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ARTIFICIAL INTELLIGENCE IN CHINA'S RETAIL INDUSTRY: A SYSTEMATIC LITERATURE REVIEW

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Abstract:

Artificial Intelligence (AI) has emerged as a transformative force in China's retail industry, enabling intelligent decision-making across demand prediction, dynamic pricing, supply chain optimization, and consumer behavior analysis. Despite the growing body of research, existing studies remain fragmented across diverse literature sources, lacking a structured and unbiased review framework. This fragmentation limits the ability to systematically assess AI applications for operational efficiency, resilience, and sustainability in China's retail sector, making it difficult for researchers and practitioners to identify best practices and prioritize high-impact AI solutions. To address this critical gap, this study makes two primary contributions. First, we develop a comprehensive systematic review methodology tailored to the field of AI in retailing, drawing on 450 peer-reviewed articles published between 2015 and 2025, sourced from the Web of Science Core Collection. Second, leveraging this methodology, we categorize prevalent AI techniques including machine learning, deep learning, reinforcement learning, and natural language processing. We then map these techniques to their practical applications within retail operations across the dimensions of efficiency, resilience, and sustainability. Furthermore, we identify critical research gaps and propose promising directions for future investigation. The proposed review framework and novel classification scheme provide a structured foundation for future empirical research and guide industry adoption of AI strategies in China's rapidly evolving retail landscape.

Keyword:

Artificial Intelligence, China, Machine Learning, Retailing, Systematic Review

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Introduction

The digital revolution has fundamentally reshaped the global retail landscape. Statista projects that worldwide retail sales will surge from $29.2 trillion in 2023 to $32.7 trillion by 2026, driven largely by the proliferation of e-commerce, mobile shopping, and Internet of Things (IoT) technologies. These digital channels generate unprecedented volumes of customer and operational data, laying the groundwork for Artificial Intelligence (AI) to emerge as a transformative force in retail. Grand View Research estimates the global AI in retail market at USD 7.14 billion in 2023, with projections indicating a robust compound annual growth rate (CAGR) of 31.8% through 2030—underscoring the sector's accelerating shift toward intelligent, data-driven operations.

A notable example of this transformation is the meteoric rise of China's cross-border e-commerce sector. AI-native platforms such as Temu, SHEIN, AliExpress, and TikTok Shop have built their business models around AI-driven decision-making for demand sensing, personalized recommendations, and predictive logistics. These platforms propelled cross-border transactions to RMB 2.38 trillion in 2023, demonstrating that AI has become the foundational infrastructure driving competitive advantage in global retail.

By leveraging AI technologies, retailers can gain valuable business insights that enhance customer experiences, streamline operations, boost revenues, and secure a competitive edge. In retailing, extensive data sets are obtained from various sources such as enterprise resource planning (ERP) systems, logistics service providers, sales, supplier collaboration platforms, digital manufacturing, Blockchain, sensors, and customer buying patterns (Kumar et al., 2024). These data can be structured, semi-structured, or unstructured. AI-driven analytics can transform these data into actionable insights, improving retail performance and decision-making capabilities. While AI offers considerable opportunities for value creation, it also poses significant challenges for organizations in terms of implementation, data governance, and algorithmic transparency (Almeida et al., 2025).

AI encompasses a broad spectrum of techniques, including machine learning, deep learning, natural language processing, computer vision, and reinforcement learning, all of which focus on extracting patterns and insights from complex data. From a methodological perspective, AI aids decision-making at strategic, tactical, and operational levels in retail management, helping organizations gain a competitive edge (Dahish et al., 2025). AI techniques improve retail design and management by enabling demand forecasting, dynamic pricing optimization, personalized recommendations, inventory management, and customer sentiment analysis. These applications contribute to reducing costs, enhancing sustainability, mitigating risk, and boosting resilience (Mishra et al., 2025), as well as understanding customer demands and predicting market trends (Rekiek et al., 2024).

