journal of Production Economics*, Vol. 180, pp. 148-157.

Lee, K., & Jung, H. (2019), "Dynamic semantic network analysis for identifying the concept and scope of social sustainability", *Journal of Cleaner Production*, Vol. 233, pp. 1510-1524.

Leung, K. H., Mo, D. Y., Ho, G. T. S., Wu, C. H., & Huang, G. Q. (2020), "Modelling near-real-time order arrival demand in e-commerce context: a machine learning predictive methodology", *Industrial Management & Data Systems*, Vol. 120 No. 6, pp. 1149-1174

Li, D., & Wang, X. (2017), "Dynamic supply chain decisions based on networked sensor data: an application in the chilled food retail chain", *International Journal of Production Research*, Vol. 55 No. 17, pp. 5127-5141.

Li, L., Ma, S., Han, X., Zheng, C., & Wang, D. (2020), "Data-driven online service supply chain: a demand-side and supply-side perspective", *Journal of Enterprise Information Management*. (DOI: 10.1108/JEIM-11-2019-0352)

Lin, C., Chow, W.S., Madu, C.N., Kuei, C.H. and Yu, P.P. (2005), "A structural equation model of supply chain quality management and organizational performance", *International Journal of Production Economics,* Vol. 96 No. 3, pp. 355-365.

Liu, J., Hwang, S., Yund, W., Neidig, J. D., Hartford, S. M., Ng Boyle, L., & Banerjee, A. G. (2020), "A predictive analytics tool to provide visibility into completion of work orders in

supply chain systems", *Journal of Computing and Information Science in Engineering*, Vol. 20 No. 3, pp. 031003.

Liu, Z., Chen, H., Sun, X., & Chen, H. (2020), "Data-driven real-time online taxi-hailing demand forecasting based on machine learning method", *Applied Sciences*, Vol. 10 No. 19, pp. 6681.

Ma, W., & Qian, Z. S. (2017), "On the variance of recurrent traffic flow for statistical traffic assignment", *Transportation Research Part C: Emerging Technologies*, Vol. 81, pp. 57-82.

Marla, L., Vaze, V., & Barnhart, C. (2018), "Robust optimization: Lessons learned from aircraft routing", *Computers & Operations Research*, Vol. 98, pp. 165-184.

Murça, M. C. R., & Hansman, R. J. (2018), "Predicting and planning airport acceptance rates in metroplex systems for improved traffic flow management decision support", *Transportation Research Part C: Emerging Technologies*, Vol. 97, pp. 301-323.

Nabhani, F., & Shokri, A. (2009), "Reducing the delivery lead time in a food distribution SME through the implementation of six sigma methodology", *Journal of manufacturing technology Management*, Vol. 20 No. 7, pp. 957-974.

Nampak, H., Pradhan, B., & Abd Manap, M. (2014), "Application of GIS based data driven evidential belief function model to predict groundwater potential zonation", *Journal of Hydrology*, Vol. 513, pp. 283-300.

Nica, E. (2019), "Cyber-physical production networks and advanced digitalization in Industry 4.0 manufacturing systems: Sustainable supply chain management, organizational resilience, and data-driven innovation", *Journal of Self-Governance and Management Economics*, Vol. 7 No. 3, pp. 27-33.

Okutani, I., & Stephanedes, Y. J. (1984), "Dynamic prediction of traffic volume through Kalman filtering theory", *Transportation Research Part B: Methodological,* Vol. 18 No. 1, pp. 1-11.

Othman, N. B., Legara, E. F., Selvam, V., & Monterola, C. (2015), "A data-driven agent-based model of congestion and scaling dynamics of rapid transit systems", *Journal of Computational Science*, Vol. 10, pp. 338-350.

