# ROLE OF ARTIFICIAL INTELLIGENCE IN MARKETING AND CUSTOMER RELATIONSHIP MANAGEMENT: A QUANTITATIVE INVESTIGATION OF RECENT PRACTICES

1. **Dr. Venkata HRD (Harshavardhan Reddy Dornadula)**

HRD Corporate Specialist

**2. Dr.Trilochan Nayak**

Professor

Dept- MBA

ASTHA School of Management

Bhubaneswar

**3. Padmakar Shahare**

Associate Professor

Department of Management

MIT (ADT) University, Pune, India

**4. Dr. Priyank Kumar Singh**

Ph.D. from Doon University, Dehradun

## Abstract

Artificial Intelligence (AI) support marketers in predicting the need of their customers & is an important provider of more flawless experiences to customer. Artificial Intelligence is important in present efforts for marketing and is used often when speed in needed. AI help in communicating the best way with the customers & then supply customized messages at correct time & ensure utmost feasible efficiency & without interference from members of marketing team, profiles of customer & data are used. In present market scenario that is driven by customers, complications presence in decision making are every day increasing. AI also involves understanding needs of customers & desires & aligns products or services to

those who are in need. Control or handling of changing behaviour of customer is important to make the best decisions for marketing strategies. Marketers get benefits from AI to make techniques for marketing analytics techniques to target the potential customers & generate personalized experiences for their customers. 209 People from marketing sector were surveyed to know the factors that determines the role of artificial intelligence in marketing and customer relationship management.  It is found through the study that Customer Assistance, Competence of activities, Strategy and Planning and Customer Relationship management are the factors that determine the role of artificial intelligence in marketing and customer relationship management.

## Introduction

There has been seen significant development in Customer Relationship Management (CRM) in recent years. Companies are now a day's focuses on artificial intelligence & automation to better understand the purchase habits of customers', enhance interaction among brand & customer & make relationship strong with customers. Artificial intelligence has been applied by the companies to CRM automation, in which customers are engaged on the basis of their questions & information they want, companies respond effectively to questions of customer questions & enhance loyalty among customers. Management always makes lots of efforts to attract customers to their company & offers them products & services they look for, retain them & hence more value addition to them. AI supports in fulfilling the requirements and needs of customers & help them in making better healthy association among management & customers (Shahid & Li 2019). A good CRM leads to effective service quality (Paul et al., 2016).

Main focus of management is always to make a team or strategies that can attract customers, understand their wants and needs & offer important information to management for relative & quick decisions. But with the adoption of AI, companies now use this technology for stable & healthy association with customers, involve them properly, recognize needs of customers & share information with company to make proper well-versed decisions. AI is always a strong driving energy for management to change their strategies from rule-based to customer expectations. AI showcase lots of diverse past history & snapshots, like location of customer, demographics, his online activities, & behaviour, it supports management & company to

make decision on what customers will like to purchase. AI help companies and management by making more interactive meetings with consumers & support round the clock that offers better guidance to consumers as well.

AI approach showcases the significant requirements of the technical people to be more precise to recognize the mechanisms of data generation & propose the scientific methods to influence underlying presumption. AI applications, particularly in strengthening knowledge, may endorse instead of hamper the requirement for in-depth theory of consumer behaviour. AI posses the ability to produce high order learning from basic information & experience that is self generated, without dependence on expertise of human being (Bruyn, Viswanathan, Beh, Brock, von Wangenheim, 2020).

AI's ability to transfer of information or knowledge assemble that is generated unconventionally by algorithms of AI reverse to human beings is also equally important to generate and maintain trust, increase control, & generate an optimistic feedback loop at the level of organization. This activity of transfer of information may depend on visualization of data & managerial training and require a variety of "AI intimacy" that needs to be developed continuously.

