Leveraging Artificial Intelligence for Strategic Decision-Making in Global Supply Chain Management

Mahmoud Mohammed Abduljaleel Mukred[1,*] and Tang Ke Yue[2]

[1]Business Administration, Dalian Jiaotong University, Dalian City, China
[2]Faculty of Management, Dalian Jiaotong University, Dalian City, China
Email: alyosoufi@gmail.com (M.M.A.M.)
*Corresponding author
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***Abstract*—Techno integrations have changed the modern world. The world has become more holistic purposive and functional in nature. Techno oriented strategies transform and effectively integrate global functioning. This has given new impetus, directions and orientations for transformative orientations and strategic effectiveness. It is evident that holistic AI has emerged as one of the prominent futuristic technology which can modify global future. This AI has shown remarkable dominance in its monopolistic control on global industries as it is bound to show its aggressiveness for the next 3 decades. This would also give new mental orientations and focus which can reduce human labor cost and increase sophisticated modern innovative approaches. The global supply chain management practices have been modified and integration is achieved with AI. The nature and function of global SCM has changed with decarbonization, sustainability, customer orientations, agile functioning with digital impetus. This would alter the global SCM landscapes towards 2035. This study is exploratory in its nature and approach and it explore various aspects of Holistic AI and determinal, valuable transformative and integrative impetus on Global SCM strategies. This study is conclusive as it would provide specific recommendations, conclusions and strategies towards 2035. This study provide new strategies and solutions for Global SCM practices with a holistic AI approach.**

***Keywords*—global SCM nature, functioning and existing status, dynamic and holistic AI, AI & global SCM strategies 2035, agility, dynamism**

I. Introduction

A. AI Induced Global SCM Practices: Narrative Trends

Modern industries are transforming as they are transitory in their strategies towards future. Technology has been the major impetus which has given innovative novel approaches which has really transformed and integrated global industries and their functioning. New solutions, strategies and operational mechanisms have emerged and given new impetus, thinking and dynamic process & approaches. The global industries become more purposive, functional and holistic with new techno orientations. AI is determinal, futuristic, holistic technology which has crafted a new global web which could give new possibilities and approaches. This holistic AI also has given new approaches and methods of functioning for Global SCM functioning. It has modified with new exciting customer experiences with more refined process which are holistic, functional and result oriented. This AI has become the holistic strategy for Global SCM and its future has customized the supply demand linkages. AI provided new ways and approaches on transport as it has reduced its cost by almost 50%. Goods and its sorting are made much easier, elegant and inclusive as it has created new pathways (K) for progress.

AI induced global SCM operations & management would be worth $ 17.5 billion by the year 2028. This clearly indicates that AI induced global SCM practices also provide revenue and profits as well. The global SCM market is expected to grow in a very positive way towards the future with a positive determination. This can really change the global SCM market as it gives new methods which can transform and effectively integrate it. Big data analytics with an AI impetus can really change the modus operandi of Global SCM as it can evolve with new strategies and pathways towards 2035.

B. AI SCM Market towards 2035: Key Statistic

- The Asia Pac region would emerge as the largest and fastest-growing for the AI oriented SCM which can give global impetus for change and development.
- Cloud-based AI-as-a-Service for SCM is expected to raise its revenue by $3.7B globally by 2028
- AI SCM would focus more on edge computing for IoT enabled solutions which is expected to reach $6.12B by 2028
- Artificial Intelligence of Things would emerge as a major enabler of SCM optimization
- Material movement and tracking would be the largest sub-segment within AI SCM in manufacturing
- AI-enabled supply chains would become 67% more effective with reduced risk and overall costs when compared to the existing traditional and functional mode of Global SCM operations (MARKETS, 2023).

This clearly indicates that AI induced Global SCM operations would provide holistic integrative transformative experiences for companies as the scale and mode of operations can be anytime, anywhere. This purposive nature of AI oriented Global SCM operations and its impact on futuristic transformative strategies and solutions for 2035 & its implications has not been studied or evaluated as this research is an empirical attempt on the same. This study would provide strategic conclusive and directives towards 2035. The next section would cover specific aspects of research methodology.

