IMPACT OF AI ON CUSTOMER RELATIONSHIP MANAGEMENT FOR A SUSTAINABLE FUTURE – A COMPARATIVE STUDY BETWEEN RETAIL INDUSTRY AND E-COMMERCE INDUSTRY IN INDIA

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Abstract

Artificial Intelligence is the most powerful tool used by organizations nowadays to strengthen their business operations. Customer Relationship Management has seen major developments in the past few years with the integration of AI. With the advent of artificial intelligence, management is now utilizing technology to maintain healthy and stable relationships with customers, appropriately engage them, understand customer needs, and share information with management in order to make informed decisions. This paper highlights the challenges and major developments to make customer interaction seamless using secondary research from published sources. Peer-reviewed research papers published between 2017 and 2023 were analysed using bibliometric research techniques and qualitative research. This paper provides a systematic overview of the field, revealing gaps and promising directions for future research. Methods have been used to do a comparative study on the impact of AI in CRM systems in the retail industry and e-commerce industry. The study compares that where retail and e-commerce organizations in India have applied artificial intelligence to CRM automation, how they engage customers based on their questions and the information they need, effectively respond to customer questions and increase customer loyalty. The study provides valuable insights for scholars, policy makers and corporate organizations.

Keywords: *Artificial Intelligence, Customer Relationship Management, E-Commerce, Marketing, Retail, Sustainability*

I. INTRODUCTION

Artificial Intelligence (AI) has advanced rapidly in recent years, making significant contributions to a variety of industries. Customer Relationship Management is one of the areas where AI is increasingly being used (CRM). AI is changing the way businesses manage their customer relationships by enabling new levels of personalization, automation, and efficiency. However, as AI becomes more prevalent in CRM, it is critical to understand its impact on customer experience and the retail industry's long-term viability.

Sustainability is not a new concept in business, but the need for it has become more pressing in recent years. Sustainable development seeks to meet current needs without jeopardizing future generations' ability to meet their own. The retail industry significantly impacts the economic, social, and environmental aspects of sustainable development. As a result, assessing the impact of AI on CRM is critical for long-term development in India's retail and e-commerce industry.

The purpose of this research is to do a comparative study on the impact of AI on CRM for a sustainable future in India's retail and e-commerce industry. The retail industry in India has grown significantly in recent years, and AI has the potential to accelerate growth by improving customer experience, optimizing operations, and lowering costs. However, to ensure that AI in CRM aligns with long-term development goals, it must be evaluated for potential risks and benefits.

Conceptual Framework

Artificial Intelligence

AI is one of the fascinating and universal fields of Computer science which has a great scope in the future. Artificial intelligence is formed up of the phrases "artificial" and "intelligence," where "artificial" refers to something that is "man-made" and "intelligent" refers to something that has "thinking power." It is a branch of computer science by which we can create intelligent machines which can behave like a human, thinks like humans, and be able to make decisions."

Sustainability

Sustainability is the capacity to consistently support or maintain a process across time. Sustainability aims to stop the depletion of natural or physical resources in business and policy contexts so that they will be accessible in the long run. Three pillars—economic, environmental, and social—also known colloquially as profits, planet, and people—are frequently used to describe sustainability.

Customer Relationship Management

The concepts, procedures, and guidelines that a corporation adheres to when communicating with its consumers are referred to as customer relationship management (CRM). This complete connection, as seen from the organization's perspective, includes direct interactions with customers, including sales and service-related procedures, forecasting, and the examination of consumer trends and habits. CRM's ultimate goal is to improve the customer's experience in general.

Indian Retail Industry

Indian retail industry has emerged as one of the most dynamic and fast-paced industries due to the entry of several new players. It generates over 10% of the nation's gross domestic product (GDP)

and about 8% of all jobs. The fifth-largest international retail market is located in India. India placed 73rd in the 2019 Business-to-Consumer (B2C) E-commerce Index published by the United Nations Conference on Trade and Development. India is the world's fifth-largest retail market and is ranked 63 in the World Bank's Doing Business 2020 report.

## Indian E-Commerce Industry

The rising usage of technology and shifting customer behavior have both contributed to the tremendous expansion of the e-commerce sector in India in recent years. With a population of more than 1.3 billion, India offers a sizable market for e-commerce companies. The Indian e-commerce sector was estimated to be worth $38.5 billion in 2020, and by 2025, Statista projects that it would be worth $128.9 billion.

India's retail and e-commerce sectors have grown significantly as a result of rising technology use and shifting consumer preferences. Due to the growth of e-commerce, online retailers are fiercely competing with traditional retailers. Retailers are utilizing AI-powered CRM, as a result, to set themselves apart from their rivals and improve the consumer experience. On the other side, e-commerce businesses are utilizing AI to better understand client behavior and preferences, customize their services, and increase customer engagement.

CRM powered by AI is revolutionizing how companies communicate with their clients. Large amounts of client data can be analysed by AI algorithms to get important insights into customer behavior, preferences, and needs. This helps companies to offer tailored experiences, increase consumer satisfaction, and customize their offers. Businesses utilize AI-powered chatbots to provide 24/7 customer assistance, answer questions, and make tailored recommendations. This helps organizations enhance productivity and lower expenses while also enhancing customer happiness.

