A conceptual study of Integrative approach of technology and augmented services in Retail Malls

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Abstract – **Purpose:** The purpose of the study is to identify the technological trends of Retail Malls. Due to an open global platform, there has been a tremendous change in the functioning of the retail malls. Retail formats have evolved over the period of time. New Retail management practices have led to the smooth functioning of Retail. Technology has played a vital role in upgrading the overall operations of the Mall. The study is to find out the latest trends in technological application in Retail Malls that will lead to creating a worthy shopping experience. **Significance:** Customers are here today not for mere shopping but they are here to gain an enticing shopping experience. Thus, in order to increase customer footfall inside the mall, the mall owners and tenants should be able to keep the customer engaged. Today, technology has thus become a part and parcel of this modern retail trend. With the standardized and common augmented services which are provided by almost all the Retail malls, it becomes even more pertinent to distinguish them with the hand held support of e-augmented services that will lead to differentiate. The study is about finding out the latest trends in e-augmented services that will drive the business of retail malls. **Methodology/ Sources of Information:** Data has been collected through secondary sources like articles, publications and e-journals to study latest technological rends in retail malls. **Outcome/ Result:** E-Augmented services are here to stay and are only going to get further upgraded in the coming future. The advancement in technology will lead to success of the Retail malls thus leading to enriched shopping experience and providing even better convenience to the customers. **Uniqueness/ Originality:** E-augmented services are an interesting and fresh area for the topic of study. Many articles have been published although not many papers have been written focusing on e-augmented services in Retail Malls.

Keywords: Business Intelligence, Mobile apps, Artificial intelligence, Data analytics, Virtual reality

Introduction
Following are the factors that have led to booming of the retail sector:
1. Rising incomes
2. Favorable demographics,
3. Increasing urbanization
4. Entry of foreign players

Brick and Mortar Companies are to stay here tomorrow as well despite the remarkable spread of online marketing occurring at an overwhelmingly high pace. Use of technology is one of the ways to stay ahead in this aggressive competition of online vs physical stores.

Retail formats have been evolving as ever and in this journey it becomes inevitable for the Retailers to use the technology at its best to stay abreast amongst all and in all spheres.

Department of Industrial Policies and Promotion (DIPP) report has stated that there has been a splurge in the FDI in Retail sector for the year 2018 leading to equity inflows of US $ 1.42 billion.

With the new entrants in India from all across the length and breadth of the world, came with them is the advent of best of the technology.

Besides, Consumer demands are ever increasing and to deliver the customers the value of the highest standards they expect calls for an integrative approach of technology and service enhancement in this Retail sector.

Thus, today technology is been viewed as a means to achieve competitive advantage over the competitors.

Be it by way of outsourcing or building up a robust team of technology experts of its own, the retailers are putting in their best to run the best show.

Ultimately, the benefits reaped by both the customers, the retailers and the tenants are immense.

Shopper's buying habits are digitally inclined and so also expect more special treatment when in store. The luxury brands are considered and viewed more of most fashionable brands today by them. The malls thus need to take all of this into account and make the shopping experience for the customers even more enticing, engaging, personal and delightful. Mall owners today know that the customers have already taken a virtual experience online and are now in for a store purchase.

Thus, it is clear that shops need to have an omnichannel effect, where the retailers are present in both physical and virtual format. To keep up to the expectations set by the competitive environment and giving an extraordinary experience to the customers, it becomes pertinent for the retailers to use the bundle of digital services.

I. Background
Retail Industry overview

One of the booming industries which are dynamic and fast moving is the Retail Industry. The main reason of its flourishing is the consistent entry of new entrants. The Industry's total consumption expenditure will be now 3600 US bn $ by 2020 from 1824 bn $ in 2017. The Industry contribution to the GDP of India is around 10% and towards employment generation is 8%. India is most sought after destination for investment in retail space being the fifth largest in the world.

Due to the changes in middle class consumer's lifestyle and the increase usage of online shopping, and their rising income at the same time, the Indian retail market is expected to increase by 60% thus reaching US 1.1 trillion by 2020.

