IMPACT OF ARTIFICIAL INTELLIGENCE AS A CRM TOOL IN THE INDIAN RETAIL SECTOR IN THE POST-PANDEMIC ERA

Diwakar Chaudhary
Research Scholar, Noida International University, Greater Noida, Uttar Pradesh,
India
Email id: diwakarchaudhary2@gmail.com

Dr. Subhash Kumar Verma
Professor & Director, Noida International University, Greater Noida, Uttar
Pradesh, India
Email id: svarma194@gmail.com

ABSTRACT

The Covid-19 outbreak has significantly affected the retailing industry. Brick-and-mortar merchants were forced online to remain in business, while online retailers provided them with AI, ML, and other smart technologies to attract, engage, and transact with customers. Due to lockdown and physical distance, individuals began shopping more on e-commerce platforms, therefore companies prioritised impulsive buying. To address these issues, AI is likely to play a critical role. This study investigates numerous AI-enabled technologies and its impact on CRM in Indian retail sector post pandemic. Five AI tools (Product Recommender, Virtual Agent, Email Management, and Speech Recognition) were studied to investigate consumer awareness and its impact on CRM in retail sector pertaining to India. The researchers employed a survey-based study approach to obtain primary data through a Google form. Consumers are aware of AI-enabled solutions, and the AI technologies under research affect CRM in the Indian retail market, especially post-pandemic. This research will add to online buying literature and help firms deploy relevant technology.

Keywords: *Customer Relationship Management (CRM), Artificial Intelligence (AI), Indian Retail Sector, Post-Pandemic, Covid-19*

INTRODUCTION

The post-pandemic era has changed the globe, affecting practically every industry, including retail. There is a lot of conjecture regarding the severity of the economic effect caused due to the pandemic, but there is no one reputable source of information that captures or projects Covid-19 impact estimates (Carlsson-Szlezak et al., 2020). Covid-19's long-term impacts are still being documented, despite its widespread influence on the retailing industry (Lee & Park, 2020). There is an apparent growth in demand for necessary commodities, and shops can service customers at home. At the same time, merchants confront a number of issues in ensuring the availability of commodities in a safe and secure environment. Supply chain management, inventory management, and facility safety, inventory at rest, and inventory in

transit have all become crucial for both suppliers and retailers (Lu, 2020). While, there has been a substantial decrease in the sales of enterprises dealing in non-essential items (apparel, cosmetics, and footwear), necessitating the development and implementation of new methods to connect and interact with clients who do not want to buy and spend simply to survive (Carlsson-Szlezak et al., 2020). Companies were obliged to adjust their goods to meet the special needs of their customers (Sharma et al., 2020). Covid-19 is affecting the product mix of several manufacturers and merchants. According to the McKinsey Global Survey of CEOs, their companies have embraced digital transformation and accelerated the deployment of technology for consumer and supply chain interactions (McKinsey, 2020). Disruptive technologies such as AI (Artificial Intelligence), robots, web portal trackers, blockchain, and a handful of the world's largest retailers have integrated machine learning and deep learning to provide enjoyable consumer experiences on their e-commerce portals (Prashar et al., 2017). This article explores AI as an invasive technology and assesses its influence on CRM systems in Indian retail post-pandemic.

CRM and related consumer behaviour are evolving as a result of fast changes in technology, demography, and perceived fear of new Covid strains (Donthu & Gustafsson, 2020). Technological innovation and utilisation of social media, smart devices, IoT, chatbots, and big data retail educate and inform customers (Grewal et al., 2018). These technology and techniques have facilitated information sharing, visual display, online buying, customer participation, and optimal purchase decisions (Badgaiyan et al., 2016).

Retailers must use technology to communicate with, attract, engage, and serve consumers from the comfort of their own homes, while also taking all necessary safety precautions. During Covid-19, impulse purchase was recorded in particular product categories and may be further induced with the correct use of technology tools. AI has encouraged retail organisations to change from rule-based to consumer-predicted categorization (Fatemi, 2019). AI helps salespeople determine what customers buy by analysing millions of historical facts and snapshots, such as demographics, geographic data, internet activity, and behaviour.

