

Changing face of Indian Retail Sector: Role of Technology with special reference to Artificial Intelligence

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Abstract

Advancements in technology are revolutionizing the business operations of organizations operating in various sectors. The retail sector of India is also pulsating to welcome such innovations in turn to provide superior shopping experience to the customers. Artificial Intelligence is being adopted by International retailers already whereas in India it is still at the beginning stage. Artificial Intelligence is transforming E-commerce like never before. According to Gartner, by 2020, 85 percent of customer interactions in retail will be managed by artificial intelligence on a global scale. Owing to its various significant applications in transforming retail operations, Artificial Intelligence may play a pivotal role in uplifting the retail operations to a whole new level. This work studies the present state of Indian Retail sector and highlights the applications of Artificial Intelligence.

Keywords: E-commerce, Technology, Artificial Intelligence, Retail Environment, Shopping

1. Introduction

The Indian retail industry has emerged as one of the most dynamic and fast-paced industries due to the entry of several new players. It accounts for over 10 per cent of the country's Gross Domestic Product (GDP) and around 8 per cent of the employment. India is the world's fifth-largest global destination in the retail space. Indian Retail Industry has immense potential as India has the second largest population with affluent middle class, rapid urbanization and unflinching growth of internet users.

India's retail market is expected to grow at a Compound Annual Growth Rate (CAGR) of 10 per cent to US\$ 1.6 trillion by 2026 from US\$ 641 billion in 2016. While the overall retail market is expected to grow at 12 per cent per annum, modern trade would expand twice as fast at 20 per cent per annum and traditional trade at 10 per cent. Indian retail market is divided into Organized Retail Market which is valued at \$60 billion which is only 9 per cent of the total sector and Unorganized Retail Market constitutes the rest 91 per cent of the sector.

India's Business to Business (B2B) e-commerce market is expected to reach US\$ 700 billion by 2020. Online retail is expected to be at par with the physical stores in the next five years.

India's total potential of Business to Consumer (B2C) is estimated to be US\$ 26 billion, of which \$3 billion can be achieved in the next three years from 16 product categories, according to a study by Federation of Indian Chambers of Commerce and Industry (FICCI) and Indian Institute of Foreign Trade (IIFT).

India has replaced China as the most promising markets for retail expansion, supported by expanding economy, coupled with booming consumption rates, urbanizing population and growing middle class.

India is expected to become the world's fastest growing e-commerce market, driven by robust investment in the sector and rapid increase in the number of internet users. Various agencies have high expectations about growth of Indian e-commerce markets. Indian e-commerce sales are expected to reach US\$ 120 billion by 2020 from US\$ 30 billion in FY2016. Further, India's e-commerce market is expected to reach US\$ 220 billion in terms of gross merchandise value (GMV) and 530 million shoppers by 2025, led by faster speeds on reliable telecom networks, faster adoption of online services and better variety as well as convenience.

India's direct selling industry is expected to reach a size of Rs 23,654 crore (US\$ 3.54 billion) by FY2019-20, as per a joint report by India Direct Selling Association (IDSA) and PHD. Indian exports of locally made retail and lifestyle products grew at a CAGR of 10 per cent from 2013 to 2016.

The size of modern retail in India is expected to double to Rs 171,800 crore (US\$ 25.7 billion) from Rs 87,100 crore (US\$ 13 billion) in three years driven by omni-channel retail.

The Indian retail trading has received Foreign Direct Investment (FDI) equity inflows totaling US\$1.04 billion during April 2000–June 2017, according to the Department of Industrial Policies and Promotion (DIPP).

With the rising need for consumer goods in different sectors including consumer electronics and home appliances, many companies have invested in the Indian retail space in the past few months.

The Government of India has taken various initiatives to improve the retail industry in India.

- The Government of India may change the Foreign Direct Investment (FDI) rules in food processing, in a bid to permit e-commerce companies and foreign retailers to sell Made in India consumer products.
- Government of India has allowed 100 per cent Foreign Direct Investment (FDI) in online retail of goods and services through the automatic route, thereby providing clarity on the existing businesses of e-commerce companies operating in India.

E-commerce is expanding steadily in the country. Customers have the ever increasing choice of products at the lowest rates. E-commerce is probably creating the biggest revolution in the retail industry, and this trend would continue in the years to come. Retailers should leverage the digital retail channels (e-commerce), which would enable them to spend less money on real estate while reaching out to more customers in tier-2 and tier-3 cities.

