



Impact of Integration of Artificial Intelligence in Customer Relationship Management (CRM)

Surendra Kumar, Assistant Professor (Guest Faculty) Deptt. of Commerce, Vidya Sambal Yojana (Raj. Govt.) MBR Govt. PG College Balotra, Rajasthan

Abstract

Customer Relationship Management (CRM) is the key for a business organization to have insight about customer need, preference and behaviour. The integration of Customer Relationship Management and Artificial Intelligence holds a great potential for organization effectiveness. This paper tries to investigate how AI have significantly impacted CRM with a focus on potential AI tools like chatbots etc. AI have opened doors for a business organization to be present for consumers round the clock, so that consumers can get solution to their issues anytime. Emergence of internet and e-commerce have provided consumers a platform that enables them to shop 24/7. This has created a need for a business organization to be available for customers anytime they need any help. Studying about changing consumer behaviour enhances the need for integration of Artificial Intelligence in the field of Customer Relationship management. Mixed method approach of this study helped in finding that client centric approach is crucial for management to stand in today's intensified competitive environment. The research result shows that AI is critically beneficial for the success of business since it helps in enhancing the consumer experiences and it also provide the management various tools to study consumer behaviour. Artificial Intelligence empowers a business to enrich its customer interaction to have deep knowledge about consumer behaviour for forming strategic future plans.

Keywords:- Artificial Intelligence, Customer Relationship Management, Customer Behaviour, Business Organisation, AI Technology.

INTRODUCTION

Business in today's era of cut-throat competition prioritise consumer satisfaction above everything else. Customer relationship management(CRM) requires abundance of data to analyse consumer behaviour and consumer preference for forming strategies for future. When it comes to collection and storing of all that data relating to consumers, all firms prefer to go out. They take help of Business Process outsourcing (BPO) services. A new branch of management is required now a days to only focus on maintaining customers in today's competitive era. One mistake can lead to lose all customers in a single day in the era of internet and social media. The Customer Relationship management i.e. CRM is the new branch which plays the most crucial role in growth and profitability of business organization.

CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

CRM is all about using customer data for analysis and driving solutions for making company better. It is an antagonistic process in term of customer interest, recognition, retention and distinction. With the help of CRM now business organizations are now able to understand customer needs, their expectations from organizations, and provide goods and services that meet their needs. The only way that helps companies to improve their operations and reaching new heights is by CRM (Customer Relationship Management).

The Characteristics of CRM can be summarised as following

- **Customer Needs:-** It is essential for an organization to know the needs of customers for maintaining long-term relationships. To know the preference of customers its important for a business to interview consumers about their likes and preferences.
- **Management of Contacts:-** This is the main key to customer satisfaction and it's the main element of customer relationship management. This deals in segmenting the customer data in more relevant and related groups.

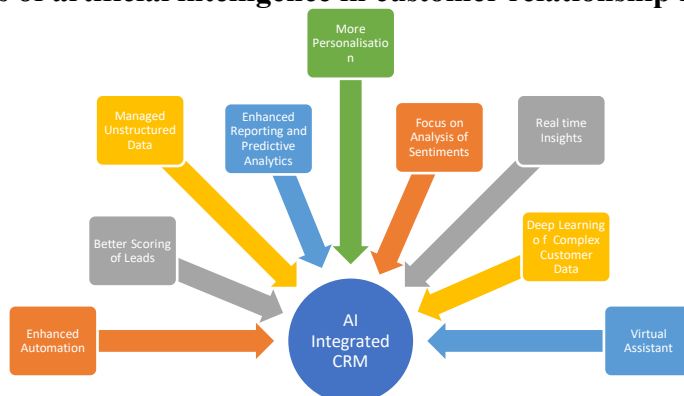


- **Customer satisfaction:-** It is the main objective of any business organization. CRM helps in knowing customer needs and excelling business strategies to satisfy those needs.
- **Product Support:-** CRM helps in collecting information about customer expectations and knowing what, when and why any customer gets dissatisfied. Which in turn helps in improving product and services which excel customer satisfaction.
- **Sales analytics:-** This is considered most important part of CRM, this collects all data from various sources like consumer forums, social media, websites, consumer feedback forms, polls, interviews etc. It also helps in creating better campaigns by analyzing past data.
- **Data reporting:-** This helps in creating realistic and flexible customer database. This is most important feature of CRM. Without this it will not be possible to find customer behaviour and needs.
- **Mobile CRM:-** CRM done with the help of mobile phones, laptops, etc. In this mobile CRM apps and programs helps in receiving messages about campaigns etc.