AI and CRM systems may investigate the relationship between winning and losing business to uncover trends that might help with application score prediction. A more accurate model becomes the standard model (Fatemi, 2019). AI might alter marketing methods, company models, customer service, sales prospects, and consumer behaviour. Syam and Sharma (2018) say machine learning and AI provide marketers more statistical power, which boosts marketing effectiveness.

Researcher has determined, on the basis of the literature study, the following objectives:

1. To study the impact of AI as a CRM tool in Indian retail sector in post-pandemic era
2. To identify user awareness of AI as a CRM tool in Indian retail sector in post-pandemic era

MATERIAL AND METHOD

Study Design

The method of investigation used in this research was quantitative. The use of artificial intelligence (AI) as a customer relationship management (CRM) tool in the retail industry is the exclusive focus of this study. In this research, a survey questionnaire with limited open-ended responses is employed. For primary data collection, an approach that does not rely on probabilistic sampling is employed, and Google forms are used for this purpose. The replies were from a sample size of one hundred managers, all of whom worked for large retail corporations in India. Both descriptive and associative analysis methods are used in order to make sense of the data that was gathered.

Data Collection

These surveys were conducted by the researchers using Google forms. The following table shows how the study goals were translated into survey questions.

Research Parameters	Questions
Impact (Used 5 point Likert scale, where 1 is highly dissatisfied and 5 is highly satisfied)	1. First, how user-friendly do you find the AI-enabled products to be? (easy to use) 2. Please rank the usefulness of AI-powered tools in terms of how they assisted you in making choices. 3. When rating a collection of AI-enabled products, please also consider how well they keep you up to date or informed until your initial activity is complete. 4. Please score the same group of AI-enabled products based on how satisfied you are with them as a whole.
User Awareness (Used 5 point likert scale where 1 is highly unlikely and 5 is highly likely)	1. One, we'd want you to score the same set of AI-enabled products based on how likely you are to utilise the tools again. 2. What experience do you have with the following AI-enabled software programmes? 3. How probable it is that you will tell others about the AI-enabled technologies you've used.

Table 1. Survey questions

Data Analysis

Based on the two objectives and seven questions mentioned in this research paper, researcher used Descriptive analysis (Pie Chart) and Associative analysis (Pearson Correlation test).
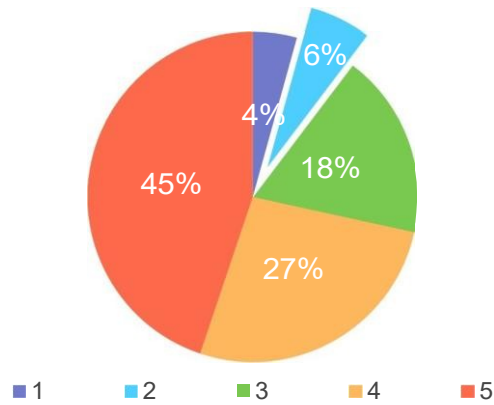
RESULT AND DISCUSSION

Here, we list the conclusions that may be reached from a careful examination of the facts.
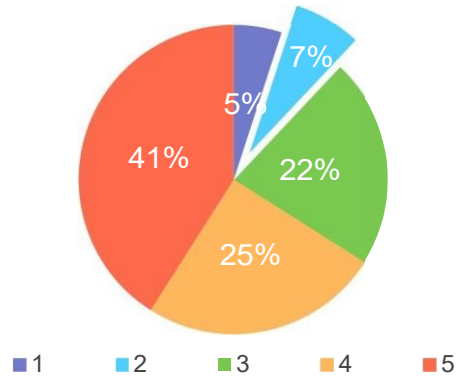
Analysis of the impact of Artificial Intelligence as a CRM tool:

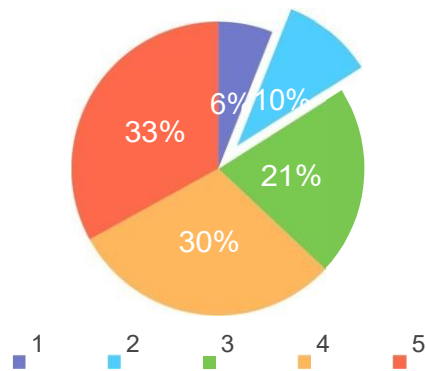**1. Impact of Product Recommendation Tool**
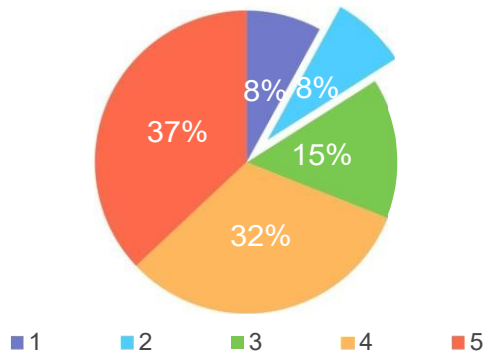
User Friendliness of Product
Recommendation Tool