Both organized and unorganized retail companies have to work together to ensure better prospects for the overall retail industry, while generating new benefits for their customers. Nevertheless, the long-term outlook for the industry is positive, supported by rising incomes, favorable demographics, entry of foreign players, and increasing urbanization.

2. Literature Review

With the use of technology in retail environments, customers can easily access and browse the retailer offerings and the details pertaining to the same. At the same time they can also compare the products with

that of competitors. They can create and share wish-lists and shopping-lists using various interfaces.

NFC (Near Field Communication) can be useful in mobile devices with two-way short range wireless connectivity up to no more than 10 cm, which supports fast checkout by allowing customers to pay in a "contactless" way which can replace the traditional card swipe or insertion into the reader and the subsequent request of PIN or permission for the payment. Quick Response codes (QR) (bi-dimensional barcode including rich information on a product) is another way of allowing customers to access information on products by scanning the code through their mobile camera without direct assistance by any employee (Sankaridevi, Vennila, & Jayakumar, 2015; Zhao, Smith, & Alanson, 2015).

As a result of the diffusion of such technologies, fresh studies have been inspecting how in-store consumer behaviour has been affected by advanced technologies (Demirkan & Spohrer, 2014; Hristov & Reynolds, 2015; Pantano, 2016; Pantano & Priporas, 2016). To this point, research has widely exploited the Technology Acceptance Model (TAM) (Davis, 1989), by considering the perceived ease of use, usefulness, attitude and behavioral intention as drivers of new technology adoption. This traditional model has been further extended with more constructs such as risk avoidance (Gross, 2015), trust (Perea y Monsuwe, Dellaert, & de Ruyter, 2004; Pavlou & Fygenson, 2006), hedonic value (Pantano, 2014) and utilitarian value (Pantano & Priporas, 2016). Use of a new system, a new technology or an innovation involves a certain level of risk related to the uncertainty and the possible consequences which may emerge from its usage. Therefore, trust plays a significant role under conditions of uncertainty and risk, such as during the purchasing of unfamiliar (or unknown) products (Perea y Monsuwe et al., 2004; Park, Gunn, & Han, 2012). In traditional stores, the most important source of trust is the sales assistant (vendor), who shares his/her experience, expertise, honesty, benevolence, confidence, and communication skills to support the consumer's purchase behaviour (Pantano & Migliarese, 2014). The concept of trust has also been extended to the technology, by implying that if the technology itself is trustworthy, consumers may not be willing to ask others' support while choosing (Pantano & Priporas, 2016).

Research on the introduction of advanced and interactive technologies within the stores has so far largely focused on the extent to which these systems mediate the traditional communication between consumer and sales assistant (Williams, Nadin, & Windebank, 2012). Mainly, these studies describe the increasing difficulty in building (strong) relationships with consumers who use self-service technologies because of the decreased frequency of interpersonal contacts with other consumers and vendors (Everts & Jackson, 2009; Kim, Suh, & Lee, 2013; Pantano & Migliarese, 2014; Tang, Shee, & Tang, 2001). This might affect shopping as a social experience (Everts & Jackson, 2009), which includes spending time with friends or relatives while purchasing (Gilboa and Vilnai-Yaetz, 2013; Kim & Kim, 2012; Kim et al., 2013). Indeed, one key aspect of the points of sale lies on the ability to offer a social experience (Gilboa and Vilnai-Yaetz, 2013). Moreover, the need to interact with others during the purchase decision includes the desire to be accepted by others and meet others' expectations, as described in Maslow's (1954) definition of the social need for belonging.

However, the main focus in most studies on technology-enhanced retail settings has been on consumers' acceptance of these innovations (Demirkan & Spohrer, 2014; Hristov & Reynolds, 2015; Johnson et al., 2015; Pantano, 2014; Blazquez, 2014, 2016; Yeh & Li, 2014). Artificial Intelligence (AI) refers to human Intelligence exhibited by machines. AI can be classified into Strong and Weak AI. Strong AI (or artificial general intelligence) is a machine with consciousness, sentience, and mind, and this machine has intelligence in more than one specific area. Weak AI (or artificial narrow intelligence) focuses on specific narrow tasks (e.g., self-driving car).

The present work attempts to highlight the use of Artificial Intelligence in retail environments so as to provide superior experience to the shoppers.

