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Supply Chain Challenges in Competitive World: A Systematic Review and Meta-Analysis of Manufacturing and Service Sectors

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Abstract

This study is conducted to contribute insights into the literature on the supply chain challenges faced by manufacturing and service sectors research with a specific focus on future research opportunities to the academicians as well as professionals. A structured meta-literature review approach literally covering 90 literature reviews is opted. The scope of the study is to highlight the trends and research gaps via using the bibliographic network analysis, quantitative and qualitative content analysis. Research framework has been drawn to bring forth comprehensive understanding of the literature on supply chain challenges in the context of community-based enterprises and altruism. Literature review results disclose that most common supply chain disruption in manufacturing and service sectors are technological improvements and scarcity of resources followed up with the lack of human resources, quality standardization, knowledge and awareness, operational costs, government support, deficiency in cashflows and cooperative collaboration. Supply chain challenges that are having least significant impact on business operation of companies literally are economic instability, demands of customer, decreased inventory levels, competitions and uncertainty, transparency and corruption as well as wastage of the material. Further conducive research can be done on strategies to overcome the supply chain sustainability challenges and impact of sustainability performance within context of the emerging economies, establish flexible supply chains and identifying barriers to supply chains is the second area of research and the third venue is designing meta-analysis with usage of conventional statistical techniques. This study presents meta-literature review of supply chain disruption research papers that are being published between January 2000 and October 2024.

Keywords

Meta-Literature Review, Supply Chain Management, Supply Chain Challenges, Supply Chain Sustainability, Altruism and Commercial Enterprise

1. Introduction

Civil Wars, Conflict-Affected Situation and Fragility is what Afghanistan has been tackling with over the last few decades however, manufacturing and service sector absolutely played essential role in improving the trades, transits, transportation and supply chain networks. Afghanistan is well-known for its strategic locations, silk-route, natural resources and latter components would make grounds for becoming supply chain hub and manufacturing hub of Eurasia countries and assisting nations in overcoming bilateral problems including border trade.

Supply chain disruptions is unplanned for and unanticipated event that ends-up disrupting the normal flow of resources within the supply chain networks as per (Craighead, Blackhurst, Rungtusanatham, & Handfield, 2007). There are innumerable supply chain challenges faced by undeveloped countries in bilateral trades and transit agreements i.e. limited trades, higher costs, delays, distance to the market, taxes and number of national borders with the coastal countries. The latter supply chain barriers have been taken into consideration by multi-national corporations and multiple gatherings, dialogues and researches have been arranged to decrease, if not overcome the bilateral trades and transit challenges. However, sincere and continuing collaborations as well as political will as matter of fact is compulsory to increase trade within our region as well as with other parts of the world.

Early survey of researchers suggest that crisis for commercial and humanitarian supply chains absolutely is getting significant. 73% of business enterprises in the United States of America observed changes in the way they got their stuff whereas 75 percent saw changes in the way they made and distributed their stuff, according to Alicke and Gupta Trautwein. Majority of the humanitarian companies operating globally made changes to the way they function and all of them have encountered problems, because of what the government did? Forty percent of the humanitarian enterprises as matter of fact noticed that the people, that they were helping actually needed more assistance according to ReliefWeb portal.

Meta-Analysis is quantitative and qualitative synthesis of information obtained from different research (Lau, Ioannidis, & Schmid, 1998). A meta-analysis of the existing literature reviews is selected in order to understand the current academic context. Based on the study of literature reviews, future research opportunities are identified, an analysis of the current state of knowledge is conducted and research-related knowledge gaps actually are determined. The structure of research paper is designed as follows: The research method and study design is what first section all about, second section is actually about bibliographic information following by key analysis and then research opportunities are discussed. The conclusion part of the study as matter of fact summarizes the most bits of knowledge of the chapter.

2. Research Method and Design

In this research paper, systematic literature review methodology is chosen in order to explore the literature review of supply chain challenges. The reason, why I have used the latter methodology is to identify, evaluate and synthesize research results

to create summary of current clue that indeed can contribute to evidence-based practice. The main stages of systematic literature review surely are planning the review, conducting review, reporting and dissemination according to Tranfield, Denyer and Smart (2003). This article applies the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) to document research method and research questions, which has been taken into consideration for this study are:

Q1: What are the major supply chain challenges faced by manufacturing and service sectors in developed nations and emerging economies?

Q2: What crucial challenges does supply chain department of manufacturing and service firms face in developed nations and emerging economies?

Q3: What are the main challenges in making supply chains socially sustainable?

Q4: How do firms respond to global challenges in their design of supply chains?

Based on the above research question, four elements have been taken in care for the analysis of the search string: the first keyword definitely is linked to challenges and covid pandemic following with functional areas of supply chains i.e. demand planning and forecasting, purchasing, management of the material, manufacturing, distribution, returns management and customer services. The researchers certainly have gone through and used some databases so that to find-out relevant literature review publications and the databases, which is used are Science-Direct, PubMed, Cross-Reference, Google-Scholar, IEEE Xplore, ERIC and Semantic Scholar.

The database in which, the highest number of relevant supply chain challenges research papers being published is Cross-Reference i.e. (n = 117) out of which 80 are unrelated whereas, Google Scholar Database ranks second and number of the related publication absolutely is around (n = 16) out of which 17 research papers literally are unrelated. ScienceDirect Database ranks third and number of relevant supply chain challenges articles published in is (n = 12) and 35 publications surely are not relevant. IEEE Xplore Database, Education Resources Information Centre Database, PubMed Database and Semantic Scholar Database have least number of supply chain challenges articles i.e. (n < 2) and number of unrelated publications is (n < 3) as represented in Table 1. The research papers that I have gone through are only peer-reviewed and research papers in English were explored.

Table 1. Databases used for identifying review of literature publications.

