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Operational Excellence in the Footwear Industry in Eastern Zone of India through Integrated Distribution, and Inventory Strategies: An Analysis of Innovations and Their Effects on Non-Moving Stock

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Abstract

The footwear industry in India, particularly in the Eastern Zone, is experiencing rapid growth but continues to face significant operational challenges linked to distribution inefficiencies and the management of non-moving stocks. Demand fluctuations, seasonality, fragmented distribution channels, and limited adoption of advanced technologies often result in unsold inventory that locks capital and reduces responsiveness to consumer needs. Against this backdrop, achieving operational excellence requires an integrated approach to distribution and inventory strategies that not only improve efficiency but also minimize the risks associated with stagnant stock.

This study explores how innovations in distribution and inventory management contribute to operational excellence in the footwear industry of Eastern India. The research aims to identify key bottlenecks in current practices, assess the causes of non-moving inventory, and examine innovative solutions—ranging from demand-driven replenishment and zone-specific distribution hubs to cloud-based ERP systems, real-time tracking, and data-driven forecasting models. Particular emphasis is placed on the integration of offline retail networks with digital platforms, enabling better stock visibility and faster liquidation strategies through discounting, bundling, and online clearance channels.

The findings highlight that non-moving stock primarily stems from inadequate demand forecasting, inefficient logistics routing, and poor alignment between manufacturing, warehousing, and retail functions. Firms that exhibit operational excellence are those that adopt leaner, technology-enabled systems, leverage regional consumer insights, and create agile, responsive supply chains. Such innovations not only reduce working capital tied up in slow-moving goods but also enhance profitability and resilience in a competitive and dynamic market.

The study contributes to both theory and practice by contextualizing supply chain and inventory challenges within an underexplored region of India while offering practical recommendations for manufacturers, distributors, and retailers. It demonstrates that operational excellence in the footwear sector can be achieved through the synergy of integrated distribution networks, advanced inventory management tools, and innovative stock liquidation practices. Ultimately, these strategies build a foundation for sustainable growth, improved customer satisfaction, and long-term competitiveness in the footwear industry.

Keywords: Operational Excellence, Footwear Industry, Distribution Strategies, Inventory Management, Non-Moving Stocks, Eastern India, Supply Chain Innovation

1. Introduction

The Indian footwear industry is among the world's largest producers, second only to China, and a significant contributor to the economy. With an annual output of over 3.25 billion pairs in 2023, the sector meets both domestic demand and international exports (DCMSME, 2023). Despite this scale, the industry faces structural inefficiencies, particularly in distribution and inventory management. The Eastern Zone of India—comprising West Bengal, Bihar, Odisha, Jharkhand, and Eastern Uttar Pradesh— has strong demand potential yet suffers from fragmented supply chains, inadequate digital infrastructure, and slow adoption of modern distribution models (ACR Journal, 2024). These weaknesses often lead to the buildup of non-moving stocks, which lock up capital, reduce operational agility, and constrain growth.

Industry Overview

India's footwear sector has experienced steady expansion, fueled by rising disposable incomes, urbanization, and fashion-conscious consumer behavior. Table 1 illustrates the production and market growth of the industry over recent years.

Table 1: Footwear Production and Market Size in India (2019–2023)

(Source: DCMSME, 2023; IndianRetailer.com, 2024)

Year	Production (Billion Pairs)	Domestic Consumption (Billion Pairs)	Market Size (INR Billion)	Growth Rate (%)
2019	2.60	2.30	740	8.1
2020	2.45	2.10	680	-5.2
2021	2.75	2.40	820	7.5
2022	3.00	2.60	940	9.2
2023	3.25	2.85	1,080	10.4

While the national trajectory appears robust, the Eastern Zone remains underrepresented in modernization initiatives. The dominance of small retailers and wholesalers limits economies of scale, while weak forecasting tools exacerbate the challenge of non-moving inventory.

Distribution Channels and Shifts

Traditionally, footwear distribution in India has been retail-driven and fragmented, with small, unorganized outlets dominating the market. However, the post-pandemic surge of e-commerce platforms has disrupted the structure, offering opportunities to clear slow-moving inventory through digital channels (Campus Activewear, 2023).

