

**ROLE OF TECHNOLOGICAL ADVANCES IN ENHANCING THE  
RETAIL EFFICIENCY- A STUDY**

**Mrs. B. Lavanya,**  
Assistant Professor  
School of Management  
Studies,  
CBIT, Hyd.

**Dr. S. Saraswathi,**  
Associate Professor  
School of Management  
Studies,  
CBIT, Hyd.

**Dr. M. Sudhir Reddy,**  
Project Officer  
NTMIS NODAL Center,  
JNTUH-University- Hyd.

**ABSTRACT**

*For the purpose of treating the customer as king, many industries are trying their best. Even in the retail industry because of the intense competition, the players are putting their maximum efforts in improving their services to meet the high expectations of the customer. It is evident from surveys that the retailing industry has witnessed so much dynamism in the recent past and technology is one of the factors responsible for the growth of retail industry. It looks that all the major player has accepted that the improvements in technology will result in better efficiencies. So the present study “Role of Technological advances in enhancing the retail efficiency” is initiated to understand the level of technology that is used in retail industry. The study also analyses how effectively and efficiently the retail industry is running with the aid of technology. In order to meet the aim of the study, primarily secondary data sources like journals, magazines, newspapers and websites are used.*

**Key Words: Technology, dynamism, retail business, efficiency,**

**INTRODUCTION**

According to the Investment Commission of India, the retail sector is expected to grow almost three times its current levels by next year i.e., by 2015. In this regard the retail industry is considered as one of the Sunrise sectors. The massive pace of retail development in the recent past is the proof for this. Today technology is evolving rapidly to support the growth in various

fields. It is observed that in order to enjoy the competitive advantage and win the customer delight it became essential even for the retail industry to acknowledge the technological advances and their impact. It is said that for any industry, it would cost five times more to retain than to get a customer in today's competitive world. So in order to retain a customer, the retail industry should look for innovative ideas that would help it make huge leaps in improving its efficiency. Definitely the technology would do wonder in this regard.

## **LITERAURE REVIEW**

Retailing is defined as all activities involved in selling goods or services directly to the final consumer for their personal, non-business use via shops, market, door-to-door selling, and mail-order or over the internet where the buyer intends to consume the product. In 2004, The High Court of Delhi defined the term as a sale for final consumption in contrast to a sale for further sale or processing.

The shopping attitudes are also governed by certain factors such as apathy, convenience, enjoyment, shopping as an activity and as an event (Chetthamrongchai, 2000). Shoppers' particularly search for value; quality and an overall frictionless shopping experience (Tillman, 2007). The ultimate goal of retailing is to provide consumers with a selection of goods and services that satisfy their needs profitability. This can be accomplished by looking at the shopping experience from customers' perspective (Burke, 2005). Anand and Kulshreshtha (2007) extended the TOE framework by (Tornatsky and Fleischer's) by including another aspect – customer to study an Indian retail company's B2C adoption process in Study of Technology adoption in supply chains of Organized Retail.

Marzocchi and Zammit (2006) discussed whether satisfaction with self scanning technologies has any impact on consumers' overall opinion of the supermarket and their intention to patronize the store with greater frequency. Dane, et al (2010) examines the impact of radio frequency identification (RFID) technology on the inventory control practices of a small to medium retailer. Lin, Po and Orellan (2010) used a case study approach for a children apparel retail chain which has implemented POS and found that storefront employees should take initiative in helping pay attention to the customer. Rao (1998) opinioned that several innovative

on-line retailers have already shown that interactions can be truly one-to-one on-line, thus increasing the likelihood of repeat and future revenue streams from their customers

Tanwar, ET al (2008) has critically stated the ERP that some of the leading Indian retail firms are currently using. Xiaoran Wu and Subramaniam (2009) using the Technology-Organization-Environment (TOE) framework developed a theoretical model for RFID adoption and infusion. Based on the study the implications for managers are, managers should not only evaluate potential benefits of innovation but also evaluate innovation maturity for adoption when managers make decisions on innovation adoption. Quelch JA, Klein LR (1996) expressed that in addition to storing and managing data, information and the insights obtained from them need to be shared within the retail organization and with suppliers and others to achieve an integrated solution that manages the flow of materials through the supply chain. This includes partners and suppliers in international locations.

Chieu, et al (2010) discusses a framework for deployment of business analytics solutions on a cloud platform. The solutions are characterized by a need to process and manage large volumes of data, rapid on – boarding of new retailers and CPs and an ability to plug in different analytical providers. Joseph and Soundararajan (2009) analyzed the impact of organized retailing on different segments of the economy and found that both traditional and organized retail are bound not only to coexist but also achieve rapid and sustained growth in the coming years.

## **NEED FOR THE STUDY**

From the earlier discussion of the study it is clearly understood that the retail industry is of the fastest evolving industries and it is also understood that acknowledging the role of technology is must in this regard. When observed the dynamism of the retail industry, conducting the business activities without the help of technology seems almost impossible. So, the Organizations have to become aware of the importance of technology to improve efficiencies and take definitive steps towards leveraging IT in improving the efficiencies of all the functions in the retail industry.

