



REAL TIME ADAPTIVE RETAIL EXPERIENCE

Abstract

Retailers are looking beyond optimizing shopping transactions to providing experiences that the shopper can find engaging and exciting. Technology will play a key role in driving the in-store experience helping the brand and the retail outlet to develop a better relationship with the shopper. Retail stores would invest in technologies which can analyze information on a realtime basis and adapt its behavior accordingly, thus providing an engaging experience to consumers. With traditional brick and mortar store launching their ecommerce platforms, retailers would have better view on the complete customer journey enabling them to provide better personalized experience.

Era of Experiential Retail

Established Retail Stores will bring in innovative approaches for maintaining a mind-space for the brand especially with the e-commerce industry slowly taking away their wallet share.

In order to achieve a good mind share at the physical stores, it has been advised¹ that:

- Customer interactions should be with the brand rather than being limited to just transactions with the store
- Retail establishments need to provide carefully curated experiences

Retail stores would need to move towards providing carefully-curated experiences with the aim of making customer's journey inside a store more immersive and interactive rather than transactional. Retail stores in future will integrate technologies which are **smart** and **self-adapting** (technologies which can analyze information on a realtime basis and adapt its behavior accordingly) to create new and

engaging experiences for the customer.

Let's consider examples of retail club Sam's Club and retail giants Kroger and Lowe's.

Sam's Club, the membership only retail club owned by Walmart, recently opened a new club in Dallas known as Sam's Club Now where members can try technologies like **Smart Shopping** lists which combines machine learning and purchase data to auto-fill a member's shopping list. They can easily add or remove things, and as items are scanned the list will automatically update and move the item to their mobile basket and **Augmented Reality** which would enable the club to share new ways of using the products and highlight cool features. They would also showcase **electronic shelf labels** which would instantly update prices and **camera systems** that would help the club to manage inventory and optimize the layout to make shopping effortless.²

Likewise, Lowe's and Kroger are also rolling out numerous emerging technologies

enabled solutions to create better customer experience. Customers at Lowe's outlet would be greeted by the autonomous LoweBot called **NAVii**³ and would also assist customers to find items inside the store. Kroger⁴ is rolling out a technology that would **digitally display the prices** of items on the shelves as well as **share nutritional information**. The technology would also communicate with the smartphone of the customer and **highlight the items on the customer's shopping list**.

Other companies like **Adidas** and **Farfetch**⁵ are also opening up their own 'experiential' outlets focused around utilizing advanced technology to provide a seamless experience to customers.

All these experiential retail outlets examples indicate that the brick and mortar stores are headed towards making various processes inside a store as seamless and as quick as possible.



"Better customer experience tends to increase spending by 140% in comparison to customers who had poor experiences"

- **Peter Kriss** of Harvard Business⁶

Retail of the Future

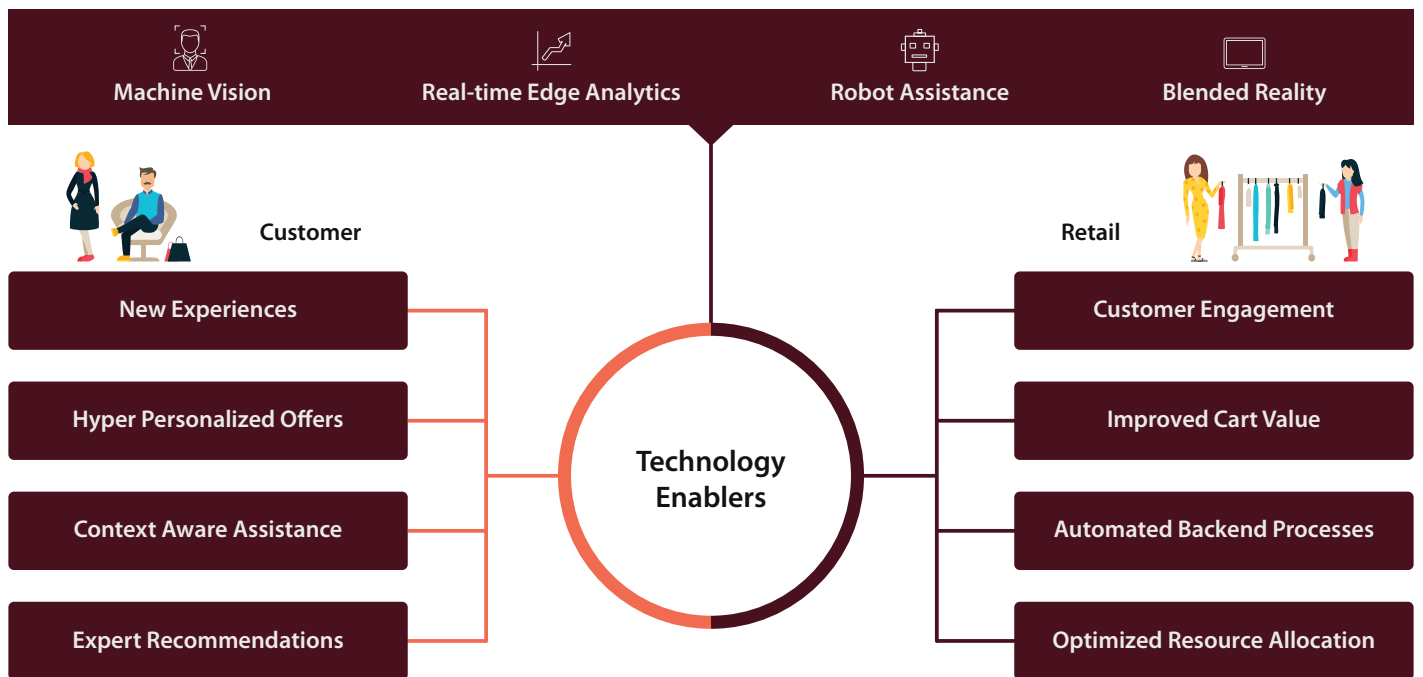
Retailers would inspire customer's loyalty to the brand by providing a **contextual and hyper-personalized experiences**. With progress in technologies like **machine vision, sensor fusion, realtime edge analytics, robot assistance** and **blended reality**; retail stores are better equipped to understand customer context and customer behavior. Retail stores can deliver newer shopping experiences with better in-store engagement, hyper-personalized offers which are aware of the consumer buying context as well as provide assistance based on realtime need of the shopper. These initiatives would also help the retail store to have improved shopper engagement and loyalty, increase