Table 2: Distribution of Footwear Market in India by Channel (2023)

(Source: Campus Activewear, 2023; Business Standard, 2024)

Channel	**Market Share (%)**	**Key Characteristics**
Traditional Retail (Small Shops)	52%	Unorganized, fragmented, price-driven
Exclusive Brand Outlets (EBOs)	18%	Urban-centric, brand-driven
Multi-Brand Outlets (MBOs)	12%	Semi-urban reach, mixed assortments
Online/E-commerce	18%	Fastest-growing, youth-focused

Despite the growth of online channels, integration across offline and digital networks remains weak in the Eastern Zone, limiting efficiency in stock clearance and distribution responsiveness.

Regional Supply Chain Challenges

The Eastern Zone faces unique supply chain obstacles, ranging from logistical bottlenecks to inefficient warehouse practices. Poor digital penetration results in weak forecasting, while lack of synchronization between manufacturers, distributors, and retailers exacerbates stock stagnation (Logicerp, 2024).

Table 3: Key Challenges in the Eastern Zone Footwear Supply Chain
Source: ACR Journal, 2024)

Challenge	Impact on Operations	Prevalence
Seasonal demand fluctuation	Overstocking, stock outs	High
Non-moving inventory accumulation	Tied-up capital, obsolescence	High
Fragmented distribution networks	Delays, higher logistics cost	High
Limited digital infrastructure	Poor visibility, weak forecasting	Medium
Inadequate warehouse practices	Inefficient space utilization	Medium
Poor integration of online channels	Slow liquidation of stock	Medium

Need for Research

Although several studies have examined the Indian footwear market, research focusing specifically on distribution practices and inventory inefficiencies in the Eastern Zone remains scarce. Non-moving stocks, in particular, have been overlooked despite their significant financial impact. This study, therefore, seeks to (1) identify the structural and operational bottlenecks causing inventory stagnation, (2) analyze the role of innovations such as ERP systems, real-time tracking, and forecasting tools, and (3) propose integrated strategies that can achieve operational excellence in this regional context.

Contribution

The paper contributes to theory by addressing a regional research gap in supply chain studies and to practice by offering actionable strategies for manufacturers, distributors, and retailers. By advocating for integrated distribution networks, agile logistics, and innovative liquidation methods, this research aims to support the transformation of the Eastern Zone footwear industry into a more responsive, resilient, and profitable ecosystem.

2. Research Problem

The organized footwear sector of Eastern India is currently beset with mounting operational inefficiencies stemming from distribution, inventory, and technology-use shortcomings. Although the Indian footwear market is growing (valued at USD ~18.77 billion in 2024, with projected growth to USD ~46.02 billion by 2033) , much of that growth is hampered by internal structural issues in inventory control and distribution especially in less developed zones.

In Eastern India (states such as West Bengal, Odisha, Bihar, Jharkhand, and Eastern Uttar Pradesh), firms frequently rely on wholesale-driven distribution channels, with low penetration of direct digital platforms or integrated systems. These channels often lead to low visibility of real market demand, resulting in misaligned supply. Demand forecasting is often weak: many firms do not use data-driven or AI-enabled forecasting tools, and ERP adoption is patchy (especially among small and medium enterprises) . As a consequence, non-moving

or slow-moving inventory accumulates, locking up working capital, incurring storage, obsolescence, and opportunity costs, which damage profitability and financial flexibility.
To manage these inventory burdens, companies often resort to discount or clearance liquidation strategies. While such strategies may alleviate inventory congestion in the short term, they carry serious downsides: they erode brand positioning, reduce margins, risk creating customer expectations of frequent discounting, and can damage long-term value.
Despite the availability of technology-driven inventory and supply-chain tools—such as ERP systems, AI or machine learning for demand forecasting, real-time inventory tracking, and Just-in-Time (JIT) inventory practices—uptake in the Eastern Indian footwear sector remains limited. Barriers include lack of awareness, high upfront costs, insufficient infrastructure, and perhaps low digital maturity in smaller channel partners (wholesalers, retailers).
Therefore, the research problem this study addresses is:
How and to what extent do current distribution and inventory practices in Eastern India's organized footwear industry contribute to non-moving stock and financial inefficiencies, what liquidation strategies are being employed, and what technology and process interventions can be recommended to better forecast demand, reduce non-moving stock, protect brand equity, and improve financial performance?