Papadopoulos, T., Gunasekaran, A., Dubey, R., & Balta, M. (2017), "Big data and RFID in supply chain and logistics management: A review of the literature and applications for data

driven research", In *Supply Chain Management in the Big Data Era* (pp. 108-123). IGI Global. (DOI: 10.4018/978-1-5225-0956-1)

Patyal, V. S., Modgil, S., & Koilakuntla, M. (2020), "Application of Six Sigma methodology in an Indian chemical company", *International Journal of Productivity and Performance Management*. (DOI: 10.1108/IJPPM-03-2019-0128)

Pereira, M. M., & Frazzon, E. M. (2020), "A data-driven approach to adaptive synchronization of demand and supply in omni-channel retail supply chains", *International Journal of Information Management*, 102165. (DOI: 10.1016/j.ijinfomgt.2020.102165)

Pradhan, B. (2013), "A comparative study on the predictive ability of the decision tree, support vector machine and neuro-fuzzy models in landslide susceptibility mapping using GIS", *Computers & Geosciences,* Vol. 51, pp. 350-365.

Qi, X., Wu, G., Boriboonsomsin, K., & Barth, M. J. (2018), "Data-driven decomposition analysis and estimation of link-level electric vehicle energy consumption under real-world traffic conditions", *Transportation Research Part D: Transport and Environment*, Vol. 64, pp. 36-52.

Raut, R. D., Mangla, S. K., Narwane, V. S., Gardas, B. B., Priyadarshinee, P., & Narkhede, B. E. (2019), "Linking big data analytics and operational sustainability practices for sustainable business management", *Journal of cleaner production*, Vol. 224, pp. 10-24.

Resat, H. G. (2020), "Design and Analysis of Novel Hybrid Multi-Objective Optimization Approach for Data-Driven Sustainable Delivery Systems", *IEEE Access*, Vol. 8, pp. 90280-90293.

Rodriguez-Galiano, V., Mendes, M. P., Garcia-Soldado, M. J., Chica-Olmo, M., & Ribeiro, L. (2014), "Predictive modeling of groundwater nitrate pollution using Random Forest and multisource variables related to intrinsic and specific vulnerability: A case study in an agricultural setting (Southern Spain) ", *Science of the Total Environment*, Vol. 476, pp. 189-206.

Saki, M., Abolhasan, M., & Lipman, J. (2019), "A Novel Approach for Big Data Classification and Transportation in Rail Networks", *IEEE Transactions on Intelligent Transportation Systems*, Vol. 21 No. 3, pp. 1239-1249.

Sakib, N., Appiotti, F., Magni, F., Maragno, D., Innocenti, A., Gissi, E., & Musco, F. (2018), "Addressing the Passenger Transport and Accessibility Enablers for Sustainable Development", *Sustainability*, Vol. 10 No. 4, pp. 903.

Seitz, A., Grunow, M., & Akkerman, R. (2020), "Data driven supply allocation to individual customers considering forecast bias", *International Journal of Production Economics*, Vol. 227, pp. 107683.

Sharma, R., Jabbour, C. J. C., & de Sousa Jabbour, A. B. L. (2020), "Sustainable manufacturing and industry 4.0: what we know and what we don't", *Journal of Enterprise Information Management*. (DOI: 10.1108/JEIM-01-2020-0024)

Sharma, R., Kamble, S. S., Gunasekaran, A., Kumar, V., & Kumar, A. (2020), "A systematic literature review on machine learning applications for sustainable agriculture supply chain performance", *Computers & Operations Research*, Vol. 119, pp. 104926.

Sharma, S., Cui, Y., He, Q., Mohammadi, R., & Li, Z. (2018), "Data-driven optimization of railway maintenance for track geometry", *Transportation Research Part C: Emerging Technologies*, Vol. 90, pp. 34-58.

Si, X. S., Chen, M. Y., Wang, W., Hu, C. H., & Zhou, D. H. (2013), "Specifying measurement errors for required lifetime estimation performance", *European Journal of Operational Research*, Vol. 231 No. 3, pp. 631-644.

