THE INFLUENCE OF TECHNOLOGICAL ADVANCEMENTS IN INVENTORY CONTROL ON DISTRIBUTION EFFICIENCY AND CUSTOMER SATISFACTION: A SYSTEMATIC LITERATURE REVIEW

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Abstract. *In today fast paced and technological era and sophisticated distribution environment, an effective inventory management is important to achieve operational excellence and ensuring customer satisfaction. This study provides a review of existing literature on how technological advancements have revolutionized inventory control in distribution and effects to its customer satisfaction. Using the PRISMA method, we analyzed 61 articles published between 2015 and 2025 to understand the impact of these the technologies advancement on distribution efficiency and customer outcomes. The findings consistently show that adopting AI, RFID, Blockchain and IoT systems significantly enhances operational performance by improving inventory visibility, reducing lead times, minimizing errors, and enabling real-time decision-making. These improvements lead to higher levels of customer satisfaction so it can give more accurate deliveries, quicker response times, and improved service reliability.*

Keywords: *Customer Satisfaction; Digital Transformation; Distribution Efficiency; Supply Chain; Systematic Literature Review; Technological Advancement*

1. INTRODUCTION

This research investigates the impact of technological advancements in inventory management on distribution efficiency and customer satisfaction within the context of logistics. As market demands and globalization increasing, technology's significance in inventory management is paramount for competitive and operational efficiency. This systematic literature review seeks to consolidate current research on how technological advancements in inventory control can enhance distribution processes and customer satisfaction.

Effective and efficient inventory management is very important for enhancing company performance and financial competitiveness across various industries, as it directly impacts supply chain performance and firm profitability (Farah et al., 2024; Saha et al., 2024) Effective inventory control facilitates timely order fulfillment, reduces stock levels, and improves operational efficiency, essential for customer satisfaction and business success (Kumar, N., Rabbani, Q., & Khan, N. A., 2024).

Sophisticated inventory system management, including deep reinforcement learning and real-time analytics, markedly improve operational efficiency by promoting effective information dissemination and supporting customized inventory approaches (Farah et al., 2024) Innovative technology in logistics, including route optimization and real time tracker systems, are significant for reducing delivery lead times and improving supply chain management, therefore enhancing customer satisfaction (Lagorio et al., 2019).

The adoption of new technologies in logistics and inventory management has been linked to increased efficiency of processes, reduced costs, and improved relationships among supply chain actors, ultimately enhancing overall business performance (Lagorio et al., 2019) Efficient supply chain and logistic, supported by advanced inventory control,

are vital for ensuring inventory availability and customer satisfaction, which are key drivers of business growth).

While technological advancements gave other significant benefits, they present challenges such as high initial costs, data trustworthy issues and complexity of the technologies. These factors must be carefully managed to fully realize the potential of advanced inventory management practices in enhancing distribution efficiency and customer satisfaction (Farah, M., Mohamud, I. H., Mohamed, M. A., & Jakuula, H. M., 2024).

In summary, the evolution from traditional inventory management methods to technology-enhanced systems represents a critical development in the distribution sector. By embracing AI, Blockchain, RFID, IoT technologies, companies can attain superior operational effectiveness, diminish expenditures, and amplify customer contentment, thereby establishing a competitive advantage in the contemporary commercial arena.

2. LITERATURE REVIEW

According to finances online the supply chain industry continues to face a wide array of challenges, ranging from limited visibility and fluctuating consumer demand to increasing delivery costs and rising global competition. Data from recent years highlights that visibility (21.1%), inventory management (13.2%), and adapting to changing customer expectations (27%) are among the most pressing issues (eft, 2018; GEODIS, 2017). These items reveal a importance for supply chain strategies that prioritize agility, transparency, and data-driven decision-making. Also 70% According to finaces online of industrial analyst confident that supply chain will play a significant role industry in upcoming years.

Current inventory management systems are quickly evolving through the combination between technologies such as IoT, artificial intelligence, and cloud system, which are poised to enhance both performance and cost-effectiveness for businesses (Fengjiao & Xiuqing, 2020) Technological advancements enable real-time tracking, predictive analysis, and automated decision-making, optimizing stock levels and minimizing operational costs (Ogbo et al., 2014; Srinivasan et al., 2017). Inventory management is also crucial in logistics, affecting how well products are stored, how fast they move, the quality of service, and how much energy and money are spent (Statista. 2021). A significant number of supply chain executives are already moving in this direction, with over half planning to invest in omnichannel fulfillment, demand forecasting, inventory management, and real-time visibility (Statista. 2021).

