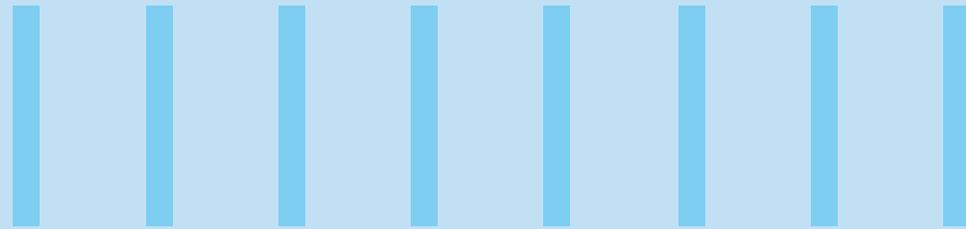




# AI/ML-BASED TRANSFORMATION OF THE RETAIL SECTOR



## Abstract

The adoption of AI in retail can be a key catalyst in retail transformation. With AI solutions, the retail industry can improve process efficiencies and provide the wow factor for customers. In a hyper-competitive world, AI may well prove to be the key differentiating factor for retailers.



The retail sector is experiencing a new wave. Artificial Intelligence (AI) and Machine Learning (ML) solutions have put retail on the transformation path. Both consumers and businesses are realising huge benefits from AI in retail. For retailers, adopting AI has become a necessity to stay relevant, and ahead of the competition. By 2028, the global retail market is expected to exceed USD 31 billion at a compound

annual growth rate (CAGR) of 30.5 per cent during the forecast period. COVID-19 has had an enormous impact on the retail sector, and it accelerated the adoption of AI to elevate online shopping experiences and in-store customer experiences. The digital transformation of the retail industry is further driving the adoption of AI-based automation tools to enable data-driven decision-making and predictive analytics;

understand market trends, and optimise supply chains.

Heightened consumer expectations necessitate innovative solutions in the retail segment. Retailers need to be able to blend in-store and online experiences seamlessly. AI is poised to transform the shopping experience, as well as provide several business benefits.

## Benefits of AI in retail

### Enhanced in-store shopping experience:

Smart checkout devices can enhance customer experience and support in-store staff. Customers can simply place their items within the camera frame. Computer vision technology can read the bar code of the object in the camera frame, and bring up the pricing and applicable discounts to enable a “check-out free” in-store experience. For items that do not have bar codes, such as fresh fruits or vegetables,

the device can suggest options. Customer experience remains a key priority for AI-powered checkout, which greatly reduces the check-out time.

**Gather inventory intelligence:** With AI-powered technology at checkouts, retailers can also gather inventory intelligence, as well as insight into real-time inventory. By being able to quickly replenish out-of-stock items, retailers can optimise their inventory and improve customer experience, as well

as meet sustainability goals by optimising the number of truck trips required for re-stocking.

**Optimised supply chain operations:** AI solutions can optimise the retail supply chain by providing insights into the supply chain, which in turn helps businesses improve their bottom line. When AI is taken to scale, it leads to optimised inventory management and capacity planning. Retailers can predict trends,

and make data-driven decisions based on information gathered from supply chain data. Employing AI in retail transportation helps to optimise routes. AI can also be used to automate transport by using autonomous vehicles, and delivery robots. Linking with GPS systems can optimise routes and reduce the cost of freight for third-party vendors and clients. AI helps predict risks, and retailers can use this to proactively take corrective action.

**Personalisation:** AI solutions enable hyper-personalisation. For instance, businesses can use chatbots for empathetic communication with humans. The bots can answer general customer queries, and even make suggestions, while gathering information about the customer and their preferences. This data can be used by the business to profile the customer and creates an improved and personalised engagement opportunity for the next interaction. By blending online and offline interactions, AI solutions add a situational dimension to customer interaction. High-value customers can be easily identified to provide services commensurate with customer loyalty. At the same time, retailers can improve their engagement with lower-value customers to convert them to loyalists. Stores can deploy intelligent retail solutions to create customised shopping experiences at scale.

**Loss Prevention:** AI-powered devices at checkout can predict the bar code of the object in the camera frame with intelligent image scanning. If the predicted bar code does not match the one on the item, the staff can be alerted to a possible fraudulent transaction. Additionally, the presence of cameras at checkout is a deterrent to shoplifters. By auditing self-checkout transactions, retailers gain an understanding of items not being scanned, and those that are more prone to theft. Retail transactions can be audited to flag any vulnerabilities in the process.

**Predicting consumer behaviour:** Smart checkouts can gather a large amount of data regarding customer preferences and habits. Using this data in conjunction with deep learning will help businesses to determine patterns, and predict consumer behaviour and needs, months in advance. The ability to predict based on customer intent vis-a-vis transaction history will give retailers the much-needed competitive edge in a highly crowded sector.

**Improved efficiency:** Demand forecasting is a critical component of efficient retail management. A McKinsey study found that leveraging AI and machine learning (ML) in demand forecasting and supply can result in a 20 to 50 per cent reduction in errors. AI and ML solutions use the best mathematical and statistical techniques,

combined with historical patterns and factors that would impact demand in real-time, which result in a current and accurate forecast of demand, sales and inventory. AI automation of demand forecasting directly translates to higher efficiency in procurement, sales and marketing.

**Improved product placement:** An important aspect of retail stores involves the planogram, which specifies the layout of stock-keeping units (SKUs) on the shelves. Compliance with planogram has several benefits such as increased sales, customer satisfaction and efficiency. Manual planogram compliance requires store personnel to conduct an audit by visually scanning the shelves and manually counting SKUs, which is a tedious process that is subject to errors. The on-floor availability of products and compliance with the planogram can instead be done by deploying AI software and computer vision which can scan the product shelves and compare them with specified requirements. This is a far more efficient and accurate method of ensuring planogram compliance. Product availability features can be used to detect high-demand products and the ones that do not have significant sales. Automated notifications can detect anomalies. With AI in-store sales increase and product availability of in-demand products leads to higher customer satisfaction.



The digital revolution has led to a massive transformation of the retail industry. As the industry continues to innovate, retailers need to prioritise the benefits they would like to derive from AI, and

work with technology partners\* to enable the adoption of AI. By using the right AI solutions and tools, retailers can improve efficiency by freeing up their resources for tasks requiring human intelligence,

while simultaneously improving customer experience and satisfaction. Ultimately, using AI solutions that align with business objectives would help retailers distinguish themselves from the competition.

\* For organizations on the digital transformation journey, agility is key in responding to a rapidly changing technology and business landscape. Now more than ever, it is crucial to deliver and exceed on organizational expectations with a robust digital mindset backed by innovation. Enabling businesses to sense, learn, respond, and evolve like a living organism, will be imperative for business excellence going forward. A comprehensive, yet modular suite of services is doing exactly that. Equipping **organizations with intuitive decision-making** automatically at scale, actionable insights based on real-time solutions, anytime/anywhere experience, and in-depth data visibility across functions leading to hyper-productivity, [Live Enterprise](#) is building connected organizations that are innovating collaboratively for the future.

For more information, contact [infosysbpm@infosys.com](mailto:infosysbpm@infosys.com)



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