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There have been significant advancements in AI-powered tools, with retail analytics platforms enhancing forecasting, optimization, and simulation models through sophisticated algorithms. These tools also facilitate automated data processing, real-time decision support, and advanced visualizations. In addition to large technology corporations such as Google, Microsoft, and Amazon, specialized retailing solutions like Salesforce Einstein™ and Alibaba's AI-powered retail systems in China integrate machine learning capabilities with retail operations data to create intelligent digital ecosystems (Sun et al., 2025). Furthermore, generative AI and large language models (LLMs) are emerging as transformative technologies in retail, enabling conversational commerce, automated content generation, and enhanced customer service interactions. These methodological and technological advancements provide growing opportunities for retailing researchers and practitioners.

However, current insights are dispersed across various literature sources, and there is a lack of a structured review framework that holistically examines AI applications in retailing. This fragmentation limits the ability to systematically assess AI applications for operational efficiency, resilience, and sustainability in retail, hindering researchers from identifying cross-cutting themes, preventing practitioners from benchmarking AI adoption strategies, and impeding policymakers from formulating evidence-based guidelines for responsible AI deployment. Consequently, retailers and scholars struggle to translate isolated findings into coherent, actionable strategies that address the multifaceted challenges of AI-driven retail transformation. This critical gap in the literature motivated us to conduct this systematic and comprehensive literature review. In the next section, we will elaborate on our motivation for this study in detail.

Literature Review

Definition of Artificial Intelligence

Artificial Intelligence (AI) is fundamentally characterized by its ability to simulate human cognitive functions, including learning, reasoning, problem-solving, and decision-making. The concept was originally coined by John McCarthy in 1956, who defined AI as "the science and engineering of making intelligent machines." Recent literature has expanded this foundational definition to encompass multiple dimensions of intelligence. Panigutti et al. (2023) emphasized that AI systems can be categorized along two key dimensions: systems that think versus act, and systems that emulate humans versus those that operate rationally. This framework provides a comprehensive understanding of AI's diverse applications and capabilities.

The definition of AI also encompasses the technologies and methodologies used to achieve intelligent behavior. Goyal et al. (2018) provided a comprehensive overview of the core technologies involved, including machine learning, deep learning, neural networks, and natural language processing. They argued that the technological architecture of AI is essential to its definition, as it enables systems to learn from data, recognize patterns, and make autonomous decisions without explicit programming.

Algorithmic approaches form another critical component of the AI definition. According to Morales and Escalante (2022), these approaches include supervised learning, unsupervised learning, reinforcement learning, and transfer learning. Selvarajan (2021) further noted that the integration of these techniques allows AI systems to continuously improve performance

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through experience, extract meaningful insights from complex datasets, and adapt to new situations—capabilities that distinguish AI from traditional rule-based computing systems.

Artificial Intelligence for Retail Industry in China

The retail industry in China has undergone significant transformation in the past decade, driven by the integration of Artificial Intelligence (AI) technologies.

Adoption and Integration of Artificial Intelligence

Artificial Intelligence has been pivotal in the rise of e-commerce and omni-channel retailing in China. Studies highlight the role of AI in understanding consumer behavior, personalizing shopping experiences, and optimizing supply chains. For instance, Jiecong and Ali (2025) demonstrated how Alibaba uses AI-powered recommendation systems and virtual assistants to create a seamless online and offline shopping experience, enhancing customer satisfaction and loyalty.

Retailers in China leverage AI to gain deeper insights into customer preferences and buying patterns. Kalusivalingam et al. (2020) noted that through machine learning algorithms and natural language processing, retailers can segment customers more effectively and tailor marketing strategies. This AI-driven personalization not only boosts sales but also improves customer retention through intelligent chatbots and personalized product recommendations.

Efficient inventory management and supply chain optimization are critical benefits of AI implementation. Aggarwal and Aggarwal (2023) explored how AI-powered demand forecasting and automated replenishment systems help retailers predict demand, manage inventory levels, and reduce costs. The use of deep learning models ensures that retailers maintain optimal stock levels, minimizing both overstock and stockouts.

Impact on Business Performance

Artificial Intelligence facilitates intelligent and automated decision-making. Cao (2021) highlighted that retail managers who deploy AI systems are better equipped to make strategic decisions, such as dynamic pricing, optimal product placement, and targeted promotional strategies. The ability of AI algorithms to process vast amounts of data in real-time allows for more agile and informed business decisions.