The study's findings will provide insights into how AI can be effectively used in CRM to create a sustainable future for India's retail and e-commerce industry. It enables organizations to acquire significant insights into customer behavior, preferences, and needs. This helps companies to offer tailored experiences, increase consumer satisfaction, and customize their offers. Second, AI-driven chatbots let companies offer 24/7 customer service, answer questions, and make tailored recommendations. This helps organizations enhance productivity and lower expenses while also enhancing customer happiness. Lastly, by offering clients individualized recommendations, AI-powered recommendation engines assist organizations to boost sales and revenue.

To summarise, AI-powered CRM has become a key tool for organizations in India to successfully manage their customer relationships and achieve sustainable growth. CRM has been significantly impacted by AI in India's retail and e-commerce sectors. CRM powered by AI has made it possible for organizations to better understand consumer behavior, preferences, and needs in order to customize experiences and increase customer satisfaction. Businesses can now offer personalized recommendations, 24/7 customer service, and query resolution thanks to AI-powered chatbots and recommendation engines, which also help them boost sales and revenue.
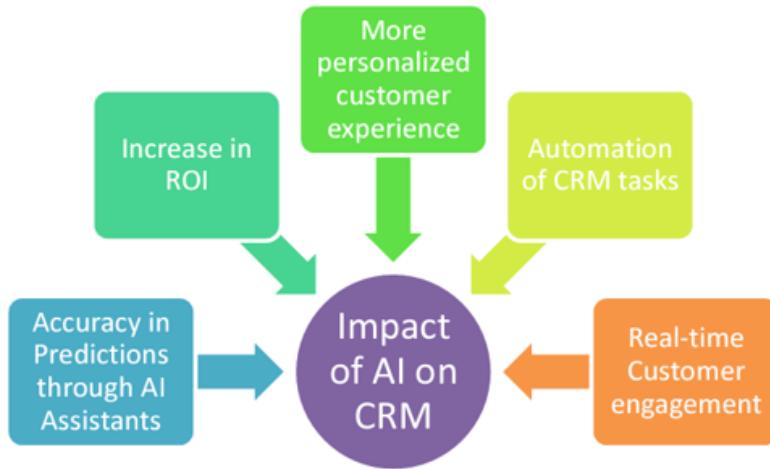
Figure 1 – Impact of AI on CRM

Source: Mahalakshmi and Meena (2021)

II. LITERATURE REVIEW

This section is dedicated to analyzing the background information significant to this review. In this study, the authors have used bibliometric research and quantitative research technique using keywords to identify relevant papers for the study. 22 peer-reviewed papers published between 2017-2022 were taken into consideration for this study. Based on available studies and research, the authors have summarized the findings by various authors to study the impact of AI on CRM.

According to ***Thiraviyam (2018),*** artificial intelligence can process both structured and unstructured data with exponentially more speed and accuracy than any human could. It is a crucial area of interest for businesses trying to put their customer data in an easy-to-understand format. In order to acquire insights into their customer base, marketers are using machine learning's capacity to connect data pieces. These algorithms can decipher spoken language to determine emotion, produce visual representations of social media trends, and crunch data to anticipate the future. (1.)

Mahalakshmi and Meena (2021), in their study, found that businesses have used AI to automate CRM, where consumers are engaged based on their questions and the information they need. This helps businesses to react to customers' questions quickly and increases customer loyalty. It has been argued that the role of AI is anticipated to grow more in the future because its main goals are to assist management in effectively engaging with customers, assist in analyzing the overall needs and requirements of the customers, and assist in the preparation of reports for the management so that they can make informed decisions. One of the most important components of marketing is CRM, and maintaining an effective relationship with consumers requires more time and effort. AI helps management by fostering more engaging sessions with customers and supporting the organization 24/7, which improves customer service. (2.)

Ramesh and Rao (2019), in their study, explored that there is a growing trend and demand for retail outlets mainly because of the growing needs and wants of the consumer, increase in disposable income, and lifestyle. The retail industry in India faces a variety of difficulties, the most

significant of which is intense competition. Other difficulties include rising demand and expanding innovation. As a result of increased competition, the market has shifted from being producer-centric in the past where consumers were forced to buy from what was on offer to being customer-centric currently. Here, the consumer is king, and products and services are created to meet their requirements and preferences. Only improved customer relationship management and the development of long-term, healthy relationships with customers can ensure the long-term existence of businesses. (3.)

Chatterjee et. al. (2022), opined that CRM is a strategic macro process. It attempts to guarantee the creation and maintenance of a profit-maximizing portfolio with regard to client relationships with the businesses. Explicit research on CRM in the context of business-to-consumer relationships has been extensively published, but it is still in its infancy. By reviewing the diverse client data, B2B CRM activities assist in analyzing the needs of the customers. For such B2B relationship management, some of the enormous databases include Matrix Marketing, Ampliz Salesbuddy, Easy Leadz, Leadspace, and others. Businesses employ these B2B databases for successful vendor and partner collaboration, cross-channel integration, and accurate and quick targeting options. Humans find it challenging to analyse this much client data. Consequently, using technologies like artificial intelligence properly. (4.)