3. Research Objectives- 1: Current distribution Practices

This study aims is to review the current distribution practices within the organized footwear sector and identify best practices that can enhance distribution efficiency across the Eastern Zone of India.
The distribution structure of the organized footwear sector in Eastern India has evolved from a traditional multi-tiered, offline B2B network toward more integrated and digitally supported models. Historically, distribution involved manufacturers supplying to regional distributors, followed by wholesalers and independent retailers—a system marked by fragmentation, low transparency, and limited responsiveness (Merlo, 2024; Serramalera Guerin, 2020). The dominance of small retailers and the absence of centralized planning contributed to mismatched assortments, stock imbalances, and operational inefficiencies.
With rising internet penetration, smartphone adoption, and digital payment infrastructure, online and hybrid distribution models have gained prominence (Mehra et al., 2024). Platforms like Amazon, Flipkart, and Myntra enable direct-to-consumer access, reducing dependency on intermediaries. Leading brands such as Bata and Liberty increasingly adopt omnichannel frameworks that integrate offline stores with digital channels to enhance visibility, efficiency, and customer reach.
Despite this transition, Tier-2 and Tier-3 locations continue to rely on manual stock keeping and traditional communication channels (Garg et al., 2020) - Inefficient warehousing, low adoption of demand analytics, and weak last-mile connectivity lead to stock misalignments and frequent non-moving inventory. Independent retailers largely depend on experiential or intuitive ordering (Reinartz et al., 2011), contributing to overstocking or stockouts. Global best practices, such as Nike's RFID-enabled tracking and advanced forecasting (Ankomah & Ofori, 2025; Hosen & Anik, 2019), demonstrate the potential benefits of digital tools. Bata's ERP-driven planning further highlights how integrated systems improve stock flow and reduce dead stock (Toukir, 2016). Bridging the digital divide in Eastern India is critical for optimizing distribution efficiency.

4. Research Objective - 2: Factors Behind Non-Moving Stock and Their Impact

The research seeks to analyze the key factors responsible for the build-up of non-moving stock and evaluate its financial impact on footwear companies operating in the Eastern Zone of India.

Non-moving stock is a major operational challenge in the footwear supply chain, particularly in regions characterized by diverse cultural preferences and climatic conditions. The primary driver is persistent demand–supply misalignment, caused by weak forecasting capabilities and limited market intelligence (Mudimba & Nyawira, 2019; Sharif, 2012). Many distributors and retailers continue to rely on intuition rather than data-driven decision-making, resulting in excess stock of slow-moving SKUs and shortages of fast-selling items.

Seasonal and cultural variations across Eastern states—West Bengal, Bihar, Odisha, and Jharkhand—make inventory management more complex. Micro-seasonal factors such as festivals, monsoon timing, and local fashion choices are often not considered in centralized stocking decisions, leading to stock obsolescence (Sarkar, 2011; Viswanathan et al., 2012). Low digital penetration further restricts visibility into real-time inventory performance, as many retailers lack POS systems or digital inventory monitoring tools (Denga & Ahmed, 2023).

Infrastructure limitations, such as poor roads, lack of moisture-controlled storage, and inadequate warehousing, contribute to slow stock rotation and physical degradation, especially during monsoon months. Financially, non-moving stock locks working capital, restricts liquidity, and increases carrying costs (Ekeris, 2023). Heavy discounting used to clear unsold products leads to margin erosion and potentially weakens brand positioning (Adida & Özer, 2019). Fashion-driven footwear categories face rapid obsolescence, making unsold stock particularly vulnerable to value depreciation (Li, 2024). Regional evidence suggests that standardized assortments that ignore local preferences are a major cause of excess inventory.

5. Research Objective -3: Existing Industry Practices for Liquidation

This study examines the existing industry methods used for the liquidation of non-moving stock within the footwear supply chain.

Liquidation remains the most commonly adopted approach for managing non-moving inventory in the footwear sector. Traditional liquidation methods include heavy discounting, end-of-season or clearance sales, product bundling, and bulk selling to wholesalers at significantly reduced prices (Goyal & Heine, 2021; Jain et al., 2024). While these strategies provide short-term relief, they often result in margin erosion, distort pricing structures, and dilute long-term brand equity.