Name of Database	Date	Publication (Results)	Un-Related Research Papers	Included Research Papers	Excluded Research Papers
Cross-Reference	October 2024	1,900	80	37	1,783
Google Scholar	October 2024	1,200	17	16	1,167
ScienceDirect	October 2024	39,235	35	12	39,188
Semantic Scholar	October 2024	76	0	1	75
IEEE Xplore	October 2024	9	0	1	8
ERIC	October 2024	2,364	2	0	2,362
PubMed	October 2024	140	2	0	138

3. Bibliographic Network Analysis

The empirical literature reviews of the supply chain challenges encountered by the manufacturing and service sectors have been explored and analyzed via using the Bibliographic Network Analysis to understand the structure as well as publication dynamics of 90 research papers, as shown in **Figure 1**. This information is relevant for the quantitatively organizing available knowledge within a scientific discipline (Merigó & Yang, 2017; Pritchard, 1969). The latter selected studies are published between 2000 and October 2024. Luthra and Mangla (2018) certainly conducted sincere research from perspective of Indian manufacturing industry to in actual fact identify key challenges to industry initiatives and analyse identified key challenges in order to prioritise perspectives for an effective industry concept in regard with supply chains sustainability in gainful emerging economies. According to research findings, organisational barriers are the most important followed by technology challenges, strategic barriers, legal and ethical issues. The researchers definitely stated that it is very lucrative for the practitioners, policy makers, regulatory bodies and line managers to develop in-depth understanding of industry initiatives and solve issues in adopting initiatives for supply chain sustainability.

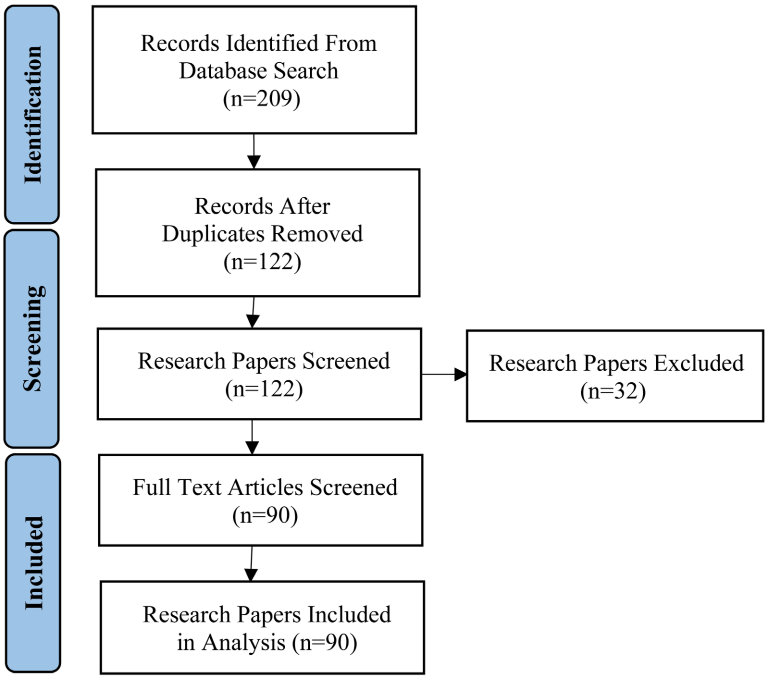

Figure 1. Extraction of publications of supply chain challenges faced by manufacturing and service sectors by adoption of PRISMA (Object Relational Mapper).

The scope of systematic literature review is to explore published research papers related to supply chain challenges and only peer-reviewed papers in English were searched. The research papers, which executed methodology are not considered in our study. As matter of fact, 146 research reviews were published in 102 journals. The wide variety of relevant subjects being covered by the journals illustrate

the aligned cross-functionality of the supply chains disruption research (Novoszel & Wakolbinger, 2022). The journals, wherein high number of research paper being published in are Supply Chain Forum: An International Journal i.e. (n = 7), Journal of Transport & Supply Chain Management i.e. (n = 5), Journal of Production Economics i.e. (n = 5) and International Journal of Supply Chain Management i.e. (n = 3). The Journal that literally published least number of publications are Psychology and Education i.e. (n = 1), Heliyon i.e. (n = 1), Industrial and Systems Engineering i.e. (n = 1), Computer Applications i.e. (n = 1) and Resources Policy

Table 2. List of journals used for exploring research review of supply chain challenges.

SN	Journals	Number of Relevant Research Papers	Number of Irrelevant Research Papers	Percent of Total Papers
1	Supply Chain Forum: An International Journal	4	3	4.3%
2	Journal of Transport and Supply Chain Management	3	2	3.2%
3	International Journal of Production Economics	3	2	3.2%
4	Journal of Supply Chain Management	3	0	3.0%
5	Sustainable Production and Consumption Journal	3	0	3.0%
6	Sustainability Journal	2	1	2.1%
7	Industrial Marketing Management Journal	2	1	2.1%
8	Supply Chain Management: An International Journal	2	1	2.1%
9	Wiley Online Library	2	0	2.0%
10	Transportation Research Part E Journal	2	0	2.0%
11	Resources, Conservation and Recycling Journal	2	0	2.0%
12	Technology in Society Journal	2	0	2.0%
13	Procedia Manufacturing Journal	2	0	2.0%
14	BMC Public Health Journal	2	0	2.0%
15	African Journal of Business Management	2	0	2.0%
16	Journal of Frontiers in Business, Economics and Management	2	0	2.0%
17	Socio-Economic Planning Sciences Journal	2	0	2.0%
18	Journal of Supply Chain Management Systems	1	0	1.0%
19	Journal of Computer Applications	1	0	1.0%
20	Journal of Industrial and Systems Engineering	1	0	1.0%
21	Journal of Supply Chain Management, Logistics and Procurement	1	0	1.0%
22	Psychology and Education Journal	1	0	1.0%
23	Journal of Engineering Proceedings	1	0	1.0%
24	Journal of Electronic Commerce Research	1	0	1.0%
25	Journal of Cleaner Logistics and Supply Chain	1	0	1.0%

Continued

26	Journal of Resources Policy	1	0	1.0%
27	Journal of Production Planning and Control	1	0	1.0%
28	Journal of Agriculture and Food Research	1	0	1.0%
29	Journal of Transportation Research Procedia	1	0	1.0%
30	Journal of Procedia Computer Science	1	0	1.0%
31	Journal of Heliyon	1	0	1.0%

