A STUDY ON GROWTH FACTORS IN INDIAN ORGANIZED RETAIL SECTOR BY ADOPTION OF RFID TECHNOLOGY

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Abstract: Indian retail market is expected to cross 1 trillion USD in 5 years. There is rapid scale growth in the retail market. Consumers are switching on to online shopping. Retailers are expected to be more flexible, agile and catch up with the growing momentum in online business. Competition is tough and business processes are expected to be more efficient. The supply chain process should be an integrated process. It is important for the retailer to know the right value of each asset in the supply chain process. Real time information is need of the hour. Radio-frequency identification (RFID) is used to automatically identify and track tags attached to objects. Adoption of automated RFID systems is important. Business intelligence reports can be generated from the RFID systems. Management can then make right decisions and plan

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124

marketing and operation strategies. In this paper a study on the adoption of radio frequency identification technology is discussed and its impact to the growth of Indian retail market is elaborated.

Keywords: RFID technology, Indian retail market, effective processes

1. Introduction to retail market

Retail market is one of the fastest growing industries globally. Consumer trends and behaviors are changing rapidly. More than 50% of the internet consumers have started shopping online. Consumers do good amount of research before buying any product or service. There is lot of information available on the internet for the consumers to choose upon. Consumers look for choice, range, discounts. It is not only the youngsters but across ages, consumers are switching to buy online. Each age group has their own taste and style. Retailers are going global and there is lot of focus on the local culture. Brands need to build retail solutions that meet the local and international consumers. Efficient processes drive success. Social media applications are in plenty. Consumers look for feedback from other buyers and take informative decisions. Retail market is changing day by day and it is important for the organizations to implement effective systems.

The Indian retail market has seen a drastic change in the last few years. Generally Indian consumers were considered conservative and banked on in person shopping in stores. The technology boom has provided internet exposure in a big way. Consumers are looking at options in the internet and deciding what to buy and when to buy. Festival offers, discount sales leads to spikes in online sales in the Indian retail market like any other country. Many small town internet users have also started shopping online. Earlier the trend was only with metros. Now online retail shopping is across the country. Based on the local festive and culture, retailers are offering customized products to match the need of the consumer. In the retail apparel market, virtual mannequins are available where the consumers can try out their dress. The Indian retailers have now caught up to the demand and are smart to provide the best offers to attract customers.

2. Radio Frequency identification technology

Radio-frequency identification (RFID) tags contain data and are stored in electronic format. It is used to track objects or assets. These tags are read through electro-magnetic induction technique. RFID tags are embedded in the objects to be tracked. There are active RFID tags and passive RFID tags. Their usage is not limited to any particular industry. It is used in automobile industries, pharmaceuticals, ware house tracking. It can also be tagged to persons. A radio-frequency identification system uses tags, or labels attached to the objects, to be identified. Two-way radio transmitter-receivers called interrogators or readers send a signal to the tag and read its response.

In the retail world, managing the inventory is one of the important process areas. If inventory is not managed well it leads to productivity impact and thus adds to the cost of the organization. In the critical path of the process, the products should be available at the right time, at the right place. Retailers cannot afford to have time delay in the process path. At the same time dead inventory is also not good for the organization. Enterprises must manage assets smartly. Innovation should drive results. Automated process is mandatory. RFID tags are better than traditional bar codes. Bar codes require line of sight whereas it is not required for RFID tags. Multiple RFID tags can be read simultaneously but it is not possible with bar codes. Bar codes cannot be read if it is dirty or soiled. RFID tags can be read in harsh environments. Bar codes should be visible whereas RFID need not be. Electronic information can be over written on RFID tag. Radio frequency identification technology helps in cost optimization. RFID tags are used to track the product stage by stage. Retail managers know clearly where the product is situated.