Helpfulness of Product
Recommendation Tool

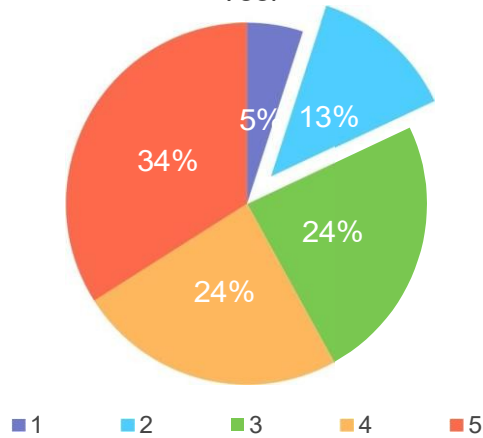Additional Updates of Product
Recommendation Tool

Satisfaction Level of Product Recommendation Tool


■ 1 ■ 2 ■ 3 ■ 4 ■ 5

According to the data, around 8% of respondents are generally or very unsatisfied with the "Product Recommendation Tool" across all four dimensions. So, it follows that the "Product Recommended Tool" powered by AI is helpful, and its users are happy.
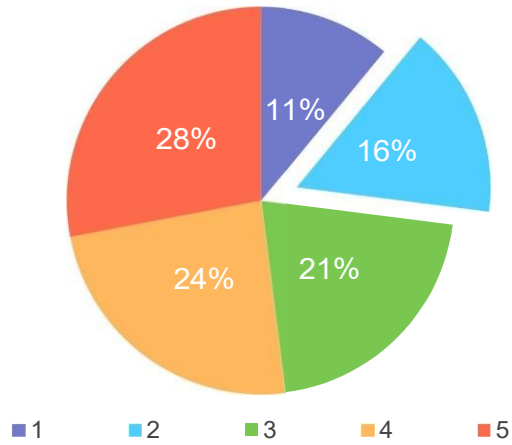
2. Impact of Virtual Agent Tools "Chatbots"
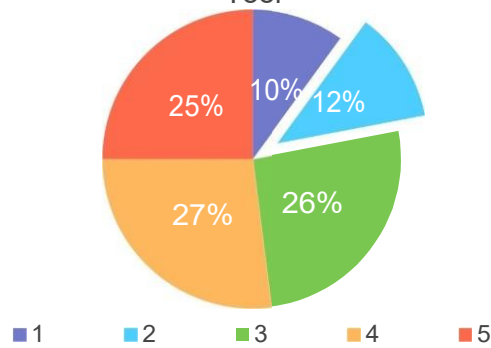
User Friendliness of Virtual Agent Tool

■ 1 ■ 2 ■ 3 ■ 4 ■ 5

Helpfulness of Virtual Agent Tool

■ 1 ■ 2 ■ 3 ■ 4 ■ 5
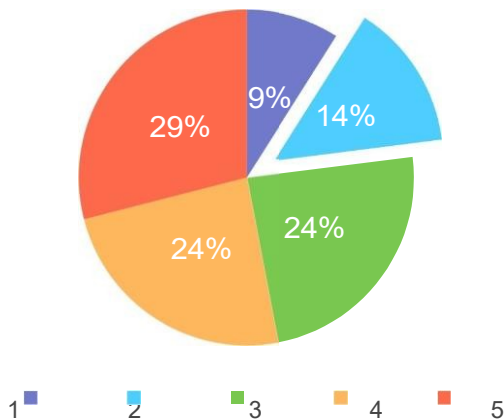
Additional updates of Virtual Agent Tool

Legend: ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

(11%, 16%, 21%, 24%, 28%)