Online retail sales are forecasted to grow at the rate of 31 per cent year-on-year to reach US$ 32.70 billion in 2018.

This allied industry, E-Commerce is also growing up exponentially in India. This has led to the opening of pool full of options in products and services at the lowest possible prices. This has been a major uprising in the retail Industry.

Retailers should engage in ecommerce business simultaneously creating an Omni channel system as it may lead to reduce spend on the real-estate infrastructure especially when trying to reach the customers from Tier 2 and Tier 3 cities.

It is projected that by 2021 traditional retail will hold a major share of 75 per cent, organized retail share will reach 18 per cent and e-commerce retail share will reach 7 per cent of the total retail market.

II. Objectives of the study:
1. To study the overview of the retail sector
2. To study the upcoming technologies that will drive the business in retail sector.
3. To study the role of technology in Retail sector with specific reference to retail malls
4. To the study the application of technology in various spheres of retail

III. Literature Review:

Gandhi Aradhana, in her paper titled, Technological Profile of Retailers in India, Indian Journal of Science and Technology, Vol 9(15), 10.17485/ijst/2016/v9i15/92148, April 2016 ISSN (Print): 0974-6846, ISSN (Online) : 0974-5645 says that

Future group, Reliance Retail, Trent Hypermarket, Retail are some of the retailers who are struggling to make profits due to the extreme dynamism occurring in the sector. The industry is considering technological application in its functioning, service provision and its administration. Technology as a tool is effectively been used to be competitively ahead of the competitors. It also is leading to reduction in cost by making the supply chain function efficient, ensuring the product availability as and when required without delay, avoiding of the stock out situations, thus leading to inventory management. Besides, it also provides a better experience during shopping to the customers by way of facilitating convenience, and providing better ambience, product displays, and customer service. This will only lead to increase of the sales and ultimately profits. Thus, technology is vital in deciding the direction in which the retailer wants its retail business to take in future. The online Ecommerce sites, Social media as a tool and many other technological tools and applications have become a reason to pull the business away from the physical stores and thus leading to increase of the business online.

Gap analysis

In one of the paper titled, Role of Technology And Innovation in Enhancing Customer Experience, the researcher of that paper has concluded technology is an important element for giving a good shopping experience although it has to be complemented by what customers really want and not what the company wants to deliver. Secondly the paper discusses the technological trends and its application in convenience stores which gives a way to do a further research on retail Malls.

IV. Data Analysis and Interpretation:
Application by the mall owners

Malls are doing their best to create a tech based environment by way of customized tech support services thus making the customer engagement convenient thereby providing an enriched experience. Malls are spending huge sums on digital advertising on the promotional front

Malls are currently creating systems to enhance the parking area which becomes one of the crucial elements in attaining customer footfall. It is not far away that the parking facility will identify your car and will allot you the same place if you are frequent visitor or for that matter even sometimes give you the space for free. It is not far away that there would be sensors that would connect sensibly to your mobiles and retrieve the information about your birthday which will be intimated to the Mall staff who would greet you inside with champagne. Drones would be an essential tool used in Supply chain management to ensure JIT delivery and stock availability by way of drop shipping, store inventory search. You are enjoying a spa while your shopping items are getting delivered to your doorstep along with the food that you ordered for that night even before you step in

your house. Be it online purchase to "techorating" to targeted marketing solutions including sending messages and special offer coupons to users as they enter different stores, the retailers are doing it all. All this and more is already in the pipeline and many of this is already making its baby stepping stone in some corners of the world. It can be concluded that today a shopper uses three channels before making a buying decision, namely'; in-store, online and mobile. Companies have very well realized that there is no excuse to a bad experience in-store anymore.

Application by the tenants and the mall owners

1. Business Intelligence

Business analysis and CRM tools are giving access to consumer mind which aids in customer retention. The rich information received through these applications is analyzed to study the demographic profile of the customer, their buying behavior, their shopping preferences, the amount spent per week, per month and yearly which may be further used to estimate the lifetime value of the customer.

The data collected from the shoppers, their smart phones, their selfies, their social media uploads to sites regarding their shopping behavior can be used further to build their profile and serve them better.