The adoption of AI provides a significant competitive advantage. Research by Lin et al. (2020) indicated that retailers leveraging advanced AI technologies, including computer vision for cashier-less stores and intelligent customer service systems, outperform their peers in terms of market share and profitability. The predictive insights derived from AI enable retailers to stay ahead of market trends and anticipate consumer demands.

Operational efficiency is another key area where AI has made a substantial impact. According to a study by Chen et al. (2021), the use of AI in logistics and distribution—including autonomous delivery robots, intelligent warehouse management, and route optimization algorithms—has streamlined operations, reduced delivery times, and improved overall efficiency.

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Challenges and Barriers

One of the primary challenges in the adoption of AI is data privacy and algorithmic transparency. Chen et al. (2021) discussed the growing concerns among consumers regarding the collection and use of personal data for AI training purposes. The implementation of strict data protection regulations, such as China's Personal Information Protection Law (PIPL) and AI governance guidelines, poses additional compliance challenges for retailers deploying AI systems.

Despite the benefits, there are significant technological and talent gaps. Wu et al. (2025) identified a shortage of skilled AI engineers, data scientists, and machine learning specialists in the retail sector. Additionally, the integration of advanced AI tools requires substantial investment in computing infrastructure, cloud services, and model development, which can be a barrier for smaller retailers.

The quality of training data and model bias remain persistent challenges. Chinta et al. (2025) emphasized that biased or incomplete training datasets can lead to discriminatory outcomes and flawed AI-driven decisions. Ensuring high-quality, representative data and implementing fairness-aware algorithms are essential for the ethical and effective use of AI in retail.

Future Directions

The future of AI in the retail industry lies in the advancement of Generative AI and Large Language Models (LLMs). Zhou and Cen (2024) predicted that generative AI technologies, such as ChatGPT-like systems, would further enhance customer interaction capabilities, automate content creation, and revolutionize personalized shopping experiences.

The integration of AI with Internet of Things (IoT) is set to play a crucial role in the retail sector. AI-powered smart shelves, computer vision systems, and real-time sensor data analysis will provide retailers with unprecedented insights into consumer behavior and automated inventory management, as discussed by Sun and Lorenzo (2025).

Sustainability is becoming increasingly important in AI applications. AI can help retailers adopt more sustainable practices by optimizing supply chain logistics, predicting and reducing waste, promoting eco-friendly product recommendations, and calculating carbon footprints, as highlighted by Huang and Mao (2024).

Table 1: Previous Studies of REs Related to Artificial Intelligence in China

Year	Authors	Context of studies	Business Improvement
2025	Zhengyang, F., Jun, Z., & Wei, Z.	Integrating big data and AI for dynamic pricing strategies in e-commerce marketing and product management.	Pricing Strategy
2025	Shan, S., Sun, J., & Macawile, R. M. C.	Examining Customer Satisfaction Through Transformer-Based Sentiment Analysis for Improving Bilingual E-Commerce Experiences.	Product Development, Branding Strategy

2025	Liang, H.	Generative AI in Fashion Design Process: Insights from Chinese Practitioners.	Customer Experience
2025	Cui, L., & Bulis, A.	Drivers and Barriers to AI Adoption in Retail Enterprises: A Systematic Literature Review and Conceptual Framework.	Distribution Channel
2025	Wang, S., & Zhang, H.	Enhancing cross-border shopping through AI chatbots: an antecedents–engagement–consequences perspective of brand-consumer interactions.	Customer Engagement
2024	Zhang, Q., & Xiong, Y.	Zhang, Q., & Xiong, Y. (2024). Harnessing AI potential in E-Commerce: improving user engagement and sales through deep learning-based product recommendations.	Personalized Marketing
2024	Wang, W., Zhang, P., Sun, C., & Feng, D.	Smart customer service in unmanned retail store enhanced by large language model.	Customer Service
2024	Zhang, Y., He, L., & Zheng, J.	A Deep Reinforcement Learning-Based Dynamic Replenishment Approach for Multi-Echelon Inventory Considering Cost Optimization.	Inventory Management
2024	Wu, Y., Li, H., Luo, R., & Yu, Y.	How digital transformation helps enterprises achieve high-quality development? Empirical evidence from Chinese listed companies.	Operating Efficiency
2023	Ding, H., Tian, J., Yu, W., Wilson, D. I., Young, B. R., Cui, X., ... & Li, W.	Intelligent demand forecasting using machine learning algorithms in China's fresh food retail sector.	Supply Chain

Source: Web of Science Core Collection.