Implementing a flexible and responsive inventory control system is not merely an operational adjustment but a strategic imperative for organizations aiming to bolster their overall performance (eft. 2018) Ultimately, these technological innovations promise to reshape inventory management into a more responsive, efficient, and customer-centric function (GEODIS. 2017).

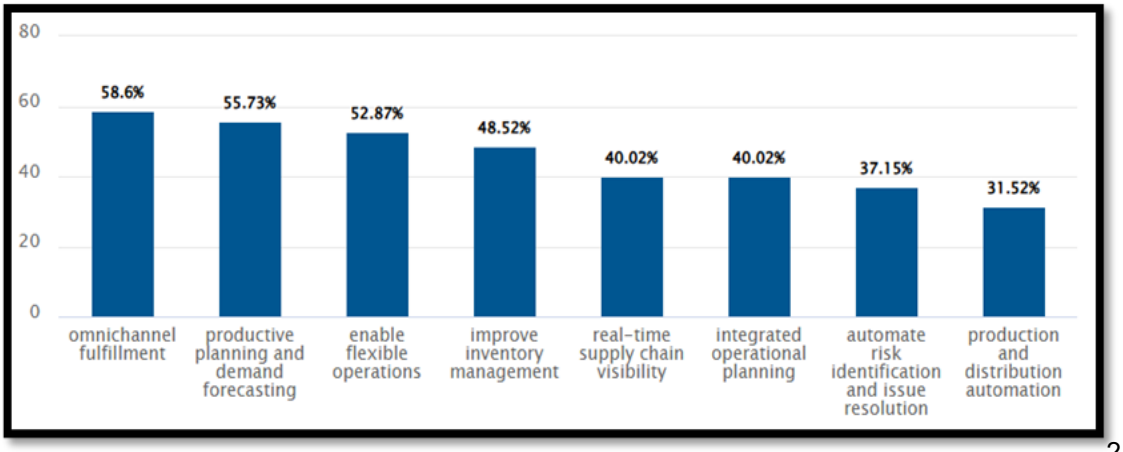

Figure 1. Retail Supply Management Areas for More Investments in 2021
(Source: Statista, 2021)

The assimilation of sophisticated technologies into inventory management systems is a must in this era and effectively endeavoring for companies to sustain a leading advantage in the emerging and flexible market environment (Febriani, A., Sopha, B. M., & Wibisono, M. A. 2022). The ability to efficiently manage inventory directly impacts distribution efficiency, which in turn significantly influences customer satisfaction levels (Ugbebor et al., n.d.) inventory management traditional approaches, which often depends on historical data and forecasting, are becoming increasingly insufficiate in the face of volatile demand patterns, shorter product lifecycles, and the proliferation of omnichannel distribution strategies (Febriani, A., Sopha, B. M., & Wibisono, M. A. 2022). Technologies facilitate real-time product tracking, more dependable forecasting, and proficient inventory administration, guaranteeing that the commodities are dispatched to consumers punctually and in accurate quantities (Anurag, A. S., & Johnpaul, M.2024; Holloway, S. 2024).

Besides that, the technologies is improved Distribution Efficiency so Real-time tracking and predictive analytics enable organizations to streamline distribution processes, reducing delays and operational costs (Udeh et al., 2024; Ikevuje et al., 2024). By ensuring timely delivery and accurate order fulfillment, these technologies improve customer satisfaction and loyalty (Holloway, 2024); Yogananthan et al.,2024). Entities that capitalize on these technologies acquire a competitive advantage by providing exemplary service and efficacy within their distribution networks (Akanbi, L., Adenuga, K. I., & Owolabi, H. A. 2023; Eyo-Udo, N. L. 2024).

3. RESEARCH METHODS

Systematic literature review (SLR) is a method to collect, evaluate, and conclude research on a specific topic. The Factors of the methods include a defined research question, comprehensive research and finding strategy, inclusion and exclusion criteria, data mining, quality assurance, and synthesis of findings. PRISMA or referred as Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA factors enhances the quality of research by providing a standardized checklist and flow diagram that guide researchers in reporting their methods and findings more accurate (Fengjiao & Xiuqing, 2020).

Research Guideline

To guide the research, the following research guideline (RQs) were developed:

- RQ1: What technological advancements have been applied in inventory control systems in recent years?
- RQ2: How do these technologies affect distribution efficiency within supply chain networks?
- RQ3: What is the connection between improved inventory control by technology advancement to distribution effectivity and customer satisfaction?

