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# Role of Artificial Intelligence in CRM Digitalization of FMCG Sector in India

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**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

**Materials And Methods**

**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) | First, how user-friendly do you find the AI-enabled products to be? (easy to use)<br>Please rank the usefulness of AI-powered tools in terms of how they assisted you in making choices. |

| | |
|---|---|
| | 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.<br>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) | 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.<br>What experience do you have with the following AI-enabled software programmes?<br>How probable it is that you will tell others about the AI-enabled technologies you've used. |

**Table 1. Survey questions**

**Data Analysis**

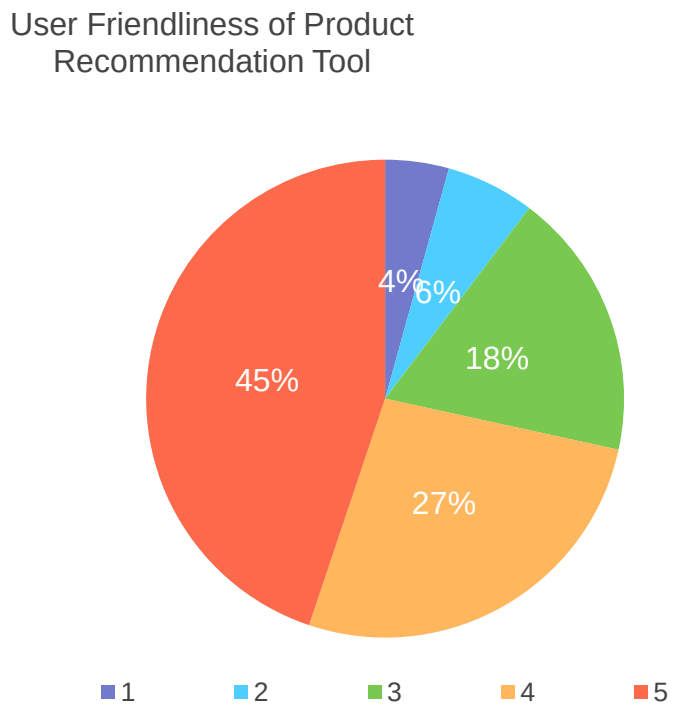
Based on the two objectives and seven questions mentioned in this research paper, researcher used Descriptive analysis (Pie Chart) and Associative analysis (Pearson Correlation test).