Modern liquidation practices incorporate data analytics and digital tools. Dynamic pricing and algorithmic markdown solutions use SKU-level data, regional performance metrics, and historical demand patterns to optimize discount levels (Müller, 2020). Online flash sales and clearance events on platforms such as Amazon, Flipkart, and Myntra allow regional brands to reach larger customer bases, especially during festive seasons or high-traffic sales cycles (Osei Mintah, 2019). However, adoption remains limited in Eastern India due to low digital capabilities among SMEs and inadequate analytics infrastructure (Sindakis & Showkat, 2024).

6. Research Objective -4: Recommended Strategies for Timely Liquidation and Control of Non-Moving Stock

The research proposes effective and timely strategies for controlling and liquidating non-moving stock to improve overall inventory health and operational efficiency in the footwear industry

Addressing non-moving stock requires an integrated approach that combines data-driven forecasting, localized inventory strategies, and digital supply chain visibility (Wolniak, 2024). AI and ML-based forecasting models enable granular demand prediction by incorporating POS data, seasonal trends, festival patterns, and regional consumer preferences (Sajja et al., 2025). These tools are particularly useful in Eastern India's culturally diverse markets and can significantly improve purchase planning.

Region-specific assortment planning and dynamic replenishment ensure that product mixes align with local needs. For example, higher demand for sandals in coastal Odisha or increased formal footwear purchases during recruitment seasons in urban centers underscores the need for localized stocking (Bernstein et al., 2015; Sarkar, 2011). POS-driven replenishment further enhances sell-through rates.

Geo-tagged inventory tracking improves visibility of stock movement across warehouses, distribution hubs, and retail outlets. This is critical in regions with challenging logistics. Real-time tracking enables timely reallocation of excess inventory, optimization of transportation routes, and prevention of stagnation (Raza, 2016). By integrating forecasting, customization, and visibility tools, footwear supply chains can significantly improve efficiency and minimize non-moving stock.

7. Hypotheses

- H1: Distribution practices positively influence inventory management efficiency.
- H2: Inventory management efficiency reduces non-moving stock.
- H3: Distribution practices directly improve firm performance.
- H4: Inventory management mediates the relationship between distribution and performance.

8. Research Gaps

Despite increasing attention to supply chain management (SCM) and inventory efficiency in recent literature (e.g. Frazzon et al., 2019), several gaps remain—especially with respect to footwear distribution in Eastern India.

First, region-specific distribution models that take into account socio-economic heterogeneity, infrastructure constraints, and consumer preferences in states such as Bihar, West Bengal, Odisha, Jharkhand, and the eastern part of Uttar Pradesh are under-studied. Much of the existing work assumes blanket conditions, centering on metro areas or production hubs, which fails to generalize to semi-urban and rural markets in the East.

Second, there is a weak empirical basis: many studies are theoretical or case-based, with limited dataset-driven, field-level research that disaggregates by geography or market type.

Third, little is known about how distribution effectiveness (e.g. speed, reach, and cost) interrelates with inventory performance (e.g. non-moving stock, overstock, stockouts) in the specific context of footwear in these regions. Fourth, the dynamics of channel conflict between B2B and B2C, especially in hybrid models combining offline (dealers, small retail) and online (e-commerce, D2C), remain under-explored, particularly in markets with low to uneven digital readiness.

Finally, there is a methodological gap: while advanced quantitative techniques such as Structural Equation Modeling, predictive modeling, fuzzy logic systems, etc. have potential for establishing causal relationships among variables like regional customization, stock

performance, consumer behavior, and liquidation efficiency; such methods are rarely used in footwear SCM studies in Eastern India. Addressing these gaps is necessary for generating contextually relevant interventions for inventory liquidation, distribution optimization, and policy design.

9. Data Analysis

Methodology

The study adopted a Sequential Exploratory Mixed-Methods design, integrating qualitative exploration with quantitative validation.

Phase 1: Qualitative Analysis (NVivo – Thematic Coding)

A purposive sample of 15 participants, including supply chain managers, warehouse heads, distributors, and sales executives, was interviewed using a semi-structured guide comprising 16 open-ended questions. Data were coded in NVivo 12 using open and axial coding, generating four dominant themes. Coding frequency was used to quantify emphasis. Key metrics revealed high mention frequencies across themes such as distribution challenges (12/15), liquidation methods (14/15), and technology adoption (10/15).