Search Strategy

A through search was done out across spending major internet databases include ResearchGate, IEEE, ScienceDirect and Google Scholar the search period covered articles published between January 2015 and January 2025. The following search string was applied with keyword variations: inventory control, inventory management technology, technological advancement, digital transformation, distribution efficiency, supply chain performance, customer satisfaction The research is limited to articles, journal and proceedings also was publish in English.

Study Selection Process

The selection process followed by these main steps:

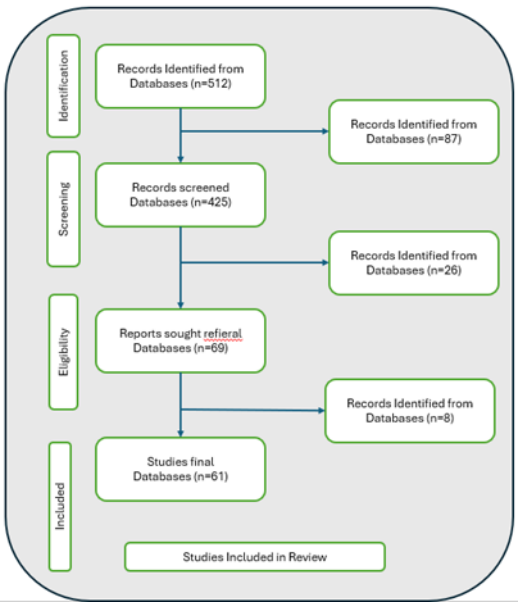

Figure 2. The steps in this systematic literature review (SLR) research

Technological advancements have made it possible to make accurate real time data collection, analysis, and decision-making, leading to improvement of operational efficiency and productivity (Siddiqi et al., 2025; Valle & Oliver, 2020) For instance, AI algorithms can optimize route planning and demand forecasting, reducing costs and waste (Oliveira, R. M. J. de, 2024). Digital transformation enables companies to adapt vast changing market conditions, enhance their flexibility, and quicken their responsiveness to customer needs (Kumar et al., 2024; Valle & Oliver, 2020). Technologies also provides that to the customers such as IoT and AI facilitate proactive demand forecasting, ensuring that customer needs are met promptly (Oliveira, R. M. J. de, 2024; Smerichevska, S., Prodanova, L., & Yakushev, O. 2024). Moreover, digital platforms improve collaboration between supply chain actors, optimizing the flow of information and resources (Shaikh, A. L. 2024).

4. RESULTS AND DISCUSSION

The outcomes of choosing publications predicated on the aims of this systematic literature examination indicate that there are 61 (sixty-one) publications chosen; the years spreading of the studies is described in detail is presented in Table 3 below:

Table 1. Number of studies by years

Year	2015	2022	2023	2024	2025	Grand Total
Article	1	2	6	46	6	61
Portion	2%	3%	10%	75%	10%	

(Source: Data processed by researchers, 2022)

From the information presented above, one can observe the pattern in the quantity of publications from 2015 to 2025 pertaining to Technological Innovations in Inventory Management regarding Distribution Effectiveness and Consumer Contentment.

According to table 1 delineated in Section 2, the quantity of search result manuscripts identified comprises as many as 61 manuscripts pertinent to the search theme regarding the nature of technological progress. The outcomes of the examination predicated on contemporary advancements in the chosen manuscripts encompass the authors, the breadth and implications of the research findings as illustrated in table 3, in addition to

the impact of the technologies and their correlation to distribution efficacy and consumer contentment in table 4.