According to ***Almahairah et. al. (2022),*** the AI strategy highlights the urgent need for technical professionals to be more particular in pinpointing the sources of data collection and recommending scientific methods to modify underlying presumptions. Applications of AI, particularly those that focus on knowledge development, may actually help rather than hinder the requirement for a full understanding of customer behavior. Independent of human expertise, AI can provide high-order learning from self-generated, self-organized data and experience. It assists retailers in making decisions about price, product placement, and more accurate demand projections. As a result, customers connect with the perfect products at the optimal time and place. With predictive analytics, you can order the right number of goods for shops, preventing them from having too much or too little on hand. To improve e-commerce strategies, AI may also track data from online channels. (5.)

According to ***Kaul (2017),*** in the Indian retail industry, the word Customer Relationship Management (CRM) has become a popular expression. There are many factors that, together with the shifting customer perspective and organized retailers, have made CRM a reality marvel. Retailers in India today look at CRM and loyalty as crucial factors as attracting and maintaining consumers is the largest problem. CRM programs that aimed to better serve customers and develop customer connections have frequently fallen short due to a lack of focus, poorly thought-out initiatives, and unreasonable expectations. Retailers must continuously come up with fresh strategies for luring in new clients and keeping the ones they already have. (6.)

Ledro and Nosella (2022), explored that in the digital age, the increasing volume, velocity, and variety of data, as well as their processing capacity, have led to new technology solutions, including the advancement of artificial intelligence (AI) techniques. AI refers to a system's ability to interpret a large quantity of data correctly, learn from such data, and use these learnings to reach specific goals and tasks. (7.)

According to ***Seranmadevi and Kumar (2022),*** the entire retail sector is attempting to adapt to rapidly evolving consumer shopping trends and placing priority on moving traditional trading on the internet. In an effort to become more competitive, customer-focused, and responsive to demand and opportunity, the retail sector has invested more money in supply chains that are more web-centric and a variety of technologies, including Artificial Intelligence (AI), robotics, logistics automation, data analytics, and self-service technologies, according to the Infosys (2017) report. Amrita Nair-Ghaswalla (2018) claims that a few other brands, along with retail behemoths like Amazon, Walmart, and Starbucks, are rapidly modernizing their retail industries through technological advancements. These companies are using tools like augmented reality, facial recognition, staffless trading, and virtual apps to increase their market. (8.)

According to ***Kaur et. al. (2020),*** retailers must reevaluate what they are doing, how they are doing it, and how they are generating items in the rapidly expanding retail market. In the age of artificial intelligence and big data, shopping centers are adopting technology in order to become smarter and offer customer happiness, better service, faster reaction to consumer demands, and better supply. AI can accept massive descriptive data from enormous sources, as well as photos, videos, and data on consumer behavior and responses, whether it is online or offline. As a result, a massive amount of data, or "Big data," is produced from many sources with distinct patterns, allowing us to capture the facial expressions of buyers and sellers and create a semantic process that can completely transform the industry. (9.)

Muzulu et. al. (2022) opined that due to the fact that the majority of online retailers sell the same or related product categories, there is intense competition on online shopping platforms. In order to maintain their consumers' business, internet retailers must apply the appropriate approach. Relationship quality is ingrained in marketing connections, which explains a company's efforts to forge lasting and financially advantageous ties with its customers. The business's relationship with its clients is crucial. The quality of the connection between the company and its clients reflects their closeness. Trust, commitment, and contentment are the factors most frequently cited as influencing the caliber of consumer connections. As a result, trust, contentment, and loyalty were employed to create the relationship quality in this study. (10.)

Rahman et. al. (2022), found that customer preferences and tastes change quickly in this constantly evolving environment, which presents enormous challenges for businesses. In order to please customers, it is necessary to alter the operating procedure and introduce novel products and services as a result of changing consumer behaviour. As a result, businesses must develop technology capabilities to create AI enabled CRM capabilities that can adapt to the changing business environment. (11.)

According to ***Bilgeri (2022),*** by using typical CRM systems, businesses run into a number of issues. For instance, while salespeople are expected to focus on productive activities, the majority of them actually spend a lot of time recording data. The effective management of information necessary to meet customers. Artificial intelligence can be seen as a little more notable system that combines big data, AI, and AI. For instance, Amazon sellers continually gather clergymen, examine data, and use artificial intelligence to make crucial decisions. To benefit from the data and make wise decisions, a class of models known as AI models is undeniably crucial. care demands present another problem for businesses in this regard. However other company areas, such as Customer Service, SCM, and HR, would be able to profit from the same advantages brought about by integrated data flows, so

CRM is not simply beneficial for Marketing and Sales. By managing the cross-channel information flow, CRM aims to provide a comprehensive perspective of Marketing, Sales, Service, and other areas. (12.)

Nayak et. al. (2022), opined that the main focus of management is to create a team or techniques that can draw clients in, comprehend their needs and wants, and provide crucial information to management for pertinent and prompt selections. However, with the implementation of AI, businesses are now using this technology for stable and healthy customer relationships, appropriately involving them, identifying their needs, and sharing information with the company to make informed decisions. AI is consistently a powerful motivator for management to switch from rule-based to consumer expectations. AI helps management and business decide what clients will want to buy by displaying a variety of historical history and snapshots, including geography, demographics, online activities, and behaviour. (13.)