C. Problem Statement

AI is the holistic technology which can bring developmental changes with integrative orientation in Global

SCM operations. The problems, and challenges related to AI oriented techno holistic integration and its impact on fewer market disruptions with an increased agility and performances in Global SCM strategies has never studied. The problems of AI orientations and strategic integration of Global SCM industries and its performances also have not been evaluated. Then problems on effective impact of holistic AI on Global SCM oriented outcomes and profits also were not found. Issues related to holistic AI orientation on Global SCM with its futuristic outlook on strategies and solutions also not determined. The problems & implications of holistic AI on global SCM and its functioning have to be studied in detail and in depth. As these problems and aspects were not studied and evaluated, so this research is an attempt to provide strategic solutions and future directives for Global SCM performances (K).

D. *Objectives*

1. To determine the current status of holistic AI on Global SCM practices
2. To assess the related challenges towards holistic AI for Global SCM practices
3. To find out the impact of holistic AI on Global SCM performances, outcomes & profits
4. To provide futuristic strategies and solutions for Global SCM practices with holistic AI technology

E. *Paper Organization*

Section 1 deals with AI induced global SCM practices as it provides a narrative trend analysis. Section 2 is the literature review, the study reviews the recent relevant papers on AI & Global SCM practices. Section 3 is Data Analysis and Interpretation, Data analysis would be done with interpretive and evaluative analysis as the data would be seen with new perspectives and orientations which could give new directions for Global SCM and its functioning. Section 5 concludes the paper.

II. Literature Review

A. *Global SCM Practices*

Tien, Anh, & Thuc (2019) had written a book with an evaluative analysis on Global supply chain and logistics management. In this book we could find the aspects of inventory, ware house related challenges being discussed in detail and in depth. SCM practices all over the world has changed as it has become more functional, integrative and strategic. This is one major aspect which could provide competitive advantage for organizations. It is stated that SCM integration could provide faster and greater access to markets with new customers and differential demands. This could have positive impact on profits and performances of organizations. It is also evident that the positive and determinal role of Holistic AI on global SCM practices and its impact on strategies & solutions towards 2035 were not studied as this study is an empirical attempt on it.

Grytsenko & Polishchuk (2023) had done a critical study on global supply chains. This study is focused and specific as it looks in to the modern trends and changes in global supply chains. This study has been done to understand the various challenges faced by companies due to the COVID-19 pandemic and Russia's invasion of Ukraine. This study is quantitative in its nature and approach as the European Bank for Reconstruction and Development (EBRD) conducted a short telephone survey between May and July 2022, interviewing 815 companies that are direct exporters and importers from 15 countries: Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Lithuania, Morocco, Poland, Romania, Serbia, Slovakia, Slovenia, Tunisia, and Turkey.

This study also has identified various challenges in effective management of global supply chains.

B. *Major Challenges in Global Supply Chains*

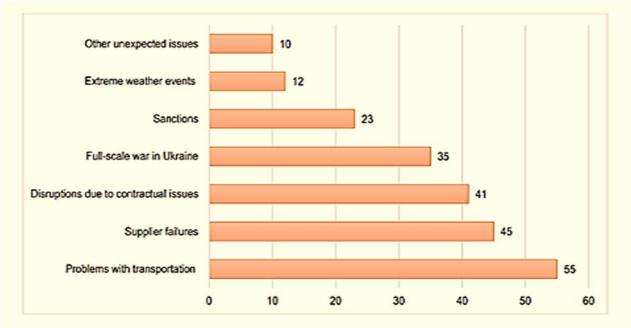

Fig. 1. challenges in global supply chain (Grytsenko *et al.*, 2023).

It has been found in Fig. 1 that the global supply chains have been disrupted due to the Ukraine war. Supply failures, transpiration problems, contractual issues, sanctions and extreme weather conditions has affected global supply chains in recent times. However the role and contributions of holistic AI on Global SCM practices & management were not evaluated or studied as this research is an empirical attempt which can reduce the existing research gaps in this field of study.

This research is an attempt to reduce these research gaps which are obvious and evident now.

C. *Global SCM Theories and Trends*

Grzybowska (2021) had done research study to identify & classify the global theories and trends in SCM with a developmental orientation towards future. This study has been done as systematic literature review as it identifies the global SCM research trends with futuristic implications. This study is empirical as Delphi method was used for data collection from 30 experts in SCM field which is represented in Fig. 2.