Table 2. Analysis Results of Each Article

Scope of Study	Author	Conclusions
The research talks about the integration synergy of Technological Advancement	(Sowmya, G et all, 2024).	Technological Advancement significantly enhances supply chain visibility, enables adaptive decision-making
The paper integrates multiple advanced technology such as GPS, IoT, RFID, and blockchain to enhance the delivery tracking system.	(Balobaid, A. S., Shamsudheen, S., & Anoop, A. 2024)	Technological Progression yielding augmented instantaneous transparency, dependability, and refined administration of supply chain procedures,
The paper discusses various known algorithms related to RFID and AI integration	(Bhalla, A. V., Dey, R., Gupta, S., & Thakur, P. 2023).	Technological Advancement enhancing the performance of tracking systems.
The article encompasses case examinations of Arab enterprises that have assimilated artificial intelligence into their logistical frameworks.	(ISMAEIL, M. K. L., & Lalla, A. F, 2024)	The manuscript deduces that although artificial intelligence (AI) presents considerable prospects for augmenting supply chain administration
This article delineates the uses of technologies such as Artificial Intelligence, Internet of Things, Blockchain, and Radio-Frequency Identification.	(Mulla, F. M. 2024).	The cooperation of Artificial Intelligence, Internet of Things, Blockchain, and Automation .
Data preprocessing: The methodology	(Liu, Q. 2024).	The research results the utilization of artificial intelligence and IoT technology can significantly enhance the efficiency
The paper utilizes empirical investigation methods,	(Madhavedi, et al., 2023)	The study asserts that the amalgamation of disruptive technologies with artificial intelligence markedly improves logistics and distribution management.
The research methodology utilized library studies to discern challenges within AIoT-integrated supply chains.,	(Ghahremani-Nahr et al., 2022)	The study identified and examined the barriers impeding the integration of technological advancements.
The investigation culminated in a quantitative research methodology	(Zhang, K. 2024)	AI significantly enhances customer experience
The chapter outlines a holistic AIoT strategy	(Babu et al., 2024)	The chapter underscores the significance of embracing a

		proactive strategy for enhancing networking efficiency.
Extensive examination of numerical data is utilized to investigate the profound effects of Technological Advancement	(Didast, F. Z., Nassih, R., & Ait Elbachir, I. 2024).	The article concludes that AI represents a revolutionary leap forward for the logistics industry,
The investigation employed a questionnaire survey encompassing 281 administrators	(Iyadunni Adewola Olaleye et al., 2024)	The adaptation of AI into the the supply chain chapter
The chapter elucidates the utilization of predictive analytics in inventory and demand forecasting,	(Pasupuleti, M. K. 2024)	The chapter contends that the integration of Artificial Intelligence (AI) within commercial operations significantly enhances operational efficacy.
The investigation analyzes the impacts of integrating AI, Internet of Things, Extensive Data, and Blockchain technologies.	(Agarwal et al., 2022)	The investigation examines the synergistic effectiveness of AI, IoT, Extensive Data, and Blockchaina,
the research utilizes quantitative methods	(Onyusheva et al., 2024)	The research establishes a significant positive correlation among Technological Advancement
This manuscript examines the amalgamation of AI/ML-driven C3I frameworks with IoT-capable vehicles.,	(Singh, S. 2024)	The amalgamation of AI/ML-driven C3I frameworks with IoT-equipped transportation vehicles has the avaibility to markedly enhance supply chain effectiveness
The document investigates adaptation of (AI) into logistics	(Vandana, N. M., & Kumari, S. 2024).	The adaptation of AI into Supply Chain
The examination scrutinizes various artificial intelligence methodologies, encompassing machine learning, natural language comprehension, and robotic process automation.	(Olorunyomi et al., 2024)	the evaluation emphasizes the paramount significance of artificial intelligence in cultivating continuous innovation and competitive advantage in supply chain networks.
The investigation scrutinizes the utilization of machine learning methodologies and comprehensive data examination for accurate demand prognostication.	(Ofodile,et al.,2023)	The amalgamation of artificial intelligence within the Fourth Industrial Revolution (4IR) substantially augments supply chain optimization,
The manuscript elucidates the establishment of Business Intelligence (BI) frameworks that integrate elements for data transformation (ETL.	(Baars, H et al., 2008).	The study posits that the amalgamation of RFID technology with Business Intelligence (BI) frameworks is crucial for enhancing supply chain efficiencies,