Chatterjee (2022), opined that automated decision-making is facilitated by AI-integrated CRM systems, which also improve B2C relationships and firms' overall performance. How much information is transferred between enterprises and customers is the main concern in B2C relationship management. CRM solutions with AI integration are anticipated to automate repetitive processes and assist a business in properly customizing, prioritizing, and segmenting the customer data collected to boost performance by strengthening the bond between the organization and its potential clients. (14.)

According to ***Khanna (2022),*** CRM is necessary for all types of businesses, whether they operate online or in brick-and-mortar locations. One of the key pillars of the commercial sector has historically been retail companies. Maintaining a positive connection with customers is much simpler for retail stores that operate as a single entity. CRM methods come in a variety of forms, so it is important to carefully analyse each one and implement it in your business as necessary. Businesses use a variety of marketing techniques to gain market share, and CRM adapts to the circumstances and needs of each tactic. Proper CRM implementation is essential for organizations nowadays to ensure stability in the long run. (15.)

Estevez and Chalmeta (2022), in their study, found that creating long-lasting, fruitful customer relationships while taking into account social, economic, and environmental effects is referred to as sustainable CRM. Additionally, SCRM seeks to involve customers who are concerned about sustainability and to raise consumer knowledge of corporate sustainability issues. CRM portrays sustainability as a fragmented idea without a comprehensive perspective. Furthermore, Sustainable CRM frequently ignores other CRM components like sales or post-sales in favour of a narrow emphasis on marketing. Therefore, more study is required in this area. CRM has been transformed into Sustainable CRM as a result of the increasing consumer and business interest in sustainability. This change was made to better meet the needs of customers who are concerned about sustainability while also attracting and retaining them. (16.)

Iqbal and Khan (2021), in their study, opined that the marketing role will not exist without AI. Businesses that have incorporated AI into their Customer Relationship Management (CRM) and marketing efforts as a whole have noted significant effects on the company's development in terms of customer loyalty and profitability. AI is continuously changing the marketing industry, and this change isn't just affecting how businesses do their marketing; it's also having an impact on how

marketing managers analyse data and make decisions. Business organizations can easily use AI to evaluate customer behaviour towards goods and services and better comprehend their customers. Having access to all the essential information regarding your target market also facilitates making thoughtful decisions. When CRM is AI-enabled, marketing managers are better able to concentrate on innovation and seek out patterns that aid in creating fresher ideas to satisfy even the most basic needs of customers and, in turn, produce value and long-term development for the business. (17.)

According to **Kaur et. al. (2022),** for businesses to thrive and outperform their competitors, their marketing performance must be improved. Key components of increasing an organization's efficiency include customer stratification, customer retention, customer profiling, and customer behaviour analysis. Industry 4.0 technologies, including the Internet of Things (IoT), cloud computing, artificial intelligence (AI)/machine learning (ML), big data, blockchain, robots, digital twin, and the metaverse, play a critical part in this context, as they have in other research areas with their real-time monitoring, predictive analytics, intelligent analytics, virtual representation, secured transaction, digital ecosystem, etc. Customers differ in their buying habits, so various advertisements are required to sway them to purchase a particular good or service. A company's level of customer engagement has increased as a result of social media and cloud computing's improvements to the customer experience. (18.)

Chatterjee (2021), explored in their study that the way that businesses analyse their enormous volumes of client data has been completely transformed by the integration of artificial intelligence with customer relationship management (CRM) systems. In many businesses, AI is being used to enhance the CRM system that is already in place. In order to correctly anticipate what is being searched for and to autocomplete the search box, Google has already mastered AI. Amazon products are being tailored with the support of an AI algorithm in the context of attracting consumers. According to studies, CRM plays a crucial role in helping a company become more customer-centric, which requires an analysis of the behaviour of its customers. (19.)

Nimbalkar and Pabalkar (2020), in their study, found that artificial intelligence can be seen as a little more notable system that combines big data, AI, and AI. For instance, Amazon sellers continually gather clergymen, examine data, and use artificial intelligence to make crucial decisions. As a result of their decisions, their customers' coordinated efforts are fueled by more data, which is then captured, sorted, and divided for additional decisions. Different options like these are dynamically accelerated. The example of appropriate data grouping, evaluation, judgment, and further data diversity will continue to expand in the future as data volumes increase. Computer simulations and computations are performed for these models. To benefit from the data and make wise decisions, a class of models known as AI models is undeniably crucial. (20.)

Sharma (2021), in their study, opined that AI and e-commerce are collectively used by businessmen to increase sales because AI includes human beings' intelligence to be used the machines and computer systems. Now our new generation saves time gives the most importance to electronic transactions, and AI helps to provide more and more facilities to consumers. AI helps to adopt an effective and economical manner and procedures for manufacturing quality products. (21.)

According to **_Ogunmala et. al. (2020),_** india's retail industry often differs from that of other nations. The online market in India, which has more than 800 million internet users, is different from that in China. China's e-retail sector is propelled by a sharp rise in consumer spending power combined with a highly personalized online retail shopping experience; in contrast, India, which has 500 million internet users, is home to a thriving online retail sector that is fueled by its diverse culture, technological advancements, and changing millennial consumer habits. (22.)

III. OBJECTIVES OF THE STUDY

1) To analyse and compare the growth trends of Indian Retail and Indian E-Commerce Industry.