**Literature Review**

Mahalakshmi & Meena (2021) found that CRM with AI support marketers to focus more on innovative ideas to fulfil needs of lower customers & generate value and expansion of company in long term. Finding reflects that higher level of AI skill alter the role of assessment employees externally & internally. Firstly the positive change occurs among financial managers in terms of financial responsibility. Extrapolative evaluation support traders and makes it easy for them to predict & test the impact of different factors that influence the investment return. Hence, marketers are able to make better budgets in marketing.

Ledro & Nosella & Vinelli (2022) examined that CRM evolves from a strategy that is data driven to a strategy of AI-driven. Activities of Customer relationship management (CRM) include collection, management & use of information intelligently with the help of technology solutions to enlarge long term customer associations & exceptional experience of customer. In this era of digitalization, higher volume, different type of data, velocity along with capacity of processing led to novel technology solutions along with techniques of

Artificial Intelligence. Digital media, in the form of Electronic word of mouth is creating a huge quantum of data (Kudeshia and Mittal, 2016; Kudeshia et al., 2016) AI is considered as a ability of system that interpret huge amount of information correctly, understand from such information & utilize these understanding to achieve particular tasks & goals.

Hopkinson, Perez, Rodrigo & Singhal (2018) explored that in recent times, customer relationship management (CRM) has been found as noteworthy progress, along with the more adoption of automatic types of association among consumers & brand. Interaction & relationship of customers with company through automated way may enhance in future, particularly from the time when main purpose of AI as a science is to facilitate machines to perform activities that need intelligence if perform by human being.

Chen, Prentice, Weaven and Hisao (2022) examined that loyalty & engagement of consumers are correlated highly with the outcome of services. It has been considered as effective strategies of marketing to maximum profits & attains competitive advantages. Finding shows that AI adoption enhances customer experience in before, during & past stages of transactions.

Natarajan (2022) found that management of companies have starting focusing on using Artificial intelligence (AI) & automation tools to recognize customer's purchase behavior, to enhance interaction of consumers & brand, to make relationships stronger. Management have adopted Artificial Intelligent based CRM to respond to the queries of customer effectively & support them to enhance loyalty among customer.

Kumar, Shah, Shukla, Mahato, Bharti & Sinha (2021) explored that AI software is adopted by companies in their daily operations, decrease turnaround timing, cut overhead & enhance productivity. Technology is improving at an extraordinary speed, & management that are already commercialise AI software have marvellous periphery to be the first one to next breakthrough in the market. To be started, marketing is a tool to create, communicate, exchange & deliver assistance that support consumers or customers, partners & clients.

Daqar & Smoudy (2019) found that remarkable doors have been opened by AI in the area of management, particularly in the area of marketing. The company is able to enjoy improved consumer experience throughout of high customized customer service & stipulate support of customer by keeping costly & timely process compact. In whole research, the experience of customer is divided into 2 different factors i.e. customer service & support in after sale.

*Research Paper*     , UGC CARE Listed ( Group -I) Journal

Additionally, use of AI in call centres & other service related to after sale support reduces the waiting time of customers & therefore enlarge the experience of customer. Artificial intelligence is a fast moving technique & exists everywhere at our homes or working places. This technique is going to take over all devices and will become important part of everyone lives.

Sakunthala (2020) identified the opinion of technical people & marketing in manufacturing & service companies in relation to implementation of CRM & analyzes the role of IT (Information technology) in implementation of CRM. It is an approach of enterprise to recognize & manipulate behaviour of customer's with the help of significant communication to enhance acquisition of customer, their loyalty along with profitability. Customer Relationship Management is a company's strategy to control consumers associations to enhance the satisfaction & value of customer for long term.

Verma, Sharma, Deb & Maitra (2021) explored technological interruption like big data analytics, internet of things, artificial intelligence offers digital explanation to attract & maintain the base of customer. The implementation of technology leads to AI investment for huge information analytics to make market more intelligent. Predictive analytics & AI is a base to offer customer experience that makes promotion & customers for whole life.

