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# A Review Paper on AI Transformation of the Indian Retail Industry

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**Abstract**

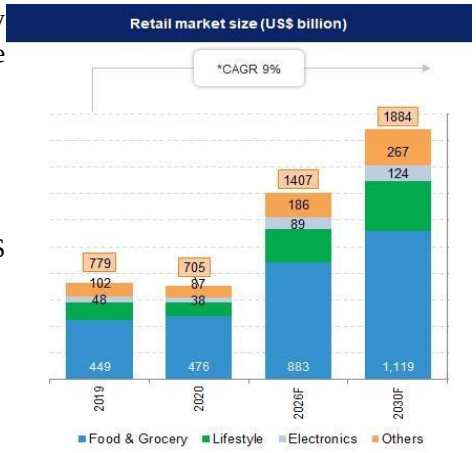
*AI integration is causing a major shift in the Indian retail sector. In this era of rapid change in technologies, retailing is significantly affected by AI-generated technologies (Shankar 2018) As per the latest report of Technavio Plus, the online fashion retail market in India is projected to expand by approximately US$ 52 billion at a CAGR of 25.2% between 2023 to 2028. AI is revolutionizing various aspects of the retail industry, ranging from inventory and supply chain management to customized marketing and customer experience. In India, retailers are using AI-powered solutions more frequently to improve decision-making, understand customer behavior and simplify many processes.*

*The rapid growth of e-commerce, the easy access to big data, and the increasing adoption of internet are driving the AI transformation in the Indian retail industry. Retailers may provide individualized shopping experiences, enhance demand forecasts, and optimize pricing strategies by using AI real-time analysis of massive volumes of data. AR, VR, and chatbots also help improve customer service. this paper analyses the impact of AI and technology-enabled services on the Indian retail industry with the help of various research findings, reports, and available information. As a result, the study finds that Artificial Intelligence is increasing operational efficiency and triggering innovation in retail space, and preparing Indian retailers to compete more efficiently in globalised market. However, there are many challenges and obstacles such as the requirement of trained personnel, data privacy, and integrating AI with the current system, etc. Despite of many challenges Indian retail market will grow even in small cities.*

***Keyword: Artificial Intelligence, AI Transformation, Big Data, Indian Retail Industry.***

## INTRODUCTION

In order to remain competitive in the current global economy, retail enterprises must give priority to profit and productivity. To maintain a competitive edge and ensure profitability it is vital to respond effectively and efficiently. The implementation of AI in retail can enhance profitability and streamline business procedures. Survival in the current market is limited to those retailers who use creativity and the best available technologies.

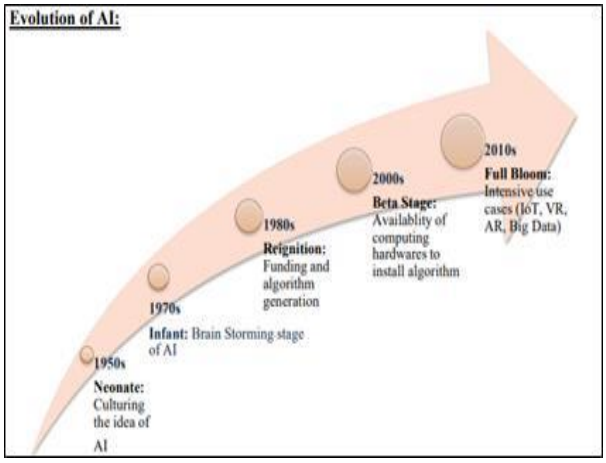



Source: http://www.ibef.org

Figure: 1 Market Size (US$ Billion)

## EVOLUTION OF AI

On July 16, 2024, Artificial Intelligence Appreciation Day, India will celebrate the technological revolution. This is a critical time to consider how AI has changed the country. Artificial Intelligence (AI) is changing industry, healthcare, education, and governance, from metropolitan tech hubs to rural villages. Cities like Bengaluru, Hyderabad, and Pune demonstrate how India is fast becoming a major player in the global AI industry. governmental programs like "AI for All" and the India's National AI Strategy demonstrates the country's dedication to using AI for the good of society. While we applaud AI's ability to solve problems that are specific to India, we also need to think about the moral ramifications and make sure that inclusive development protects our cultural values and helps all residents. India's history with artificial intelligence is one of slow development that has recently seen a sharp upsurge.