2) To study the trending use of AI in Indian Retail and Indian E-Commerce Industry.

3) To understand the future prospects of AI in Indian Retail and E-Commerce Industry.

IV. RESEARCH METHODOLOGY

Secondary research was carried out from verified published resources. Authentic reports such as research papers were used. Bibliometric analysis using quantitative data were used to carry out a comparative study between Indian Retail and E-Commerce. Data was extracted from Statista covering the market size of both the industries from the years 2014 to 2025.

V. ANALYSIS AND DISCUSSIONS

Findings and Analysis for Objective 1:

Following data has been extracted from Statista for the analysis purpose. In the given table 1 below, it is observed how the market size of Indian Retail Industry and Indian E-Commerce Industry from the year 2014 has changed till date and what are the predictions for the coming years. The market size of both the industries for the year 2026 and 2027 are predicted through linear forecasting function.

Table 1 – Market Size of Indian Retail and E-Commerce Industry (2014-27)

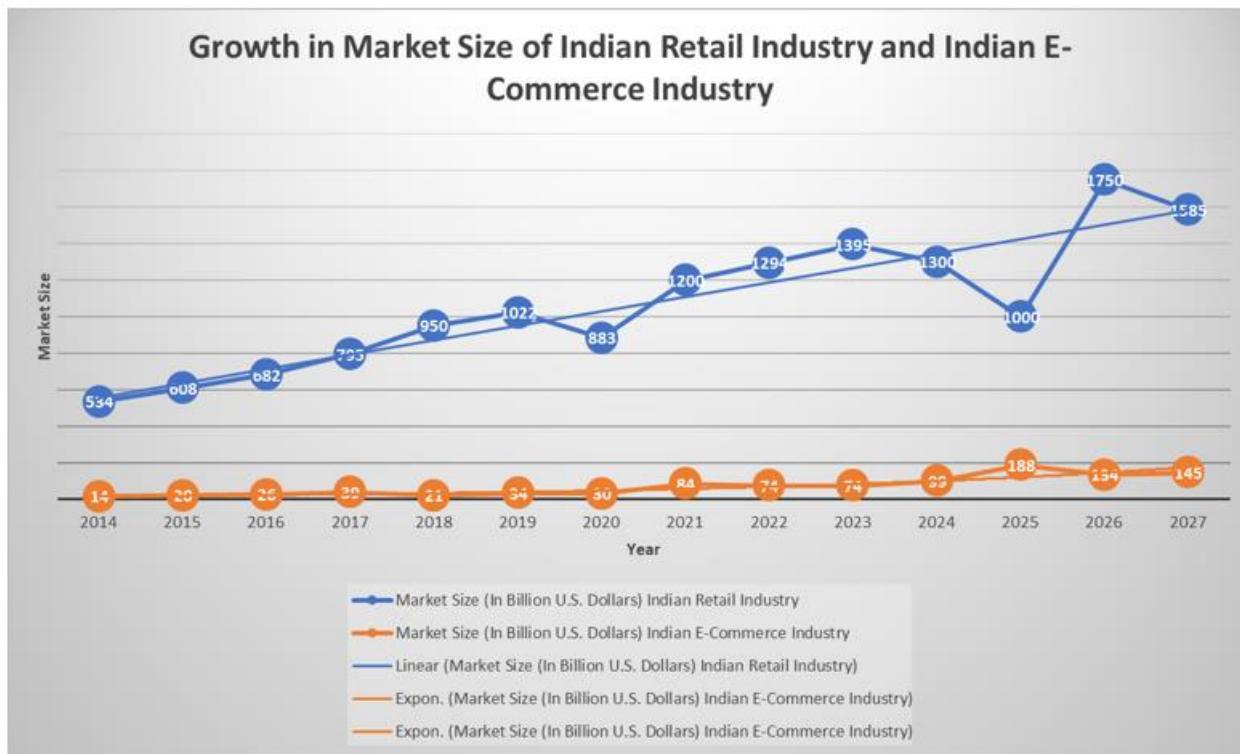| Year	Market Size (In Billion U.S. Dollars)	
	Indian Retail Industry	**Indian E-Commerce Industry**
2014	534	14
2015	608	20
2016	682	26
2017	795	39
2018	950	21
2019	1022	34
2020	883	30
2021	1200	84
2022	1294	74
2023	1395	74
2024	1300	99
2025	1000	188
2026	1750	134
2027	1585	145

Figure 2 – Growth in Market Size of Indian Retail and E-Commerce Industry (2014-27)

According to figure 1, both the retail and e-commerce sectors in India have shown consistent growth over the past few years, while the e-commerce sector has expanded far more quickly than the retail sector.

The Indian retail market increased from $534 billion in 2014 to $1022 billion in 2019, growing at a Compound Annual Growth Rate (CAGR) of 13.9% throughout this time. The Indian e-commerce market, meanwhile, increased by 35.7% CAGR from $14 billion in 2014 to $84 billion in 2021.

The growth rates did, however, vary a little bit in some years. For instance, the COVID-19 pandemic probably had an impact on the Indian retail business, which suffered a decrease in market size in 2020 before rebounding to surpass $1200 billion in 2021. Contrarily, the e-commerce sector experienced slower development in 2021 compared to the preceding years, increasing by only $6 billion over the course of the year, maybe as a result of pandemic-related interruptions.