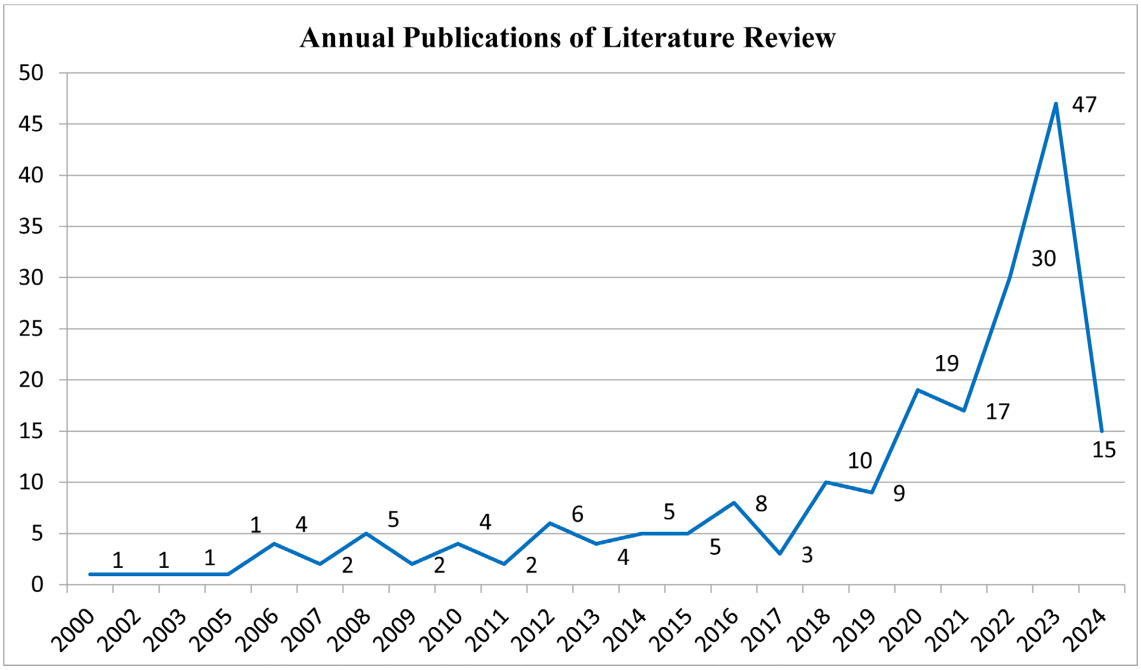

Figure 2. Annual publications of literature review of supply chain challenges faced by SMEs.

i.e. (n = 1) as indicated in the Table 2 and Figure 2. The number of annual publications of literature reviews of the supply chain challenges encountered by the manufacturing and service sectors increased gradually from 1 to 5 between 2000 and 2008, whereas it has fluctuated between 5 and 10 till 2018. The highest number of literature reviews certainly was published in 2023 i.e. (n = 47) following up with 30 in 2022 and 15 in 2024. The well-known journals in reference to the literature reviews are Journal of Transport and Supply Chain Management, Supply Chain Forum: An International Journal, International Journal of Production Economics, International Journal of Supply Chain Management, Journal of Sustainability and Journal of Sustainable Production and Consumption.

4. Keyword and Co-Authorship Analysis

This part is all about analyzing the contents of literature reviews and quantitative analysis of the keywords and co-authorship have been done in order to provide an understanding of the topic and terms used in this study. For analyzing contents

of review of literature, researchers picked keywords that was opted and visualized with VOSViewer software (Van Eck & Waltman, 2010). The keywords that have been appeared recently certainly are Covid-19 Pandemic and Digital Preparedness although terms such as Risks Management, Supply Chain Logistics Management and Continuous Improvement have been used earlier around 2015 by different distinguished researchers as being illustrated in Figure 3.

Figure 3. Word cloud of literature review of supply chain challenges faced by SMEs.

The result drawn out of VOSViewer software depict that there isn't any cluster density visualization among the items neither any interdependent relationship does exist and relatedness of journals in terms of co-citation links is observed. The type of analysis that was selected automatically by the latter software for supply chain challenges encountered by manufacturing and service sectors data was literally "Co-Authorship" and counting method being chosen was certainly "Full Counting". The minimum number of documents of each author was certainly 1, citation was 0 and maximal number of authors per document was 25 as shown in Figure 4.

5. Conceptual Framework

Altruism perspective of supply chain absolutely emphasizes social responsibility, ethical practices and commitment to the community welfares over motive of the profit maximization. While some of global organizations compete in terms of the generosity to promote themselve as ideal future exchange partners, few of the international companies in the marketplace in point of fact compete for an access to the most altruistic partner. Competitive altruism literally allows us to understand the moral dimensions of cooperation in the business transactions (Fehr & Fischbacher, 2004; Van Vugt et al., 2012) as well as providing potential explanations for persistence of cooperative behaviour (Hardy & Van Vugt, 2006). Altruism in supply chains absolutely enhance supply chain efficency and profitability,