ARTIFICIAL INTELLIGENCE

The term 'Artificial Intelligence' was officially defined and coined by John McCarthy as "The science and engineering of making intelligent machines." The term consist of two words Artificial and Intelligence. The term artificial means the acts which are not done by humans. Intelligence refers to the ability of solving hard problems (Minsky 1958), Artificial refers to the system that uses human intelligence for performance of task and improving themselves through data analysis and focusing on cognitive abilities instead of specific forms or functions. Artificial intelligence involve Technology that allows machine to do task that require human intelligence, data analysis, using machine learning, natural language processing and Robotics to achieve specific goals. AI reshapes processes open New Horizons improve outcomes for Innovation and progress. Artificial intelligence technology is divorce and it also include several methods and tools that also contribute to development of solutions and smart applications. AI in CRM enables business organisations to automate business process by managing and organising customer information with accuracy. The new AI based tools as actionable meeting summaries, templates, emails and automated ticket routing have changed the whole CRM process. Other tools such as intelligent notifications also provide inside into the sales line. The experience of customers is now a days at the crux of CRM and it realise upon real time data insights for timely and personalized interactions expected from consumers.

Benefits of artificial intelligence in customer relationship management



1. Enhanced reporting and predictive Analytics:- AI by processing, analyzing and reporting large data, is able to predict future consumer behaviour. This allows business organization to address potential customer issues and anticipate customer needs to provide more accurate product and services.

2. Enhanced automation:- AI is able to perform repetitive tasks like data collection, data entry,



qualifications of needs, segmentation of information received in an automation mode.

3. Better scoring of leads:- AI by segmenting leads can identify more potential leads, which helps sales team to prioritize promising prospects.

4. Managed unstructured data:- AI can store all collected data in a well managed form by way of segmenting data according to various factors, that a business can use to form strategies for future.

5. More personalization:- AI can store infinite data in a more structured way, which enables it to provide more dynamic content to customers. Individual tailored marketing interaction and product recommendation based on previous interactions are the key features of AI integrated CRM.

6. Focus on analysis of sentiments:- AI can analyse consumer feedback from social media, surveys, emails, feedback forms etc. to identify sentiment identifies area for improvement, which enhance better customer services.

7. Real Time- Insight:- AI enables CRM to have real time insight into customer interaction and behaviour through real time data analysis, which allow business to react quickly to customer needs.

8. Deep learning of complex customer data:- This helps to uncover hidden patterns and insights about customer behaviour.

9. Virtual Assistant:- Chatboats powered by AI can handle all customer inquiries on more personalized way can provide assistance 24/7 in a more efficient way.

AI-CRM PLATFORMS

The software which uses machine learning and AI to analyse data for automation of tasks and making predictions are known as AI CRM Platforms. They are used to improve customer engagement, reducing human Errors and increasing productivity. Various AI platforms that are used today are HubSpot, Salesforce Einstein, Zoho Zia etc. A research study by **A. Kamalakannan (2024)** show that Chatboats are very beneficial for customers as they are available for 24/7 round the year, are cost efficient, provide instant response, more personalised, omni-channel and multi-lingual.

LITERATURE REVIEW

Sheshadri Chatterjee & Ranjan Chaudhuri (2022) found in their research that to identify customer's purchase intentions a huge volume of customer data is to be analyzed. This analysis in a very accurate and faster way is done with the help of automated systems, AI integrated CRM could be a solution to such challenges without much human intervention. A research study by **Arun Gupta & Pratiksha Agarwal (2024)** shows the potentials for enhancing sales forecasting accuracy through the integration of customer relationship management (CRM) with Artificial Intelligence (AI) Technique. This study also shows that business gains insight into customer behaviour, preferences. A research study done by **Dr. Rashmi et al., (2024)**, introduces a new framework which uses Artificial Intelligence technique to revolutionize CRM, providing business a competitive edge. To get an advantage over competitors, CRM utilize models of machine learning to analyze client's behavioural and personal data with a target to increase customer retention. **Kumar Rajan et al., (2019)** discuss the advance research propositions which discuss the creation of customer's positive experience about product and service. The key contribution of their study is that Business organizations can focus their whole attention on the moderators which ensure consistency in good service experience in effort to enhance customer engagement. The findings of study by **Cristina Iedroet et al., (2023)** suggest that Customer relationship management is evolving as a AI driven strategy from a data driven strategy. Based on their research findings they develop a conceptual model that integrates identified subfields and also purposes a three step plan for implementing AI in CRM:



- Management of Big Data Information
- Technological investigation of AI technique applied to CRM activities.
- Business Transformation derived by AI.

