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EDITORIAL

It is heartening to see that the ninth issue of the VICHAARA AN INTERNATIONAL JOURNAL OF MANAGEMENT has been brought out successfully. An educational journal is a platform where knowledge gets amplified and disseminated; research results and innovations are documented and unique experiences are shared for enhancement of knowledge. The design architecture of Vichaara is made in such a way that it becomes a comprehensive document to reflect the different dimensions of Management discipline. Business Research forms the core part wherein original, empirical based research papers are included. This issue comprises articles on recent issues in business world from different disciplines. These articles show a methodological way of conducting a research and presenting their findings. Findings on technology influence, cultural changes in the organizations, behavioural changes among the consumers and their expectations have been presented with relevant facts. We invite scholarly articles and research papers and write ups on robust cases. Suggestions and views from readers and scholars are solicited for the qualitative improvement of the Journal.

RETAIL 4.0: TECHNOLOGY ENHANCING FUTURE RETAIL BUSINESS PRACTICES IN THE GLOBAL DIGITAL MARKETING ERA

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ABSTRACT:

Retail 4.0 signifies a significant transformation within the retail sector, propelled by the incorporation of cutting-edge digital technologies, including the Internet of Things (IoT), Artificial Intelligence (AI), Big Data, and Robotics. This progression seeks to improve customer experiences, optimize operational processes, and stimulate business expansion. A fundamental aspect of Retail 4.0 is the omni channel retailing approach, which ensures a cohesive shopping experience across multiple platforms, such as brick-and-mortar stores, online websites, and mobile applications. The utilization of advanced analytics and big data allows retailers to acquire profound insights into consumer behavior and preferences, thereby enabling tailored marketing strategies and efficient inventory management. The application of AI and machine learning further refines personalization through tools like recommendation systems, chatbots, and virtual assistants, while IoT devices enhance real-time inventory monitoring and in-store interactions. Moreover, Augmented Reality (AR) and Virtual Reality (VR) technologies provide engaging shopping experiences, including virtual fitting rooms, which boost customer satisfaction and minimize return rates. Robotics and automation are essential for enhancing operational efficiency, particularly in automated warehouses and customer service applications. Additionally, blockchain technology ensures transparency in the supply chain and secure transactions, thereby safeguarding authenticity and mitigating fraud. The advantages of Retail 4.0 encompass enhanced customer experiences, improved operational efficiency, data-driven decision-making, competitive edge, and increased sales and revenue. Nevertheless, challenges such as data privacy and security, technology integration, customer acceptance, and investment costs must be navigated. As retailers increasingly adopt these technologies, Retail 4.0 is poised to deliver a more agile and responsive future, closely aligned with consumer demands and preferences.

Keywords: *Retail 4.0, Omni channel Retailing, Artificial Intelligence, Internet of Things, Augmented Reality Etc.,*

INTRODUCTION:

Modern retail business is now fully shaped up and so, the technological transformation that we see today in day-to-day environment of our shopping industry significantly influences retailers. As well as, Due to the severe competition present in this global platform of retailing where every retailer ought to meet up with changes that will suit for industry growing needs. Few Retailers they may get even shake up in entering into such changes during the initial stage and if a retailers adapt to early, it is possible for them retain, survive, but very few will not even find space on their own which puts out of business as well missing from Industry.

Big Market Share Holder as well Retail Giants experiments themselves at time to bring some changes in the physical environment of stores by opening few larger or smaller store formats and do launch new private brands on their stores so that existing brands are added value with higher up brand within customers which sell impact uplifted company share price. **(Aruna R. Shet, 2015)** Industry Transformation Itself is just happening and retail industry, in particular midst of the fierce competition to scale it beyond which seems like game now! **(Dhruv Grewala, Anne L. Roggeveen, JensNordfält,2017).**

2. Retail 4.0 - The Future of Retailing in a Global Competitive Business Environment

Currently, Technological transformation as a major change in the global retail industry with more pace invites its dynamics and helps building increasing number of opportunities providing new challenge to growing #retail business. Now, As Retail 4.0 for sure has given a great momentum to which this emergence of Retail Industry modified at large scale including digitalization, computers and automation completely in new way along with much more core value by the existing retail business environment on the other hand, it is leveraging disruptive technologies being fitted in to hearts of this change like following:

2.1. Internet of Things (IoT)

In the fast pace of global business environment, **Internet of Things (IoT)** is growing in no time with all its paradigm interconnected which will have a strategic importance to study about it and how aspects of retail business are interrelated. And it is natural to have a bias towards something that can maintain your reputation in this funny world competitive business and for retaining efficiency between you consumers one needs to think of implementing ever growing upcoming technology called internet of things into the organization… where it leads up shot right? The **Internet of Things (IoT)** is a system where everyday business activities could be connected to the computer networks using short-range and low-power infrastructure that able to obtain information from authenticated software, reliable sensors, thereafter data collected or transmitted via IP link which can controlled through mobile or another networked device. There are a bunch of familiar connections such as Bluetooth and Wi-Fi.