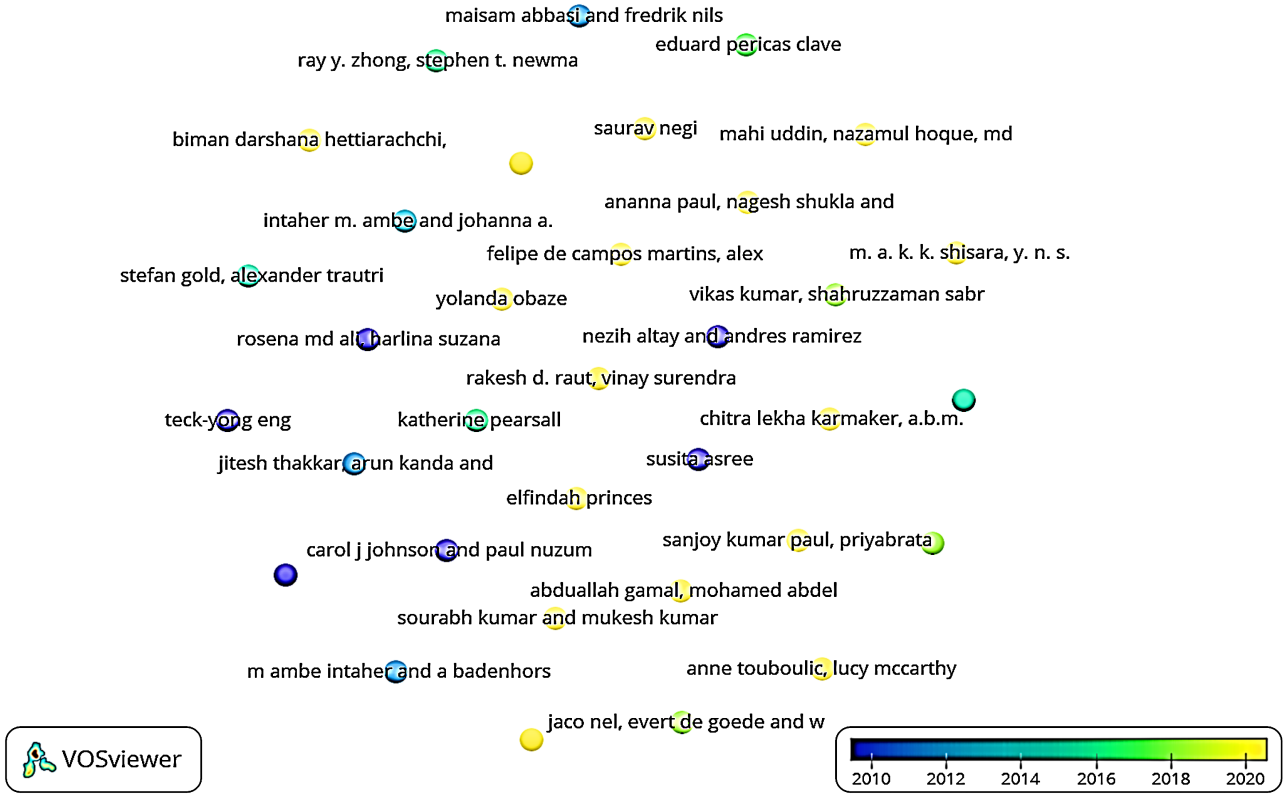

Figure 4. Authorwise clustering of supply chain challenges faced by manufacturing and service sectors studies.

therefore also promoting connections between manufacturers and retailers. But, companies literally face the dilemma of aligning altruistic goals with the need for profitability, which certainly would create tension between the short-term financial pressure and long-term sensible ethical commitment. On the other hand, community based enterprise perspective certainly is an approach, which involve lively engagement of individuals in the management of supply chain operations. This perspective indicates that members of society aren't just passive recipients of product and services, but are potential stakeholders who definitely contribute to sustainability, effectiveness and sustainable performance of supply chain. However, community-based enterprise play significant role in empowering members of society, fostering trust among members of the community, improving quality of life and enhancing resilience to economic fluctuation, it surely faces complexities that challenge their success. The actual complexities of commercial supply chain corporation in point of fact are scarcity of resources, struggling to access the intact extensive markets, facing competitions from larger organizations, difficulty in marketing their product and services based on the potential customer's preferences.

We in fact have suggested a conceptual framework in order to frame supply chain challenges faced by manufacturing and service sectors. The context literally was compassed with different relevant phrases, such as Altruism Perspective of Supply Chains and Community-Based Enterprise Perspective and was developed based on latter research questions. Challenges can cause events as small as one part shortage

or as large as global pandemic and it can have operational, natural, pandemic and human-made causes. The impact on supply chain is directly connected with the infrastructures, inventory management, demand planning, rendering customers service, changing global health situations, geopolitical and trade risks. The supply chain challenges can absolutely be explored and analyzed via two methods i.e. Quantitative Method and Qualitative Method. To give gist of the concepts drawn out of literature review, the relevant terms were arranged in structured way and each paper was allocated once. The term "Artificial Causes" used in the supply chain disruptions and implications of the supply chain brief papers, which are about human-made causes whereas "Not Specified" term represents that not such concept is covered in any of the research papers. We are going to describe each aspect of research framework elaborately in **Figure 5**.

5.1. Frame of Reference of Study

There have been adequate publications in regard with the Altruism Perspectives of Supply Chains and Community-Based Corporation Supply Chains and actual differences between latter perspectives have been probed by the research scholars profoundly and with the massive extent (Natarajarathinam, Capar, & Narayanan, 2009; Kovács & SigalaIoanna, 2021; Olaogbebikan & Oloruntoba, 2019; Kovács & Vega, 2021). We in fact have framed contexts of Altruism Perspective of Supply Chain and Community-Based Enterprise Supply Chain separately so that to surely provide remarkable viewpoint. The factors that actually have led to supply chain disruption are pinpointed and ideas about how many quantitative and qualitative research papers are published is given in regards with latter frame of references. We have added keywords such as "Artificial Causes, Natural Disasters, Covid-19 Pandemic and Operational Logistics" to integrate the Altruism and Enterprise-Based perspective into meta-analysis of supply chain challenges research. This has surely made ground for the researcher to provide preliminary idea and compare the insights from the commercial and humanitarian sectors perspective.

Most of the explored literature reviews i.e. (n = 64) is regarding community-based enterprise supply chain context, whereas some studies i.e. (n = 23) focus on altruism perspective supply chains and 3 research papers actually just only address generic challenges and did not focus on supply chain disruptions. But, it was altruism as well as community-based enterprise perspective research papers, which definitely have addressed multiple challenges and implication on the supply chains are explored. For the latter contexts, both quantitative as well as qualitative perspectives and mechanism surely are taken care in literature reviews as well as research papers. It is to be mentioned that qualitative technique was used in the 54 research paper out of 90 whereas, quantitative method has been opted in only 36 research articles by the academician. An Altruism supply chain stress and focus on purpose of alleviating the unbearable sufferings of the vulnerable individuals, which differs from that of the community-based corporation supply chain that solely focuses on the actual context of business management.