Research Methodology

The objective of this literature review is to present the current state-of-affairs of the literature on Artificial Intelligence in China's retail sector, with a focus on systematically assessing AI applications across the dimensions of operational efficiency, resilience, and sustainability. The literature search was conducted in January 2026 using the Web of Science Core Collection as the primary abstract and citation database. Several search criteria were deployed to retrieve the articles. First, in line with Heins (2023) we developed multiple search queries entailing a combination of the focal keywords “Artificial Intelligence” with the retailing words “retail*”, “sales*”in the text, abstract and keywords of the academic outputs. Second, only articles and articles in press were included (conference papers and book chapters were excluded). Third, the retrieved documents had to be written in English. Fourth, as the data used for this study was collected between 2015 and 2025, the search was conducted from the beginning of the coverage of both databases up to the 1 Jan 2026. After eliminating duplicate records and articles which were not directly related to the topic of the analysis, the final dataset used for the analyses contains 166,926 papers for WoS, specially 483 papers in retailing. These papers cover all the

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Artificial Intelligence studies pertaining to settings, published and indexed over the period 2015–2025. After article screening for inclusion based on abstracts the number of potentially relevant articles reduced to 450. Finally, after quality assessment based on full texts, the final number of articles included in the data extraction step was 450. After building a thorough understanding of the literature at hand. The resulting technique was then used to synthesis the data, and the results were then presented.

Results and Findings

The research keywords form the basis of the systematic literature review procedure. According to the inclusion-exclusion criteria, 450 articles were chosen regarding each set of research keywords. The three stages of the articles' screening are displayed in Table 2. The proposed research piece was divided into two sections based on the content that was extracted from these articles: a thorough overview of Artificial Intelligence, Artificial Intelligence in retailing.

Table 2: The Article with Screening Phase.

Search items	Based on below search string		Result
	Artificial Intelligence	Artificial Intelligence, Retail*, Sales*, Retailing	
Journals	358,911	1,152	360,063
First screening based on keywords, abstract, title and Journals	174,907	491	175,398
Second screening based on year (2015–2025) Journals	166,925	483	167,408
Final abstracts screening		450	450

Source: Web of Science Core Collection.

With the rapid advancement of machine learning, deep learning, and natural language processing technologies, Artificial Intelligence (AI) has given researchers unprecedented opportunities to utilize it in more noticeable manner for decision-making in several retailing applications. The trend of AI research in the field of retailing domain for the year 2015–2025 is described in Figure 1 with respect to Table 2 of the revised version of the article. Figure 1 shows the increasing tendency of doing innovative research studies (published in reputed journals) in the area of retail AI applications.

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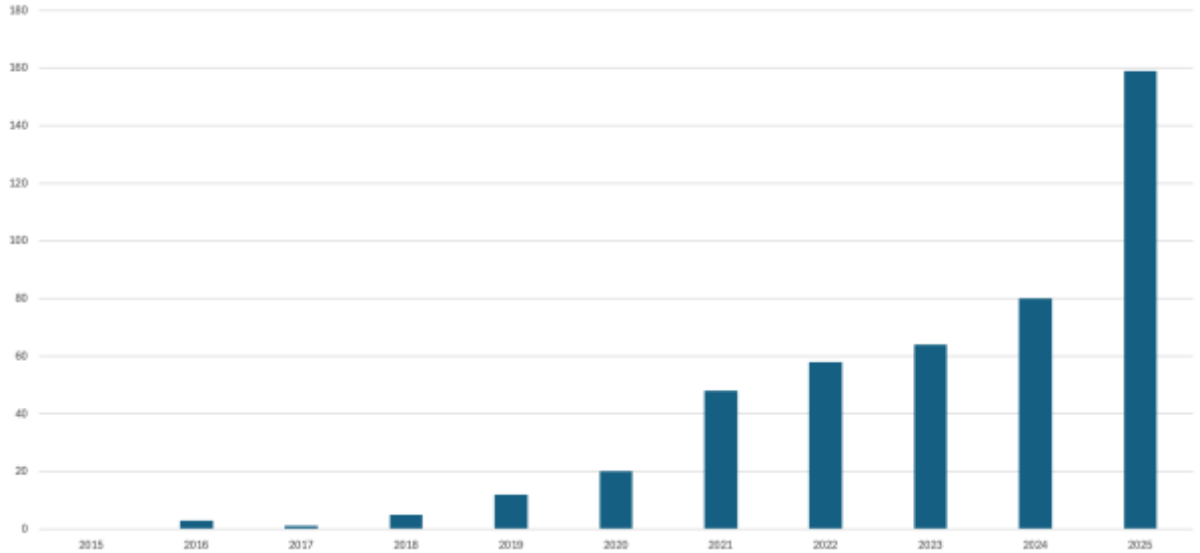