Sihag, N., & Sangwan, K. S. (2020), "A systematic literature review on machine tool energy consumption", *Journal of Cleaner Production*, Vol. 275, pp. 123125.

Singh, S. K., & El-Kassar, A. N. (2019), "Role of big data analytics in developing sustainable capabilities", *Journal of cleaner production*, Vol. 213, pp. 1264-1273.

Smith, B. L., Williams, B. M., & Oswald, R. K. (2002), "Comparison of parametric and nonparametric models for traffic flow forecasting", *Transportation Research Part C: Emerging Technologies*, Vol. 10 No. 4, pp. 303-321.

Soares, A., Soltani, E. and Liao, Y.Y. (2017), "The influence of supply chain quality management practices on quality performance: an empirical investigation", *Supply Chain Management: An International Journal,* Vol. 22 No. 2, pp. 122-144.

Sony, M., Antony, J. and Douglas, J.A. (2020), "Essential ingredients for the implementation of Quality 4.0: A narrative review of literature and future directions for research", *The TQM Journal*, Vol. 32 No. 4, pp. 779-793.

Tannock, J., Cao, B., Farr, R., & Byrne, M. (2007), "Data-driven simulation of the supply-chain —Insights from the aerospace sector", *International journal of production economics*, Vol. 110 No. 1-2, pp. 70-84.

Tao, Q., Gu, C., Wang, Z., Rocchio, J., Hu, W., & Yu, X. (2018), "Big data driven agricultural products supply chain management: A trustworthy scheduling optimization approach", *IEEE Access*, Vol. 6, pp. 49990-50002.

Taube, F., & Minner, S. (2018), "Data-driven assignment of delivery patterns with handling effort considerations in retail", *Computers & Operations Research*, Vol. 100, pp. 379-393.

Tranfield, D., Denyer, D., & Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British journal of management*, Vol. 14 No. 3, pp. 207-222.

Tribone, D., Block-Schachter, D., Salvucci, F. P., Attanucci, J., & Wilson, N. H. (2014), "Automated, data-driven performance regime for operations management, planning, and control", *Transportation Research Record*, Vol. 2415 No. 1, pp. 72-79.

Tseng, M. L., Wu, K. J., Lim, M. K., & Wong, W. P. (2019), "Data-driven sustainable supply chain management performance: a hierarchical structure assessment under uncertainties", *Journal of Cleaner Production*, Vol. 227, pp. 760-771.

Tufano, A., Accorsi, R., & Manzini, R. (2020), "Machine learning methods to improve the operations of 3PL logistics", *Procedia Manufacturing*, Vol. 42, pp. 62-69.

Tufano, A., Accorsi, R., Garbellini, F., & Manzini, R. (2018), "Plant design and control in food service industry. A multi-disciplinary decision-support system", *Computers in Industry*, Vol. 103, pp. 72-85.

Van Den Eeckhaut, M., Vanwalleghem, T., Poesen, J., Govers, G., Verstraeten, G., & Vandekerckhove, L. (2006), "Prediction of landslide susceptibility using rare events logistic regression: a case-study in the Flemish Ardennes (Belgium)", Geomorphology, Vol. 76 No. 3-4, pp. 392-410.

Viet, N. Q., Behdani, B., & Bloemhof, J. (2020), "Data-driven process redesign: anticipatory shipping in agro-food supply chains", *International Journal of Production Research*, Vol. 58 No. 5, pp. 1302-1318.

Vigneshvaran, R. and Vinodh, S. (2020), "Development of a structural model based on ISM for analysis of barriers to integration of lean with industry 4.0", *The TQM Journal*. (DOI: 10.1108/TQM-07-2020-0151)

Vinodh, S. and Wankhede, V.A. (2020), "Application of fuzzy DEMATEL and fuzzy CODAS for analysis of workforce attributes pertaining to Industry 4.0: a case study", *International Journal of Quality & Reliability Management*. (DOI: 10.1108/IJQRM-09-2020-0322)

Vinodh, S., Antony, J., Agrawal, R. and Douglas, J.A. (2020), "Integration of continuous improvement strategies with Industry 4.0: a systematic review and agenda for further research", *The TQM Journal*. (DOI: 10.1108/TQM-07-2020-0157)

Waller, M. A., & Fawcett, S. E. (2013), "Data science, predictive analytics, and big data: a revolution that will transform supply chain design and management", *Journal of Business Logistics,* Vol. 34 No. 2, pp. 77-84.