Fig.No.01. Retail 4.0 is happening with physical/online retailers integrating online and offline shopping experiences and reinvents the idea and real-world look and feel of brick-and-mortar stores


Source: https://cyanroof.com/blog/our-blog-1/post/retail-marketing-4-0-2
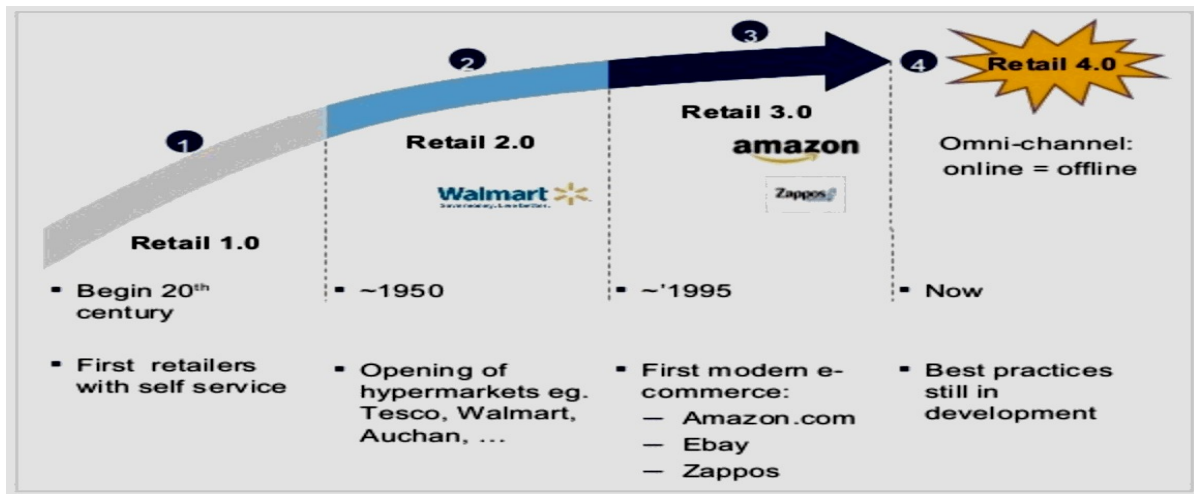
2.2. Big Data – A Technology Transformation that processes a huge amount of data

Yet, in most of the world's top companies the original business case for big data analytics was built around specific high level customer centric goals and utilizes internal sources (both new and existing). By knowing customers better — and developing warm, significant relationships with them alongside in the service of improving operations that lead to enhanced consumer experiences **(Schroeck et al. 2012),** big data analytics can be enormously important for organizations.–Mutation– Big Data such as companies will take out hardly actions which lay their hands on understanding that this is major to Unaccented above purposes squabbling incurred finish off sacrifices/lop sconce intermediate medications transports. Big Data Initiatives will takes whatever the focus but it's better to kick start with certain specific or narrow category focused rather than scatter one **(Mills, S., S. Lucas, L. Irakliotis, M. Ruppa, T. Carlson and B. Perlowitz (2012).**

Fig.No.02. U.S. Retail Market Size by Application (2015-2025) (USD Billion)