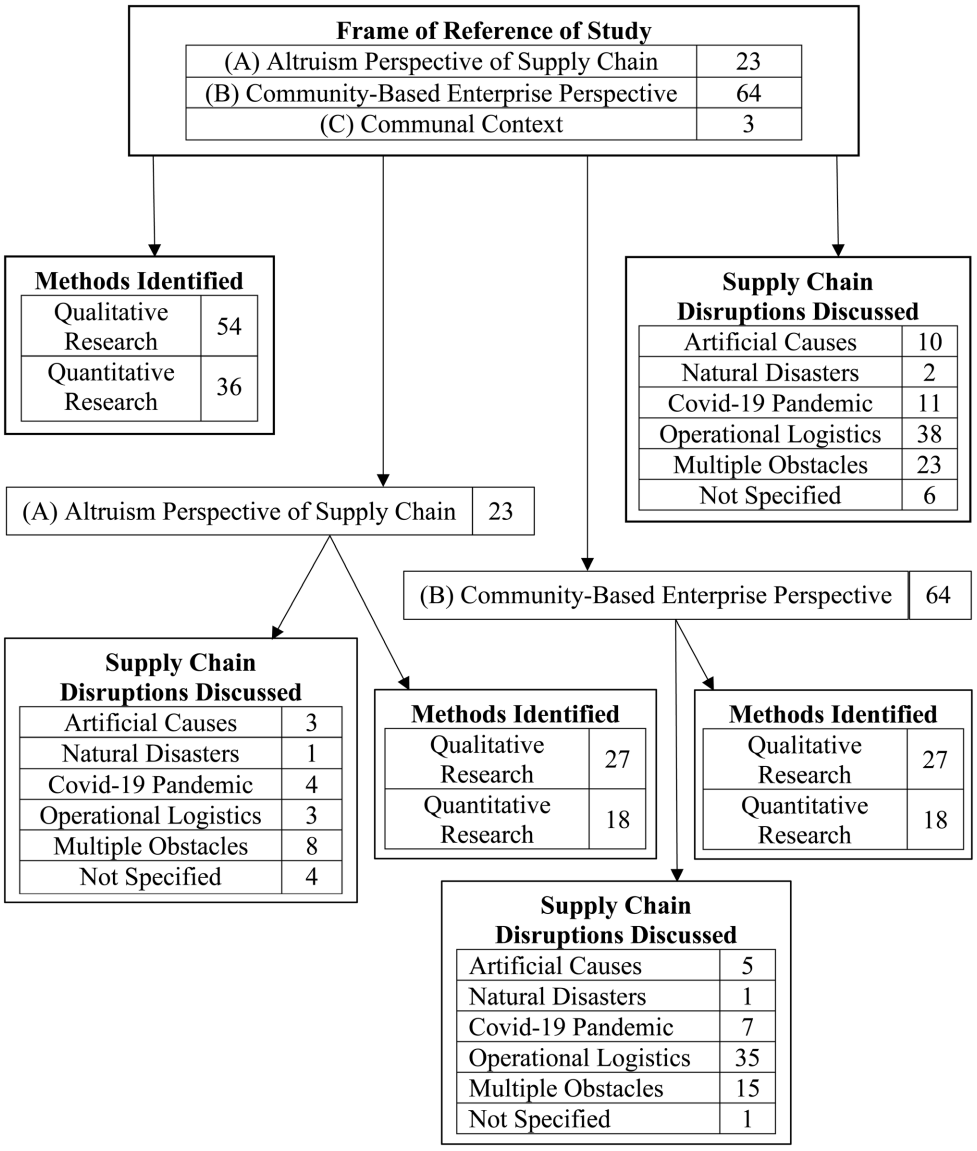

Figure 5. Research framework of supply chain challenges with allotted literature reviews.

5.2. Addressed Supply Chain Challenges

Craighead et al. (2007) has defined supply chain challenges as an unplanned and unanticipated event that surely disrupts the regular flow of the products as well as materials within the supply chain network and latter explanation in fact is most frequently cited for this phenomenon. Both natural and artificial causes produce disruptions. Natural disasters certainly include events like pandemic, flood and earthquake (Iliopoulou, Konstantinidou, Kepaptsoglou, & Stathopoulos, 2020) and (Sabbaghtorkan, Batta, & He, 2020). Artificial disasters are actually classified into three types: firstly, industrial accidents such as chemical spills, transportation accidents and mining catastrophes. Secondly, the social disasters such as warfare, genocide, civil turbulence and hyperinflation and thirdly, deforestation and climate change are two instances of environmental disasters. For this study, we classified

literature reviews of supply chain challenges study into different barriers such as operational logistics, artificial cause, natural and covid pandemic crisis. Reviews of literature that do not cite this kind of root causes are entitled as "Not Specified". The researchers surely have specified initial list of supply chain challenges of manufacturing and service sectors by review of academic and industry literature. Different database such as Science-Direct Database, PubMed Database, Cross Reference Scholastic Database, Google-Scholar Database, IEEE Xplore Database, Semantic Scholar Database and ERIC Database are surely used to find-out literature review publications. Generally 15 manufacturing and service sector challenges in actual fact have been highlighted in literature reviews such as lack of resources, economic instability, technological improvement, operational costs, demand from existing customer, competitions and uncertainty, scarcity of human capital, transparency and corruptions, reduced inventory levels, wastage of the materials, deficiency in cashflows, support from the government, quality standardization, knowledge and awareness as well as cooperative collaboration. The supply chain challenges that has been indicated by majority of the researchers is technological improvement followed up by the lack of resources. The SMEs operating in the different countries have been trying to create data-driven ecosystem that surely connect customers, staffs, suppliers and business operations. But, in spite of putting lots of efforts they literally are facing obstacles due to lack of the resources. The succeeding supply chain challenges, which have been emphasized by the academician are scarcity of human capital, knowledge and awareness, operational costs, government support and quality standardization, deficiency in cashflows and collaboration. The SMEs currently are struggling with critical problem of un-skilled manpower and hiring skilled labour turn out to be costly for them. The small and medium enterprises can not solve latter problems, if they suffer financially, neither being supported by government nor collaboration exist among stakeholders. It would be lucrative for the business ventures, if they sort out latter major problems within the context of underlying framed policies. Supply chain challenges, which has least significant impact on business operations of SMEs as per respective researchers are economic instability, demand from customers, competitions and uncertainty, transparency and corruptions, wastage of materials and decreased inventory levels as illustrated in **Table 3**. Although, latter supply chain challenges as matter of fact are considered as insignificant, but business ventures have to be cautious and put their best efforts in getting rid of each challenge that faces business. Majority of literature review might be classified under comprehensive either multiple obstacles category (Behzadi, O'Sullivan Olsen, & Zhang, 2018; Emenike & Falcone, 2020; Fagundes, Teles, Vieira De Melo, & Freires, 2020). The researchers, who explored literature reviews on Covid-19 Pandemic, specifically on the Operational Challenges subject area as matter of fact are Gamal, Abdel-Basset, & Chakrabortty (2022), Paul, Chowdhury, Moktadir, & Lau (2021), Karmaker et al., (2023), Paul et al., (2023), Nitish Maan, Vijaya Manupati, Stefan Seuring, Biswajita Mohanty, Amelie Meyer, Walter and Amir Md. Fathollahi-Fard. The foreseen calamities are

Table 3. Supply chain challenges faced by manufacturing and service sectors.