Wamba, S. F., & Akter, S. (2019), "Understanding supply chain analytics capabilities and agility for data-rich environments", *International Journal of Operations & Production Management*. Vol. 39 No. 6-8, pp. 887-912

Wamba, S. F., Akter, S., Edwards, A., Chopin, G., & Gnanzou, D. (2015), "How 'big data'can make big impact: Findings from a systematic review and a longitudinal case study", *International Journal of Production Economics,* Vol. 165, pp. 234-246.

Wang, W., Liu, J., Yao, B., Jiang, Y., Wang, Y., & Yu, B. (2019), "A data-driven hybrid control framework to improve transit performance", *Transportation Research Part C: Emerging Technologies*, Vol. 107, pp. 387-410.

Wang, Z., Lin, W. H., & Xu, W. (2019), "A data driven approach to assessing the reliability of using taxicab as probes for Real-Time route selections", *Journal of Intelligent Transportation Systems*, pp. 1-12. (DOI: 10.1080/15472450.2019.1617142)

Whiting, D. R., Guariguata, L., Weil, C., & Shaw, J. (2011), "IDF diabetes atlas: global estimates of the prevalence of diabetes for 2011 and 2030", *Diabetes research and clinical practice,* Vol. 94 No. 3, pp. 311-321.

Williams, B. M., & Hoel, L. A. (2003), "Modeling and forecasting vehicular traffic flow as a seasonal ARIMA process: Theoretical basis and empirical results", *Journal of transportation engineering,* Vol. 129 No. 6, pp. 664-672.

Wilson, N. H. (2014), "Automated, data-driven performance regime for operations management, planning, and control", *Transportation Research Record*, Vol. 2415 No. 1, pp. 72-79.

Yadav, S., Garg, D., & Luthra, S. (2020), "Development of IoT based data-driven agriculture supply chain performance measurement framework", *Journal of Enterprise Information Management*. (DOI: 10.1108/JEIM-11-2019-0369)

Yi, Z., & Shirk, M. (2018), "Data-driven optimal charging decision making for connected and automated electric vehicles: A personal usage scenario", *Transportation Research Part C: Emerging Technologies*, Vol. 86, pp. 37-58.

Yu, W., Chavez, R., Jacobs, M. A., & Feng, M. (2018), "Data-driven supply chain capabilities and performance: A resource-based view", *Transportation Research Part E: logistics and transportation review*, Vol. 114, pp. 371-385.

Zhang, J., Wang, F. Y., Wang, K., Lin, W. H., Xu, X., & Chen, C. (2011), "Data-driven intelligent transportation systems: A survey", *IEEE Transactions on Intelligent Transportation Systems*, Vol. 12 No. 4, pp. 1624-1639.

Zhang, X., Crabtree, J., Huang, Y., & Hu, T. (2011), "Building a dynamic RFID data-driven supply chain management system: imperatives and guidelines", *Information Technology Journal*, Vol. 10 No. 4, pp. 703-709.

Zhang, Y., Guo, Z., Lv, J., & Liu, Y. (2018), "A framework for smart production-logistics systems based on CPS and industrial IoT", *IEEE Transactions on Industrial Informatics*, Vol. 14 No. 9, pp. 4019-4032.

Zoppelletto, A., Bullini Orlandi, L. and Rossignoli, C. (2020), "Adopting a digital transformation strategy to enhance business network commons regeneration: an explorative case study", *The TQM Journal*, Vol. 32 No. 4, pp. 561-585.