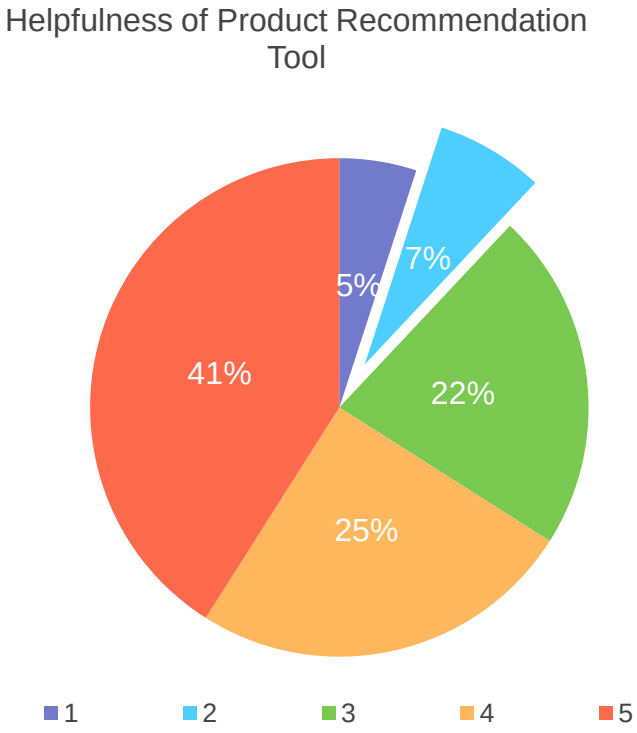
**Result And Discussion**

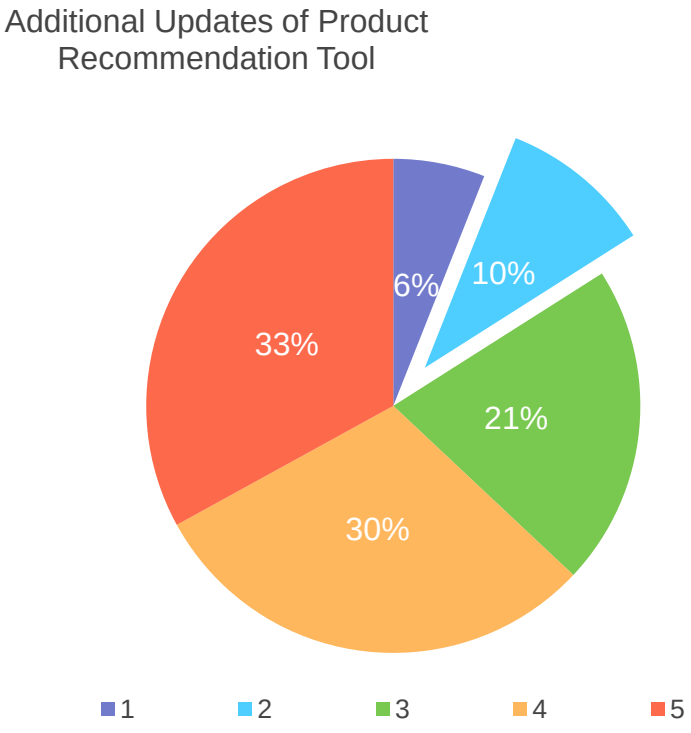
Here, we list the conclusions that may be reached from a careful examination of the facts.

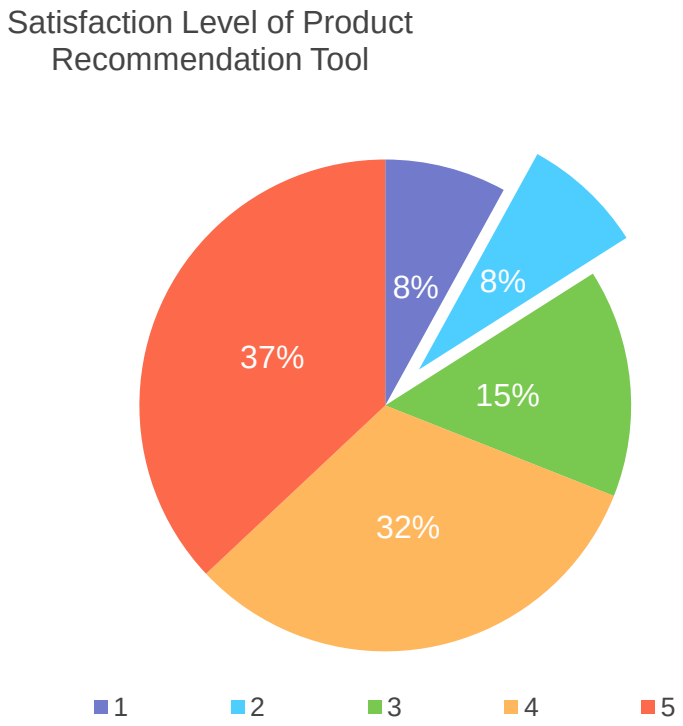
**Analysis of the impact of Artificial Intelligence as a CRM tool:**