Elite Author(s)	Industry and Country	Lack of Resources	Economic Instability	Technology Improvement	Operational Cost	Demand From Customers	Competition and Uncertainty	Scarcity of Human Capital	Transparency and Corruption	Reduced Inventory Levels	Wastage of Materials	Deficiency in Cash Flow	Government Support	Knowledge and Awareness	Quality Standardization	Cooperative Collaboration
Md Ali et al. (2008)	dolphin choir (Malaysia)			×				×						×		
Ruteri (2009)	Manufacturing (Tanzania)	×		×				×		×		×		×		
Hamisi (2011)	Supply Chain (Tanzania)			×	×					×						
Thakkar et al. (2012)	Manufacturing (India)			×	×	×		×	×	×						
Ambe et al. (2013)	Manufacturing (South Africa)	×		×	×	×		×							×	×
Negi & Anand (2015)	Manufacturing (India)			×		×							×	×	×	
Clavé (2017)	Manufacturing (America)					×		×								
Nel et al. (2018)	Supply Chain (South Africa)	×	×	×				×	×				×			
Gupya (2018)	Supply Chain (India)	×		×										×		
Kormych et al. (2019)	Manufacturing (Ukraine)			×	×	×	×	×	×				×	×		
Kumar et al. (2019)	Manufacturing (Britain)	×		×	×	×	×	×			×	×	×	×		
Felipe et al. (2020)	Supply Chain (Brazil)			×				×				×		×	×	×
Obaze (2020)	Supply Chain (America)	×			×				×							
Karuppiah et al. (2021)	Manufacturing (India)	×		×	×		×	×				×	×	×	×	×
Paul et al. (2021)	Manufacturing (Bangladesh)	×	×		×	×		×				×			×	×
Raj et al. (2021)	Manufacturing (India)	×										×	×		×	
Gamal et al. (2022)	Manufacturing (Egypt)	×				×		×		×		×				
Kaur et al. (2022)	Supply Chain (India)	×		×			×	×	×			×	×	×	×	×
Khoza & Govender (2022)	Supply Chain (South Africa)	×	×	×	×			×								
Uddin et al. (2022)	Manufacturing (Bangladesh)	×		×								×	×	×		
Dixit et al. (2024)	Manufacturing (India)		×	×	×		×	×		×			×	×		×
Kumar & Agrawal (2023)	Supply Chain (India)	×	×		×			×	×	×		×		×	×	×

Continued

Mardenli et al. (2023)	Supply Chain (Germany)	×			×		×									
Rahmaty (2023)	Supply Chain (Iran)	×		×	×								×	×		
Paul et al. (2023)	Manufacturing (Australia)	×			×	×		×	×		×	×		×		×
Jha and Aggarwal (2023)	Supply Chain (India)		×		×		×				×		×	×	×	×
Rohit et al. (2023)	Manufacturing (India)			×				×		×		×	×	×	×	
Mukwarami et al. (2023)	Manufacturing (South Africa and Zambia)	×		×	×			×					×		×	
Walter (2023)	Supply Chain (Germany)	×		×	×		×							×	×	×
Lahane et al. (2023)	Manufacturing (India)	×	×		×							×	×	×	×	×
Karmaker et al. (2023)	Supply Chain (Bangladesh)	×	×	×			×	×				×		×		×
Rojas-Reyes et al. (2024)	Manufacturing (Columbia)	×	×	×									×		×	
Zhao (2024)	Supply Chain (Philippines)			×						×					×	

addressed namely by Emodi et al. (2019) and Seaberg et al. (2017). The actual content of explored literature reviews in actual fact is almost about comprehensive supply chain challenges subject area, whereas Covid-19 pandemic, circular supply chains management, supply chain as service and supply chain digitalization field of study literally is getting attention of research scholars nowadays and some of recent literature reviews even though did not identify root causes and fundamentals of the supply chain disruptions in the manufacturing and service sectors.

5.3. Findings

The researchers have determined 15 supply chain challenges of the manufacturing and service sectors from literature reviews, which are lack of resources, economic instability, operational cost, lack of human resources, technological improvement, customer's demand, competitions and uncertainty, transparency and corruption, reduced inventory levels, wastage of materials, deficiency in cashflow, knowledge and awareness, support from government, quality standardization and cooperative collaboration. The supply chain challenges that definitely has major impact on the business performance of manufacturing and services organizations certainly are technological improvement and lack of material followed up by scarcity of human resources, quality standardization, knowledge and awareness, operational costs, government assistance, deficiency in the cashflow and cooperative collaboration. The supply chain challenges that has least significant impact on business operation of small and medium enterprises according to researcher definitely are economic instability, demands of customer, decreased inventory levels, competitions and uncertainty, transparency and corruption as well as wastage of materials.

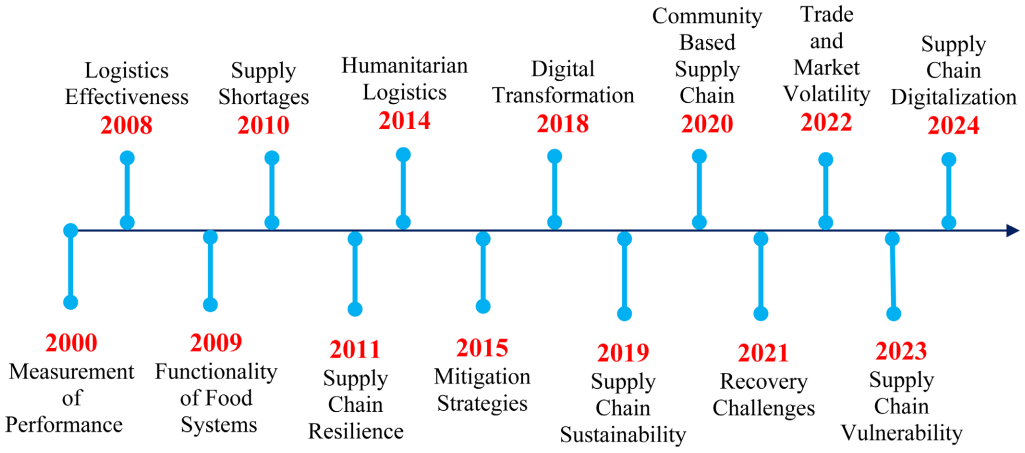

Figure 6. Timeline of main approaches of analyzed supply chain challenges research papers.