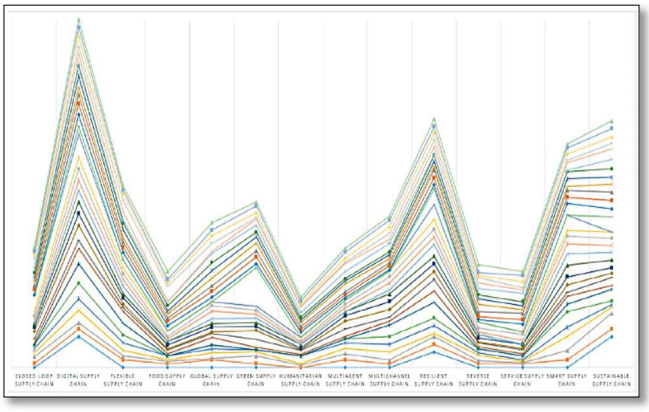

Fig. 2. Global SCM theories and trends (Grzybowska, 2021).

It is evident that smarter supply chain practices which can provide competitive advantage for global companies are the need of hour. It is also evident from this study that cloud, digital, flexible, green humanitarian, multi agent and multi-channel Global SCM practices could be explored and researched in future. It is also evident that studies have not been done on holistic AI and its implications on global SCM practices are attempted with this research.

Sujatmiko, Krisnanto, Sasmita, & Wahab (2024) had done a conceptual analysis on global supply chain management & its implications. This study is a detailed investigation into various trends, challenges & strategies. This study is qualitative and quantitative in its approach as it evaluates the studies done earlier. In this study it is stated that the adoption of AI & block chain technology has modified the modern SCM practices. However the role and impact of holistic AI on global SCM practices and effective management towards 2035 were not researched as this study is an attempt on the same.

Figueira-de-Lemos, Silva, Pinto, & Kury (2024) had done research on impact and effects of Covid on global supply chain management and practices. It was found in this study that Covid had affected the global supply chain management. It is stated in this study that global companies have responded with mitigation strategies which has led to supply disruptions all over the world. It is also stated in this study that the global supply chain was restored after a short period of closure which caused huge supply chain problems. However it is evident that the role and impact of holistic AI on global supply chain and management were not researched as this study is an empirical attempt on it.

Koberg & Longoni (2019) had done a systematic literature review on global supply chains. This review assesses the role and impact of sustainability in global supply chains, practices & management. This paper evaluates the various academic researches on global supply chains for the last 15 years. In this study it is found that local firms are connected with multi-tier suppliers who are either managed directly or through third parties. In this study it is found that sustainability could be the key driving factor for global supply chain which could help them to achieve competitive advantage with profits. In this study it is stated that local firms can achieve sustainability by having greater and effective networking with global supply chains which can also provide them cost advantage and increased profits. However it is found that holistic AI and it's determinal impact on Global supply chain management practices has not been empirically researched as this research is an attempt on it.

This section provided an overview of researches which have done on global SCM. The next section would deal with a comprehensive literature review on AI and global SCM practices.

D. AI & Its Impact on Global SCM Practices

Shamsuddoha *et al*. (2025) had done research on various aspects of supply chain management practices which has revolutionized the whole world. This study evaluates the role of AI and its impact on supply chain automation as it facilitates real time information flow across global supply chain and its effective management. The below Table 1 is a systematic literature review analysis of 383 peer-reviewed articles which covers a period of 2017–2024.

Table 1. Key themes of supply chain & technology (Shamsuddoha *et al.,* 2025)

Year Span	Theme	Description/Focus
2017 to 2021	Augmented Supply Chains	It Focused on the early developments in the automation and digitization in the supply chain management.
2019 to 2024	Intelligent Automation and the Supply Chain Digitalization	It Explored the incorporation of AI and robotics the in automation processes among several industries.
2020 to 2024	Disruptive Technologies in Global Supply Chains	It Highlighted the impacts of the Industry 4.0 technologies such as the IoT, AI, and Blockchain on logistics and operations.
2021 to 2022	Resilience and Adaptation in the Supply Chains Post-COVID-19	It discussed the supply chain resilience, that was driven by lessons from the pandemic, with the AI and the other cutting-edge tools.
2022 to 2024	Sustainability and the Green Supply Chain Management	It Focused on applying IoT and AI for environmental sustainability and the green supply chain practices.
2023 to 2024	AI-Driven Enhancements for the Supply Chain Efficiency	The Articles covered the AI-driven efficiency optimization, robotics, and intelligent automation in SCM.
Above 2024	The Future of Smart and Digital Supply Chains	The Research on predictive analytics, generative AI, and cognitive tools shapes the next-gen supply chain systems.