**1. Impact of Product Recommendation Tool**



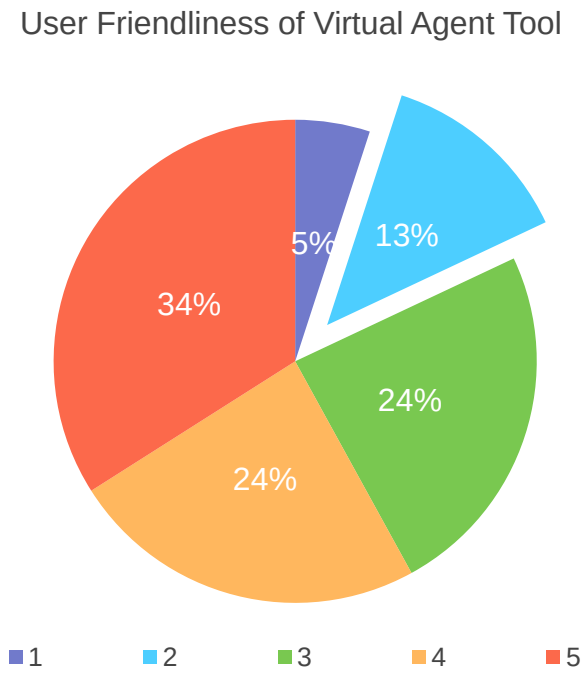

Helpfulness of Product Recommendation Tool
5%
7%
22%
25%
41%
1
2
3
4
5

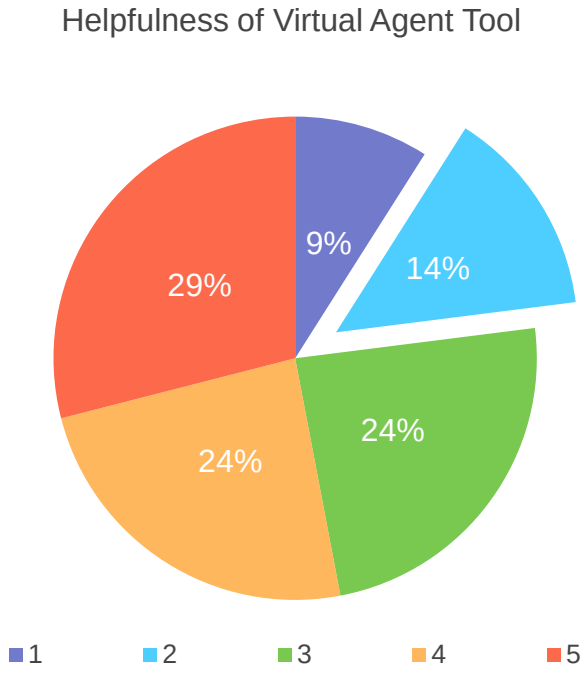

Additional Updates of Product Recommendation Tool
6%
10%
21%
30%
33%
1
2
3
4
5

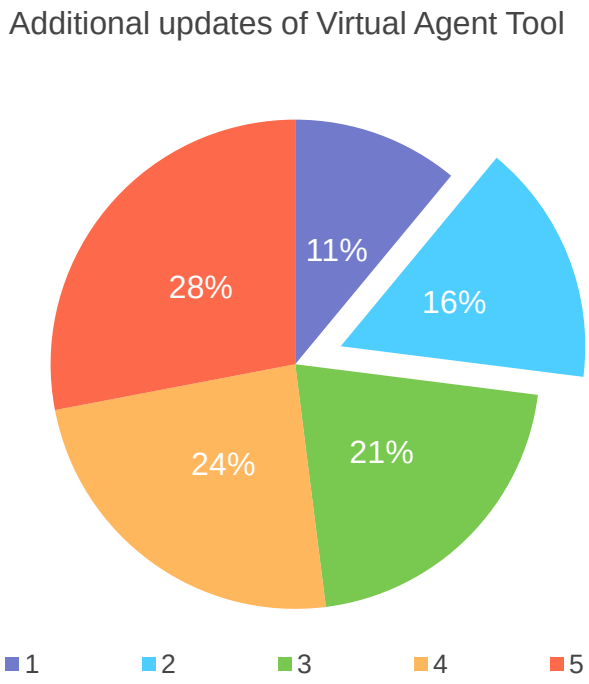


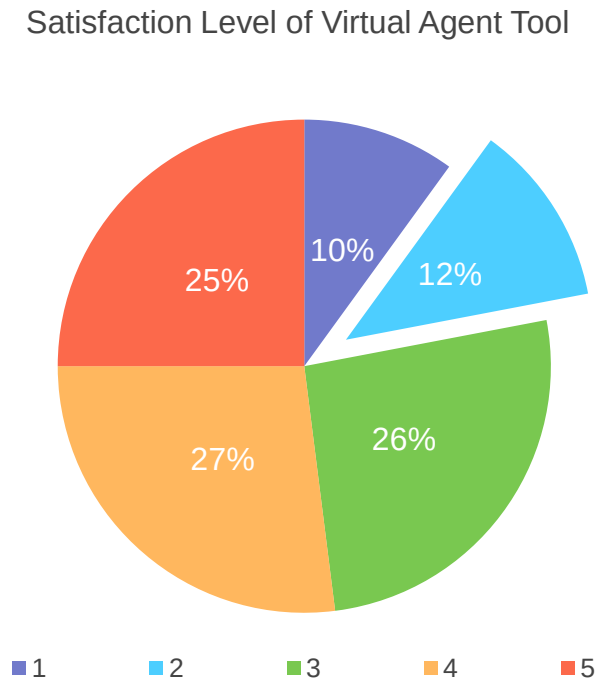

According to the data, around 8% of respondents are generally or very unsatisfied with the "Product Recommendation Tool" across all four dimensions. So, it follows that the "Product Recommended Tool" powered by AI is helpful, and its users are happy.