Satisfaction Level of Virtual Agent Tool

Legend: ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

(10%, 12%, 26%, 27%, 25%)
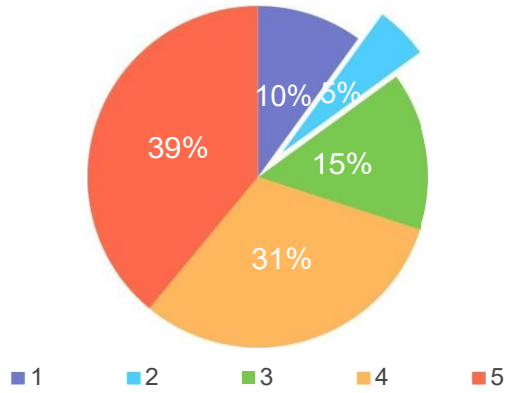
Based on the data shown above, it can be concluded that, on average, 1 in 5 users are not happy with the "Virtual Agent Tool" across all four categories. So, it follows that the AI-powered "Virtual Agent Tool" is useful.
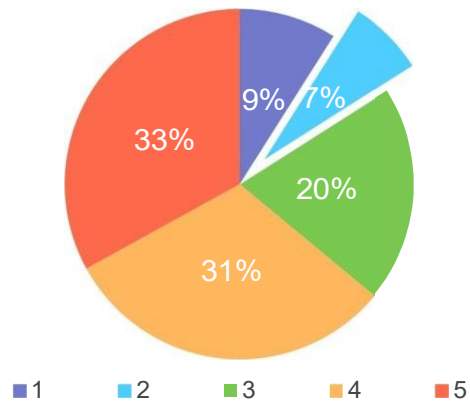
3. Impact of Email Management Tool

User Friendliness of Email Management Tool

Legend: ■ 1 ■ 2 ■ 3 ■ 4 ■ 5
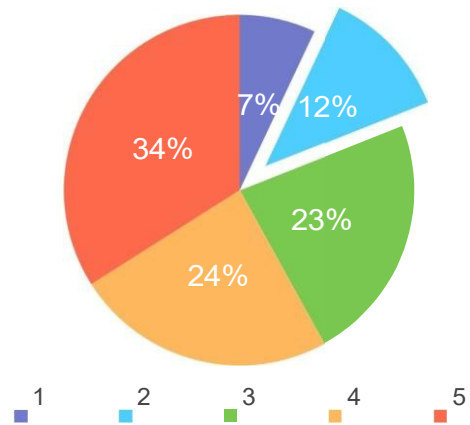
(11%, 10%, 15%, 21%, 43%)
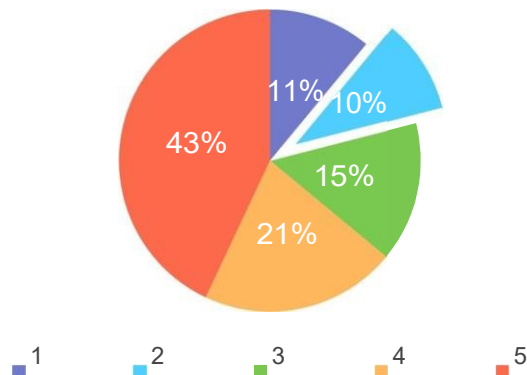
Helpfulness of Email Management Tool

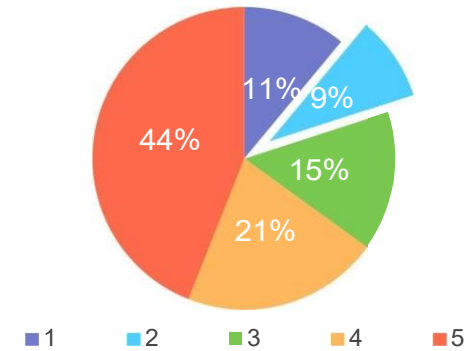
Additional updates of Email Management Tool

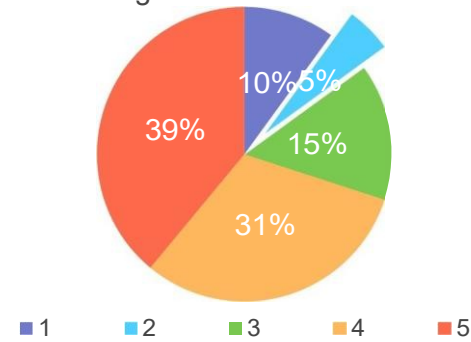## Satisfaction Level of Email Management Tool

According to the data shown above, around 10% of respondents are not pleased with the "Email Management Tool" across all four categories. Therefore, it follows that the "Email Management Tool" powered by artificial intelligence is efficient.