Overall, the data indicates that despite difficulties like economic slowdowns and the COVID-19 epidemic, the Indian retail and e-commerce industries have shown tenacity and have kept expanding. The data demonstrates that despite the e-commerce sector's slower growth than in prior years, both the retail and e-commerce sectors in India have continued to expand in recent years.

Particularly, the Indian retail sector saw a significant comeback in 2021, increasing by 35.9% from $883 billion in 2020 to $1200 billion in 2021. The removal of COVID-19 restrictions and the gradual restoration of consumer confidence were probably responsible for this development.

The Indian e-commerce market shrank by 11.9% from $84 billion in 2021 to $74 billion in 2022. It's possible that the pandemic-related supply chain interruptions, market saturation, and rising

rivalry are to blame for the decrease in growth. Nevertheless, according to the research, the industry is anticipated to keep expanding and reach a market size of $188 billion by 2025.

Overall, the data indicates that while the retail sector has recovered strongly in recent years, the e-commerce sector has encountered some difficulties and has seen its growth slow down. Nonetheless, it is anticipated that both businesses will grow even more over the next several years due to reasons like escalating consumer demand, a rise in the adoption of digital technology, and government policies to encourage the development of the retail and e-commerce sectors.

Both the Indian retail and e-commerce sectors are anticipated to increase over the coming years; however, the e-commerce sector's development pace might be a little slower than in past years. According to the data, the Indian retail market is anticipated to grow at a CAGR of 11.7% from 2023 to 2026, reaching a market value of $1750 billion. Its expansion is anticipated to be fueled by elements including rising consumer spending, rising urbanization, and the development of modern retail formats

The Indian e-commerce market is anticipated to grow at a CAGR of 20.7% from 2023 to 2025, reaching a market value of $188 billion. It is anticipated that factors including expanding internet usage, rising disposable incomes, and shifting consumer tastes would fuel this expansion.

Yet, it's important to keep in mind that the e-commerce sector's growth rate may be lower than in prior years as the sector ages and encounters difficulties like market saturation, escalating rivalry, and regulatory obstacles.

Overall, the data points to ongoing expansion in the Indian retail and e-commerce businesses in the next years, though the rates of growth may differ between the two sectors. Government regulations, shifting customer preferences, and technological developments all have the potential to have a significant impact on how these businesses develop in the future.

The following conclusions on customer behaviour and variations in demand in the Indian retail and e-commerce industries may be drawn from the data provided:

- **Overall Market Growth:** The size of the Indian retail market increased noticeably between 2014 and 2021, peaking at 1200 billion US dollars. The industry has been growing steadily throughout the years. The market size is anticipated to decrease in 2024 and 2025 before increasing once more in 2026.

- **E-Commerce Industry Growth:** In India, the e-commerce sector has expanded significantly over the years and at a faster rate than the retail sector. With a predicted growth rate of 134% in 2026, the e-commerce industry's market size climbed from 14 billion dollars in 2014 to 84 billion dollars in 2021.

- During the COVID-19 epidemic, there has been an increased demand for internet shopping as more people choose to avoid visiting physical establishments. According to data from 2020, the e-commerce industry's market size significantly increased while the retail industry's market size slightly decreased.

- A change in consumer behaviour has also been observed in the e-commerce sector, with customers increasingly choosing online marketplaces and aggregators over conventional e-

commerce platforms. The market size of the e-commerce sector increased dramatically in 2021, whereas the market size of the retail industry remained largely unchanged.

- Macroeconomic variables like inflation, exchange rates, and economic development can cause changes in the demand for retail products and e-commerce. This is evident in the 2018 data, which showed that the retail industry's market size significantly increased while the e-commerce industry's market size slightly decreased.

Overall, the data indicates that a range of factors, such as macroeconomic circumstances, technology improvements, and shifting consumer preferences, affect consumer behaviour and demand for retail items and e-commerce in India.

Findings and Analysis for Objective 2:

By using the customer relationship management framework, it is possible to indicate to management that the operations can be divided into a few key phases, such as luring new customers, keeping existing ones, and maximising their worth.

The management is constantly prepared to draw clients to the business by providing the essential goods and services, keep them there, and then provide additional value to them. This will make it possible to satisfy consumer needs and demands and improve relationships between customers and management. Customers who are really engaged with the brand will help it grow and expand sustainably. One of the management's key goals is to assemble a team of individuals who will interact with customers, ascertain their needs and demands, and offer information to the top management so it can act swiftly.

But, with the development of AI, management is now utilising the technology to uphold a solid relationship with the clients, engage them effectively, comprehend their needs, and communicate that information to the top management so that they may make well-informed decisions.

In India's retail sector, customer relationship management (CRM) is also increasingly using artificial intelligence (AI). The retail sector in India uses AI in CRM in the following ways:

- **Personalization:** To generate individualised product or service suggestions, AI systems examine client data. Retailers in India are utilising artificial intelligence (AI)-powered product recommendation engines that may examine consumer behaviour, tastes, purchase history, and other information to produce tailored product recommendations. Retailers can use this to offer personalised product recommendations and promotions that are more likely to result in sales.