It is evident that AI has emerged as the futuristic promising technology towards 2035 during 2023 to 2024 as we could find huge research articles during this period.

It is also evident that research articles have not been done on Holistic AI and its integrative impact on global supply chain management and practices with a practical implication towards 2035 has not attempted as this study is an attempt on it.

Talwar and Sachdev (2024) had done an analytical study on impact of AI and its effects on supply chain management. This study has done as case study with a critical assessment on Amazon and its functioning.

In this study it is stated that with the introduction of AI in supply chain management practices could cause challenges on planning, scheduling of supply along with optimization and transportation. In this study it is found that AI has increased commercial value in supply chain operations for Amazon. It has simplified data management procedures, decision making as it has reduced operational expenses through automation. However it is also evident that the role and impact of AI on global supply chain management process with a futuristic implication towards 2035 has not been empirically researched as this study is an attempt on it.

Belu & Marinoiu (2025) had done a Bibliometric review on the role of AI in supply chain management practices. This study used VOSviewer and RStudio Bibliometrix Software Tools for analysis as it also has enabled clarity and purposiveness to this research. This study is an analysis of 400 scientific research papers which has been done during 2010 to 2024 published in Scopus index.

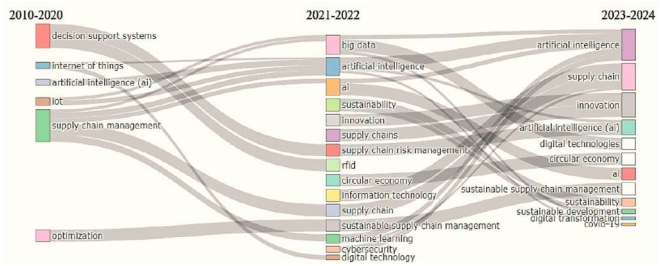

Fig. 3. Bibliometric review on AI in supply chain management (Belu & Marinoiu, 2025).

It is evident from this research that AI has emerged as the most prominent research area by 2023. It is also evident that empirical studies are not done, which could connect AI & global SCM practices and it has to be done towards sustainability and superior performances with profits towards 2035. Researches on AI and its implications on futuristic progressive strategies and solutions were not done as this research is the first attempt on it. To reduce all these research gaps this research is an attempt which can reduce with empiricity and give clarity and purposiveness to future academic research scholars as well.

Teixeira *et al.* (2025) had done systematic literature review on AI & SCM practices. This study provides an intelligent SCM practice and outcome which can provide directives for future also. This study also measures the AI contributions towards SCM process and management as it has been found to be significant and progressive. In Fig 3 also evaluates the role of AI in global SCM management as it measures it on resilience, optimization of SCM process & mechanisms along with implementation related issues. This research is an effective synthesis on researches done on AI & global SCM from 2021 to 2024. This study uses PRISMA analysis as it provides bibliometric & content analysis. It is found in this study that AI leads to superior SCM performances and outcomes. However the role and impact of Holistic AI on global SCM management and practices has not been researched as this research is an attempt on it.

Hamdaoui & Aknin (2025) had done an evaluative research on the role and impact of AI on SCM finance. This study focuses on the changes and challenges which prevail due to industry 5.0. This study has been done as systematic literature review. Research papers confined to Scopus index has been taken and evaluated using VOS viewer. In this study it is found that AI leads to superior performances of SCM finance as well. In this study it is found that there are numerous implementation issues as the problem of heavy investments, change resistance, lack of expertise in AI mechanisms, security and privacy related aspects, systems integration and reliability of data quality dimensions continue to haunt effective Global SCM practices. However the role and impact of holistic AI on integrative global SCM management practices has not been researched as this research is an attempt on it.

E. Research Gaps

1. It is found that research do establish a positive relationship between AI and SCM practices as research are minimal in the global context
2. It is found that empirical studies on global organizations and AI and its implications regarding Global SCM practices are very minimal
3. Although studies are conducted on AI and global SCM practices, the role and impact of AI as a holisitic integrative concept has not been researched before.
4. It is also found that AI, global SCM practices has been researched but the integrative role of global SCM practices are not been researched
5. Researches have done on AI and global SCM practices as futuristic research towards 2035 and its implications were not done before
6. Researches have not provided futuristic strategies and directives for global SCM practices towards 2030 and its implications with a holisitic AI orientation as this study is an attempt to reduce all these research gaps which are evident and prominent now.