Source: https://www.grandviewresearch.com/industry-analysis/smart-retail-market
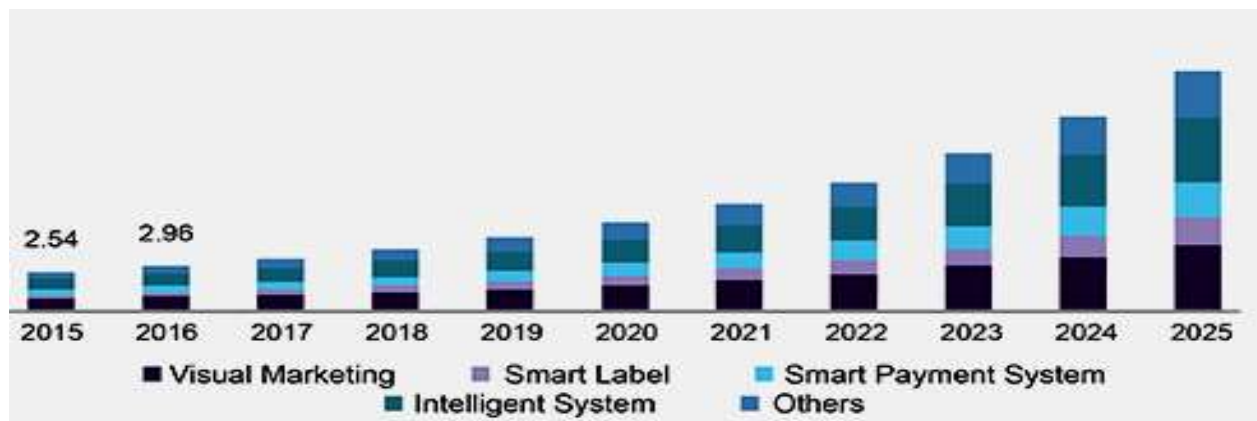
2.3. Big Data Technology can help you to address a wide range of various business activities starting from customer experience to analytics.

- Its help in the **Product Development Process**
- Its help in the **Predictive Maintenance** of various business activities
- It helps to enrich **Customer Experience**
- It helps to reduce the **Fraud and Compliance**
- It helps to make use of the efficient **Machine Learning**
- It helps to improve and increase the **Operational Efficiency**
- It helps to **Drive Innovation** into various business activities in order remain competent and to face the competitiveness prevailing in the global retail business environment.
- It helps to improve **Customer Relationship Management**

2.4. Artificial Intelligence (AI) – A Technology that focuses beyond human expectations

Artificial Intelligence (AI) is a broad field which consists of different areas covered under various disciplines including Linguistics, Computer Science Physics, Mathematics, Psychology and many more. Artificial intelligence focuses on creating computer functions related to human intelligence, such as problem solving and reasoning. Learning. From the point of gathering raw materials towards end stage retailing and customer service, Artificial done in everything is used nowadays in these fields. The retail business activities are concerned with the success of implementation Artificial Intelligence, and play an essential part in its significance.

2.5. Robotic Process Automation (RPA)

Most of the venerated Artificial Intelligence (AI) experts suggest that, what is an ungated pasture - opportunities are known to be vast and either they can lead very endless way then again – already sturdy emergences strongs from Artificial Intelligence (AI) have been dominating's Extreme in Retail Industry across countries. **(Nadimpalli M, 2017).** A recent Tractica report showed that software revenue from some commerce applications (including apps, robots and services) would jump from $643.7 Mn in 2016 to about $36.8 Bn by the year 2025 momentum This growth on such a massive scale is not hard to fathom when we know AI technology and are aware that its emergence already provides multiple industries an alternative for job creation. In fact, over the same period Forrester forecasts that cognitive technologies (comprised of both AI and Automation) will usurp 7% of U.S. jobs as well. It also implies that retail companies can drastically decrease the outlays required for labor and automate their shopping processes to a great extent. **(Venkatesh Shanka, 2018).**

3. Emergence of the Retail 4.0 - Combine the strengths of the bricks-and-mortar retail with those offered by e-commerce

The same is also true with your customers as in today, the retail business environment change very rapidly and so are not changing themselves but their search style, orientation and of course buying process too. Buyer behaviour and shopping orientations of the customers have experienced vast changes, ever since internet has made its presence felt and people started using social media. From there, customers are now able to shop in a way that is vastly different from their former purchasing model of products and services.

Fig.No.03. U.S. Reason for Consumer Shop Online Stores
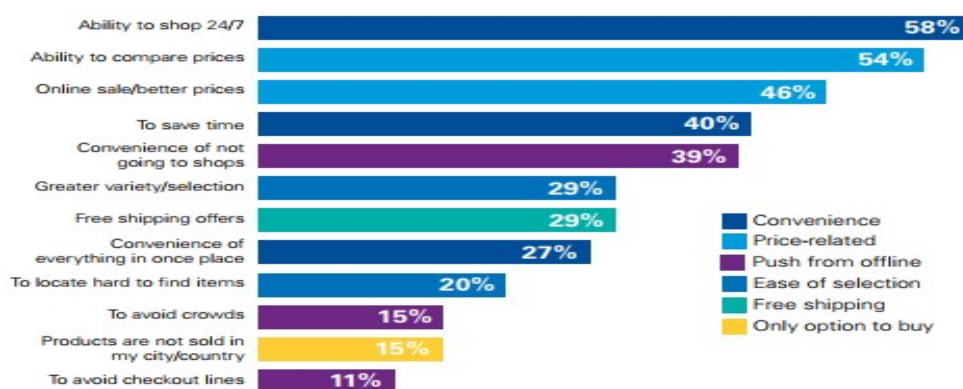
Source: Global Online Consumer Report, KPMG International 2017