- **Chat Bots:** Chatbots with AI are being used to offer customer service around-the-clock. These chatbots can respond to a variety of customer inquiries and can speed up customer service response times for retailers. Retailers in India are automating customer service chores like responding to frequently asked questions, managing customer complaints, and delivering product information through chatbots. Retailers can lower operating costs and offer better customer service thanks to this.

- **Inventory Management:** In order to forecast demand and manage inventories more effectively, AI algorithms are being deployed. Retailers in India are utilising demand forecasting systems driven by AI that can examine past sales data, industry patterns, and other

data to forecast future demand. This aids retailers in preventing stockouts and minimising overstocking, which may enhance sales and decrease waste.

- **Price Optimization:** To monitor pricing trends and optimise rates for goods or services, AI algorithms are being deployed. Retailers in India are employing dynamic pricing systems powered by AI, which can change prices in real-time based on variables like demand, competition, and inventory levels. Retailers can maintain competition and increase earnings thanks to this.

- **Fraud Detection:** Online transaction fraud is being identified and prevented by AI systems. Retailers in India are utilising AI-driven fraud detection systems that can examine transaction data, user activity, and other data to find fraudulent actions. This aids merchants in safeguarding their clients and minimising fraud-related losses.

Artificial intelligence (AI) has the potential to revolutionize customer relationship management (CRM) in the e-commerce industry in India. Here are some ways AI is being used in e-commerce CRM in India:

- **Customer Segmentation:** Artificial intelligence (AI) algorithms can examine consumer data to find trends and divide customers into various categories according to their behaviour, preferences, and demographics. Companies may target clients with specialised marketing campaigns thanks to this segmentation, which helps them better understand their customers.

- **Predictive Analytics:** In order to forecast future behaviour, such as which products customers are likely to purchase next, AI systems can evaluate customer data. With this data, Indian e-commerce businesses can more efficiently organise their inventory and marketing initiatives.

- **Voice Assistants:** E-commerce businesses in India are utilising AI-powered voice assistants to aid clients in making purchases due to the rising popularity of smart speakers and voice assistants. These voice assistants can respond to inquiries about the products and make tailored suggestions based on previous interactions with the customer.

- **Sentiment Analysis:** Social media data can be analysed by AI algorithms to determine how consumers feel about a given business or product. This can assist Indian e-commerce businesses in identifying areas for development and rapidly responding to unfavourable criticism.

- **Visual Search:** Customers in India can use image analysis-based visual search technologies to identify products that suit their tastes. Consumers can take a photo of a product they want, and an AI system will examine it to locate like items.

- **Voice Search:** E-commerce businesses in India are integrating voice search features that enable users to search for products using voice commands as a result of the rising popularity of voice assistants.

- **Customer Retention:** AI algorithms can examine consumer data to locate clients who may be departing and provide them with tailored incentives to keep them. This includes tailored marketing, personalised incentives, and awards for loyalty.

Findings and Analysis for Objective 3:

AI has the potential to transform the Indian Retail and E-Commerce industry in many ways. Here are some of the future prospects of AI:

- **Personalized Customer Experiences:** Artificial intelligence (AI) can assist Indian retailers and e-commerce platforms in better understanding their customers and offering them tailored suggestions and services. AI can make suggestions based on customer preferences, purchase history, and behavior by analyzing customer data to find patterns.

- **Improved Supply Chain Management:** AI can assist Indian retailers and e-commerce sites in optimizing their supply chains, from inventory management to logistics for deliveries. AI can evaluate data on customer locations, delivery times, and product demand to assist retailers and e-commerce businesses in making better logistics and inventory choices.

- **Enhanced Fraud Detection:** With the rise in online transactions, fraud has emerged as a major issue for Indian merchants and e-commerce sites. By examining transaction data and finding patterns that point to fraudulent activity, artificial intelligence (AI) can assist in the detection and prevention of fraud.

- **Increased Efficiency:** AI can automate a variety of routine tasks, including order processing, inventory management, and customer service queries, which increases efficiency and lowers costs.

- **Improved Decision-Making:** AI has the potential to help Indian merchants and e-commerce platforms make smarter choices regarding pricing, promotions, and marketing by analyzing massive amounts of data.

Overall, the future of AI in the Indian retail and e-commerce industries is very bright. We can anticipate that AI will become more crucial to these sectors as technology develops, allowing Indian retailers and e-commerce businesses to improve customer experiences, operational efficiency, and decision-making.

VI.   CONCLUSION AND RECOMMENDATIONS

To conclude, both the retail and e-commerce sectors in India will significantly benefit from AI's impact on customer relationship management (CRM). It has been demonstrated that AI-powered CRM systems improve customer engagement, loyalty, and retention. This is because AI can quickly and accurately process enormous volumes of data to give clients individualised recommendations and support.

But nevertheless, while implementing AI-powered CRM solutions, privacy and ethical issues must be carefully taken into account. AI systems must use client data in a transparent manner and in accordance with applicable data protection laws. A vulnerable group, such as those with little access to technology, shouldn't be excluded as a result of the application of AI.

According to a comparison study between the retail and e-commerce sectors, e-commerce has a higher acceptance rate for AI in CRM. This is probably because e-commerce is intrinsically digital, which makes it simpler to incorporate AI into CRM systems. Yet, the Indian retail sector has also demonstrated a rising interest in AI-powered CRM, with a number of significant merchants putting

such systems in place.