This research is an attempt to reduce these prominent research gaps empirically as it would provide new impetus, directives and strategies towards 2035.

III. Data Analysis and Interpretations

Table 2. AI solutions and positive impact on global SCM practices (Shamsuddoha *et al.*, 2025)

Company	Application Area	AI Solution	Impact	Reference
Amazon	Demand Forecasting	Predictive analytics for customer demand	Improved inventory management and reduced stockouts	(Rathod & Kumar, 2021)
Walmart	Warehouse Management	Symbotic robotic systems for sorting and distribution	Enhanced fulfillment speed and reduced errors	(Nair, 2024)
FedEx	Logistics and Distribution	AI-powered route optimization and real-time delivery adjustments	Cost savings and faster delivery times	(Lyster, 2012)
Siemens	Production Planning	AI-based scheduling and predictive maintenance	Increased efficiency and minimized downtime	(Ramachandran, 2024)
Procter & Gamble	Real-Time Decision-Making	AI-driven global supply chain monitoring	Improved operational agility and disruption management	(Dragicevic & Pereau, 2024)

Table 3. Specific challenges and impacts (Shamsuddoha *et al*., 2025)

Category	*Specific Challenges*	*Impact*	*Potential Solutions*
Technical (Sharma, Luthra, Joshi, & Kumar, 2022)	High implementation costs	The financial strain on SMEs	Government subsidies, phased implementation strategies
	Lack of infrastructure	Incompatibility with existing systems	Investment in data standardization and interoperable platforms
	Complexity of AI integration	Inefficient AI models due to poor data quality	Establishing robust data management systems
Ethical (Osasona *et al*., 2024)	Bias in AI algorithms	Discriminatory decisions in supplier selection and	Regular AI audits and diversity-focused algorithm design
		forecasting	
	Data privacy concerns	Risk of data breaches and non-compliance with laws	Advanced encryption and adherence to privacy laws (e.g., GDPR)
	Workforce displacement Job losses in traditional roles		Reskilling and upskilling programs for employees
Regulatory (Igbinenikaro & Adewusi, 2024)	Inconsistent global data sharing regulations	Difficulty in cross-border supply chain operations	Harmonization of international data-sharing laws
	Industry-specific compliance requirements	Increased operational costs for adhering to regulations	Developing transparent and auditable AI systems
	Cross-border trade policies	Complexity in navigating tariffs and customs regulations	AI systems designed to account for trade policy variations
Organizational (Booyse & Scheepers, 2024)	Resistance to change	Employee reluctance to embrace AI	Comprehensive change management and employee engagement initiatives
	Lack of skilled personnel	Inability to develop and maintain AI systems	Partnerships with educational institutions and AI training programs
	Leadership challenges	Hesitancy in investing in AI-driven transformation	Awareness campaigns to educate senior management on AI's potential

In Table 2, found from this research that AI has a strong positive impact on SCM practices as its impact on sustainable global SCM practices has been found to be positive as well.

It is also evident that there are various challenges and barriers in AI adoption towards global SCM implementation which has been clearly explained below which is in Table 3:

It is found that in effective implementation of AI in global supply chain process–technical, ethical, organizational & regulatory challenges do still prevail. The role and impact of various challenges of AI oriented global supply chain and management practices has been proven to be manageable as it can lead to sustainable global supply chain management towards 2035.

It is also evident that an effective AI implementation across the global supply chain process requires an implementable framework which can give directions, strategies and approaches towards 2035.

Table 4. Criterion and description (Shamsuddoha *et al*., 2025)

Criterion	Description
Functionality	Can the tool handle core supply chain tasks like forecasting and routing?
Scalability	Does the technology support long-term business growth?
Integration	Is the AI tool compatible with existing systems?
Vendor Support	Does the provider offer robust customer support and regular updates?

In Table 4, found that the futuristic AI oriented global SCM practices must focus on functionality, scalability of operations with integration. This is possible only with an effective vendor management and support practices which can ensure sustainability of Global SCM towards 2035.