## **AIMS OF THE STUDY**

1. To Study the level of technology that is used in the retail industry
2. To understand how technological advance affect various stake holders of retail business.
3. To analyze how these advances are promoting efficiency in the retailing business

## **METHODOLOGY**

The main objective of the study is to understand the level of technology that is used in the retail industry and to analyze how effectively and efficiently the retail industry is running with the aid of these technological advances. For the purpose of meeting the objective, the present study has used journals, magazines, newspapers and websites as secondary data source and observation as primary data sources. Both data sources helped to examine the new insights of the technology in retailing and based on the understanding, how these advances are promoting efficiency in the retailing business are analyzed.

## **DISCUSSIONS AND RESULTS**

Technology can be used as an effective tool in managing activities related to retail business. In this paper, the overview of some of the common technologies that are used by the retailers in order to enhance the retailing are discussed. The technology and its impact on the retailing business are discussed in the table-1. All the important types of technology that are discussed, helped retailers in answering critical question of suppliers, customers and other partners which are related retailing strategies.

**Table-1 Different Information technology tools and their impact on retailing**

<b>Type of Technology</b>	<b>Impact on retailing Business</b>
<b>1. Radio frequency identification (RFID):</b> Technology that uses radio frequency waves to transfer data between a reader and a movable item for the purpose of identifying, categorizing tracking and	<ul style="list-style-type: none"><li>• The organizations can acquire data about entities properties and location.</li><li>• Increase speed, accuracy &amp; visibility of operational information exchange which leads to shorter cycle times, lower labor</li></ul>

monitoring products.	costs and improved customer service.
<b>2. Point of Sale technology:</b> A computerized system used to capture time place of sale.	<ul style="list-style-type: none"> <li>• Sales transactions can be captured immediately and accurately as bar coding readers, magnetic stripe readers and cash registers are combined with specialized terminals.</li> </ul>
<b>3. Customer Relationship management, Online Analytical Processing Collaborative planning forecasting and replenishment:</b>	<ul style="list-style-type: none"> <li>• Helps in tracking purchase behavior through demographic and psychographic information of the customers.</li> <li>• Saves cost by cutting down lead times, reducing inventory.</li> </ul>
<b>4. Customer Service Kiosks and Intelligent Vending Machines:</b> Here information about products, their availability, and price verification can be done at the customer service kiosks.	<ul style="list-style-type: none"> <li>• When the missing goods are ordered by the customer, they can be directly shipped.</li> <li>• Resolve query or could inform the customer how much time he would take to come down to the kiosk.</li> </ul>
<b>5. Voice ready Multi-Modal Wearable Computer Operatives</b>	<ul style="list-style-type: none"> <li>• This give a store associate access to store inventory, point of sale, voice communication, instant messaging, and even external data such as Inventory at other stores in the region.</li> </ul>
<b>6. Electronic data Interchange:</b> involves exchange of business information through standard interfaces, by the use of computers.	<ul style="list-style-type: none"> <li>• Much attention can be paid on key business areas as human intervention can be minimized with the help of computers.</li> </ul>
<b>7. Barcode and Scanners:</b> are photoelectric scanners that read the vertical	<ul style="list-style-type: none"> <li>• speed up the checkout</li> <li>• Convenience to customers</li> </ul>

zebra striped marks, printed on product containers.	<ul style="list-style-type: none"> <li>• Saves valuable time of both service provider and customer.</li> </ul>
<b>8. Business to Business (B2B) collaboration:</b> B2B is pre-agreed technological information sharing mechanism and co-planning process.	<ul style="list-style-type: none"> <li>• Cordial relationships can be maintained between supplier and buyers as they can interact at their ease.</li> </ul>
<b>9.Loyalty Membership cards:</b> Creative personalized customer loyalty cards	<ul style="list-style-type: none"> <li>• Helps in gaining the customer loyalty as reward points, discounts and perks are provided.</li> </ul>
<b>10.E-Commerce</b>	<ul style="list-style-type: none"> <li>• Cost-effective form of attracting and retaining customers.</li> <li>• Facilitates growth in newer applications like kiosks, intelligent vending machines, PC net shops, etc.</li> </ul>
<b>11.F-Commerce :</b> face book commerce	<ul style="list-style-type: none"> <li>• Individualized information can be sent to the customers.</li> </ul>
<b>12. Mobile point of sale:</b> Uses handheld computers, scanners, and printers with integrated credit card readers.	<ul style="list-style-type: none"> <li>• Aids in reducing the queue especially during peak hours</li> </ul>
<b>13. Video Conferencing</b>	<ul style="list-style-type: none"> <li>• Facilitates inventory checks, remote support, remote team meetings, last minute specials, new incentive programs, faster access to sales reports, employee information and remote expertise.</li> </ul>
<b>14. Mobile payment</b>	<ul style="list-style-type: none"> <li>• Customers can save an ample amount of time.</li> </ul>