Khneyzer, Boustany and Dagher (2024) in their research study found that AI chatbots are useful in variety of industries, including tourism and retail. Interviews with CRM specialists yielded insight into the use of AI-Driven chatbots in CRM and their impact on the industry. The research study by **Simona-Valentina et al., (2024)** addresses a relevant and contemporary research problem that have international and national relevance. The research finding shows the relationship between CRM and market effectiveness, customer satisfaction and profitability. **Demetris Vrontis et al., (2022)** in their study found that adoption of AI in CRM can influence firm's performance. This study developed a model in B2B context. Their study contributes to the present literature by way of incorporating moderator impact of leadership support and technology turbulence in context of AI-Embedded CRM for B2B relationship management. A research study by **Lukasis-Stachowiak (2023)** found that all companies are aware about the evolution and importance of AI embedded new technologies and using them in CRM to improve customer services and improving consumer experience. These can help a business in overall development. **Kok-Lim Alvin Yau (2021)** along with his co-researchers found in their study that Artificial Intelligence Marketing is a modern technology which enables automation of machine's process for collecting massive number of data and information and its processing in order to create knowledge relevant for marketing mix. A research done by **Svetozar D.Jankovic & Dejan M. Curovic (2023)** shows that the integration of Artificial Intelligence into marketing holds great potential for sustainable development, which contribute to environmental protection along with economic growth. **Assunta Di Vaio (2022)** and their co-researcher in their study investigated about literary corpus of role and potential for data intelligence by the lenses of AI, big data and Human and AI interface to improve overall decision making process of organisations. A study done by **Mahabub Shaik (2023)** present that AI has drastically changed the whole dynamics of business world today and identify the gaps in research in strategic marketing practices. The study also proposes the integration of AI into Marketing process in a view to improve corporate performance and achieving corporate advantages and profitability. A research by **Satish Jaychandran et al., (2005)** shows that relational informational processes plays a vital role in enhancing the organization's customer relationship performance. AI and Technology are now a days critical of customer relationship management. **Razia et al., (2024)** in their research work found that AI offers Platform to organization which the marketer can use to get segmented data-base and can offer personalized content or offers to the target audience. All the above reviews focus primarily on specific dimensions of study such as examining the opportunities and impact of Big Data and AI in understanding consumer psychology and consumer decision making process. Currently there is a wide gap in the available literature specifically in mapping integration of AI in CRM. This paper tries to provide an updated overview of state of art in adoption of AI in CRM, identifies potential avenues and emerging themes for future research.

OBJECTIVE OF STUDY

The objective of this research is mainly to investigate the impact of artificial intelligence on customer relationship management strategies and providing a comprehensive and evidence based analysis of challenges, opportunities and best practices. The study aims to:

- Examine strategy drivers, barriers and enablers in adoption of AI in CRM.
- Synthesizing the existing literature on CRM and AI from multi disciplinary perspective that includes computer science, marketing, Information Systems in order to identify the key themes, gaps in current research and Trends present.



- For evaluating the societal and ethical implications of AI in CRM and to find a Framework for responsible and sustainable adoption of AI that balance value of business and customer trust.
- To find out the possible challenges that would arise after the integration of artificial intelligence in the field of customer relationship management
- To provide practical guidelines and Recommendation for a business to optimise their AI investment and outcomes in CRM.
- To study the AI CRM platforms available to business for more tech-friendly CRM process.

RESEARCH METHODOLOGY

A multifaceted research methodology is used in this research study. The study of various academic literature, industry reports, expert insights, surveys and case studies is done in order to gain deep insight into the research topic. The study examines current state of integration of AI and CRM strategies along with future expansion path available for AI integration in CRM. Both qualitative and quantitative Secondary data is used in this research study. Empirical data from various reputed sources like GM insights and Fortune business insights are also incorporated in order to provide quantitative context to support key arguments.

RESEARCH FINDINGS

The study shows the profound impact of AI on CRM. Traditionally CRM involved use of data for customer interaction management, improving relationship and driving sales. Today after emergence of Artificial Intelligence, it offers predictive modeling, advanced data analytics and automation to streamline customer relationship Management processes. AI have brought a paradigm ship in the decision making process of business. Machine learning can analyze vast data in real time, it can also extract deeper and valuable insights into customer behaviour, preferences, needs and trends. AI have also enabled business organizations to engage with their customers at more individual and personal level. NLP(Natural Language Processing) algorithms allow CRM system to understand and analyze customer communications through mails, social media and chatbots. This has lead to more meaningful and valuable interactions, as AI can respond in the ways that suits more to individual customer sentiments and preferences.