The insightful information is used in the following purpose:

1. To enhance customer personal connect
2. To design loyalty scheme
3. To design promotional campaigns and launch offers
4. To optimize the store layout
5. To enable product, price and service assortment optimization
6. To automate replenishment resulting in inventory saving

A mobile application providing navigation and search, and a digital concierge service which delivers a personalized experience via SMS, social media and email is well making its mark in Indian malls. Thus, with a combination of the best of technology and personalized human level experience, one can provide a frictionless, convenient and enriched experience to the shopper by way of adding high-tech installations, creating interactive in-mall activations

Thus, there is this huge scope for malls to stay important and innovative in whatever they do to capture and captivate the market.

Indian malls are already giving bigger space to public space for the retailtainment which includes food courts, play zone and entertainment spaces and connecting them through hitech installations leading to maximizing of the revenue stream.

Malls are also exploring novel ways to structure financial arrangements with retail tenants:

Footfall based charge: Tenants will pay on the basis of the customer footfall moving through their area or the footfall that comes into their stores.

Online revenue sharing:

Tenants share revenue earned online with the mall owners. Shoppers do online shopping inside the mall too. So, in case the customers are doing online shopping within the mall and the geographical location is exactly within the boundary rights set as per the contract between the tenant and the mall owner, tenants pay some of their portion of the online sales.

Generating new revenue streams and value added services:

Tenants are taking advantage of various services provided by the mall owners like providing space for inventory storage. This is very convenient for the retailers since very soon the retail space occupied by most of the retailers is going to be smaller, thus lacking the storage capacity. So a common platform for storage will be a great boon for the retailers.

The Mall owners could also provide them with logistic services. Some other revenue streams could be usage of the idle space inside the mall for kiosks, showrooms on contractual basis, event and activities, etc. The retailer tenants or retailers will be charged depending on the location that they select and the footfall that exist on that location.

Digital facades, hallways, and atriums also can be used for advertising purpose as and when required.

The Mall operators have access to extensive rich data of the shoppers through their high tech systems which is later extracted from the systems and sold further to their tenants.

Shopper insights:

Today's malls know their customers more than anyone else. Free Wi-Fi gave birth to Wi-Fi analytics. This assists to determine, most visited websites by the shoppers. Through such kind of data one can easily analyse inclinations of shoppers towards particular product or brand.

Application by the tenants Shopping Cart

Shopping cart is a new entrant used to make the customer's shopping experience more organized and effortless. The cart has a video monitor and a RFID interrogator that helps customer upload a shopping list and get it displayed with the product detailed information along with its total cost of cart contents. Customer may further may choose the payment mode and make the payment.

Application by the tenants and the mall owners

Data analytics:

Data Analytics is useful to find out the trends of purchase of visitors to mall. By using data analytics tools information regarding kind of visitors, their requirements as which products they want to

purchase, up to what price they may purchase the different category products can be collected. By data analytics information regarding visitor's primary objective as entertainment or shopping or food can be determined. This information will help to decide Anchor Stores as tenants. Information regarding future trend can be also determined which will help to decide tenant mix.

Digital Signage

Digisignage is one of the media useful for advertisements of tenant as well as gives opportunity to earn revenue by displaying advertisement of vendors at tenant store. Advertisements or information may display through LCD screens and other digital displays.

Smart Phones related tools

The innovative technology of mobile promotion (M-marketing) is particularly important due to the rising number of smart-phone users with Wi-Fi connections. Use of QR codes, mobile applications, SMS marketing sshall be used to reach customers staying around retail location.

Computer based Kiosks

Another effective medium is Kiosk. Place from where maximum customers pass is useful for kiosk marketing. Kiosk are helpful to provide information on recent catalogue in-store, necessary information seek by customer and more. Interactive Kiosk play role of sales representatives which reply any query, give out with notable accuracy and recognize drifts without speaking a word.