<p><b>15.The Database Management:</b> organizes, retrieves, and manages the data</p>	<ul style="list-style-type: none"> <li>• Efficient management of data</li> <li>• Used for business analytics</li> </ul>
<p><b>16. Cloud computing:</b> involves sharing of physical infrastructure i.e., sharing hardware, software, network resources.</p>	<ul style="list-style-type: none"> <li>• Minimizes per unit compute cost for enterprises.</li> </ul>
<p>17. <b>Data Warehousing:</b> Stores computer based information.  <b>Data Mining:</b> upgrades a retailer with important information.</p>	<ul style="list-style-type: none"> <li>• Helps in finding relationship between customer behavior and non – intuitive variables.</li> </ul>
<p><b>18.Collaborative, Planning, forecasting and Replenishment</b></p>	<ul style="list-style-type: none"> <li>• Good vendor-buyer relationship can be maintained.</li> <li>• Efficient management of inventory.</li> <li>• No lost Sales, back ordering. Saves money and time.</li> </ul>

Thus when observed at the table it is evident that right from planning the retail business till its execution the technology is playing a prominent role. Not only focusing on primary activities the technological advances are extending their hand in supporting activities also. One more important thing noticed in this analysis is that all the stake holders i.e., suppliers, shareholders, partners, employees, customers are benefitted. Thus efficiency is promoted because of the use of technology in retail activities.

## CONCLUSION

For the purpose of simplifying their business functions and to gain the customer delight, the retailers have to exploit the advantages that the Information Technology bestows as Information and communication technology has contributed significantly to the retail acceleration globally. However Indian retail is still leapfrogging in terms of leveraging and communication technology. To stay ahead in the global retail race, the use of modern



technologies by Indian retailers is very essential as they continue to improve the capabilities of organizations apart from reducing the cost and increasing efficient shopping experience of the customers.

### **ACKNOWLEDGMENTS**

I would like to express my deepest gratitude to the Management of CBIT, Dr. B. Chennakesava Rao, Principal, CBIT, the Department of School of Management Studies, my family members and friends who helped me in accomplishing the work successfully.

### **REFERENCES**

1. Akshay Anand and Singdha Kulshreshtha (2007), “The B2C Adoption in retail firms in India”, Second International Conference on Systems (ICONS’07).
2. Burke R. Raymond (2005), “Retail Shoppability: A measure of the World’s Best Store”, Retail Industry Leaders Association, pp. 206-219.
3. Chetthamrongchai Paitoon and Davies Gary (2000), “Segmenting the market for food shoppers using attitudes to shopping and to time”, British Food Journal, Vol.102, Number 2, pp.81-101.
4. Fu-Ren Lin, Rung-Wei Po and Claudia Valeria Crux Orellan (2010), “Learning service experience from the service encounter of a retailing chain storefront”, Proceedings of the 43rd Hawaii International conference on system Sciences -2010.
5. Gian Luca Marzocchi and Alessandra Zammit (2006), “Self Scanning Technologies in Retail: Determinants of Adoption”, The services Industries Journal, Vol. 26, No. 6, pp.651-669.
6. Hamilton Dane, Katina Michael and Samuel Fosso Wamba (2010), “RFID enabled inventory control optimization: A proof of concept in a small to medium retailer”, Proceedings of the 43rd Hawaii International conference on system sciences, 2010.
7. Mathew Joseph and Nirupama Soundaranjan (2009), “Retail in India in India”, Indian council for research on International economic relations, New Delhi.



8. Quelch JA, Klein LR (1996) The internet and international marketing. Sloan Management Review, Spring:60–75.
9. Rao B. (1998:9(2).), “Deploying an effective e-tailing strategy”, International Journal of Electronic Markets. In: Schmid BF, Klein S, Steinfield C, Selz D; Buchet B editors, Electronic commerce in the Americas, and Local versus global electronic commerce. Electronic Markets.
10. Samridhi Tanwar, Neeraj Kaushik, V.K. Kaushik (2008), “Venturing of retail with Information and Communication Technology: An Indian Perspective”, Journal of Marketing and Communication, /vo. 4 Issue 2.
11. Tillmann (2007), “Shopping motivation revised: A means –end chain analytical perspective”, International Journal of Retail and distribution Management, Vol.35, Number 7, pp.569-582.
12. Trieuchieu, Shubir Kapoor, Ajay Mohindra and Anesshaikh (2010), “Cross Enterprise Improvement delivered via a cloud platform: A game changer for the consumer product and retail industry”, IEEE International conference on services computing, 2010.
13. Xiaoran Wu, Chandrashekar Subramaniam (2009), “New understanding of RFID adoption and infusion in retail supply chain”, Proceedings of the 42nd Hawaii international conference on system sciences, 2009.
14. [www.Indianretailer.com](http://www.Indianretailer.com)
15. [www.researchmarkets.com](http://www.researchmarkets.com)