Phase 2: Quantitative Analysis (Smart PLS – SEM)

A structured questionnaire containing 43 closed-ended questions was administered to 103 respondents drawn through stratified purposive sampling across warehousing, logistics, retail, and distribution functions. The instrument measured four constructs: Distribution Practices, Non-Moving Stock Factors, Liquidation Practices, and Recommendations/Best Practices.

- Measurement Model: Reliability and validity were confirmed with outer loadings >0.70, composite reliability between 0.86–0.89, and AVE between 0.52–0.58.
- Structural Model: Path coefficients ranged from -0.28 to 0.52 with all p-values <0.05, confirming statistical significance. R^2 values demonstrated strong explanatory power: Non-Moving Stock (0.48), Liquidation (0.53), and Performance (0.55). Bootstrapping (5,000 samples) validated the robustness of results.

This design provided both qualitative depth and quantitative rigor, ensuring triangulated and reliable findings.

Results

Qualitative Findings (NVivo Thematic Analysis)

Four key themes emerged:

- Distribution Practices: 12/15 respondents emphasized dependence on wholesalers and distributors, with minimal e-commerce penetration. Innovations such as FIFO, hub-and-spoke systems, and ERP/WMS adoption were noted but limited. Key challenges included fashion volatility (12 mentions) and infrastructure gaps (9 mentions).
- Non-Moving Stock: Fashion changes (13 mentions), poor forecasting (11), and overproduction (9) were leading causes. Financial impacts included increased warehousing costs and capital blockage (11 mentions).
- Liquidation Practices: Discount sales dominated (14/15), with factory outlets and exhibitions as secondary options. Respondents highlighted risks of brand dilution and freight costs.
- Technology/Policy: ERP/WMS adoption was observed in 10/15 cases, while nine recommended demand-sales alignment through policy and technology triggers.

Quantitative Findings (Descriptive Statistics)

- Distribution Channels: Wholesalers/distributors (35%), e-commerce and modern trade combined (32%).
- Forecasting Challenges: Seasonality (39%), fashion changes (37%), manual reliance (9%).
- Non-Moving Stock Frequency: Frequently (43%), very frequently (17%).
- Liquidation Methods: Discount sales (56%), followed by bundling (11%) and auctions (9%).
- Technology Adoption: 42% expressed support for AI and analytics, though 31% remained neutral.

Quantitative Findings (Smart PLS – SEM)

- Distribution significantly influenced non-moving stock ($\beta=0.45$, $p<0.001$) and performance ($\beta=0.30$, $p<0.001$).
- Non-moving stock negatively affected performance ($\beta=-0.28$, $p<0.001$) but positively drove liquidation practices ($\beta=0.52$, $p<0.001$).
- Liquidation practices enhanced performance ($\beta=0.40$, $p<0.001$).
- Recommendations (technology adoption) reduced non-moving stock ($\beta=-0.35$, $p<0.001$), improved liquidation ($\beta=0.42$, $p<0.001$), and enhanced performance ($\beta=0.25$, $p=0.001$).

Discussion

The findings highlight the dominance of traditional wholesale-driven distribution, which continues to constrain efficiency despite some adoption of regional hubs and ERP/WMS. Non-moving stock emerges as a systemic bottleneck, caused by volatile fashion trends, poor demand forecasting, and overproduction. Quantitative evidence confirms its negative impact on performance and its strong linkage to liquidation dependence.

Liquidation practices remain heavily skewed toward discounting, which provides short-term relief but damages brand equity. Diversification of liquidation methods is urgently needed. Technology adoption—AI-based forecasting, ERP/WMS, and JIT—proved statistically significant in reducing inventory inefficiency, enhancing liquidation strategies, and improving overall firm performance, despite organizational hesitancy.

The integrated SEM model validates the causal chain: Distribution inefficiencies → Poor forecasting → Non-Moving Stock → Financial burden → Liquidation dependence, moderated by technology adoption. With 55% of performance variance explained, the model demonstrates strong predictive power.