**2. Impact of Virtual Agent Tools "Chatbots"**



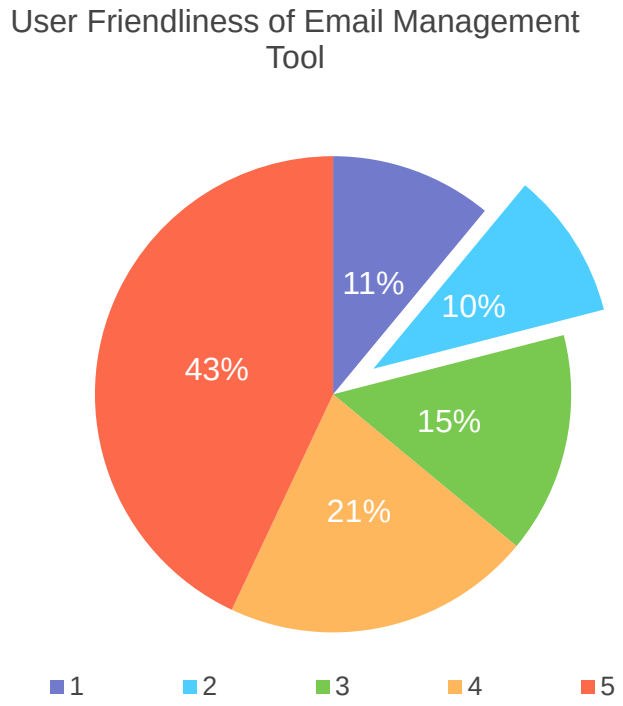

Helpfulness of Virtual Agent Tool
9%
14%
24%
24%
29%
1
2
3
4
5

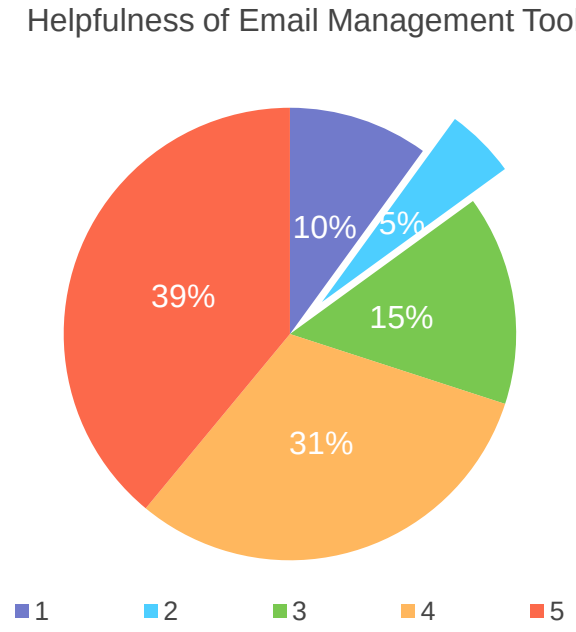

Additional updates of Virtual Agent Tool
11%
16%
21%
24%
28%
1
2
3
4
5

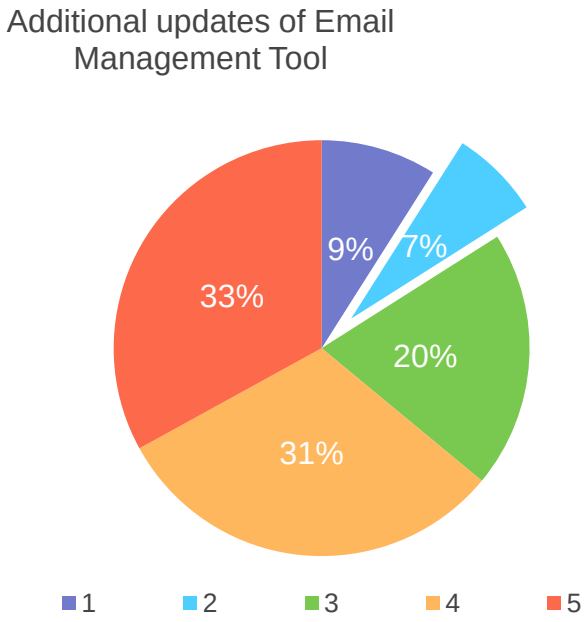


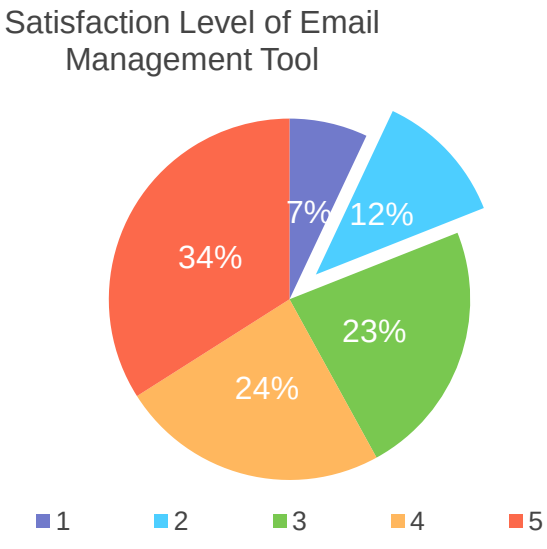

Based on the data shown above, it can be concluded that, on average, 1 in 5 users are not happy with the "Virtual Agent Tool" across all four categories. So, it follows that the AI-powered "Virtual Agent Tool" is useful.