4. Impact of Speech Recognition Tool

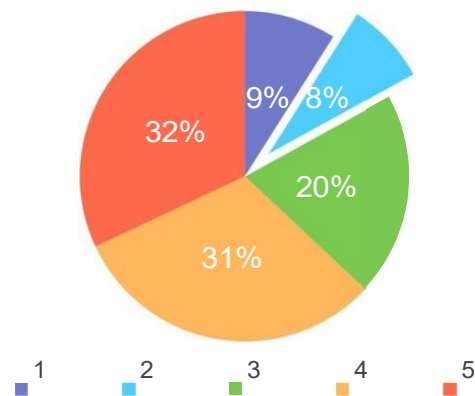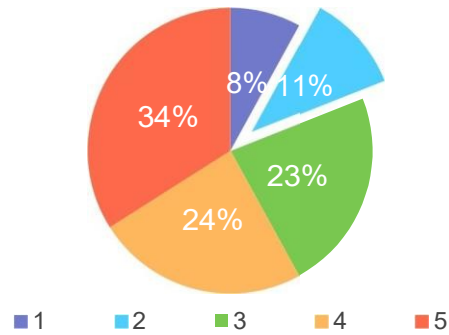**User Friendliness of Speech Recognition Tool**

11% 9% 15% 21% 44%

■1 ■2 ■3 ■4 ■5

Helpfulness of Speech Recognition Tool

10% 5% 15% 31% 39%

■1 ■2 ■3 ■4 ■5

Additional updates of Speech Recognition Tool

9% 8% 20% 31% 32%

1 2 3 4 5

Satisfaction Level of Speech Recognition Tool

According to the data shown above, around 11% of respondents are neither pleased nor very happy with the "Speech Recognition Tool" across all four categories. Therefore, it follows that the "Speech Recognition Tool" powered by artificial intelligence is efficient.

Analysis of User Awareness of AI Tools:

Awareness of Product Recommendation
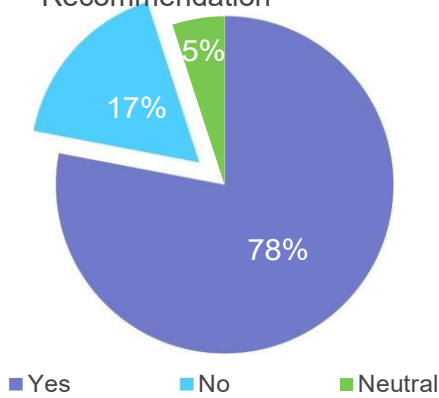
Awareness of Virtual Agent
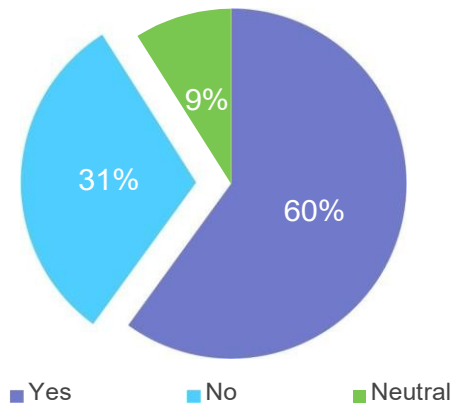
Awareness of Email Management

Awareness of Speech Recognition

Awareness of Visual Perception
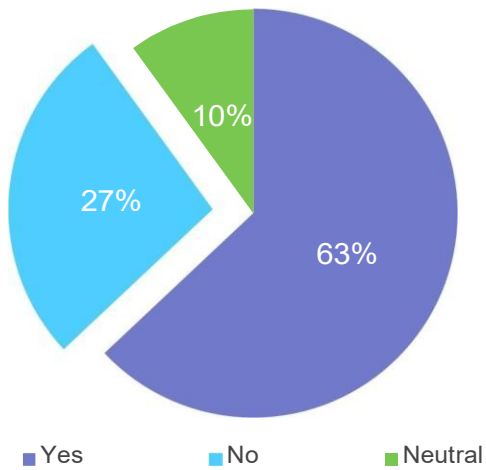
The above figures depict that 54% of respondents are aware of the in-scope AI Tools. Product recommendation has the most votes, while email management has the fewest. This might be owing to the email management tool's small user base and newness.