10. Conclusion and Recommendations

This study provides a comprehensive assessment of distribution and inventory challenges in the footwear industry of Eastern India through a mixed-methods approach. The findings confirm that:

1. Distribution is predominantly wholesale-driven, with limited integration of modern trade and e-commerce.
2. Non-moving stock is a widespread issue, reported frequently by nearly 60% of firms, primarily due to fashion volatility, poor forecasting, and overproduction.
3. Liquidation is largely discount-based (56%), offering short-term relief but eroding brand value.

4. Technology adoption (AI, JIT, ERP/WMS) significantly reduces non-moving stock, strengthens liquidation efficiency, and enhances performance outcomes.

Practical Recommendations

- Diversify distribution by integrating e-commerce, regional hubs, and hybrid models.
- Strengthen demand forecasting with AI-driven analytics and ERP integration.
- Reduce reliance on discount liquidation by developing controlled alternative methods (e.g., bundling, CSR-driven disposal, auctions).
- Foster cultural and organizational readiness for technology adoption to achieve sustainable performance.

This research not only validates the critical role of distribution practices and technology adoption but also provides actionable strategies for reducing non-moving stock and enhancing competitiveness in India's organized footwear industry.

References

1. Adida, E., & Özer, Ö. Pricing and liquidation strategies in retail supply chains. Journal of Retailing and Consumer Services, 49 (2019), 317–329.
2. Ankomah, S., & Ofori, D. RFID-enabled supply chain models in global footwear brands. International Journal of Logistics Systems, 14(1) (2025), 55–72.
3. ACR Journal. Footwear industry distribution and supply chain challenges in Eastern India. ACR Publishing, 2024.
4. Bernstein, F., Modaresi, S., & Schein, A. Dynamic assortment planning and inventory management. Operations Research, 63(3) (2015), 535–549.
5. Business Standard. India footwear industry: Channel-wise distribution and growth trends. Business Standard Publications, 2024.
6. Campus Activewear. Annual Report 2022–23: Retail expansion and e-commerce performance. Campus Activewear Ltd., 2023.
7. DCMSME. Footwear industry report: Production, exports, and MSME participation. Ministry of MSME, Government of India, 2023.
8. Denga, J., & Ahmed, M. Digital inventory information systems and retail performance in emerging markets. International Journal of Retail Technology, 11(2) (2023), 45–67.
9. Ekeris, E. Financial implications of non-moving stock in retail supply chains. Journal of Inventory Management, 8(1) (2023), 22–33.
10. Frazzon, E. M., Silva, C., & Ríos, J. Data-driven supply chain optimization in emerging economies. Journal of Modelling in Management, 14(2) (2019), 453–476.
11. Garg, S., Kaur, H., & Chawla, R. Digital adoption barriers among small retailers in India. Journal of Small Business Strategy, 30(2) (2020), 77–94.
12. Goyal, S., & Heine, K. Liquidation methods and brand equity implications in retail. Journal of Distribution Science, 19(4) (2021), 83–95.
13. Hosen, M., & Anik, S. Forecasting practices and RFID-based logistics in the footwear sector. Journal of Supply Chain Innovations, 6(3) (2019), 122–138.
14. IndianRetailer.com. Footwear market size and retail growth trends in India. 2024.
15. Jain, A., Shukla, V., & Murthy, S. Retail clearance and liquidation strategies in Indian fashion markets. Journal of Business Analytics, 7(1) (2024), 60–78.
16. Li, T. Inventory obsolescence in fashion-driven industries: A review. Journal of Fashion Supply Chain, 3(1) (2024), 1–18.
17. Logicerp. Digital logistics barriers and warehouse modernization in Eastern India. LogisticERP Industry Report, 2024.