the average revenue per shopper while achieving better resource allocation through automation of certain repetitive tasks.

Adaptive Retail

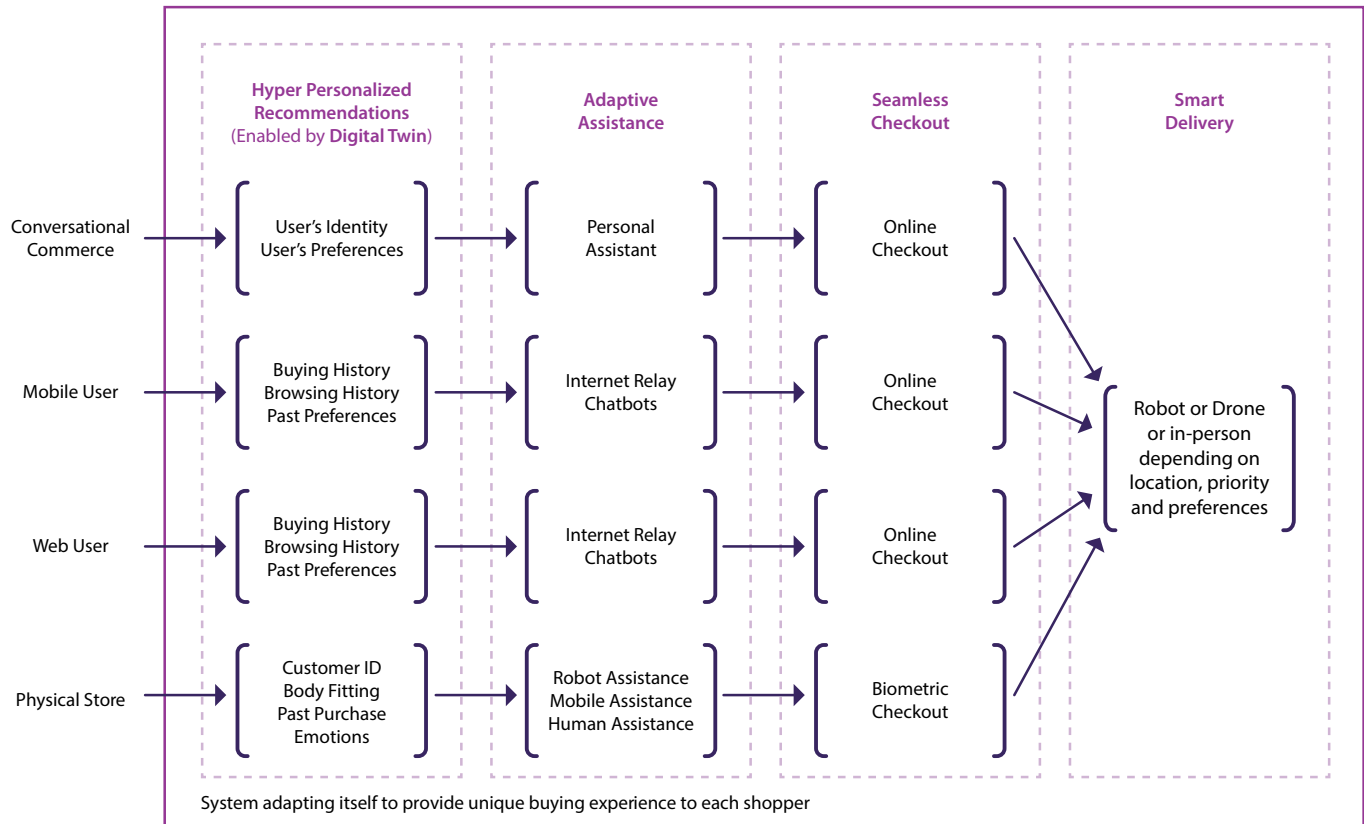
Imagine a future where Jane is at a café browsing her twitter account. She spots a dress in one of the sponsored tweets which was triggered by her **previous shopping activities** and her **proximity to a shopping mall**. With a simple action e.g. a message on chat, Jane is able to reserve a try-on for the dress at the nearby store. Once she reaches the store, **in-store body scanners** are able to determine the right body size and the correct dress is