Direct Broadcast Satellite Technology for video conferencing
It can be used to reach tenants

Information technology software's to prepare financial plan, build up forecasts, examine marketing efforts and plan automatic labor arrangement

Lighting control systems, motion sensors in the bathrooms, parking areas and aisles, Computerized Heating, Ventilation, Air conditioning systems (HVAC) to analyze energy load demands and peak usage periods, light fittings, which conserve energy are some of the technologies in the energy management arena for **Energy Management**

Closed circuit TVs, CCTV surveillance and smoke detectors and fire systems for **Security and Safety**

Application by the tenants

On–line Shopping Services presenting personalized experiences to the on-line shoppers with rapid price and product comparisons and on the spot recommendations. Based on the selection, customer can pay by credit card and have a regional distribution center fill the order and send it directly to them within days

Application by the tenants and the mall owners

Supply Chain and Logistics Management Radio frequency identification technology leading to automated check-out, reduced labor for stock taking, reduced out-of-stock and improved theft prevention. Point of Sale technologies like bar coding and scanning machines used at the checkout counter enable a retailer to facilitate the process of checkout by preparing the bill and receiving the payment for the items purchased. Electronic data interchange (EDI) is an inter-organizational exchange of information between the retailer and its suppliers.

Payment Related Technologies
Biometric payment, E wallet, Mobile payments using mobile ph or PDAs, Short Messaging Service, Wireless Application Protocol, SIM toolkit, Radio Frequency Identification SIM and Near Field Communication

Enterprise Resource Planning (ERP) system ERP systems comprise of all enterprise functionalities such as finance and accounting, manufacturing, sales and service, customer relationship management, human resources, etc. Cloud computing is an on–demand solution built on web based standards and protocols through a shared physical infrastructure. It promises lower cost and rapid deployment

Collaborative, Planning, Forecasting and Replenishment (CPFR) is a collaborative method to jointly forecast sales of goods to the consumers to enable the manufacturer to be able to plan production and distribution better and the retailer to ensure availability of a product with the minimum stock.

To improve the experience of both shoppers and tenants, operators must constantly come up with lots of new, quickly delivered, technology-driven services and products. This will require embracing agile approaches to testing new products, events, and services, and then adapting rapidly based on feedback. Mall operators will also need to extend this more agile operating model to their tenants, facilitating significant amounts of close coordination. To operate collection lounges and e-commerce tenant portals, for instance, malls will have to link to tenants' back-end logistics and inventory systems. In order to do all this, operators will want people who understand agile development, process redesign, and IT architecture and infrastructure.

Application by the customer:

Mobile apps can offer personalized recommendations and promotions, itinerary planning, digital navigation, and the booking of various services.

Digital signages and virtual directories provide customers with a sense of the unexpected and give them a reason to treasure hunt.

V. Conclusion
1. To study the upcoming technologies that will drive the business in retail sector.

2. To study the role of technology in Retail sector with specific reference to retail malls
3. To the study the application of technology in various spheres of retail

Physical stores are here to stay. They will integrate themselves with online channels so as to gain the competitive advantage. The role of technology is only going to get bigger in the coming future. As of now, the Technological advancement has happened on the following three fronts:

- Customer facing technology
- Mall owner front
- Application by Tenants

Management is adopting new technologies to achieve respective goals. Artificial intelligence is the new boss of transformation.

AI based applications will gain adoption as the technology matures. High-end retailers are using AI based tools/applications to get sentiment analysis of their customers.

Internet of Things: Today every business research is data driven. In this era, IoT is acts like a nervous system. IoT helps to collect data from customers in various forms.

Artificial Intelligence, Virtual Reality & Augmented Reality:AI based voice applications transforming peoples' shopping behaviour. With the use of AR and VR powered devices, a customer can have customized experience. For example, a customer can see how a piece of art or furniture will look in his house, hence, providing a better shopping experience. AR and VR are very helpful in-store designs, shelf layout. A VR-generated store will let the shoppers browse the virtual space from anywhere. Also AR and VR can enable the customer to try outfits without even wearing them. This helps customer in decision making and make shopping convenient at home.

Quantum Computing: With the introduction of quantum computers, the process of analyzing the data will become much faster and easier- hence making it easy to deliver a highly personalized experience to the customers.

Voice Technology: Voice technology integrated with AI helps consumers discovers products faster, hence changing our shopping behavior.

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