A. Integration of AI & Global Supply Chain Management Practices

Integration is the effective solution which can give new hopes and possibilities when AI technology is effectively merged with global SCM operations which can be enhanced more. This also involves various stages like:

- Pilot testing and implementation
- Incremental deployment
- Critical evaluations
- Monitoring and adjustments
- Full scale implementation

These steps have to be done with care and attention which involves team work and shared organizational perspective. This research emphasizes a humanistic, humane involved global SCM which could be facilitated with a holistic AI towards 2035.

Table 5. AI and global supply chain: Key success indicators (Shamsuddoha *et al.*, 2025)

KPI	Description
Cost Savings	Reduction in production and logistics expenses
Lead Time Reduction	Shorter time from order placement to delivery.
Customer Satisfaction	Improvement in Net Promoter Score (NPS) and customer retention rates.
Sustainability Metrics	Decrease in greenhouse gas emissions and material waste.

It is evident on Table 5, that a successful AI oriented global supply chain and management practices could lead to cost reduction, performance efficiency and effectiveness, customer satisfaction, reduction of lead time in supply chain process and sustainability towards 2035. It is empirically

validated in this study that a holistic AI leads to superior global supply chain management and performances which also has a positive organizational impact. It is also concluded that this holistic AI technology would be the integrative factor for global supply chain management and operations towards 2035.

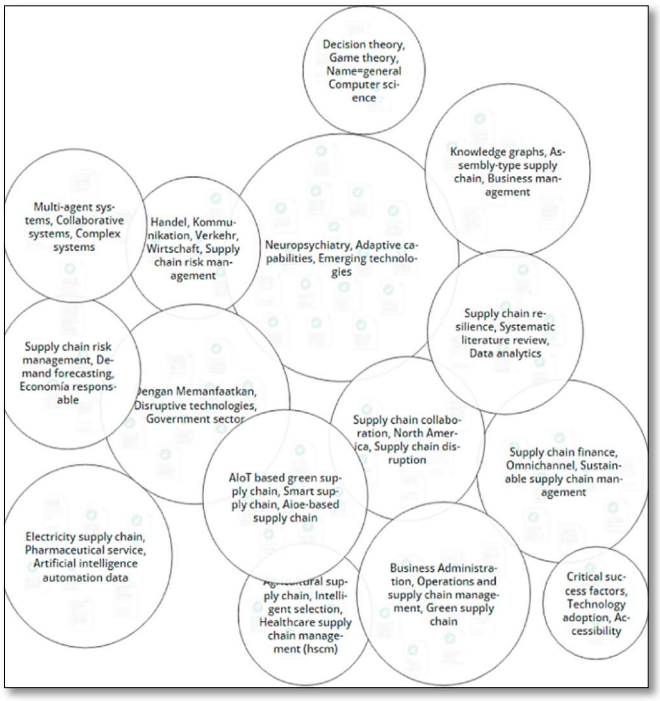

Fig. 4. Knowledge map for AI oriented SCM practices and implementation 2025 (Belu & Marinoiu, 2025).

In Fig. 4, It found that multi agent aspects, technology adoption challenges, techno accessibility challenges, supply chain resilience, supply chain risk management practices, decision theory, AI and IoT based supply chain and management practices are evolving towards 2035. These dimensions and aspects have to be explored and investigated which can provide purposive outcomes towards 2035.

Fig. 5. Focused AI oriented Global SCM strategy for 2035 (Belu & Marinoiu, 2025).

In Fig 5, It found that futuristic AI oriented global SCM strategy has focused on quality control, analytics, sales and marketing, supplier relationship, inventory, warehouse, demand forecasting, route optimization issues. This can provide a new strategic impetus for AI oriented global SCM strategy for future towards 2035.

B. AI and Positive Impact on Global SCM Strategy with Resilience: 2025

Xu *et al.* (2025) had done research on the role and positive impact of AI on global supply chain resilience. In this study it has been found that AI leads to positive global supply chain resilience which can impact towards 2035. This study also finds a positive relationship of CEO sport experience and supply chain resilience. In the modern volatile environment, AI plays an important and critical role to shape Global SCM strategy as it also provides resilience which can lead to sustainability for 2035. It has been found in this study AI provides resistance and recovery capacity which was enhanced as it leads to resilience among Chinese organizations. In this study it has been found that AI leads to Global SCM resilience as it enhances efficiency in operations, optimized resources, effective information management practices as knowledge spill over in supply chain could be greatly increased among global organizations.