**3. Impact of Email Management Tool**



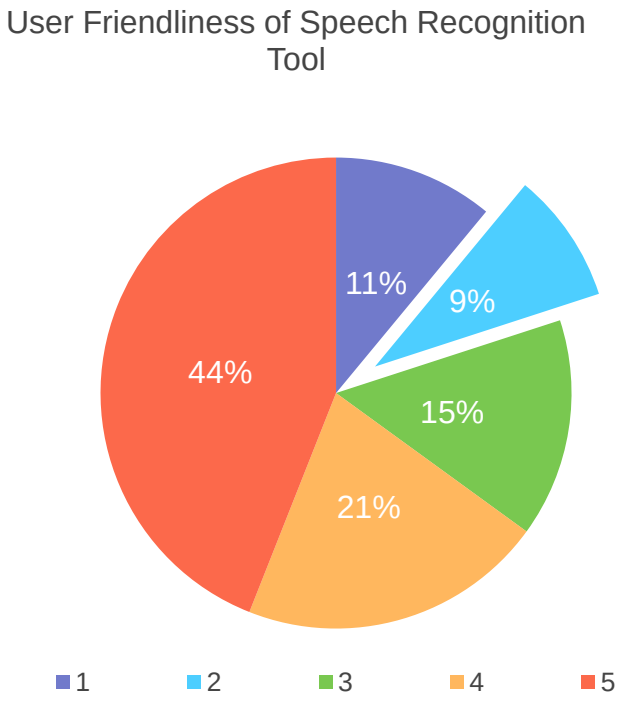

Helpfulness of Email Management Tool
10%
5%
15%
31%
39%
1
2
3
4
5

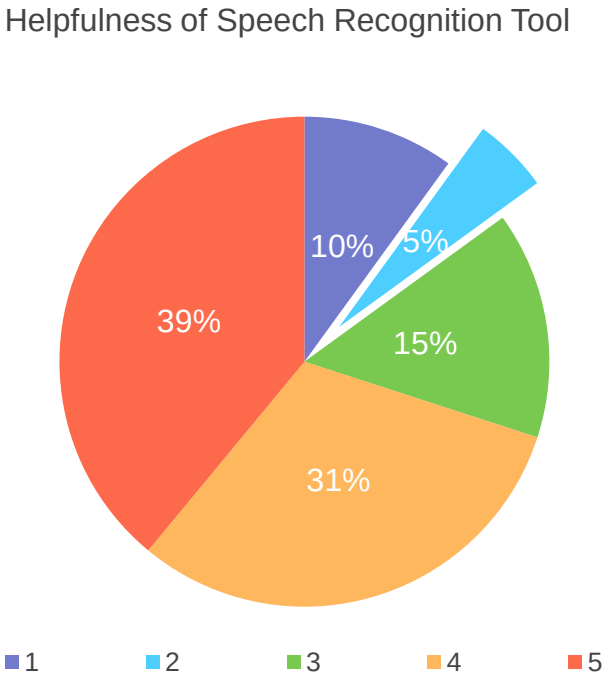

Additional updates of Email Management Tool
9%
7%
20%
31%
33%
1
2
3
4
5

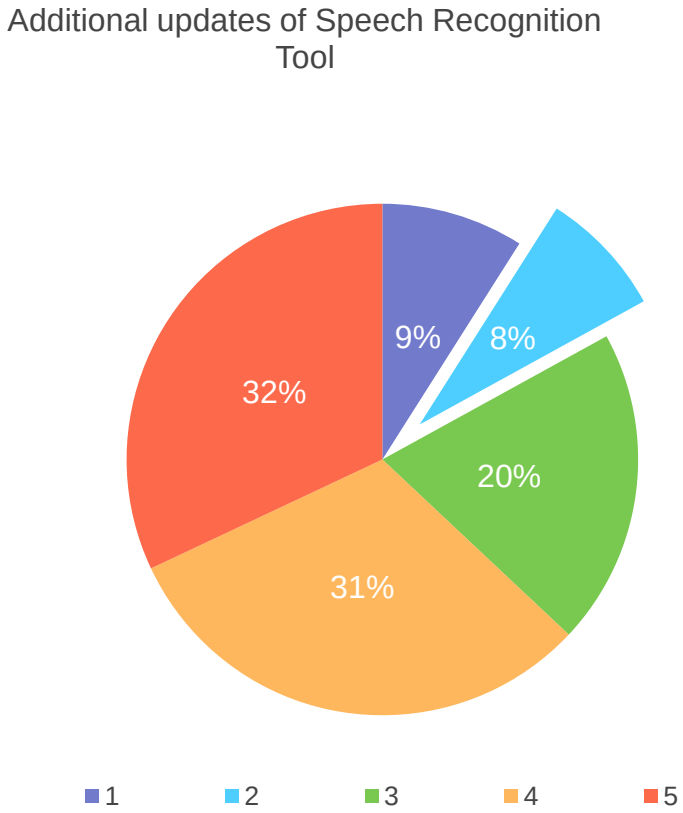

Satisfaction Level of Email Management Tool