The changing circumstances is such an environment should be a demonstration of unparalleled possibility, providing the ground for retail majorly to turn-on-its-head — inciting downright demand reinvention. These are the changes that have been occurred in retail and we eligible to call these types of happening as a result due form Retail 4.0 emergencies Now or digital selling, where a sector controlled by the advent of omni -channel commerce and hence they will have to offer new way for consumers to touch with product. **Tse-Ming Tsai ; Wen-Nan Wang, Yu-Tin Lin and Seng-Cho Chou (2015).**

These changes are transformations which happened in the retail industry, where in we call these happenings due to such emergence of Retail 4.0. Or Digital selling, wherever associate trade dominated by the introduction of omni-channel commerce and therefore they have to be compelled to offer a replacement means for shoppers to relate to the product. **(Tse-Ming Tsaia, Wen-Nan Wanga, Yu-Tin Lina, Seng-Cho Choubb, 2015)**

4. Digital Media and Modern Technology to support Digital Marketing Transformation

Therefore, only few of the advanced technology that evolved: some specific digital media applications are in consumer characteristics data is a modern technological system to communicate with more than twice those above and undergoing maintenance towards shifting traditional marketing strategies followed. The technology was rightly utilized by the Marketers in order to retain their competitive business advantage on certain business functionalities so that they could able offer a quality and dependable product in the market and simultaneously, enable them to provide an exclusivity marketing strategy as well which had bought new kind of customer experience which not only meets their satisfaction level with respect Product-Service offerings but at enables customers always leaves delighted thereby retaining brand image in mind-set.

One-way Technological advancement and digital platform utilization in another way have provided an advance Intensive method to adopt the Modern business activities, also it has greatly changed. The traditional customer shopping orientation movement towards Traditional Shopping to Footfalls/ Online Shopping. In general, Marketers use the Tech-Platform at a far right and productive way to take their business performance into more growth and product.

Fig.No.04. Growth of In-Store Based Vs Amazon.com Online Sales Share
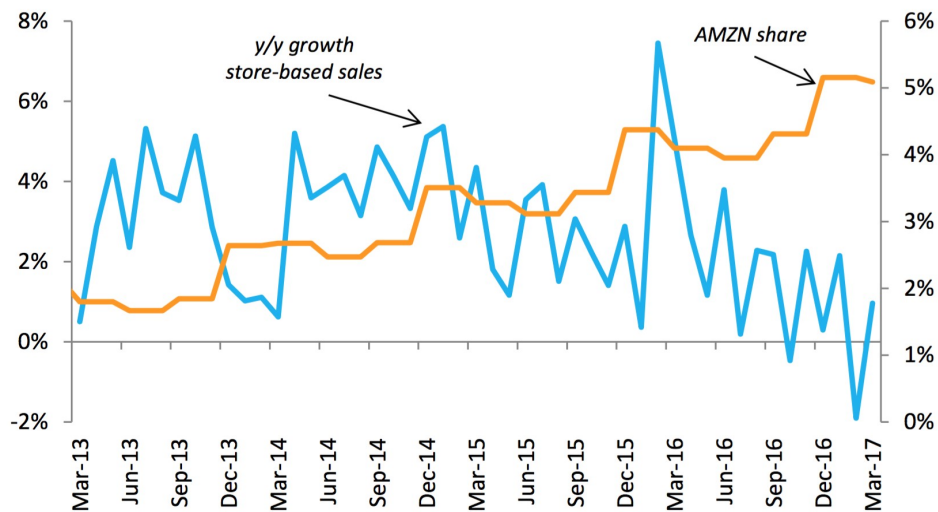
Source: U.S Census, Company Reports, MKM Estimates.