C. Intelligent AI Oriented Global SCM Framework & Approaches 2025

Teixeira *et al.* (2025) had done systematic literature review on AI & SCM practices. This study provides an intelligent SCM practice and outcome which can provide directives for future also. In this study the design of an intelligent holistic AI which leads to adaptive and responsible global SCM practices is found to be possible and practically implementable in every sense which has to be done towards 2035.

It is evident that AI has a holistic approach which leads to integrative global SCM practices and strategies which can have futuristic positive implications towards 2035.

D. AI Integration & Strategic Decision Making in Global SCM Practices: 2024 Study

Vummadi & Hajarath (2024) had done research on effective integration of AI & ML for strategic supply chain management and enhancement. This study finds that AI and ML positively contribute to strategic decision making which also provides agility in strategic operations based on Fig. 6.

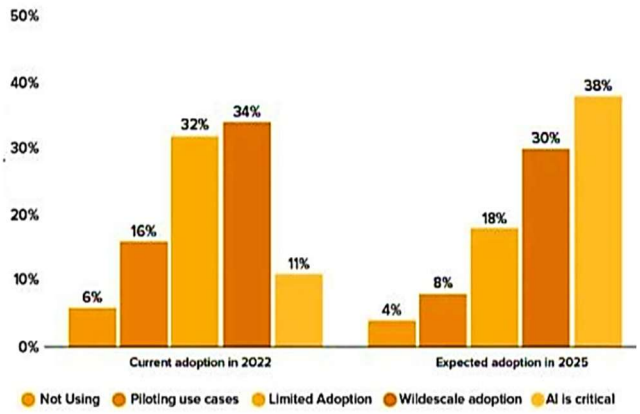

Fig. 6. Current status of AI usage in Global SCMs (Vummadi & Hajarath, 2024).

It could be seen that 32% of global companies are having limited adoption of AI and 34% of the companies do have wide scale adoption of AI in Global SCM practices which has led to enhanced strategic decision making and outcomes.

It has also been stated in this study that enhanced AI with predictive analytics and block chain technology leads to enhanced decision making for Global supply chains. This purposive use of AI would be determinal as it would continue in future towards 2035.

E. Research Design

This research is exploratory and conclusive in its approach. This research is exploratory as it explores the various aspects and dimensions of AI and its integrative impact on Global SCM practices and management. This study is conclusive as it would provide practical strategies and solutions for effective global SCM practices with a holistic AI approach. This study is empirical and quantitative. In this research secondary data has been used. The Secondary data is confined to research from the year of 2024 to 2025. This study uses interpretive and evaluative analysis as the data is with new perspectives and orientations which could give new directions for Global SCM and its functioning. This study is about leveraging the AI for strategic decision making in the global supply chain management. This study would also provide practical recommendations with specific conclusions. This study determines current status of the AI on the Global SCM practices. It also assesses the challenges towards the AI for Global SCM practices. Also, this study provided futuristic strategies and solutions for the Global SCM practices with AI technology.

F. Hypothesis Development & Testing

H_0: AI has no determinal Role in Demand Forecasting and Inventory Management

Table 6. Chi-Square Tests (V & Krisknakumari, 2024)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.393[a]	4	0.052
Likelihood Ratio	10.010	4	0.040
N of Valid Cases	100		

a.1 cells (11.1%) have expected count less than 5. The minimum expected count is 4.20.

The Table 6, represents The Chi-Square test result ($p = 0.052$) suggests a marginally non-significant association, while the likelihood ratio test ($p = 0.040$) indicates a potential significant relationship between AI and demand forecasting with inventory management.

This hypothesis is rejected as we do find a significant positive relationship between AI and demand forecasting with inventory management which lead to effective global SCM strategies and management practices.

H_1: AI leads to effective Route Optimization and Fleet Management

Table 7. One-sample effect sizes (V & Krisknakumari, 2024)

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Data used for ai driven route optimization	Cohen's d	1.090	2.082	1.730	2.430
	Hedge's correction	1.099	2.066	1.717	2.411

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation

Hedge's correction uses the sample standard deviation, plus a correction factor.