The document delineates a Sophisticated Inventory Optimization Framework	(Kota, A. 2025)	The Intelligent Inventory Optimization System substantially boosts operational efficiency and cost-effectiveness while elevating customer satisfaction
The investigation utilizes a methodical examination of astute commercial frameworks, emphasizing the amalgamation of diverse technologies.	(Du, Q. 2024)	The amalgamation of state-of-the-art technologies,
The research utilizes AI-facilitated demand projection techniques to augment inventory administration and consumer contentment..	(Olamide Raimat Amosu et al., 2024)	The execution of AI-driven demand prediction markedly enhances inventory optimization, expenditure reduction, and consumer contentment.
The manuscript scrutinizes contemporary techniques of utilizing artificial intelligence (AI) in inventory administration.	(Zhukov, A. O., Khachaturyan, K. S., & Khachaturyan, S. A. 2024).	The research elucidates that the amalgamation of artificial intelligence innovations,
The study employs an integrative literature review methodology.	(Boussalham, K., & Ejjami, R. 2024).	The paper emphasizes the strategic value of AI in retail logistics
The scholarly article delineates the methodologies employed to investigate the utilization of artificial intelligence in enhancing supply chain inbound .	(Li, Z. 2024).	The investigation contends that the integration of synthetic intelligence within Amazon's storage administration
The study employs a systematic review methodology.	(Siddiqi et al., 2025)	The research establishes that the incorporation of cutting-edge technologies,
The study employs a secondary data-based review methodology	(Tuli et al., 2024)	The benefits included demand forecasting accuracy, and improve operation
The research paper highlights that the implementation of AI in inventory control	(Didast, F. Z., Nassih, R., & Ait Elbachir, I. 2024).	The study reveals that Artificial Intelligence (AI) serves a complex function within the logistics sector
The amalgamation of sophisticated inventory management technologies such as artificial intelligence substantially improves customer contentment metrics.	(Recio-Román et al., 2024)	The incorporation of artificial intelligence (AI) innovations in commercial domains provides advantages..
The implementation of advanced inventory control technologies like AI significantly enhances customer satisfaction levels	(Mehla, A., & Raman, R. 2023)	The incorporation of AI and ML technologies in retail processes enhances inventory oversight

The manuscript underscores that AI-fueled prognostic analytics profoundly augments inventory administration and demand projection in E-commerce.	(Odeyemi et al., 2024)	AI technologies in the USA's E-commerce sector have significantly enhanced customer experiences
The investigation utilizes a methodological framework that amalgamates numerical information from sector analyses with qualitative perspectives derived from specialist interviews.	(Gajjar, T. 2024)	The research deduces that the amalgamation of artificial intelligence and augmented reality technologies in commerce has resulted in enriched consumer experiences,
The research methodology encompassed an exhaustive examination of scholarly literature.	(Ugbebor et al., 2024)	The execution of IoT-driven automated stock control frameworks
Criteria for the selection of literature encompassed manuscripts that concentrated on the repercussions of IoT deployment, technological amalgamation, and the efficacy of inventory systems..	(Singh, N. 2023).	Successful implementation of these systems improvements requires careful assessment of technical feasibility,
This investigation scrupulously analyzes the significant impacts of artificial intelligence and the Internet of Things on inventory control methodologies..	(Mandar et al., 2024)	The amalgamation of Artificial Intelligence (AI) with the Internet of Things (IoT) in inventory administration is poised to revolutionize traditional paradigms.
integrating AI with IoT-enabled supply chains enhances real-time visibility and data processing,	(Ahmad et al., 2024a)	The amalgamation of artificial intelligence paired IoT-enabled supply chains markedly augments organizations' capacity
The study introduces an autonomous inventory replenishment system	(Mandar, et al., 2024).	Technological Advancement reduction in lost revenue when compared to previous studies.
The investigation posits a customized Internet of Things (IoT) framework for storage inventory oversight.	(Winardi et al., 2024)	Technological Advancement significantly enhances operational efficiency and inventory tracking, .
The investigation analyzes the application of Radio Frequency Identification (RFID) technology within the domain of inventory oversight.	(Olugbenga Ayomide et al., 2024)a	The proposed IoT-enabled intelligent Technological Advancement enhances inventory monitoring accuracy and automates processes .
This study investigates the utilization of Radio Frequency Identification (RFID)	(Tan, Y., Yin, H., Yin, Z., & Zhang, J. 2025).	The research underscores the constraints of conventional stock control techniques.,