Figure 1: Trend Of Retailing Artificial Intelligence Research From 2015 To 2025.

Key Observations and Analysis

Phase 1: Early Exploration (2015–2019)

During this period, AI research in retail remained relatively limited, with fewer than 10 publications annually. The research primarily focused on foundational machine learning applications such as basic recommendation systems and preliminary predictive analytics. The retail industry was still in the early stages of digital transformation, and AI technologies had not yet reached sufficient maturity for widespread commercial deployment.

Phase 2: Accelerated Growth (2020–2022)

The significant increase in AI retail research from 2020 onwards can be attributed to several critical factors:

1. COVID-19 Pandemic Impact: The pandemic accelerated digital transformation across the retail industry. With more businesses shifting their operations online, the demand for AI-powered solutions in e-commerce, contactless shopping, and supply chain optimization increased dramatically.
2. Technological Maturity: Deep learning frameworks (TensorFlow, PyTorch) and cloud computing infrastructure became more accessible, enabling researchers and practitioners to develop sophisticated AI applications for retail.
3. Data Availability: The explosion of consumer data from online transactions, social media, and IoT devices provided rich datasets for training AI models.

Phase 3: Exponential Expansion (2023–2025)

The most dramatic growth occurred during 2023–2025, with publications nearly tripling from approximately 62 in 2023 to 160 in 2025. This exponential surge can be attributed to:

1. Generative AI Revolution: The launch of ChatGPT in November 2022 and subsequent large language models (GPT-4, Claude, Gemini) sparked unprecedented interest in conversational AI applications for customer service, personalized marketing, and content generation in retail.

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2. Computer Vision Advancement: Mature computer vision technologies enabled widespread deployment of unmanned retail stores, visual search capabilities, and intelligent checkout systems, particularly in the Chinese market.
3. AI-Powered Personalization: Retailers increasingly adopted transformer-based recommendation engines and reinforcement learning for dynamic pricing, driving significant research interest in hyper-personalization strategies.
4. Multimodal AI Integration: The convergence of text, image, and voice AI capabilities created new research opportunities in omni-channel retail experiences.
5. Regulatory and Ethical Research: Growing concerns about algorithmic bias, data privacy (e.g., China's PIPL), and AI governance stimulated academic research on responsible AI deployment in retail contexts.

Discussions

The analysis of literature reviews on Artificial Intelligence (AI) in the retail industry over the past decade shows a significant and consistent increase in scholarly attention, with exponential growth in recent years. From 2015 to 2019, there was a gradual rise from approximately 2 to 8 publications, representing the early exploration phase of AI in retail. The period from 2020 to 2022 saw accelerated growth, with publications increasing from 18 to 55, driven largely by the COVID-19 pandemic's impact on digital transformation. The most dramatic surge occurred between 2023 and 2025, with publications rising from 62 to approximately 160, reflecting the revolutionary impact of Generative AI and Large Language Models on the retail sector. This exponential upward trend highlights the increasing recognition of AI's importance in transforming the retail sector, particularly in automating operations, enhancing customer experiences, enabling intelligent decision-making, and creating innovative shopping paradigms.