The one-sample t-test results demonstrate a statistically significant contribution of AI to route optimization and fleet management; Table 7 represents a mean score of 2.27. The large t-statistic (20.818) and highly significant p-values ($p < 0.001$) confirm that AI has a meaningful impact.

The large effect sizes (Cohen's $d = 1.090$ and Hedges 'g = 1.099) suggest that this contribution is not only statistically significant but also practically significant, with the mean AI contribution being more than one standard deviation above the baseline value of 0. The confidence intervals further support the robustness of these findings which is linked with Table 8.

This hypothesis is accepted as we could find that there is a significant relationship which is established between AI usage and effective Route Optimization and Fleet Management.

H_0: There is no use of AI in Predictive Maintenance

Table 8. ANOVA (V & Krisknakumari, 2024)

Project	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.933	2	0.467	1.909	0.154
Within Groups	23.707	97	0.244		
Total	24.640	99			

Table 9. ANOVA and Effect sizes (V & Krisknakumari, 2024)

		Point estimate	95% Confidence Interval Lower	upper
PROJECT	Eta-squared	.038	.000	.123
	Epsilon-squared	.018	−.021	.105
	Omega-squared Fixed-effect	.018	−.020	.104
	Omega-squared Random-effect	.009	-.010	.055

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model

In Tables 8 and 9, The p-value from the ANOVA (0.154) suggests there is no statistically significant difference between the means of the three effectiveness categories it also indicates that AI leads to predictive maintenance.

This hypothesis is rejected as we could find that AI usage leads to predictive maintenance.

G. *Practical Recommendations*

1. It is evident that holistic AI is the determinal technology which would drive global SCM and management practices towards 2035.
2. Organizations must continue to invest their resources towards AI which can lead to potential positive benefits for successful global SCM practices and superior performances
3. There is a need for an assessment of AI and its impact on Global supply chain practices which could be enabled with feasibility and effectiveness study across originations.
4. When these learning experiences of AI and global SCM is shared on open platforms, it would enable an effective implementation and a global purposive integrative effort on it. This learning and sharing of AI & global SCM practices is the need of the hour as a universal coordinate and coordination is needed in this direction.
5. There is a need to regulate the AI implementation issues in global SCM on ethics, transparency which could lead to sustainability towards 2035. Clarity is needed on these issues as specific guidelines, framework and implementation methods has to be finalized, discussed and approved by global organizations
6. A global coordinate on AI and global SCM practices with an effective coordination would lead to effective implementable strategies towards 2035.
7. Mutually inclusive collaborative AI oriented global SCM adoption and practices would reduce learning curve as successful methods and strategies could be implemented across the globe.
8. There is a need to conduct more purposive academic researches on multi agent aspects, technology adoption challenges, techno accessibility challenges, supply chain resilience, supply chain risk management practices, decision theory, AI and IoT based supply chain and management practices are evolving towards 2035 which is the need of the hour.
9. There is a need for futuristic AI oriented global SCM strategy as it has to focus on quality control, analytics, sales and marketing, supplier relationship, inventory, warehouse, demand forecasting, route optimization issues. This can provide a new strategic impetus for AI oriented global SCM strategy for future towards 2035
10. Global SCM companies must have information sharing practices along with knowledge spill over which could enhance resilience, adaptability as it would lead to sustainability towards 2035
11. The need for an intelligent holistic AI which can lead to adaptive and responsive Global SCM practices with proactiveness has to be designed and implemented which is practically possible in every way for global industries.

IV. Conclusion

AI is an all purposive, immersive emerging technology which is used by global modern industry. AI has increased efficiency of business operations as it has given new strategies, approaches and innovative implementation mechanisms. It is concluded in this study that holistic AI approaches can provide global supply chains with new impetus, novelty and new methods of functioning. It is concluded that AI has increased the efficiency of Global supply chain and its mechanisms. AI oriented approaches has modified global supply chains with integration as it could become the futuristic strategy as well. This holistic AI domination would continue in future also as it would be determinal competitive strategy for global supply chain for increased profits and performances towards 2035.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Mahmoud Mohammed Abduljaleel Mukred proposed the research topic, designed the study, and wrote the manuscript; He conducted the literature review, developed the research framework, and carried out the analysis; Tang Ke Yue supervised the research, provided academic guidance, and reviewed the manuscript with critical revisions and improvements; both authors approved the final version of the manuscript.

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