Sujata, Aniket & Mahasingh (2019) found that AI is a tool that involves virtual assistants, sentiment analysis, chatbots, emotion detection & content creation bring about better customization, excellence of service & services without any hassle & consecutively offer an improved experience to customer. Optimistic experience of customer leads to emotions of better trust & satisfaction for the brand on the basis of level of involvement of consumer & perceived value of brand.

Jain &Aggarwal (2020) found that with the support of Artificial Intelligence, Companies are able to process large amount of information, performs customized sales & meet the expectations of consumers. Additionally, the insight companies get regarding the consumers & their need in small time frame support companies to enhance performance of campaign & return on investment swiftly. The main task of companies & management is to provide correct information to correct person at correct point of time to finish the company make segmentation of customers. Artificial intelligence support marketers to differentiate between

their consumers & identifies what motivates them. This information support companies & marketers to create a lifelong association with their consumers.

Yau, Saad and Chong (2021) explored that AI is an important unsettling technology that help machines to imitate human effective & cognitive task necessary to perform logical tasks, like reasoning & problem solving in a self-directed way. In recent years, initiation of AI changes the channels & landscape of marketing from old type of approaches with the help of telemarketing & printed catalogues to the present digital approach like chatbots & social networks. AI in marketing leads to Artificial intelligence marketing (AIM) use to automate the large amount of information & data associated to marketing mix to create awareness & knowledge.

Vlacic, Corbo, Costa, Susana & Dabic, (2021) examined that AI in marketing is competent to mimic human beings & perform activities in an intellectual way. AIM provides 4 main benefits that enhance customer relationship. Firstly, it enhances the competence of activities of marketing. For example, AIM performs repetitive automatic tasks, along with collection, analysis, & data processing, to make easy the solution of problem & reasoning in a synchronized war. Secondly, it enhances the correctness of decision made during solving of problem & the forecast made in reasoning on the basis of big information. Thirdly, Artificial intelligence marketing enhances availability as it functions all time. Lastly, it decreases the expenses to serve consumers & enhancement of financial benefits.

**Objective**

1. To know the factors that determine the role of artificial intelligence in marketing and customer relationship management.

**Research methodology**

People from marketing sector were surveyed to know the factors that determines the role of artificial intelligence in marketing and customer relationship management.  Sample size for present study is 209 and the collection of primary data was done through random sampling method. Survey was conducted with the help of a structured questionnaire and "exploratory factor analysis" was used for data analysis.

**Findings**

Table below is showing basic details of the respondents in which 65.6% of the respondents are male and rest 34.4% of the them are female. 37.8% of them are below 38 years of age, 44.5% of 38-44 years and rest 17.7% are above 44 years of age. 19.6% of the respondents are working as digital marketing head, 23.4% are CRM manager, 27.8% are marketing managers, 19.1% are analytics managers and rest 10.0% are working on other designation in marketing sector.

### Table 1 General Details

| Variable | Respondents | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 137 | 65.6 |
| Female | 72 | 34.4 |
| **Total** | **209** | **100** |
| **Age** | | |
| Below 38 yrs | 79 | 37.8 |
| 38-44 yrs | 93 | 44.5 |
| Above 44 yrs | 37 | 17.7 |
| **Total** | **209** | **100** |
| **Designation** | | |
| Digital marketing head | 41 | 19.6 |
| CRM manager | 49 | 23.4 |
| Marketing manager | 58 | 27.8 |
| Analytics Manager | 40 | 19.1 |
| Others | 21 | 10.0 |
| **Total** | **209** | **100** |

*"Factor Analysis"*

### Table 2 KMO and Bartlett's Test

| "Kaiser-Meyer-Olkin Measure of Sampling Adequacy" | .891 |
|---|---|

| "Bartlett's Test of Sphericity" | "Approx. Chi-Square" | 3339.459 |
|---|---|---|
| | "df" | 171 |
| | "Sig." | .000 |

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy" value is .891 in above table.