The future of AI's role in CRM is dynamic and evolving as various trends will evolve with the updation of technology. Various trends and innovations that will evolve in future are:

- With the advancement of AI, **Hyper Personalisation** will become normal. AI will create highly individualized and personalized customer profiles, with all the information about customer behaviour, past experiences and purchases. Business will be able to provide more tailored offerings, user experiences with unparalleled precisions.
- **Customer journey** understanding is crucial for interaction optimization and driving conversation. Future CRM systems will be able to create more comprehensive and accurate customer journey maps, with accurate identification of pain points, touch points and improvements horizons.
- **Augmented Reality (AR) and Virtual Reality(VR)** are the future of AI. Integration of AR and VR will revolutionize the experience of customers and it will too help in deepening the relation and connection of brand with customers.
- AI in future will also help in **predictive maintenance** of product or services. By usage pattern analysis AI will be able to recognize and predict maintenance required by any product. By this organization will be able to pre plan future maintenance need of all their products and services.
- **Ethical considerations** will also **gain prominence** along with growth of AI integration in CRM. Business organization will need to ensure transparency and privacy in AI algorithms.



Right balance between personalization through leveraging customer data and respecting customer's privacy will be the critical part of Artificial Intelligence in CRM.

- AI Models will be able to **handle more complex queries and complaints**. This will improve the efficiency of consumer services along with letting free human agents to have more focus on other important and complex tasks.
- Chatbots are very useful tool for every business organization, as they are 24/7 available to serve and are multi-lingual which free up human capital to indulge in more complex tasks.

Expected challenges present in AI integration in CRM

The research study also found that along with such benefits of AI will too bring some challenges. The various challenges that will come along with AI are:

- Data privacy and security will become main concern as vast amount of data will be collected and analyzed.
- Integration of AI in CRM can encounter resistance from employees, technical hurdles or simply alignment of AI with organizational goals may be difficult.
- Ethical considerations like transparency, responsibility of privacy of data, biasness in algorithms may become hurdle in maintaining trust with customers.
- Integrating AI in CRM also requires skilled work force to develop, manage and optimize system. Timely training and upskilling of employees is crucial for bridging the gap and ensuring effective use of AI.

CONCLUSION

This research paper provides the in-depth exploration of integration of AI into customer relationship management. It also discuss the evolution of customer relationship management from traditional era to digital era. It also identify artificial intelligence Technology applied in customer relationship management such as Natural Language Processing customer support automation machine learning predictive Analytics and many more. The research study also delves into negative impact of artificial intelligence in CRM including the potential intimacy loss with customer and challenges of AI integration. The document also underscores importance of the leveraging and understanding AI technology's in customer relationship management that enhances acquisition of customers their retention and development. It also Emphasis the potential of AI integration in CRM system for automation of decision making improving customer engagement and in prediction of individual customer needs. In addition it also highlights the importance of customer interaction in development of whole business. The research study also provided over all view of current trends and available literature on AI in customer relationship management that offers inside into the whole new evolving landscape of AI integrated CRM. It also provide a platform to research scholars for continuing more research in this topic. This research study also identify future research direction that includes exploration of new technology's such as artificial General Intelligence internet of things Augmented reality(AR), virtual reality(VR), block-chain, Quantum computing in context of CRM. This also presents and opportunity to researchers to dive deep into the potential application and implication of AI Technology in CRM this paper also suggest some recommendation for future AI and CRM researches.

REFERENCES

1. Balakrishnan, J., Dwivedi, Y.K. (2021). Role of cognitive absorption in building user trust and experience. *Psychology and Marketing*, 38(4), pp.- 643-668
2. Cavalcante, R. Souza, V.L.F., Brasileiro, R.C., Oliveira, A.L.I. , Nobrega, J.P., (2016). Computational intelligence and financial markets: A survey and future directions. *Expert Systems with Applications*, 55, (pp. 194-211)
3. Deryugina & O.V. (2010). Chatterbots. *Scientific and Technical Information Processing* 37(2), (pp. 143-147), <https://doi.org/10.3103/S0147688210020097>.