The main findings of the literature reviews indicate that since 2000, disruptions have been addressed with focus on measurement of the supply chain performance. Subsequently between 2008 and 2009, there have been highlighted approaches for logistics effectiveness and functionality of food systems. Between 2010 and 2019, attention-drawing trending topics such as supply chain resilience, humanitarian logistic, sustainable mitigation strategies, digital transformation and supply chain sustainability have been explored. In recent years, starting from 2020, the business trend has shifted toward impact of community-based supply chain corporation, recovery challenges, trades and market volatility, supply chains vulnerability and digitalization of supply chains as represented in Figure 6.

The first publication analyzed in this literature reviews is research by Peter and Thomas, which measured the supply chain performance using balanced scorecard and provided formalized mechanisms for influencing the line managers to achieve vital balance between non-financial and financial measures across short-term and long-term horizon. Besides, Sinha examined logistics effectiveness and indicated that natural two-sided contract certainly could serve purpose of achieving supply chain coordination in terms of optimal investment of profitable asset. Additionally, Xin certainly carried-out research on functionality of food systems to develop food safety education, spread food safety awareness of community and promote food safety level. Moreover, Rameshwar Dubey as well as Angappa Gunasekaran carried-out research to evaluate supply shortages and instructed that environmental supply chains absolutely may not guarantee sustainability of the supply chain networks and for this creating pool of potential talent, skills and ability to respond to future challenges of the sustainable supply chain networks, training is compulsory. Meanwhile, Barroso in actuality conducted research to examine supply chains resilience and stated that mapping of supply chain supported in grounds of identifying whether supply chain is resilient to specific disturbance or not as well as support the line managers in making decision concerning adoption of the mitigation policies in the strategic as well as operational arenas. In addition, Rameshwar Dubey has conducted lucrative research on the humanitarian logistics to establish

relationship between supply chains resilience and humanitarian supply chains performance. The researcher in actual fact has indicated that the supply chain agility and resilience surely are two essential determinant of the pre and post-disaster supply chain performance indicators. Moreover, Yesmin has carried-out core research on the supply chain mitigation strategies to concentrate on researching the actual relationship between supply chains flexibility, resilience and responsiveness in order to absolutely facilitate bridging the gap between mitigation strategies and supply chain risk management performance. The findings as matter of fact have revealed that both supply chain resilience and responsiveness are negativelyassociated with the supply chain risks management performance; however, supply chain flexibility does not. Likewise, Ning and Yao have carried-out research on the digital transformation of supply chain and have revealed that digital transformation certainly plays significant role in improving supply chain capabilities and supply chain capabilities definitely acts as linkage between supply chain digital transformation and sustainable competitive performance. Additionally, Ernest Mugoni has conducted sincere research to probe the impact of the sustainable supply chain management practices on environmental performance. Researchers certainly have indicated that there is noteworthy evidence that sustainable supply chain management practices significantly affected environmental performance. Furthermore, Yolanda has carried out research to explore core challenges among interorganizational managers in community-based enterprises and certainly revealed that the associated transactions and mechanism has controlled and limited market failures within supply chain relationships. Meanwhile, Sanjoy Kumar has conducted research to identify and model recovery challenges in the context of the Bangladeshi ready made garment industry. The research findings supported elite decision-makers in sustainable strategic policies to overcome the recovery challenges in post Covid-19 era. After that, Daiyou Xiao has carried-out research to concentrate on the trades and market volatility consequences of severe Covid-19 pandemic outbreak. The researcher declared that most commodities has experienced significant price drops, which in point of fact were expected to continue well and economic policy uncertainty has negative impact on the commodity market in both high and low regime. Furthermore, Satyendra Sharma has conducted research to examine and prioritize factors that are really responsible for supply chain vulnerability. The researcher in point of fact stated that critical part suppliers, location of suppliers, long supply chain lead time and misaligned incentives in core supply chain are identified as the most significant factors among twenty six vulnerability dimensions. It as matter of fact concludes, not only does long and complicated supply chains increase supply chain vulnerability, but so does supply chain practices used by the organizations. Finally, Alzubi carried-out study to evaluate impact of supply chain digitalization on the supply chain performance. The findings indeed showed that supply chain digitalization absolutely has significant and lasting effect on the supply chain performance, supply chain digitalization has revealing impact on supply chain visibility and supply chain visibility has impressive impact on supply chains performance.

5.4. Methods Identified

This study's search string comprises the keyword "Model" and was selected as to highlight framework probed in the literature reviews. Majority of the studies (n = 54) as matter of fact have used qualitative model. For example, Ananna Paul et al. (2023) investigated mixed-method approach that certainly incorporates qualitative as well as quantitative methodologies, including an online professional survey and the Best-Worst technique. Following an online survey of the experts in Australian food processing business, 22 sustainability challenges certainly were determined and classified into four categories i.e. economic, environmental, social and operational challenges. The top five explored sustainability challenges for the Australian food processing sector as result of the Covid-19 outbreak based on the empirical findings of exploratory investigation are rising food processing costs, lack of transparency and traceability, increased raw material's price, lack of capital and physical resources as well as spread of the false information. Negi (2022) emphasized on critical roles of humanitarian logistics in disaster management and used qualitative technique so that to identify barriers that humanitarian organizations face, while managing their logistics and supply chains during the disaster-relief operations. Nel et al. (2018) has investigated supply chain challenges faced by the third-party logistics service providers (3PLs) and how these businesses literally manage them. To collect data, generic qualitative research approach was literally used, comprising semi-structured interview with 22 potential participants from the 11 operating third-party logistics service providers (3PLs) and absolutely 11 client corporation in the South Africa. Karmaker et al. (2023) has conducted research to manage effects of the supply chain disruption caused by Covid-19 pandemic in an emerging economy. This research as matter of fact used qualitative and quantitative techniques. First, literature reviews and opinions of experts definitely were used to identify the challenges to I5.0 implementation by utilizing the Best-Worst Method and thereafter, cross-impact matrix multiplication methodology as well as structural equation modelling have been applied to investigate the contextual linkage among implementation matters. Some of explored literature reviews (n=36) didn't discuss qualitative method. They focused on descriptive research to understand the supply network disruptions and certainly linked them to relevant theories such as supply chain resilience, supply chain risks management, supply chain management, mitigation strategies of supply chains, sustainable and green supply chain management as well as supply chain logistics management.

