

Information Technology in Retail Sector

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Abstract: *The increasing globalization of retailing, constant connectivity, contextual relevance, and a multi-screen world are changing both online and offline shopping. As the in-store experiences blur, it is opening up exciting new possibilities for forward-thinking retailers. Today's retail business is highly dependent on information and if barriers are not met, a thriving business will soon be doomed (Mansoori and Mehra, 2010). Today, the information technology (IT) investment in the retail sector has increased significantly. IT plays an important role in the management of complex retail operations. Market knowledge, as well as control of data and information is essential to obtain a competitive advantage in the retail sector. Today's consumers are well updated than ever and they shop to greatly increased expectations for service and price. Retailers are beginning to notice that technology's role is one of an enabler. Essentially, information technology can speed up processes and increase sales, improve customer retention rates and deliver cost saving benefits to the company.*

Keywords: Information Technology in store, Retail trade, Innovations, Customer Satisfaction, Cost benefits.

1. Introduction

Five remarkable periods in the recent history of retail (over the past 100 years or so)

Local culture – the Corner Store: 1900s

Mass modernization culture – Department store: 1900 – 1940

Consolidation culture – Big Box stores: 1970 – 1990

Digital culture – E-commerce: 1990 and onwards

The retail industry business has been around for centuries. It all started with a community general shop where people of the community would shop for items of necessity. As societies advanced with population increase leading to expanded cities, and new advanced technologies gave rise to interconnectivity as well as easy communication between distanced cities or societies, opportunity for specialty stores was formed. Shopping once relied solely on human interaction in retail stores—with a little catalog shopping on the side. Those days are approaching an end as companies like Apple allow paying for a purchase and walking out of a store without talking to anyone. Meanwhile, robots are taking the place of the humans who check inventory on the shelves. Most of these issues can be solved by the appropriate use of technology. Retailers need to transform their IT capabilities for a number of reasons. These include:

1. To respond to rapidly emerging trends and deliver superior quality products and services to customers with flexibility and speed.
2. To raise brand awareness among customers, increase sales, retain existing customers and attract new ones.
3. To aggregate and analyze customer data to enhance differentiation.
4. To operate the business more effectively retailers need to have systems working across stores to ensure the effective use of products and to support optimized business process.
5. To integrate different parts of a retail organization.

2. Objective

This paper discusses the different technologies that are implemented in retail stores, and how retail players are

applying these technologies to reduce the operational and technological gap in order to compete in this globally competing environment.

3. Information Technology

Information technology (IT) is the application of computers to store, retrieve, transmit and manipulate data often in the context of a business or other enterprise.

Information technology, as defined by the Information Technology Association of America (ITAA), is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” Encompassing the computer and information systems industries, information technology is the capability to electronically input, process, store, output, transmit, and receive data and information, including text, graphics, sound, and video, as well as the ability to control machines of all kinds electronically.

The use of innovative technologies in retail has become possible as a result of the specialization of the IT sector in the area of retail-oriented solutions, involving the latest developments, radio frequency technologies, computer systems and the Internet. Need for Information Technology in retailing is to provide the following key information areas:

- Product information – catalog, availability, new releases, promotion, supply and demand etc.
- Customer information – profile, behavior, activities, preferences, distribution etc.
- Operations information – logistics, allocation, procurement, schedule, inventory, shelf space

4. Factors Responsible for Need of Information Technology in Retail

The retailing industry has been witnessing some exciting developments. The factors that lead to the need for Information Technology in Retail Sector are:

1. Globalization of business operations: The increasing globalization has led to growing exposure to foreign markets resulting in increasing demand for international shopping experience. As the industry become more global in its procurement, manufacturing and marketing operations it requires a greater use of information technology to reduce the time and space barriers.

2. Competition: Competition forces the retailer to become more efficient and effective. To gain the competitive advantage by the use of information technology is to reduce operating costs through automation and to improve the product or service quality by providing quality assurance with product differentiation.

3. To meet the expectations of the Customers: With globalization, the world is brought closer and the world's economy is quickly becoming a single interdependent system. Information can be shared quickly and easily from all over the globe, and barriers of linguistic and geographic boundaries can be torn down as people share ideas and information with each other. To meet these requirements in a speedy way has necessitated the need for information technology.

4. Technological Revolutions: Information technology can speed up processes and deliver cost saving benefits to the company. It is possible to transmit, store, process and distribute forms of information on a single integrated technology and meet the needs of the customers.

5. Inventory management: To meet the expectations and challenges in the market, information technology is become the need of the hour. Inventory management software is a computer-based system for tracking inventory levels, orders, sales and deliveries. It can also be used in the manufacturing industry to create a work order, bill of materials and other production-related documents. It helps to avoid product overstock and outages. An electronic inventory control system is now a basic tool for retail management. Without this information, you cannot plan and execute a retail strategy.

6. Store Management: Information technology is beneficial for store management systems that give alerts to stock-out items. Store systems are types marketing systems that use business process information systems to elevate and transform the retail shopping experience of a shopper in both store-based and disinter-mediated retail shopping environment.

7. Forecasting: Automated statistical forecasting systems create a far more calculated and accurate demand forecasting as past sales data, forecasts, and future orders are all on one system. As a result, more accurate forecasts can be made based on the totality of this information. Forecasting systems can reach the desktop of every line manager, bringing chain wide input (if appropriate) into the process through interactive Web based applications. Thus forecasts can be further adjusted, taking every aspect into account. The new approach to demand forecasting in retail will contribute to the accuracy of future plans, the overall efficiency and profitability and profitability of retail operations.