The study assesses the significant influence of the Internet of Things (IoT) on Supply Chain Administration (SCA).	(Anurag, A. S., & Johnpaul, M. 2024)	Technological Advancement elucidating its transformative impact across multiple industries and its synergy with essential technologies .
The study adopts a qualitative methodology,	(Holloway, S. 2024).	Digital technologies significantly enhance inventory visibility
The study integrates diverse literature,	(Udeh et al.,2024)	IoT enhances transparency in supply chains
The manuscript emphasizes that AI-driven supply chain and logistics administration,	(Ulle et al., 2024)	Technological Advancement is crucial for improving organizational efficacy.
The research talks abput the usage of technologies	(Mulla, F. M. 2024).	Technological Advancement enhances operational efficiency, diminishes expenditures, and elevates customer satisfaction,
The analysis gave an in depth structure for the combination of data gathering	(Ikevuje., 2024).	The research contends that the amalgamation of the Internet of Things (IoT) and analytical data markedly enhances efficacy,
The chapter examines the utilization of artificial intelligence methodologies,	(Akanbi, L., Adenuga, K. I., & Owolabi, H. A. 2023).	Technological Advancement in the supply chain is essential to enable the transparent and efficient use of AI algorithms.
The research used a systematic approach to review literature	(Eyo-Udo, N. L. 2024).	AI markedly elevates supply chain efficacy through enhanced decision-making, cost reduction, and optimized resource distribution.
The study investigates the links of sophisticated technologies,	(Gomes et al., 2024)	The review examines diverse AI technologies,
The examination evaluates multiple AI-enabled innovations,	(Joel, O et al, 2024)	This analysis underscores the critical function of artificial intelligence
The investigation scrutinizes various artificial intelligence techniques employed in Supply Chain Administration (SCA),.	(Mathur, T, 2024).	Technological Advancement has profoundly augmented operational efficiency, precision, and agility in the sector.
The inquiry examines the function of Artificial Intelligence (AI)	(Thenmozhi, V., & Krisknakumari, S. 2024).	Technological Progression, augmented demand projection,
The investigation assesses the application of synthetic intelligence (SI) and algorithmic learning (AL).	(Rane, N., Desai, P., Kaya, Ö., & Paramesha, M. 2024).	Technological Advancement is crucial for bolstering resilience and efficiency, facilitating companies

The study employs thematic analysis	(Liyanapathirane et al., 2021)	the study demonstrates that artificial Technological Advancement efficacy
The study utilizes qualitative interviews	(Jones, J. 2025)	The research concludes that AI significantly enhances various aspects of supply chain operations,
The study investigates the incorporation of artificial intelligence methodologies,.	(Zhang, D. 2024).	Technological Advancement markedly improves the precision of demand forecasting
This investigation employs a comprehensive bibliometric evaluation of 2680 scholarly articles.	(Zrelli, I., & Rejeb, A. 2024).	The research culminates in the assertion that the integration of IoT into logistic and supply chain
The research investigates the application of AI technologies	(Tuli et al., 2024)	The incorporation of artificial intelligence in agriculture represents a novel strategy
The study conducts a systematic review of 45 high-quality research	(Siddiqi et al., 2025)	The research asserts that the incorporation of Technological Advancement
The research integrates supervised learning for demand forecasting.	(Eyo-Udo et al. 2025).	The research gave an comprehensive structure utilizing machine learning techniques

What technological advancements have been applied in inventory control systems in recent years?

Artificial Intelligence (AI) has acquired a 60% share of the total populace based on the research we have examined; AI represents a significant advancement in distribution networks, providing sophisticated analytics and predictive functionalities. AI algorithms evaluate extensive and substantial volumes of data to enhance demand forecasting, inventory administration, and logistical operations. This permits organizations to engage in data-informed decision-making and augment overall supply chain efficacy (Olamide Raimat Amosu et al., 2024; Siddiqi et al., 2025) with a 60% share, it constitutes the primary enhancement for technological progress that is prevalent in contemporary discourse.

The Internet of Things (IoT) comprises 22% of the overall demographic, representing number 2 from the total populace. It has engendered a transformative impetus within distribution networks, facilitating accurate data interchange also enhancing prediction and decision making. IoT apparatuses, such as sensors and intelligent meters, furnish actionable insights into supply chain considerations, encompassing temperature surveillance, route optimization, and demand prognostication (Amosu, O. R., Kumar, P., Ogunsuji, Y. M., Oni, S., & Faworaja, O. 2024; Boussalham, K., & Ejjami, R. 2024).

RFID (Radio Frequency Identification) accounts for 9% of citations; RFID technology assumes a pivotal role in augmenting distribution efficacy by permitting real-time tracking and inventory administration. RFID tags can be integrated into products, enabling seamless identification and observation throughout the supply chain. This technology is particularly efficacious in streamlining inventory management, diminishing errors, and enhancing order fulfillment rates (Kota, A. 2025; 37. Du, Q. (2024).

Blockchain comprises 9% of citations; it is a communal, secured code that enables the procedure of documenting exchange transaction and monitoring its assets within a

commercial framework. In distribution networks, blockchain is employed to ascertain the authenticity of transactions, oversee shipments, and avert counterfeiting. It also augments collaboration among stakeholders by furnishing a communal, immutable record of transactions (Balobaid, A. S., Shamsudheen, S., & Anoop, A. 2024; Bhalla, A. V., Dey, R., Gupta, S., & Thakur, P. 2023)

How do these technologies affect distribution efficiency within supply chain networks?