5.5. Implications on Supply Chains

Supply chain challenges refer to any occasion, which generates disturbance within the production, sale and delivery of products. This will happen due to deficiency of supply part, unsettling influences amid the operation and surely changes from demand planning context (Rodrigue, 2020; Dudley, 2020; Souza, 2020). Essential aspects such as availability of the raw-materials, lack of funds, shortage of skilled

personnel, inefficient production process, predicted human-made conflict, existing territorial clashes, control of the borders, transportation infrastructures, natural disasters and Covid-19 pandemic could affect capacity and potential of contracted concerned suppliers (Souza, 2020; Attinasi, De Stefani, Frohm, Gunnella, Koester, Tóth, & Melemenidis, 2021; Keshner, 2021). Gossler, Wakolbinger, Nagurney, & Daniele (2019) indicated that how transportation activities can surely move forward victory of humanitarian operations. There surely is an evidence of publication of transportation network research papers in different high-ranked journals. Moreover, changing customer preferences can lead to supply chain challenges along the distribution networks. These sort of changing trends can be somehow directed to different phenomena i.e. psychology, behavioral traits, long-held habit and financial capacities. The lasting disturbances in different nodes of the supply chains as matter of fact would spread across value chain networks (Ivanov, 2020).

The researchers certainly have studied the literature reviews of the supply chain challenges in different ways and almost all the research paper are regarding supply chain disruptions. The challenges in the supply and demand stage as matter of fact are being explored by (Manuj & Mentzer, 2008; Taylor & Fearne, 2009; Neghabadi et al., 2016; He & Zhao, 2012; Venkatesh & Deoghare, 2022). There exist different research papers that specifically do not explore the different possible supply chain challenges but rather observe at the common vulnerabilities either varieties in the value chains (Altay & Green, 2006; Fan & Stevenson, 2018; Ribeiro & Barbosa-Povoa, 2018; Obaze, 2020; Golan, H. Jernegan, & Linkov, 2020; Duan & Ayyub, 2020). There are some research papers that indeed don't consider specific supply chain disruptions (Colicchia & Strozzi, 2012; Hohenstein, Feise, Hartmann, & Giunipero, 2015; Wu, Olson, & Dolgui, 2015; Jeble, Kumari, Venkatesh, & Singh, 2020). The supply issues in commercial supply chains as matter of fact is probed by researchers such as (Snyder, Atan, Peng, Rong, Schmitt, & Sinsoysal, 2016).

6. Future Research Opportunities

This section as matter of fact provides information about research opportunities to academician as well as distinguished industrialist based upon the (23) humanitarian research papers, (64) commercial context articles and (3) generic publication. The research papers as matter of fact have got published between 2000 and October 2024. The literature reviews explored supply chain challenges, academic possibilities and shifting trends over time period of twenty four years, a convenient of which should have been observed over specific course of time. Within the supply chain challenges literature reviews, we feel that it shall be of interest to surely address the following relevant issues: The academician and professionals ought to firstly conduct systematic literature review on core strategies to overcome supply chains sustainability challenges as well as impact of the sustainability performance within context of developed as well as emerging economies, establishing flexible supply chain and identifying predictable challenges to the supply chains is second area of investigation and third venue is designing meta-analysis with use of robust

statistical techniques i.e. effect size, correlation, regressions and structure equation modelling. However, core learning opportunities within contexts of humanitarian and commercial supply chain as matter of fact are distribution of products to end-users, supply procurement, locations and size of enterprise, disaster management, decreased excess costs, strategic decision-making pre and post Covid-19, authors can manage to do meta-analysis on the above mentioned contexts.

7. Conclusion

Numerous publications have explored supply chain challenges within context of the community-based corporations, humanitarian and communal supply chains. Taking the opportunity, the researcher has conducted meta-analysis of 90 supply chain challenges faced by the manufacturing and service sectors literature reviews, which surely were published between 2000 and October 2024. The keywords being stated in relevant research papers as matter of fact are logistics management, risk management, continuous improvement, humanitarian operations and Covid-19 pandemic. The portrayed conceptual framework incorporates research on supply chain challenges based on the context, interventions, mechanism and outcomes logic into frame of reference of study, addressed supply chain challenges, methods identified and implication on supply chain stages and both qualitative as well as quantitative research methods in actual fact are being utilized in the research paper. The aspects such as availability of the raw material, lack of the funds, shortage of skilled staffs, inefficient production processes, human-made conflict, territorial clashes, transportation infrastructure, natural disasters and pandemic could affect the capacities as well as potential of suppliers and as of late have been evidenced that how transportation activities would move forward lasting victory of the altruism operation. These types of changing trends can be associated in specific way to different kinds of core phenomena such as psychology, behavioral traits, living standards and financial capacities. Supply chain challenges and how to deal firmly with them would be studied using variety of the robust quantitative and qualitative research techniques. The impacts of disturbances on supply chains would be indeed described, explained and literally tested by using variety of methodologies but particularly real-time, multi-period and mixed methods are applicable nowadays. The academician and industrial expert are grounded with the several possibilities currently to collect data, assessing the effect of the supply chain interruption in the real time and empirically validate the scientific ideas. It would be appreciable, if further research surely could be done on systematic literature reviews on strategies selected to indeed overcome supply chain sustainability challenges as well as impact of the enterprise sustainability performance within context of various developed countries and emerging economies, establishing flexible supply chains and definitely identifying barriers to supply chains is second area of investigation and third venue as matter of fact is designing meta-analysis through using robust statistical techniques i.e. meta-essential, effect size, correlations, regression and structure equation modelling. However, learning opportunity within contexts

of the humanitarian and commercial supply chains in actual fact are distribution of product to the end-users, supply procurement, size of organization, location of firm, cut excess cost, strategic decision-making pre and post pandemic, the researchers might have managed to do systematic literature reviews on latter contexts.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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