In the end, the integration of AI into CRM has the potential to support a viable future for both sectors. AI can increase customer happiness and retention by delivering individualised and effective customer care, which reduces waste and boosts revenue.

Recommendations:

1) By offering individualised and immediate assistance, AI significantly improves the customer experience in both sectors. As a result, customer engagement and retention are improved. As a result, it is recommended that AI should be used in discovering customer preferences, behaviour patterns, and pain spots.

2) Compared to e-commerce, which has embraced AI in a variety of applications like chatbots, voice assistants, and recommendation engines, the retail sector has been slower to incorporate AI technology. But it is also important for both businesses to make sure that automation doesn't completely replace human connections and strikes a balance between them and customisation.

3) By strengthening supply chain efficiency, lowering waste, and improving inventory management, AI can support sustainable business practises. The authors recommend that in order to enhance product quality and lessen the impact on the environment, AI can also be improvised to track and analyse customer feedback.

References

1) Thiraviyam, T. (2018). Artificial intelligence marketing. *International Journal of Recent Research Aspects*, *4*, 449-452.

2) Srinivasan, M. (2021). Role of Artificial Intelligence in Customer Relationship Management in Indian Retail Industry. *International Journal of Creative Research Thoughts*, 46-51.

3) Ramesh, M., & Rao, G. (2019). Customer relationship management in retail marketing. *Int. J. Res. Manage. Studi*, *4*(10), 1-12.

4) Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2022). AI and digitalization in relationship management: Impact of adopting AI-embedded CRM system. *Journal of Business Research*, *150*, 437-450.

5) Almahairah, M. S. Z., Balaji, K., Murugan, A., Rajesh, P., Kumar, H., & Alotoum, F. J. (2022). A Non Customer Relationship Management Using Artificial Intelligence In The Retail Sector. *Journal of Pharmaceutical Negative Results*, 9810-9819.

6) Kaul, D. (2017). Customer relationship management (CRM), customer satisfaction and customer lifetime value in retail. *Review of professional management*, *15*(2), 55-60.

7) Ledro, C., Nosella, A., & Vinelli, A. (2022). Artificial intelligence in customer relationship management: literature review and future research directions. *Journal of Business & Industrial Marketing*.

8) Seranmadevi, R., & Kumar, A. (2019). Experiencing the AI emergence in Indian retail–Early adopters approach. *Management Science Letters*, *9*(1), 33-42.

9) Kaur, V., Khullar, V., & Verma, N. (2020). Review of artificial intelligence with retailing sector. *Journal of Computer Science Research*, *2*(1), 1-7.

10) Nuzula, I. F., Muryanto, M. A., & Cuong, V. H. (2022). E-Commerce, Customer Relationship Management and Artificial Intelligent amid COVID-19. *Journal of Management Studies and Development*, *1*(02), 68-78.

11) Rahman, M. S., Bag, S., Gupta, S., & Sivarajah, U. (2023). Technology readiness of B2B firms and AI-based customer relationship management capability for enhancing social sustainability performance. *Journal of Business Research*, *156*, 113525.

12) Bilgeri, N. (2020). *Artificial intelligence improving CRM, sales and customer experience: An analysis of an international B2B company* (Doctoral dissertation, FH Vorarlberg (Fachhochschule Vorarlberg)).

13) Shahare, P. (2022). Role of Artificial Intelligence in Marketing and Customer Relationship Management: A Quantitative Investigation of Recent Practices.

14) Chatterjee, S., Mikalef, P., Khorana, S., & Kizgin, H. (2022). Assessing the implementation of AI integrated CRM system for B2C relationship management: Integrating contingency theory and dynamic capability view theory. *Information systems frontiers*, 1-19.

15) Khanna, D. N. (2022). CUSTOMER RELATIONSHIP MANAGEMENT IN RETAIL SECTOR. *International Research Journal of Management, Sociology and Humanities,* 87-96.

16) Ferrer-Estévez, M., & Chalmeta, R. (2023). Sustainable customer relationship management. *Marketing Intelligence & Planning*, *41*(2), 244-262.

17) Iqbal, T., & Khan, M. N. (2021). The Impact of Artificial Intelligence (AI) on CRM and Role of Marketing Managers.

18) Kaur, R., Singh, R., Gehlot, A., Priyadarshi, N., & Twala, B. (2022). Marketing Strategies 4.0: Recent Trends and Technologies in Marketing. *Sustainability*, *14*(24), 16356.

19) Chatterjee, S., Chaudhuri, R., Vrontis, D., Thrassou, A., & Ghosh, S. K. (2021). Adoption of artificial intelligence-integrated CRM systems in agile organizations in India. *Technological Forecasting and Social Change*, *168*, 120783.

20) Nimbalkar, K., & Pabalkar, V. (2020). Impact of AI on Retail Sector in India. *European Journal of Molecular & Clinical Medicine*, *7*(11), 4372-4386.

21) Sharma, D. (2021). Impact of AI on E-Commerce. *Artificial Intelligence in Finance: Trends and Applications*, 1-28.

22) Ayodeji, O. G., Kumar, V., & Kumar, S. (2020). Online retail in India: a comparative analysis of top business players. *International Journal of Indian Culture and Business Management*, *20*(3), 359-384.