delivered to the trial room. Inside the trial room, a **smart mirror** identifies the dress and recommends a pair of handbags that matches the dress. Jane selects one of them and the product gets delivered to the trial room. Pleased with the dress and the handbag, Jane takes them to one of the **self-checkout kiosks** enabled with **biometric authentication** which ensures secure payment. This seamless experience is facilitated by an intelligent adaptive system which helps manage different technologies like computer vision, sensor fusion smart mirrors, biometric checkout etc. seamlessly. We would take a look at few of these technologies in the subsequent section.



Under The Hood

ADAPTIVE SYSTEM



Customer Identification

In future, on-premise cameras would be used for more than just recording activities. The CCTV cameras would be able to identify new or repeating customers in realtime and message them with personalized greeting. In case of repeat customers, the customer profiles get mapped to their previous shopping history and preferences to generate recommendations. The retailers would also be able to detect persons who have been flagged by the system as shoplifters potentially avoiding thefts and revenue loss

Digital Twin

On-premise cameras also act as in-store body scanners, scanning for precise body sizes to create a 3D profile of the customer. The system maps the captured body measurement with the corresponding garment sizes and generate proper recommendations. Computer vision & sensor fusion enable identifying items of interest, addition to virtual cart and refining of product recommendations based on the recent interests. Store personnel would also be able to monitor stock-out items in realtime.

Intelligent Shelf

Product shelves in future stores would be digital in nature which would display product information beyond the brand name. Customers can trace the origin of various raw materials & manufacturing processes enhancing the relationship between the customer and the brand.

Adaptive Assistance

Intelligent Agents will be marshalled across the store and they would be able to sense and adapt to real-time needs. These intelligent agents would



comprise of store assistants, humanoids and digital assistants. The humanoids would be equipped with facial expression recognition which would enable them to identify unhappy or dissatisfied customers and intervene to identify the reason of dissatisfaction apart from alerting the store manager.

Seamless Checkout

Biometric multi factor authentication for payment, emotion assessment for shopping experience and selection of delivery speed enables a smooth checkout & payment experience via dynamic mobile counters.

Smart Delivery

Stores of the future would have the optimum mix of both traditional and futuristic delivery options which would consist of autonomous drones and delivery robots. All these agents collaborate among themselves and work in tandem to ensure maximum efficiency in delivering the products.



Infosys Capabilities

We have been striving towards the vision of creating a unified shopping experience by leveraging emerging technology led offerings like conversational user interface, machine vision driven customer tracking, facial biometrics, in-store analytics etc.

In-store Analytics

With in-store analytics, retail stores are able to Draw **customer insights, dwell time** across various sections in the store and **buying pattern**.

Machine Vision Driven Customer Tracking

Machine vision powered by store

CCTV cameras enables the retail outlet to **identify customers, track their movement** and provide **contextual assistance** based on realtime need assessment.

Location Based Services

With location based services, retail stores can run **hyper-personalized promotional campaigns**.

Conversational Interface

Chatbots and assistants like Amazon Alexa are being used by enterprises to gather **customer insights** and **manage vendors**.

Cognitive Platform

Utilizing machine learning techniques to **extract text from images of artwork** and categorize the same into relevant product attributes

Blended Reality

Leveraging AR/VR, we have helped retailers conceptualize and build **virtual stores, endless aisles** and personalized promotions.

We believe that in the future all these incremental innovations would interact with each other to provide maximum benefits to both customers and retailers



Conclusion

With advancement in technologies, retailers are able to make better decisions with regards to emerging solutions like smart mirrors, smart shelves, autonomous robots, seamless checkout etc.; which used to be difficult till sometime back due to the difficulty in integrating all these emerging technology solutions and accessing information from these solutions.

Retail sector is poised to leverage adaptive systems with the current static hierarchical layout giving way for intelligent self-adapting systems. These systems which are able to integrate and manage all these emerging solutions into a seamless process flow would help the retailers to successfully utilize technologies to build brand loyalty and maintain customer mind-share.

The retailers would also be able to gather efficient customer insights and understand customer behavior inside the store. These would help the stores to achieve an improved overall customer engagement index and increased average revenue per customer.

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