## Table 3 "Total Variance Explained"

| "Component" | "Initial Eigenvalues" | | | "Rotation Sums of Squared Loadings" | | |
|---|---|---|---|---|---|---|
| | "Total" | "% Of Variance" | "Cumulative %" | "Total" | "% Of Variance" | "Cumulative %" |
| 1 | 8.367 | 44.035 | 44.035 | 4.459 | **23.467** | 23.467 |
| 2 | 2.412 | 12.694 | 56.728 | 3.792 | **19.957** | 43.424 |
| 3 | 1.757 | 9.246 | 65.974 | 3.212 | **16.908** | 60.332 |
| 4 | 1.563 | 8.229 | 74.203 | 2.635 | **13.871** | **74.203** |
| 5 | .767 | 4.039 | 78.242 | | | |
| 6 | .692 | 3.644 | 81.886 | | | |
| 7 | .628 | 3.303 | 85.190 | | | |
| 8 | .453 | 2.383 | 87.573 | | | |
| 9 | .417 | 2.193 | 89.765 | | | |
| 10 | .354 | 1.865 | 91.631 | | | |
| 11 | .309 | 1.626 | 93.257 | | | |
| 12 | .254 | 1.339 | 94.596 | | | |
| 13 | .248 | 1.307 | 95.903 | | | |
| 14 | .214 | 1.125 | 97.028 | | | |
| 15 | .169 | .892 | 97.920 | | | |
| 16 | .147 | .773 | 98.693 | | | |
| 17 | .126 | .661 | 99.354 | | | |
| 18 | .068 | .356 | 99.710 | | | |
| 19 | .055 | .290 | 100.000 | | | |

It is found from "Total Variance Explained table that all the 4 factors explain total 74% of the variance. The 1st Factor explains 23.467% of the variance followed by the 2nd Factor with 19.957%, 3rd Factor having 16.908% and 4th factor explains 13.871% of variance."
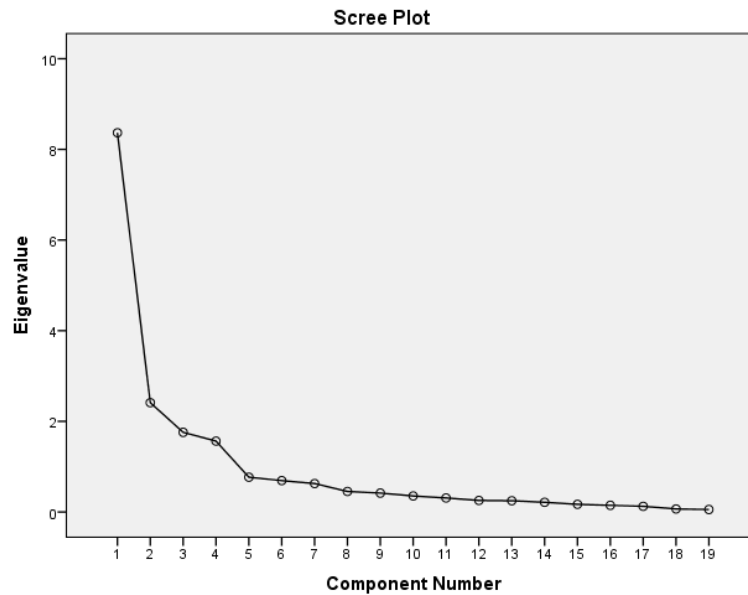


**"Figure 1 Scree Plot"**

Figure 1 is the graphical presentation of the Eigen values obtained from the Table 3 "Total Variance Explained." The figure shows an elbow at 4 components. Hence portrays that total 4 Factors have been extracted.