18. Mehra, P., Ahuja, R., & Deb, S. Rise of omnichannel models in India's footwear and apparel retailing. Journal of Retail Transformation, 12(1) (2024), 41–55.
19. Merlo, E. Evolution of footwear distribution networks in emerging markets. International Review of Retail, 18(2) (2024), 112–130.
20. Müller, J. Algorithmic markdown strategies in e-commerce. Journal of Retail Pricing Analytics, 5(2) (2020), 90–106.
21. Mudimba, T., & Nyawira, C. Demand-supply mismatch and slow-moving inventory in retail markets. African Journal of Supply Chain Management, 6(1) (2019), 1–12.
22. Osei-Mintah, E. E-commerce flash sales and inventory liquidation effectiveness. Journal of Digital Commerce, 4(3) (2019), 25–39.
23. Raza, S. Impact of real-time tracking on supply chain visibility. International Journal of Logistics Management, 27(3) (2016), 1032–1053.
24. Reinartz, W., et al. Retailing innovations and technology adoption. Journal of Retailing, 87(S1) (2011), S53–S66.
25. Sajja, G., Rana, S., & Paul, S. AI-based forecasting and demand planning in supply chains. International Journal of Artificial Intelligence Applications, 16(2) (2025), 98–118.
26. Sarkar, A. Consumer preferences and micro-seasonal demand patterns in Indian footwear markets. Journal of Consumer Behaviour, 10(4) (2011), 211–222.
27. Serramalera Guerin, L. Footwear retail formats and distribution evolution in global markets. Retail Insights Quarterly, 5(1) (2020), 33–48.
28. Sharif, A. Demand forecasting errors and inventory inefficiencies in fashion retail. International Journal of Productivity and Performance, 61(7) (2012), 752–769.
29. Sindakis, S., & Showkat, E. Digital transformation readiness in SMEs. Journal of Innovation & Management, 13(1) (2024), 44–61.
30. Toukir, T. ERP integration and inventory optimization: A case study of Bata. International Journal of Operations Management, 4(2) (2016), 50–62.
31. Viswanathan, M., Rosa, J., & Ruth, J. Inventory planning in low-income markets. Journal of Retailing and Consumer Services, 19(4) (2012), 502–511.
32. Wolniak, R. Digital supply chain innovation and operational excellence. Journal of Operations & Quality Management, 32(1) (2024), 1–16.
33. Christopher, M. Logistics & Supply Chain Management. Pearson, 2022.
34. Chopra, S., & Meindl, P. Supply Chain Management: Strategy, Planning, and Operation. Pearson, 2023.
35. Ivanov, D., & Dolgui, A. Digital resilience in global supply chains. International Journal of Production Research, 60(5) (2022), 1505–1522.
36. Li, X., & Wang, Y. Omnichannel distribution challenges in footwear retail. Journal of Retail Technologies, 14(2) (2023), 71–89.
37. Kumar, R., & Singh, J. E-commerce logistics bottlenecks in India. International Journal of E-Business Logistics, 9(1) (2024), 33–49.
38. Bose, S. Footwear retail growth patterns in Tier-II and Tier-III cities of India. Retail Growth Review, 7(1) (2023), 92–108.
39. Malhotra, A. Impact of GST and compliance on footwear distribution. Journal of Indian Trade & Commerce, 11(3) (2022), 145–158.
40. Rathod, H., & Patil, S. Warehouse inefficiencies and non-moving stock in apparel and footwear. Indian Journal of Logistics Studies, 5(2) (2020), 121–138.
41. Zhang, Q., & Ma, L. Predictive analytics for fashion inventory planning. Journal of Intelligent Supply Chains, 8(4) (2023), 201–218.

42. Das, P. Retailer challenges in managing slow-moving inventory in India. Journal of Retail Operations, 13(1) (2022), 54–72.
43. Gupta, M., & Sharma, V. Reverse logistics in footwear industry. Journal of Sustainable Logistics, 6(3) (2024), 69–84.
44. Majumdar, R. Consumer buying behaviour in footwear retail. Indian Journal of Consumer Studies, 17(2) (2023), 102–118.
45. Singh, K. Role of distributors in Tier-II footwear markets. Journal of Distribution Studies, 12(2) (2024), 81–97.
46. Chatterjee, S. Digitalisation impact on Indian retail supply chain. Retail Modernization Review, 9(1) (2023), 24–41.
47. Ahmed, S. Inventory ageing analysis in fashion and footwear. Journal of Supply Chain Decisions, 6(1) (2019), 1–15.
48. Mishra, B. Warehouse automation trends in India. Indian Logistics Review, 8(3) (2024), 58–73.
49. Mittal, P. Sourcing and procurement practices in Indian footwear manufacturing. Manufacturing Insights Quarterly, 15(1) (2023), 111–128.
50. Bose, A., & Chahal, R. Online vs offline fulfilment efficiency in footwear. Journal of Digital Retailing, 7(2) (2024), 45–62.