Pearson Correlation Analysis:

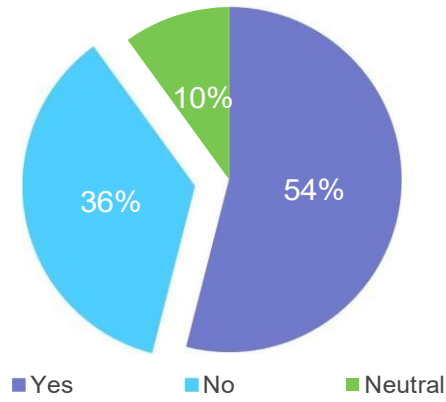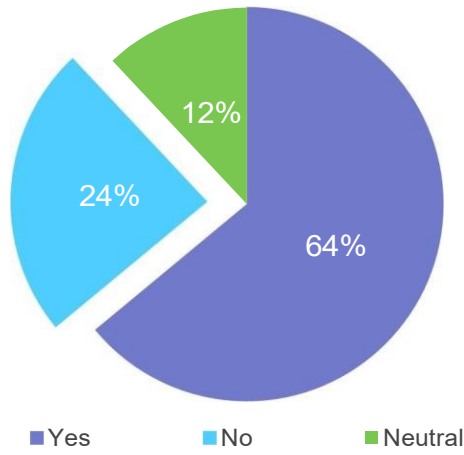|		Product Recommendation Tool	Virtual Agent Tool	Email Management Tool	Speech Recognition Tool	CRM
Product Recommendation Tool	"Pearson Correlation"	1	0.323	0.347	0.322	0.275
	Sig. (2-Lailed)		0.001**	0.001**	0.001**	0.05*
	N	100	100	100	100	100
Virtual Agent Tool	"Pearson Correlation"	0.323	1	0.337	0.283	0.325
	Sig. (2-Lailed)	0.001**		0.001**	0.05*	**0.001****
	N	100	100	100	100	100
Email Management Tool	"Pearson Correlation"	0.347	0.337	1	0.283	0.325
	Sig. (2-Lailed)	0.001**	0.001**		0.05*	**0.001****
	N	0.347	100	100	**100**	**100**
	Pearson Correlation	0.322	0.283	0.283	1	0.349

Speech Recognition Tool	Sig. (2-Lailed)	0.001**	0.05*	0.05*		0.001**
	N	100	100	**100**	100	100
CRM	Pearson Correlation	0.275	0.325	0.325	0.349	1
	Sig. (2-Lailed)	0.05*	**0.001***	**0.001****	0.001**	
	N	100	100	**100**	100	100

**. "Correlation is significant at the 0.01 level (2-tailed)"

*. "Correlation is significant at the 0.05 level (2-tailed)"

Table 2: Pearson correlation analysis of all the variables

The correlation between the independent and dependent variables is displayed in Table 2. A positive correlation between CRM and Speech Recognition Tool is observed. It has been determined that use of Product Recommendation Tool will boost an organization's CRM. An increase in Virtual Agent Tool benefits the organization's CRM, which also helps the company become more competitive in the market. Email Management Tool is feasible as a CRM tool, which gives businesses the chance to market their way into new markets and up the competition for businesses operating in related industries.

Pearson Correlation Coefficient: Testing Hypotheses

There are four hypotheses that are being tested:

Hl: Product Recommendation Tool has a significant impact on CRM in Indian retail sector in post-pandemic era

H2: Virtual Agent Tool has a significant impact on CRM in Indian retail sector in post-pandemic era

H3: Email Management Tool has a significant impact on CRM in Indian retail sector in post-pandemic era

H4: Speech Recognition Tool has a significant impact on CRM in Indian retail sector in post-pandemic era

The table 3 Hypothesis testing results summarising the connections between CRM and the four explanatory factors are shown below.