Despite the exponential growth in AI-related retail research, the existing body of knowledge remains largely siloed within specific application domains such as demand forecasting, customer analytics, or supply chain optimization without a unifying analytical framework. This fragmentation carries significant practical consequences: it limits the ability to systematically assess how different AI techniques contribute to operational efficiency, supply chain resilience, and environmental sustainability in an integrated manner. Without such a holistic perspective, retailers risk adopting AI solutions in isolation, missing critical interdependencies between AI applications, and failing to realize the full transformative potential of AI across their value chains. The following discussion synthesizes the fragmented literature through the lens of efficiency, resilience, and sustainability to address this gap.

China's retail industry has undergone a remarkable transformation over the past decade, heavily influenced by advancements in AI technologies. The following discussion delves into the specific aspects and impacts of AI in China's retail sector.

Adoption and Integration of AI Technologies

China has been at the forefront of adopting and integrating AI into its retail operations. The country's leading e-commerce giants, such as Alibaba and JD.com, have pioneered the use of artificial intelligence to gain competitive advantages. According to Yin et al. (2025), Alibaba's deployment of AI-powered recommendation systems and intelligent customer service chatbots has significantly enhanced its omni-channel retailing strategies, allowing for seamless integration of online and offline sales channels. JD.com's implementation of computer vision

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technology and autonomous delivery robots has revolutionized logistics and last-mile delivery operations. This AI integration has resulted in more personalized customer experiences, automated inventory management, and substantially improved operational efficiency.

AI-Enhanced Customer Experience

In China, AI has played a crucial role in understanding and enhancing customer experiences. Retailers leverage machine learning algorithms and natural language processing to analyze customer behavior, preferences, and purchasing patterns in real-time. Liang et al. (2025) demonstrated how AI-powered analytics enable retailers to offer hyper-personalized recommendations, dynamic pricing, targeted promotions, and 24/7 intelligent customer service through conversational AI. The emergence of Large Language Models has further transformed customer interactions, enabling more natural and context-aware conversations. This AI-driven customer-centric approach has been pivotal in building customer loyalty, increasing conversion rates, and driving sales growth.

Operational Efficiency and Automation

Improving operational efficiency through intelligent automation is another significant impact of AI in China's retail sector. Zhu et al. (2024) highlighted that AI technologies, including machine learning-based demand forecasting, computer vision for inventory monitoring, and reinforcement learning for dynamic pricing, have allowed retailers to streamline supply chain operations, optimize logistics, and significantly reduce costs. By processing vast amounts of data in real-time and learning from historical patterns, AI systems can make autonomous decisions regarding inventory levels, demand prediction, and supply chain optimization with unprecedented accuracy. The deployment of AI-powered warehouse robots and autonomous delivery vehicles by companies like JD.com and Cainiao has further revolutionized retail logistics efficiency.

Innovative AI-Driven Retail Formats

China's retail landscape has seen the emergence of innovative retail formats driven by AI technologies. The rise of "new retail" concepts, where artificial intelligence is seamlessly integrated into the shopping experience, exemplifies this trend. Xu et al. (2020) discussed how the convergence of AI, IoT, and computer vision has transformed traditional retail formats into intelligent unmanned stores, offering features like automated checkouts using facial recognition, smart shelves with real-time inventory tracking, AI-powered virtual try-on experiences, and personalized in-store recommendations. The integration of Generative AI has enabled innovative applications such as AI-generated product descriptions, virtual shopping assistants, and personalized content creation at scale.

Challenges and Ethical Considerations

While the adoption of AI in China's retail sector presents numerous opportunities, it also comes with significant challenges. Algorithm transparency, model bias, data privacy concerns, and the need for skilled AI professionals are substantial hurdles. Shin (2021) identified algorithmic bias and model interpretability issues as critical challenges, emphasizing the importance of fair and explainable AI systems for building consumer trust. Moreover, ethical considerations regarding AI decision-making and data privacy concerns, as discussed by Du and Xie (2021), need to be

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addressed to ensure responsible AI deployment and regulatory compliance with China's Personal Information Protection Law (PIPL) and emerging AI governance regulations. The rapid advancement of Generative AI has also raised new concerns regarding AI-generated content authenticity and potential misuse.