4. Schneider, S. Leyer, M., Adoption of artificial intelligence in the delegation of personal strategic decisions. *Manag. Decis. Econ.* **2019**, 40, 223–231.
5. Hansen, E.B., N.; Bogh, S, Iftikhar,. Concept of easy-to-use versatile artificial intelligence in industrial small & medium-sized enterprises. *Procedia Manuf.* **2020**, 51, 1146–1152.
6. Arun Gupta, P. A. (2024). Enhancing Sales Forecasting Accuracy Through Integrated Enterprise Resource Planning and Customer Relationship Management using Artificial Intelligence. *3rd International Conference on Artificial Intelligence For Internet of Things*, (pp. 1-6).
7. Assunta Di Vaio, R. H. (2022). Data Intelligence and Analytics: A Bibliometric Analysis of Human-Artificial Intelligence in Public Sector Decision Making Effectiveness. *Technological Forecasting and Social Change*.
8. B Kalaiyarasan, A. K. (2023). AI-Driven Customer Relationship Management (CRM): A Review of Implementation Strategies. *International Conference on Computing Paradigms (ICCP2023)*, (pp. 33-38).
9. Chadi Khneyzer, Z. b. (2024). AI-Driven Chatbots in CRM: Economic and Managerial Implications across Industries. *Administrative sciences*.
10. Cristina Ledro, A. N. (2022). Artificial Intelligence in Customer Relationship Management: Literature Review and Future Research Directions. *Journal Business and Industrial Marketing*, 48-63.
11. Cristina Ledro, A. N. (2023). Integration of AI in CRM: Challenges and guidelines. *Journal of Open Innovation: Technology, Market, and Complexity*.
12. Demetris Vrontis, R. C. (2022). AI and Digitalization in Relationship Management: Impact of adopting AI-embedded CRM System. *Journal of Business Research*, 437-450.
13. Dr. Keerthan Raj, D. D. (2024). Artificial Intelligence Driven Customer Relationship Management: Harnessing the power of technology to improve business efficiency. *International Journal of Communication Networks and Information*.
14. Dr. Rashmi, D. B. (2024). An AI-Based Customer Relationship Management Framework for Business Applications. *Intelligent Systems And Applications In Engineering*.
15. Hamdan, A. (2024). *Achieving Sustainable Business Through AI, Technology Education and Computer Science*. Poland: Springer.
16. Kok-Lim Alvin Yau, N. M.-W. (2021). Artificial Intelligence Marketing(AIM) for Enhancing Customer Relationship. *Applications of Artificial Intelligence Systems* (<https://doi.org/10.3390/app11188562>).
17. Lukasis-Stachowiak, K. (2023). Artificial Intelligence (AI) in CRM - Possibility of Effective Integration, Opportunities and Threats. *Scientific Papers on Silesian University of Technology Organisation and Management Series No. 175*, 289-309.
18. N. H. Patil, S. P. (2023). Research Paper on Artificial Intelligence and Its Applications. *Journal of Advanced Zoology*.
19. Naslednikov, M. (2024). The Impact of Artificial Intelligence on Customer Relationship Management(CRM) Strategies. *Haga-Helia University of Applied Sciences*.
20. Razia, N. M. (2024). The Integration of Artificial Intelligence(AI) and its Technological optimizations Model to Enhance the Smart Marketing Management. *4th International Conference on Advance Computing and Innovative Technologies in Engineering(ICACITE)*, (pp. 1397-1402). Greater Noida.
21. Satish Jayachandran, S. S. (2005). The Role of Relational Information Process and Technology Use in Customer Relationship Management. *Journal of Marketing*.
22. Shaik, M. (2023). Impact of Artificial Intelligence on Marketing. *East Asian Journal of Multidisciplinary Research*, 993-1004.
23. Sheshadri Chatterjee, R. C. (2022). Adoption of Artificial Intelligence Integrated Customer Relationship Management in Organisations for Sustainability. In A. T. Demetris Vrontis, *Business Under Crisis, Vol III* (pp. 137-156). Palgrave Macmillan.
24. Simona-Valentina Pascalau, F.-A. P.-L. (2024). The Effects of a Digital Marketing Orientation on Business Performance. <https://doi.org/10.3390/su16156685>.
25. Svetozar D.Jankovic, D. M. (2023). Strategic Integration of Artificial Intelligence for Sustainable Business: Implications of Data Management and Human User Engagement in the Digital Era. *Sustainability* **2023**, 15(21), 15208; <https://doi.org/10.3390/su152115208>
26. V. Kumar, B. R. (2019). Customer Engagement in Service. *Journal of the Academy of Marketing Science*, 138-160.
27. Venkateshwaran, D. N. (2023). AI-Driven Personalization In Customer Relationship Management: Challenges and Opportunities. *Journal of Theoretical and Applied Information Technology*, 7392-7399.