3. RFID Adoption

Applying RFID in the whole supply chain gives the best benefits. RFID can help dealers and customers. RFID provides real time inventory information. This will help to prevent stock outs. Based on the inventory additional procurement can be done on need basis. Pricing strategies can be better defined. Labor costs will be reduced by using RFID technology. Manual checks are not required during intake, physical counting and cyclic counting can be avoided. Human errors can be eliminated. Theft can be prevented. Shrinking inventory can be upfront

noticed and write-offs can be avoided. RFID technology helps to alert staffs when items are misplaced and also help in theft reduction or elimination. RFID technologies offer enormous marketing opportunities. RFID technology provides real time data to the staffs in the store. Based on the customer products selected, shopkeepers can promote related products and offer discounts as they shop. This real time marketing strategy is possible with RFID. Customers are also benefitted by RFID technology. If the operating cost reduces, retailers will reduce the price as well to stay competitive. This way the customer is benefitted with a better price.

The RFID implementation architecture depends on the complexity in the supply chain model. There are different types of RFID readers in the market. The architecture consists of a communication layer that can talk to any of the RFID readers. It includes the application programming interfaces that help to talk to the different type of RFIDs in the market. There are other software executables that receive the RFID tag data from the physical devices. The message queues help to transmit the data. Messages can also be encrypted for security reasons. Web services programs are available to access data from different programs and environments.

There is always resistance in adopting new technologies especially when the retailers have been traditionally conservative. Today, if the retailer wants to keep up to the competition and grow, there is no other choice but to adopt latest technologies. The change has to be a top down approach. The senior management should believe in the automated technologies and plan for return of investment. The chief executive officer and chief information officer should work together to develop a strategy that will yield enhanced results. Technology should not be implemented for the sake of it. Retailers can decide to implement RFID end to end in the business process or only focus on the critical processes. It is important to understand the link between the systems. Inherited legacy systems can be a challenge. There are plug in software available that can talk to the legacy systems and provide necessary input to provide an integrated view. RFID help retailers match the demand and supply. Retailers won't overstock and manufactures will not over produce. In the perishable goods market, RFID plays a key role. Identifying the perishable commodities in the shelf and replacing it with fresh products is important. Customers will prefer fresh products while shopping. RFID helps to differentiate genuine products and duplicate products. This is important especially in the pharmacy industry. RFID helps in identifying outdated products and complying with the country legal regulations.

4. Implementation Challenges

Implementation of RFID technology has its own challenges. Implementing an end to end system in a large organization can cost around $10 million USD. Return of investment cannot be immediately worked out. It will take some time to reap the benefits of implementation. The technology maturity of the organization is another important parameter to be considered. Government regulations also play an important role. There are challenges in RFID adoption for small retail organizations considering the costs. Some retailers may plan to implement only in few critical business process. RFID read error rates are also an ongoing challenge. Considering the low costs, certain retailers compromise on the quality of the tags and this later leads to an overhead. It is important for the organizations to have internal experts who can guide and provide support to RFID implementation. Data storage and privacy is another area of challenge. Global and local standards need to complement each other as well. Though there might be few challenges, it is important to implement RFID considering the scalability and competition in the market.

5. Conclusion

Today, retail market is growing at a very fast pace. Retailers need to meet customers growing demands. Retailers need to implement RFID technology and manage their assets better. Intelligent asset tracking allows businesses to know precisely where high-value assets are located, when they move, where they move, as well as the asset's physical and environmental condition. It shortens the time to find the item, reduces incidence of theft, and accelerates inventory turns. Removable tags are used in apparel retailing to prevent thefts. Cost effective RFID tags are available in the market. Retailers are using RFID technology at various outlets. A gasoline company uses RFID to identify the customer and provide him loyalty bonus and benefits. Smart cards use RFID technology to provide discounts to repeat customers. Retailers can decide on the marketing and sales strategy based on the data collated from RFID tags. Smart shelves with RFID ease the process of billing and can avoid long queues. The businesses should ensure that the right product is at the right place at the right time. This way there is a measureable, positive impact on efficiency. It is important to ensure that the RFID read errors are minimal or nil. RFID can be used in any type of industry. The technology team should know to

make the best use of RFID technology. Technology consultants can guide and provide the best solutions based on the nature of business. It can be used even for small and medium enterprises. Management should provide a clear vision to the consultants on what their goals are and the current pain points. The technology team should also understand the current system and business process landscape. A one size fits all approach will not work in RFID implementation. In this paper the benefits on RFID technology adoption in Indian retail market was discussed.

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129