3. Discussion on AI Applications

Self-service is fast becoming a key retail trend, with surveys suggesting around 70% of consumers expect to find self-service tools to resolve queries. Between February and July 2016 nearly 18,000 branded chatbots appeared on Facebook messenger and consumers expressed a preference for chatbots over human contact centers for customer relationship management (CRM), which means, given AI's efficacy for enabling personalization through customer data, it's an essential technology for building this next generation of automated retail experiences.

Customer segmentation for AI in retail

Personalization is a key word when it comes to improving the shopping experience, and marketers are becoming savvier about using AI to collect data to create a more complete view of each customer. [AgilOne](#) is an example of how AI can help marketers optimize their communications as it continually learns from user behavior. The technology is designed to integrate a wide range of customer data derived from multiple digital and physical channels. It uses the data to analyze and predict customer behavior, allowing marketers to fully understand their customers and engage with them in an authentic way. Other companies expanding this technology include [SiteZeus](#) - technology which collects big data to make location-specific predictions, forecasts and decisions - and [Sentient](#), which encourages users to have real-time conversations with virtual salespersons who adapt their products and inventory in real time to match customers' changing preferences and needs.

Artificial Intelligence solutions for customer segmentation will become more and more sophisticated and allow marketers to integrate vast amounts of data to make the customer journey more personalized, and more efficient.

Image recognition

In the near term, machine vision may open a new array of possibilities for online consumers, such as allowing them to search for products using images. For instance, if you need a new office chair, you could upload a picture of one you would like to buy, or even a picture of your desk and have a chair matched to it. You may also be able to use an image you found via Google search to help you find the product you desire. Companies like [CamFind](#) are experimenting with image recognition. The app allows you to take a picture of any object, and the mobile visual search technology will tell you exactly what the object is, without your having to type in any questions or details. Other companies developing machine vision for possible retail use include [Tagalys](#), which uses image data tagging and image recognition engines to make product recommendations, and [Findally](#), which uses image recognition and machine learning to turn images into text data.

Retail virtual agents

From chatbots to sophisticated systems that can interact with humans, this field of Artificial Intelligence is bound to advance quickly in the near term, as it is already showing many applications in the e-commerce industry. Chatbots are currently used in customer service and support but are also being developed to help customers make purchases. Companies like Starbucks, Whole Foods, Pizza Hut and Staples are already working to [implement chatbots](#) to help facilitate customer purchases. As chatbot technology becomes more advanced,

virtual agents will begin to build a more personal relationship with individual customers. While they do so, they can also track customer purchases, behavior and preferences. This information can then be integrated into a conversation to recommend products or services.

Other companies on the cutting edge of e-commerce virtual agents include [Niki.ai](#), which is developing a personal shopping assistant chatbot that allows users to order products through chat. It allows marketers to develop and scale chat campaigns across multiple chat applications simultaneously.

Artificial Intelligence for smart content

For businesses that want to attract visitors by sharing relevant content but do not know exactly what, when or where to post, AI is set to reshape the future of content marketing. Currently, marketers can use AI to generate simple content such as sports reports or stock updates. In the not-so-distant future, algorithms may be able to generate more complex content, using customer data to target individual users and provide them with more personalized content.

Developed with cognitive content in mind, [Persado](#) generates smart content by using precise words, phrases and images designed to engage customers by creating a specific emotional response. For instance, marketers could use Persado to generate personalized marketing messages generated from vast amounts of user data.

Other companies focusing on the advancement of smart content include [Narrative Science](#), whose natural language processing software collects and interprets data and uses the information to produce intelligent narratives tailored to a business's specific needs. The technology is designed to help companies produce content to serve and engage individual readers.

The future of the retail sector in India seems to be exciting as both organized and unorganized retail businesses along with the government are working collectively to revolutionize the retail industry while keeping the interests of the customers in mind. End of Global Retail giants in the market and revolutionary technologies will transform the journey of customers by enhancement in retail operations.

4. Conclusion

It can be inferred that retail sector is dynamic and will continue to be as further advancements and innovation come across. Building on AI-based technology, many International Retailers are testing driverless vehicles, and various manufacturers and retailers are taking advantage of advances in the technology for robotics and drones. The Indian retailers will have to upgrade and adapt to these changes in order to be in the race or else they may have to lose their customers to the competition. There may be initial hiccups among the customers for trying the new ways of shopping but gradually they will become accustomed to it. The use of Artificial Intelligence will help in building intuitive retail environments which will change the way how shoppers select channels, choose products and services, and make purchases. Retailers need to embrace these new and emerging technologies to make the most of it.

5. References

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