**Table 4 Factors, Factor Loading & Factor Reliability**

| S. No. | Statements | Factor Loading | Factor Reliability |
|---|---|---|---|
| | **Customer Assistance** | | **.955** |
| 1. | AI is a tool that involves virtual customer assistants | .857 | |
| 2. | Chatbots, emotion detection & content creation customizes customer's needs | .854 | |
| 3. | AI excellence customer service without any hassle | .846 | |
| 4. | AI leads customer to emotions of better trust & satisfaction for | .844 | |

| | | | |
|---|---|---|---|
| | the brand | | |
| 5. | AI offers an improved experience to customer | .778 | |
| | **Competence of activities** | | **.902** |
| 6. | AI make easy the solution of problem & reasoning in a synchronized war | .879 | |
| 7. | AI analyse and process huge customer data | .857 | |
| 8. | AI marketing performs repetitive automatic tasks | .843 | |
| 9. | AI enhances availability as it functions all time | .824 | |
| 10. | AI promotes telemarketing & printed catalogues to the present digital approach | .626 | |
| | **Strategy and Planning** | | **.878** |
| 11. | AI support marketers to focus more on innovative ideas to fulfil customer's needs | .887 | |
| 12. | AI helps to understand customer's purchase habits | .869 | |
| 13. | Recognize and handling of changing behaviour of customer | .819 | |
| 14. | AI support marketers in predicting the need of their customers to aligns products and services | .615 | |
| 15. | AI leads to reasoning & problem solving in a self-directed way | .584 | |
| | **Customer Relationship management** | | **.808** |
| 16. | Communication with customer is better through AI | .823 | |
| 17. | AI helps to engage the customers by answering their queries & enhance loyalty among customers | .768 | |
| 18. | AI enhance interaction among brand & customer | .747 | |
| 19. | AI supply customized messages at correct time | .694 | |

**Factor Development**

Customer Assistance is the first factor that includes the variables like AI is a tool that involves virtual customer assistants, Chatbots, emotion detection & content creation customizes customer's needs, AI excellence customer service without any hassle, AI leads customer to emotions of better trust & satisfaction for the brand and AI offers an improved experience to customer. Second factor is named as competence of activities and the associated variables are AI make easy the solution of problem & reasoning in a synchronized

war, AI analyse and process huge customer data, AI marketing performs repetitive automatic tasks, AI enhances availability as it functions all time and AI promotes telemarketing & printed catalogues to the present digital approach. Strategy and Planning is the third factor which consist of variables like AI support marketers to focus more on innovative ideas to fulfil customer's needs, AI helps to understand customer's purchase habits, Recognize and handling of changing behaviour of customer, AI support marketers in predicting the need of their customers to aligns products and services and AI leads to reasoning & problem solving in a self-directed way. Fourth and the last factor is Customer Relationship management and it includes the variables like Communication with customer is better through AI, AI helps to engage the customers by answering their queries & enhance loyalty among customers, AI enhance interaction among brand & customer and AI supply customized messages at correct time. The reliability of customer assistance is 0.955, competence of activities has 0.902, strategy and planning are 0.878 and customer relationship management are showing factor reliability as 0.808.

**Table 5 Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .922 | 19 |

It is found from table 5 that there is total 19 items that includes all the variables related to digital marketing and business growth along with total reliability which is 0.922.

**Conclusion**

Studies reflected that AI in CRM & marketing support in improving the performance of campaign, increase experience of customer & huge efficiency in operations of marketing. Marketers receive huge amount of information all the time and it become difficult for them to analyze & derive insights from it. Artificial intelligence support teams of marketing to obtain most of information with the help of predictive analytics. The support is huge for teams of marketing to comprehend the types of products a customer look for & when is the right time to position campaign more precisely. AIM help companies to understand their target segmentation better so that personalized experience can be created for every type of customer.

It is found through the study that Customer Assistance, Competence of activities, Strategy and Planning and Customer Relationship management are the factors that determine the role of artificial intelligence in marketing and customer relationship management.