The integration of advanced technologies like Artificial Intelligence, Blockchain, Radio Frequency Identification, and the Internet of Things technologies are pivotal in streamlining operations and enhancing decision-making throughout the supply chain, creating more responsive and resilient systems (Sayyad et al., 2024)

Artificial Intelligence, leveraging sophisticated machine learning algorithms, offers unprecedented capabilities in analyzing extensive and diverse datasets, encompassing historical sales data, seasonal demand fluctuations, promotional campaign effectiveness, and even broader macroeconomic indicators; the resultant highly accurate demand forecasts facilitate optimized inventory management, curtailing both overstocking and stockout scenarios (Riahi, Yet al., 2021)..

Based on the analysis its conclude that with various benefit below is the evaluation summary of the data Artificial intelligence Enhancing predictive precision this constitutes a noteworthy advantage, denoted by a weight of 19%, augmented delivery duration also a considerable merit, with a weight of 17%. Minimize inaccuracies have a lesser, yet still pertinent benefit (3%). Expense mitigation has A pivotal element, bearing a weight of 21%. Enhance decision-making processes having another principal advantage, weighted at 14%.

RFID advantages comprise of Enhancing operational efficacy with Assigned a significance of 3%, expense minimization with lesser influence, with a weight of 1%, Data transparency is Assigned a significance of 3% and enhancing operational efficacy is assigned a significance of 3%. The advantages of the Internet of Things (IoT) comprise Decision-making, which exerts a minimal influence, with a significance of 1%. Operational efficiency is assigned a weight of 3%. Traceability demonstrates a low impact, also with a weight of 1%. Furthermore, real-time tracking provides a somewhat more substantial advantage, quantified at 4%.

Blockchain possesses advantages of information security with a negligible influence, with a significance of 1%. Transparency is assigned a weight of 3%, lead time exhibits a minimal effect, with a weight of 1%, forecasting demonstrates a minor influence, with a weight of 1%, and cost diminution is weighted at 3%.

Based on above table and weights with various benefit below is the evaluation summary of the data AI stands out as a particularly transformative force, offering significant improvements in forecasting accuracy, delivery time, cost reduction, and decision-making [88). RFID focuses on enhancing efficiency and data visibility, while IoT enables real-time tracking and operational efficiency. Blockchain provides data security and transparency, with potential for cost reduction. Overall, the strategic strategy of these technologies can lead to enhanced efficiency, competitive advantages, and improved decision-making capabilities for businesses.

What is the relationship between improved inventory control by technological advancement to distribution and customer satisfaction?

Effective inventory management, augmented by technological progressions, plays a crucial role in optimizing distribution frameworks and, consequently, enhancing customer contentment [82). The amalgamation of technology into inventory oversight systems has improved the way enterprise's function, offering superior precision, visibility, and efficacy throughout the entire supply chain [83). These elements, in turn, exert a cascading influence on customer satisfaction, as streamlined distribution mechanisms translate into expedited order fulfillment, diminished stockouts, and

enhanced responsiveness to customer requirements (Wilfred et al., 2014).

Below is the table on identifying the impacts on distribution and customer satisfaction from technological advancement in inventory.

Table 3. Impact inventory control by technological advancement to distribution and customer satisfaction