7%
12%
23%
24%
34%
1
2
3
4
5

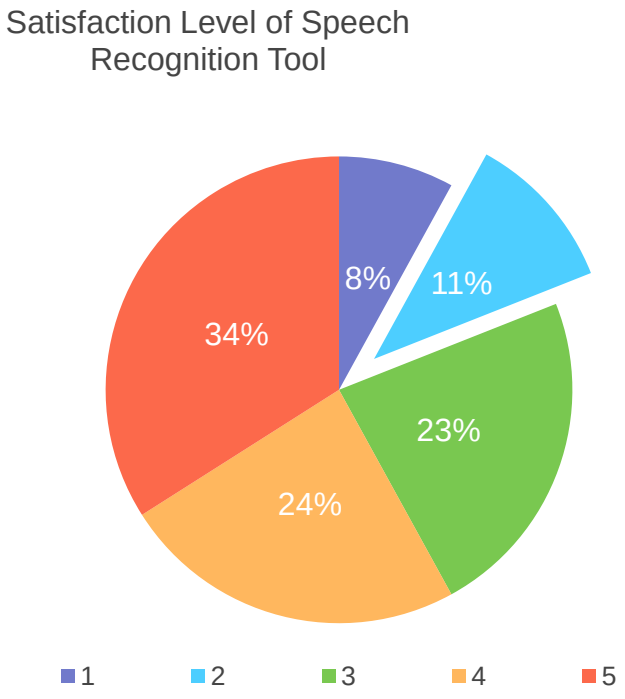
According to the data shown above, around 10% of respondents are not pleased with the "Email Management Tool" across all four categories. Therefore, it follows that the "Email Management Tool" powered by artificial intelligence is efficient.