### References

1. Bruyn, A.; Viswanathan, V.; Beh, Y.S.; Brock, J.K.-U.; von Wangenheim, F. (2020). Artificial Intelligence and Marketing: Pitfalls and Opportunities. *J. Interact. Mark, 51*, 91–105.

2. Chen, Y.; Prentice, C.; Weaven, S. and Hisao, A. (2022). The influence of customer trust and artificial intelligence on customer engagement and loyalty – The case of the home-sharing industry. Front. Psychol, 13:912339. doi: 10.3389/fpsyg.2022.912339

3. Daqar, M.A.M.A. & Smoudy, A.K.A. (2019). The Role of Artificial Intelligence on Enhancing Customer Experience. International Review of Management and Marketing, 9(4), 22-31.

4. Hopkinson, P.; Perez-V., Rodrigo & Singhal, A. (2018). Exploring the use of AI to manage customers' relationships. 1-7.

5. Jain, P &Aggarwal, K. (2020). Transforming Marketing with Artificial Intelligence. International Research Journal of Engineering and Technology, 7(7), 3964-3974.

6. Kudeshia, C., & Mittal, A. (2016). The effect of eWOM on brand attitude and purchase intention of consumers: a cross-sectional study on consumer electronics. International Journal of Internet Marketing and Advertising, 10(3), 131-151. doi: 10.1504/ijima.2016.080162

7. Kudeshia, C., Sikdar, P., & Mittal, A. (2016). Spreading love through fan page liking: A perspective on small scale entrepreneurs. Computers In Human Behavior, 54, 257-270. doi: 10.1016/j.chb.2015.08.003

8. Kumar, G.; Shah, A.K.; Shukla, A.; Mahato, J.; Bharti, S.S. & Sinha, N. (2021). Role of Artificial Intelligence Enable Technologies in Revolutionising Digital Marketing. Turkish Online Journal of Qualitative Inquiry, 12(3), 1484-1493.

9. Ledro, C. & Nosella, A. & Vinelli, A. (2022). Artificial intelligence in customer relationship management: literature review and future research directions. Journal of Business & Industrial Marketing, 37(13), 48-63. 10.1108/JBIM-07-2021-0332.

10. Mahalakshmi, M. & Meena, S. (2021). Role of Artificial Intelligence in Customer Relationship Management in Indian Retail Industry. International School of Creative Research Thoughts, 9(9), 46-51.

11. Natarajan, K. (2022). A Study on Impact of Artificial Intelligence in Customer Relationship Management. National Conference on Latest Innovations and Future Trends in Management, 8(8), 99-103.

12. Paul, J., Mittal, A., & Srivastav, G. (2016). Impact of service quality on customer satisfaction in private and public sector banks. International Journal of Bank Marketing, 34(5), 606-622. doi: 10.1108/ijbm-03-2015-0030

13. Sakunthala, A. (2020). Role of Information Technology on CRM Implementation in selected Industries. Asian Journal of Management, 11(4).

14. Shahid, M. Z. & Li, G. (2019). Impact of Artificial Intelligence in Marketing: A Perspective of Marketing Professionals of Pakistan, Global Journal of Management and Business Research: E Marketing, pp. 26-33, 19(2).

15. Sujata, J.; Aniket, D. & Mahasingh, M. (2019). Artificial Intelligence Tools for Enhancing Customer Experience. International Journal of Recent Technology and Engineering, 8(2), 700-706.

16. Verma, S.; Sharma, R.; Deb, S. & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. International Journal of Information Management Data Insights, 1.

17. Vlacic, B.; Corbo, L.; Costa, S., Susana & Dabic, M., (2021). The evolving role of artificial intelligence in marketing: A review and research agenda. Journal of Business Research, Elsevier, 128(C), 187-203.

18. Yau, K.L.A.; Saad, N.M. and Chong, Y.W. (2021). Artificial Intelligence Marketing (AIM) for Enhancing Customer Relationships. Applied Science, 11, 1-17.