Feature	Impact on Distribution Efficiency	Impact on Customer Satisfaction
Improved Forecast Accuracy	Artificial intelligence (AI) provides considerable prospects for augmenting supply chain administration through enhanced demand prediction, operational efficacy, and client contentment; it also introduces considerable obstacles that must be tactically navigated.. (Mohammed & Al, n.d.)	The Cognizant Inventory Optimization Framework substantially augments operational efficacy and diminishes expenditures while elevating customer contentment through instantaneous data processing and prognostic analytics, tackling contemporary inventory management dilemmas proficiently. (Kota, A. 2025).
Improved Delivery Time	the amalgamation of artificial intelligence augmented operational efficacy, diminished expenditures, and elevated consumer contentment through sophisticated applications such as demand prognostication, inventory refinement, and logistics strategizing. (Li, Z. 2024).	Companies that adopted these technologies reported improvements in key performance indicators, including 23% reduction in lead times. (Siddiqi et al., 2025)
Reduced Errors	The proposed IoT-enabled intelligent inventory management system (IIMS) significantly enhances inventory monitoring accuracy and automates processes such as item identification and placement verification, leading to improved operational efficiency and reduced human errors in warehouse operations. (Ahmad et al., 2024b)	Organizations that embraced these technologies documented enhancements in fundamental performance metrics, encompassing a 37% augmentation in demand prediction precision (Siddiqi et al., 2025)
Cost Reduction	IoT-integrated automated inventory management systems are exceedingly advantageous companys as it midle or small sized , as they diminish carrying expenses, resulting in augmented inventory precision, decreased operational expenditures, enhanced supply chain transparency, and optimal utilization of working capital. (Gajjar, T. 2024)	Remarkable progressions in demand prediction precision, adaptive inventory oversight, and operational agility have resulted in expenditure reductions and heightened consumer contentment (Mehla, A., & Raman, R. 2023)
Improved Decision-Making	A resilient structure that utilizes machine learning methodologies for anticipating interruptions in the alimentary supply chain, augmenting logistical efficiency through anticipatory modeling and instantaneous data examination.. (Eyo-Udo, et al., 2025)	the amalgamation of transformative technologies and synthetic intelligence considerably augments logistics and distribution administration by elevating operational efficacy, diminishing expenditures, and amplifying customer contentment through swift detection and rectification of obstacles and difficulties. (Liu, Q. 2024).

Traceability & Visibility Data	Digital technologies considerably augment inventory transparency via instantaneous tracking and data amalgamation functionalities, culminating in precise inventory oversight, diminished inaccuracies, and refined inventory volumes to satisfy variable demand proficiently. (Holloway, S. 2024)	The assimilation of Artificial Intelligence (AI) and Machine Learning (ML) methodologies within retail operations engenders superior inventory administration, supply chain efficacy, and consumer-oriented marketing, culminating in augmented operational effectiveness, diminished expenses, heightened profitability, and enhanced customer contentment. (Mehla., 2023).
Real-time Tracking	The suggested architecture for delivery monitoring amalgamates GPS, IoT, RFID, and blockchain technologies, culminating in augmented instantaneous visibility, dependability, and refined governance of supply chain procedures, proficiently tackling challenges such as human enumeration, item positioning, and data stewardship. (Balobaid, A. S., Shamsudheen, S., & Anoop, A. 2024)	The amalgamation of Artificial Intelligence (AI) and the Internet of Things (IoT) in inventory administration holds the potential to enhance conventional methodologies by facilitating instantaneous monitoring, prognostic analytics, and mechanized replacement, culminating in significantly elevated degrees of efficacy and accuracy. (Mandar et al., 2024)
Data Security & Transparency	The metamorphosis is characterized by the implementation of sophisticated technologies enhance traceability and data integrity. (Zhang, D. 2024)	Real-time surveillance technologies are imperative for overseeing consignments and resources, facilitating prompt reactions to security occurrences, and guaranteeing comprehensive transparency throughout the supply chain. (Iyadunni Adewola Olaleye et al., 2024)

CONCLUSION

The findings of the review indicate that presently numerous scholars are engaging in inquiries pertinent to technological innovations in Inventory Management concerning Distribution Efficacy and Consumer Contentment. This investigation distinguishes four principal technological advancements: Artificial Intelligence (AI), Radio Frequency Identification (RFID), the Internet of Things (IoT), and Blockchain. From this analysis, it is evident that Artificial Intelligence (AI) constitutes 60% of the total citations from the research reviewed. The Internet of Things (IoT) accounts for 22%, while RFID (Radio Frequency Identification) and Blockchain each represent 9% of the citations. AI is a groundbreaking development in distribution networks, providing sophisticated analytics and predictive capabilities. AI algorithms examine extensive volumes of data to enhance demand forecasting, inventory management, and logistical operations.

According to our findings, AI demonstrates the most substantial influence across diverse domains, notably in forecasting precision, delivery duration, expense reduction, and decision-making processes. RFID appears to emphasize efficiency and data visibility, whereas IoT is oriented towards real-time tracking and operational efficacy. The predominant advantages of Blockchain, as per our investigation, reside in data security and transparency, with some potential for cost minimization.

Technological advancements in inventory management are transforming distribution efficiency and enhancing customer satisfaction. The collaboration of technologies such

as RFID, Blockchain, and IoTalso AI is imperative for distributors striving for improved forecasting accuracy, enhanced delivery times, minimized errors, cost reduction, improved decision-making, traceability and visibility of data, real-time tracking, and data security and transparency.

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