**4. Impact of Speech Recognition Tool**



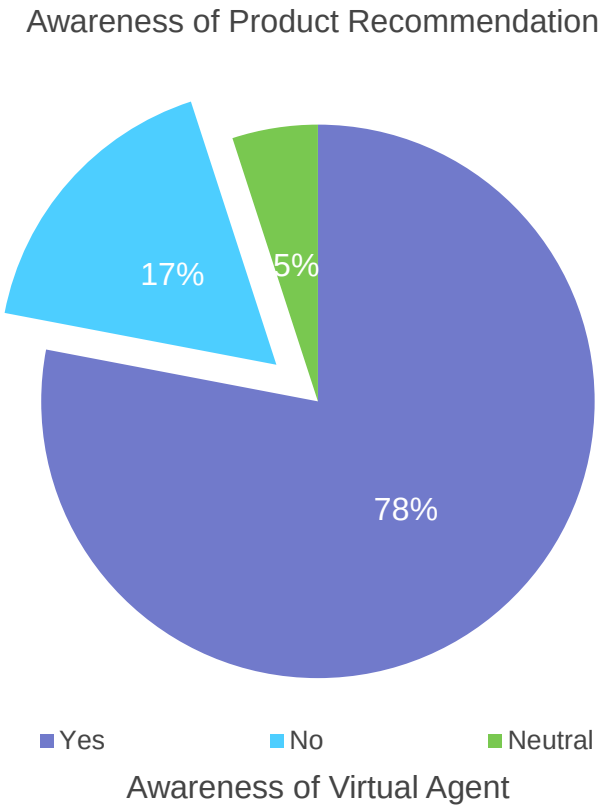



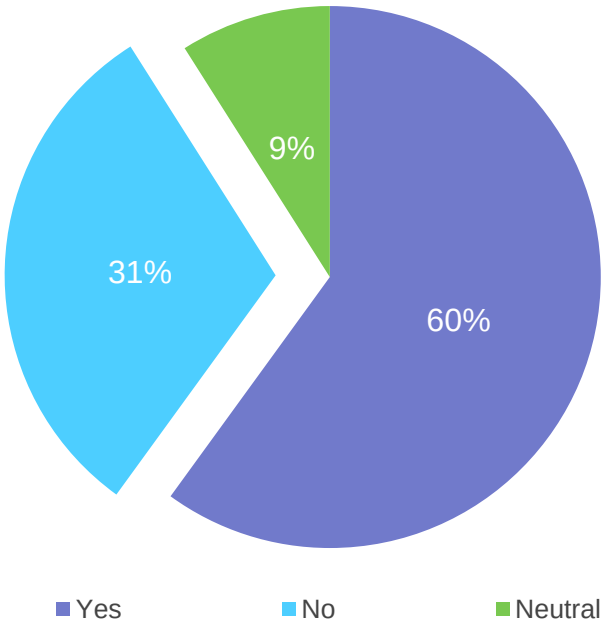


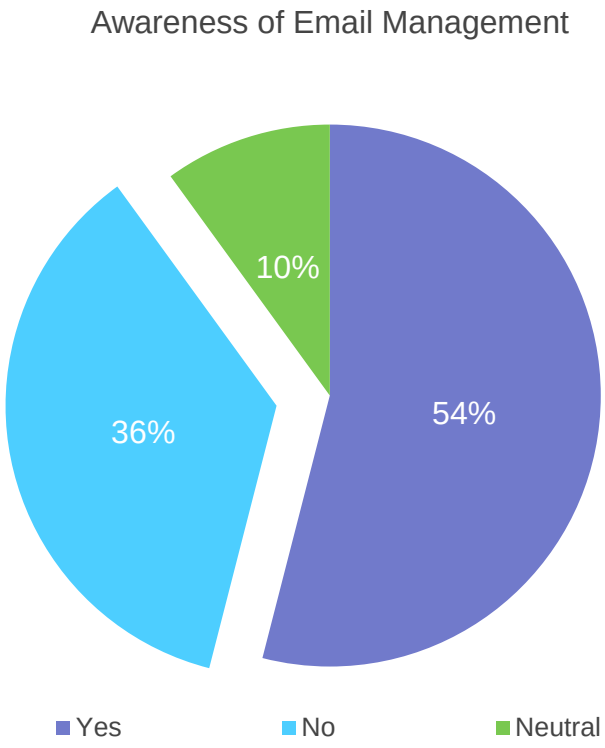



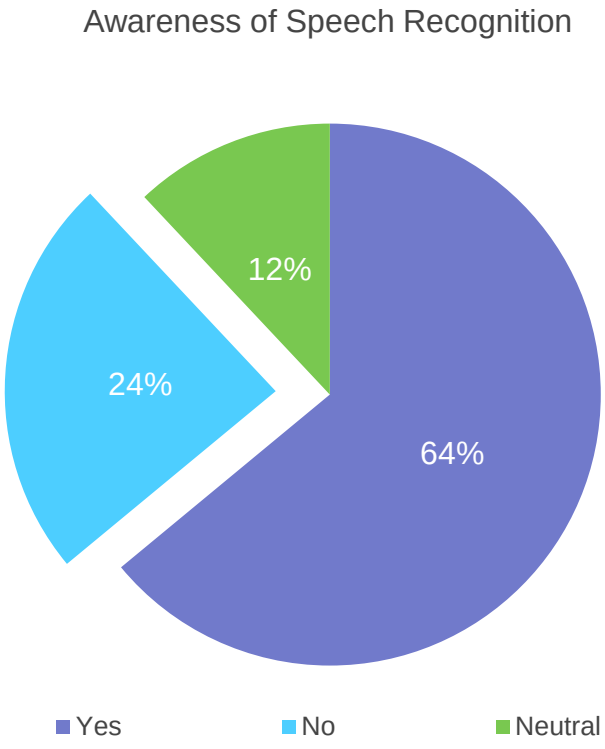

According to the data shown above, around 11% of respondents are neither pleased nor very happy with the "Speech Recognition Tool" across all four categories. Therefore, it follows that the "Speech Recognition Tool" powered by artificial intelligence is efficient.

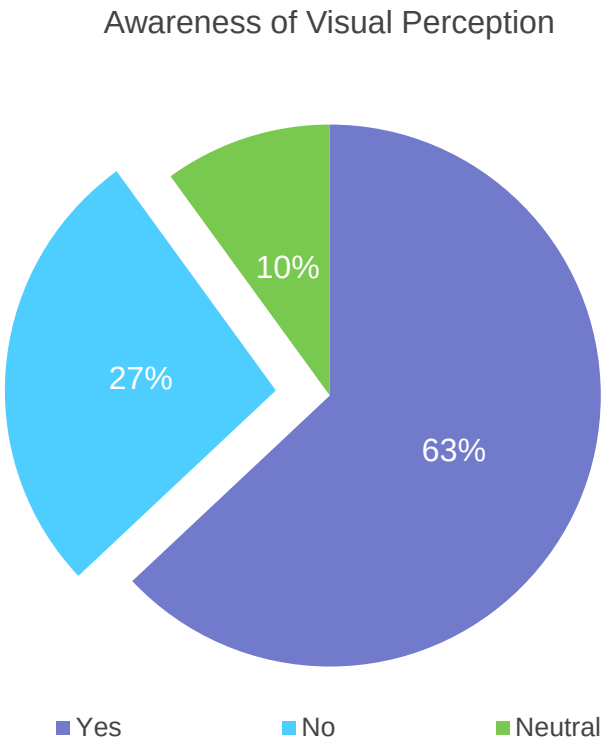
**Analysis of User Awareness of AI Tools:**




Awareness of Email Management
10%
36%
54%
Yes
No
Neutral


Awareness of Speech Recognition
12%
24%
64%
Yes
No
Neutral




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** |
| Speech Recognition Tool | Pearson Correlation | 0.322 | 0.283 | 0.283 | 1 | 0.349 |
| | 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**

**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.

**Conclusions**

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.

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