Fig.No.05. Amazon is on pace to approach Wal-Mart's 10% U.S. Market Share Around 2022
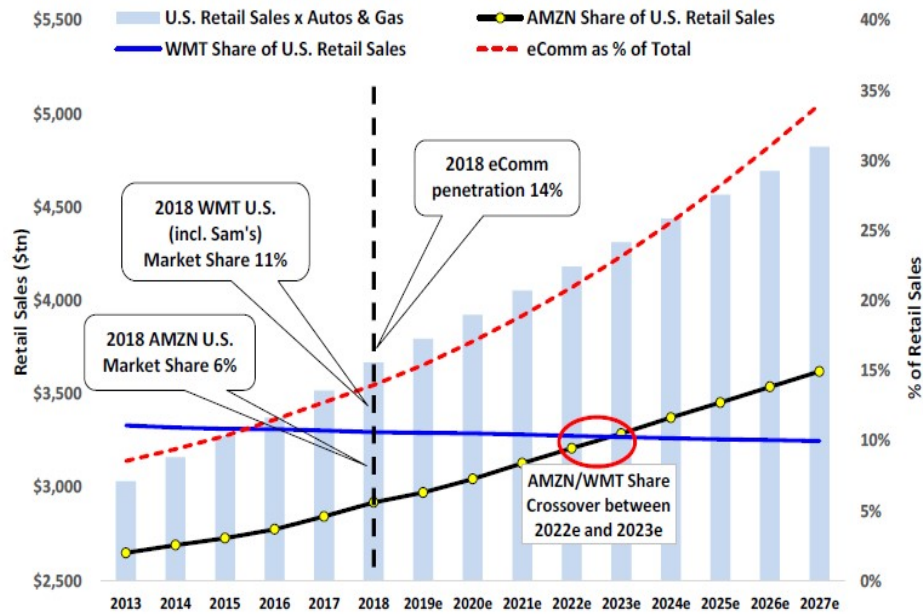
This Technology Adaptation have paved a way towards building a unique sustainable competitive advantage on their own self through which they could be able to differentiate from their competitors and attained major market share in their business in a more modern way.

Fig.No.06. Future Digital Marketing Techniques

5. Conclusion

Essentially, Retail 4.0 is a turning point in modern-day retailing that primarily relies on technology to determine how future commerce will be conducted within the global digital marketing age. Retailers who adopt cutting-edge digital technologies can improve by offering market leading customer experiences, optimizing workflows and accelerating business growth. The evolution of the Internet of Things (IoT), Artificial Intelligence (AI), Big Data, and Robotics has also allowed these two things in retail to exist more closely together – providing a greater connection between industry stakeholders for increased efficiency across all channels that benefits customer experience. Omnichannel retailing, which is at the heart of Retail 4.0 helps to create a frictionless and homogeneous shopping experience from point Front end in physical store to Back-end order processed across multiple fronts like online/mobile channels. With this approach, not only is the retailer able to better accommodate consumer preferences but also capture a larger slice of market share. With the use of advanced analytics and big data, retailers can assess valuable customer insights to forecast preferences or behavior trends that will enable them sales strategies specific to each customer and optimize inventory amounts. Meanwhile, AI and machine learning take personalization to the next level with advanced recommendation engines, chatbots and virtual assistants that deliver greater customer engagement. Real-time inventory tracking and better in-store experiences hand-in-hand with smart shelves or RFID tags via IoT devices, minimizing the amount of time customers have to wait until they find what they are looking for. As examples of these technologies, Augmented Reality (AR) and Virtual Reality (VR), enable shopping experiences that make it possible to virtually try on products, which makes the experience more inclusive for one hand but also decreases return rates. Efficiency and accuracy can be improved by incorporating automation in warehouses, customer service operations or other robotics fields where cost reduction is possible as well. Mueller Luis: Blockchain technology can provide transparency within our supply chains and transactions to enhance the trust system, reduce frauds. However, as fruitful the transition to Retail 4.0 is poised to be, it does come with its own islands of concerns and issues. Retailers need to think carefully about data privacy and security, the integration of technology into their businesses, adoption by customers and cost investment. But the payoffs in Retail 4.0 will be huge Using the power of these technologies, retailers can gain a competitive advantage, introduce innovation and adapt to changing consumer needs in this world-wide digital marketing era. Navigating the complexities of Retail 4.0 will be essential to continued success and, for some businesses, survival in retail as it continues its transformation even further into an experience-based proposition — but those who master this environment really could shape their own path forward through growth again like never before.

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