5. Technologies Evolved in Retailing

1. Radio Frequency Identification (RFID)

As name implies, RFID is an ID-identification- system. It relies on a small chip that is implanted in a tag. The chip can record and store data, such as a serial number, price or purchase record. Electronic scanner can use radio signals to read or track the ID tag.

Use of RFID in Retail

RFID Smart Labeling

- Monitor unattended inventory
- Shipping and Receiving applications
- Provide real time tracking and locating of tagged items on shelves

Check-out Process

- Streamline check-out process with ability to scan multiple items and pay for them all at once
- Reduce labor/time cost of employees
- Reduce time spent in line

Overhead Reduction

- Track product shipping and receiving from point-to-point automatically versus manual tracking to save time and labor cost
- Know how many units of inventory or on-site via automated RFID system versus manual process, saving labor and time cost
- Efficiency in error reduction reduces manual labor cost

The future of RFID is very bright in retail sector, as right from inventory management to product manufacturing, this system provides a more efficient and advanced retail experience to both the customer and the seller.

2. Point Of Sale (POS)

Point of sale (POS) systems is electronic systems that provide businesses with the capability to retain and analyze a wide variety of inventory and transaction data on a continuous basis. POS systems have been touted as valuable tools for a wide variety of business purposes, including refining target marketing strategies; tracking supplier purchases; determining customer purchasing patterns; analyzing sales (on a daily, monthly, or annual basis) of each inventory item, department, or supplier; and creating reports for use in making purchases, reorders, etc.

Basic point of sale systems currently in use includes:

Standalone electronic cash registers, also known as ECRs
ECR-based network systems
Controller-based systems

All function essentially as sales and cash management tools, but each has features that are unique.

3. Smart Operating System

Smart Ops (acquired by SAP) enterprise software solutions support many initiatives and challenges associated with different manufacturing and distribution industries from Lean Manufacturing, Just-In-Time (JIT), and Six Sigma initiatives. SAP and Smart Ops Collaborate to Improve Supply Chain. Smart Ops' software enables companies to manage the uncertainty of complex, multistage supply chains. It enables companies to manage the uncertainty of complex, multistage supply chains to achieve rapid return on investment and long term, sustainable value and also improved companies in discrete manufacturing, consumer durables and packaged goods, technology, pharmaceuticals manufacturing, distribution and retail industries.

4. Warehouse Management System (WMS)

WMS software Integrates human activity with IT and is effective in managing warehouse business. Begins with receipt of Supplier and ends with shipments to customer

- Maintain real time physical inventories
- Maintain distribution records
- Streamline warehouse administration
- Merchandising flow can be accelerated

Warehouse management system allows a company the ability to manage entire storage systems within a structure like a warehouse. It gives the specific of inventory control and it is integral to ongoing operations in other departments (such as production supply, sales and distribution and quality management)

5. ERP – Enterprise Resource Planning

Enterprise resource planning helps in integrating all departments and functions within a company in a single computer system that serves the specific needs of different departments. It is often referred as back-office software and does not run the up-front selling process. When the customer service representative enters the customer order in the ERP system, he has access to all the required information such as customer rating, the company's inventory levels from the warehouse module, and shipping dock's trucking schedule from the logistics module. Enterprise Resource Planning is designed to plan the use of enterprise-wide resources. Various ERP vendors have developed retail-specific systems which help in integrating all the functions from warehousing to distribution, front and back office store systems and merchandising. An integrated supply chain helps the retailer in maintaining his stocks, getting his supplies on time, preventing stock outs and thus reducing his costs, while servicing the customer better.

Benefits

- Highly configurable solution Applications Highly Scalable solution with large retailers
- Flexible deployment options
- Efficient stock distribution

- Strong process integration across Sales and Supply Chain network
- Targeted promotions across stores
- Merchandise Planning
- Robust Analytics Engine
- Drive better customer relationship
- Superior Customer Service

6. Customer Relationship Management

CRM is concerned with the creation, development and enhancement of individualized customer relationships with carefully targeted customers and customer groups resulting in maximizing their total customer life-time value. Customer relationship management means wide integration of technologies working together such as data warehouse, web site, and intranet/extranet, phone support system, accounting, sales, marketing and production. CRM uses information technology to gather data, which can then be used to develop information acquired to create a more personal interaction with the customer. In the long-term, it produces a method of continuous analysis and reinforcement in order to enhance customer's lifetime value with firms. Customer Relationship Management (CRM) is enabled by the gathering and warehousing of consumer data. For CRM, data warehousing is done by collecting consumer data from credit card transactions, loyalty cards, discount coupons, customer complaint calls, plus (public) lifestyle studies. "The ultimate goal of CRM is to provide a one-to one personalized service to each customer – pre and post-sale".

6. Conclusion

Information technologies in retail aim not only to increase the effectiveness of retail establishments in different areas of their operations, but also to improve customer service – mainly due to the automation and customization of the offer. Over the years as the consumer demand increased and the retailers geared up to meet this increase, technology evolved rapidly to support this growth. It is technology that will help the retailers to score in such fierce competition. Consumers have come to expect more value and higher service levels. As a consequence, the technology continues to grow and retailers search for ways to measure technical business value and to balance the effective utilization of the technical resource. Retailers want to get more value out of technologies and ensure they are spending their limited resources in ways that improve their overall offer to the customer. With changing customer demands and expectations rising rapidly, organizations need to be able to quickly respond in order to capitalize on revenue opportunities.

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