Numerous research institutes carried out investigations and research from the early 1960s until the 1980s. According to this timeline, Indian software companies started investigating AI applications for business

process automation in the 1990s. Subsequently, there was a notable surge in the advancement of artificial intelligence (AI) as several Indian IT companies, including TCS, Infosys, Wipro, and others, began funding AI-related research projects in 2014–15. Additionally, the government launched Digital India, highlighting the significance of new technology. AI has emerged as a crucial component of modern government and private sector initiatives. Most notably, the government has introduced the AI for All project and is incorporating AI into a number of sectors, including governance and education.

## AI IN RETAIL: AN OVERVIEW

The retail sector has pioneered the utilization of technology. This encompasses virtual stores and e-commerce platforms, where consumers can browse and choose the style, size, and more specifications before to completing a transaction. Recent advancements in artificial intelligence and 3D imaging demonstrate that virtual customer experiences can transform conventional retail interactions by enhancing efficiency, customisation, and automation. Simulating human intelligence by computers is known as artificial intelligence (AI). Applications of artificial intelligence include machine vision, recognition of speech, NLP, and expert systems. Artificial Intelligence (AI) is an expansive domain within computer science focused on creating intelligent machines that exhibit human-like abilities. Artificial Intelligence is an interdisciplinary field including several approaches, although advancements in machine learning and deep learning are influencing nearly every technology sector. Figure 2 depicts the AI evaluation. Over the last ten years, artificial intelligence (AI) has helped enterprises make smarter decisions and reach new heights. To understand the fundamental difficulties and outcomes of artificial int the tec


Govt initiatives

Source: pib.gov.in

Programs, systems, and machines that show intelligence are called AI. In other words, it

refers to a set of tools and techniques that enhance the intelligence level of a product or service (Shankar 2018). Due to changes in demand, shopping, and consumer

thinking behavior, online and offline worlds of retailing are congregating, and in this situation, retailers have to adopt new technologies to meet customers' demand otherwise they have to face less sales and revenues. Companies are adopting AI-based technologies that increase their businesses and suggest based on data captured through smart technologies like chatbots, big data, IoT, etc. (Kaur V 2020).

**Objective of the Study**

1. To find Technological changes that have occurred over the years in the retail industry.
2. To analyse the impact of AI in retail industry.

## RESEARCH METHODOLOGY

The methodology used to achieve the stated goals includes the secondary data gathered from the review of related research papers and articles. And for the analysis of data theoretical analysis method is used.

### AI in Retail

The role of technologies such as AI and its allied tools have begun to play a significant role in benefitting and boosting the e-commerce industry. AI today is no longer in the realm of science fiction which we watch in movies or television but has entered our lives. Since the emergence of the field of AI more than sixty-five years ago, today it has entered our main stream lives and the broader technology is being used in different areas such as search engines to speech recognition, learning/gaming, and object

detection (Haenlein et al. 2019). According to Chihsien & Nagasawa 2019), people are usually of the common perception that AI mostly involves robots and robotics, but it has much more broader technology range. Some of the applications include: ML, NLP, Learning & Gaming Systems, object detection.

In the current times, AI encompasses industries such as healthcare, retail and security detection. AI has the potential to positively influence customers and marketers want to understand how these advances impact the customer experience.

Novel marketing techniques supported by new AI technologies is allowing us to effectively reach the emotions of our target audience and provide enhanced experiences even in the virtual space (Pusztahelyi, 2020). Asling (2017) says that the use of AI in online retail environment helps in providing customer-centric searches using recommender systems and a new level of personalisation. This automatically translates into a more efficient sales process. The subsequent section briefs about a few of such technologies which are of importance to our research.

## CONCLUSION

. As a result, the study finds that Artificial Intelligence is increasing operational efficiency and triggering innovation in retail space, and preparing Indian retailers to compete more efficiently in globalised market. However, there are many challenges and obstacles such as the requirement of trained personnel, data privacy, and integrating AI with the current system, etc. Despite of many challenges Indian retail market will grow even in small cities.

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