Government Support and Policy Environment

The Chinese government has recognized the strategic importance of AI and has implemented various initiatives to support its development in the retail sector. National policies such as the "New Generation Artificial Intelligence Development Plan" and initiatives aimed at promoting digital transformation, AI innovation, and smart commerce have created a conducive environment for the growth of AI applications in retail. These government efforts have facilitated collaboration between academia, technology companies, and retailers, fostering rapid advancements in AI technologies and their practical applications in the retail industry.

Implications for Malaysia's Retail Industry

While this study focuses on China's retail sector, the findings offer valuable insights for Malaysia's retail industry. Malaysia's digital economy contributed 23.2% to GDP in 2023, with retail and e-commerce representing significant growth areas under the My DIGITAL Blueprint (MDEC, 2024).

China's success in retail AI implementation offers transferable lessons for Malaysian retailers. The ecosystem integration approach demonstrated by Chinese platforms suggests opportunities for Malaysian retailers to connect online-offline channels through platforms like Grab and Touch 'n Go eWallet. AI-powered personalization strategies can be adapted for Malaysia's multilingual consumer base, while unmanned retail concepts may suit urban areas facing rising labor costs.

However, Malaysia faces unique challenges including AI talent shortages, smaller datasets compared to China's massive digital ecosystem, and the need for regulatory alignment under the Personal Data Protection Act (PDPA). Collaboration between industry and Malaysian universities is essential for developing local AI capabilities.

Cross-border e-commerce platforms and knowledge transfer from Chinese technology companies operating in Malaysia, such as Alibaba's Lazada, can accelerate AI adoption in the local retail sector. Malaysia is well-positioned to serve as a bridge between China's advanced AI ecosystem and emerging Southeast Asian markets.

Conclusion

The application of Artificial Intelligence in the Chinese retail industry over the past decade has brought about transformative advancements and significant competitive advantages. The evolution from basic machine learning applications to sophisticated deep learning systems and, most recently, to Generative AI and Large Language Models has fundamentally reshaped how retailers operate, engage with customers, and make strategic decisions. While challenges such as algorithmic bias, data privacy, AI talent gaps, and ethical considerations remain, the potential for future growth and innovation is immense.

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The continued integration of advanced AI technologies, including Large Language Models for conversational commerce, computer vision for immersive shopping experiences, reinforcement learning for autonomous decision-making, and edge AI for real-time in-store analytics, will further transform the retail landscape, making it more intelligent, efficient, and customer-centric. The convergence of AI with emerging technologies such as IoT, augmented reality, and blockchain will create new paradigms for retail innovation.

This study adds to the existing body of knowledge by providing a comprehensive understanding of how artificial intelligence is transforming the retail sector in China. By synthesizing 450 peer-reviewed articles through the integrated lens of operational efficiency, resilience, and sustainability, the proposed review framework and classification scheme provide a structured foundation for future empirical research and guide industry adoption of AI strategies. It explores the evolving landscape of retail driven by AI advancements, offering a detailed analysis of the technological, operational, and strategic impacts of AI adoption. Future research can further enrich the understanding of AI applications in retail by exploring emerging areas such as Generative AI for personalized content creation, multimodal AI for omni-channel experiences, federated learning for privacy-preserving analytics, and responsible AI frameworks for ethical retail practices. Such research will continue driving innovation, operational excellence, and enhanced customer satisfaction in the rapidly evolving retail industry.

This study has several limitations that should be acknowledged. First, the literature search was limited to English-language publications in the Web of Science database, potentially excluding relevant Chinese-language studies from domestic journals and databases such as CNKI. Future research should incorporate multilingual sources to capture a more complete picture of AI applications in China's retail industry.

Second, the rapid evolution of AI technologies, particularly Generative AI and Large Language Models since 2022, means that some recent developments may not be fully reflected in peer-reviewed academic literature due to publication delays.

Third, the focus on China's retail industry limits the generalizability of findings to other national contexts. The unique characteristics of China's digital ecosystem, including super-app platforms and government support policies, may not be directly applicable to other markets.
Fourth, this study employed a qualitative synthesis approach without quantitative meta-analysis, which limits the ability to establish statistical relationships between AI adoption and business outcomes.
Finally, the reviewed literature may be biased toward large e-commerce platforms like Alibaba and JD.com, while the AI adoption experiences of small and medium-sized retailers may be underrepresented.

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