Hypothesis	Variable	Pearson Correlation	Relationship
H1	Product Recommendation Tool and CRM	0.323	Positive
H2	Virtual Agent Tool and CRM	0.347	Positive
H3	Email Management Tool and CRM	0.322	Positive
H4	Speech Recognition Tool and CRM	0.275	Positive

Table 3: Summary of Hypothesis Testing

According to Pearson's correlation, all of the numbers indicating how closely the independent variables in this research are linked together are higher than 0.70. Thus, it has been shown that there are strong positive associations between the Product Recommendation Tool, the Virtual Agent Tool, the Email Management Tool, and the Speech Recognition Tool and the Customer Relationship Management system. All of the stated theses (H1, H2, H3, and H4) are true.

CONCLUSION

In light of the recent epidemic, this research aimed to investigate the effects of Artificial Intelligence (Product Recommender, Virtual Agent, Email Management, and Speech Recognition) on Customer Relationship Management in the Indian retail industry. The study data analysis revealed that AI-enabled solutions are successful and have a good impact in the retail industry as a CRM tool in the post-pandemic age. Customers are also aware of the AI-enabled products that they use on different corporate websites.

The research discussed the significance of technology adoption as a reaction to the disruption created by Covid-19 to merchants. It has been explored what technology tools can be added to the present e-commerce ecosystem for merchants that already have an online presence. The most promising technologies with commercial advantages are thoroughly examined. As a result, researchers have reached an agreement with industry and academics to spend extensively in AI research and development for future commercial potential. The study suggests that in the future, corporations would actively provide AI-enabled services to customers in order to increase company volumes. Even more so, AI will change the nature of the business in the future. As AI develops, many existing firms will face difficulties while a

plethora of new ones will crop up. Down the future, researchers may zero in on certain AI tools by contrasting and contrasting two similar options. Besides the Internet of Things, other AI-enabled technologies may be explored for use in customer relationship management. More research on the demographic impact and connection is possible down the road.

REFERENCES

Badgaiyan, A. J., Verma, A., & Dixit, S. (2016). Impulsive buying tendency: Measuring important relationships with a new perspective and an indigenous scale. IIMB Management Review, 28(4), 186– 199. https://doi.org/10.1016/j.iimb.2016.08.009

Carlsson-Szlezak, P., Reeves, M., & Swartz, P. (2020). What coronavirus could mean for the global economy. Harvard Business Review, 3(March), 10. http://www.amchamegypt.org/bic/pdf/corona1/What Coronavirus Could Mean for the Global Economy by HBR.pdf

Donthu, N., & Gustafsson, A. (2020). Effects of Covid-19 on business and research. In Journal of Business Research (Vol. 117, pp. 284–289). https://doi.org/10.1016/j.jbusres.2020.06.008

Fatemi, F. (2019). 5 Ways Artificial Intelligence Is Transforming CRMs. Retrieved from Forbes: https://www.forbes.com/sites/falonfatemi/2019/08/10/5-ways-artificial-intelligence-is-transformingcrms/?sh=8e4810e53546

Grewal, D., Motyka, S., Marketing, M. L.-J. of, & 2018, undefined. (2018). The Evolution and Future of Retailing and Retailing Education. Journals.Sagepub.Com, 40(1), 85–93. https://doi.org/10.1177/0273475318755838

Lee, H.-H., & Park, D. (2020). The World After Coronavirus. In Post-Covid Asia (pp. 93–130). https://doi.org/10.1142/9789811228988_0003

Lu, K. (2020). Research on China's Online Tourism Supply Chain Facing COVID-19 Epidemic. Basic and CLinical pharmacology & Taxicology, 127(1, SI), 246

McKinsey. (2020). Covid-19 digital transformation & technology | McKinsey. McKinsey. https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/howcovid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-businessforever

Prashar, S., Parsad, C., & Vijay, T. S. (2017). Leveraging neural networks technique for predicting impulsive buying: An empirical study in India. International Journal of Manufacturing Technology and Management, 31(6), 494–510. https://doi.org/10.1504/IJMTM.2017.089067

Sharma, A., Adhikary, A., & Borah, S. B. (2020). Covid-19′s impact on supply chain decisions: Strategic insights from NASDAQ 100 firms using Twitter data. Journal of Business Research, 117, 443–449. https://doi.org/10.1016/j.jbusres.2020.05.035

Syam, N., & Sharma, A. (2018). Waiting for a sales renaissance in the fourth industrial revolution: Machine learning and artificial intelligence in sales research and practice. Industrial Marketing Management, 135- 146.