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# Artificial Intelligence (Ai) Driven Solutions For Intelligent Crm (Customer Relationship Management) In Quick Commerce: An Empirical Study

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## Abstract
Customer Relationship Management (CRM) is at the forefront of modern market practice as AI-driven Customer Relationship Management (CRM) systems are transforming how companies engage with their customers by making interactions in a more intelligent, structured and personalised manner. “With the integration of Artificial Intelligence (AI), CRM systems have progressed remarkably by empowering organisations to procure deeper insights into customers' behaviour, communicate more constructively, as well as come up with improved services tailored to individual needs.” This research paper examines how AI-powered Customer Relationship Management (CRM) systems are utilised in the quick commerce industry, offering insight into the challenges, advantages, and best practices for adopting such cutting-edge technology. Still, quick commerce faces major hurdles, including protecting user data, handling complex system integrations, and the shortage of skilled professionals to operate and manage AI-powered CRM systems effectively. This paper explores how "AI-powered tools-such as chatbots, customer segmentation, personalised marketing, predictive analytics, and sentiment analysis-affect customer satisfaction and drive business growth in the fast-paced world of quick commerce.” A sample of 229 was collected from different sectors. The factors identified in the study are Personalisation & Predictive insights, Customer Interaction Automation, Customer Retention & Loyalty and Operational Intelligence.

**Keywords:** Customer Relationship Management (CRM), Artificial Intelligence, Business practices, Transformative technology, Customer satisfaction.

## Introduction
In this dynamic world of quick commerce, “Customer Relationship Management (CRM) systems possess and have become essential for building long-term relationships with customers by increasing satisfaction to grow business, which traditional CRM systems were not designed to do.” Traditional CRM systems in quick commerce were mainly used to handle customer data and streamline routine processes. Inclusion of Artificial Intelligence (AI) into CRM systems has notably enhanced client relationship control in Q-commerce. Such contemporary AI-integrated solutions allow companies to investigate records more productively, automate complex duties, and supply enormously personalised studies. While traditional systems typically stored and retrieved customer statistics, AI-enabled CRMs offered deeper insights and smarter engagement tactics specifically designed for each customer. Ijomah et.al. (2024) mentioned that with “the integration of advanced machine learning, natural language processing, and predictive analytics, modern-day CRM systems empower businesses to gain a better understanding of customers' behaviour, preferences and

expectations." These technologies enable organisations to identify trends, predict requirements, and provide more comprehensive and targeted customer studies for the above-mentioned platforms. With AI, CRM systems can process large amounts of customer records in real-time to help companies identify trends, anticipate the needs of customers, and tailor their interactions for unique customer businesses, resulting in increased engagement and satisfaction amongst quick commerce customers. "The power to supply personalised reports has emerged as a major issue in the direction of constructing client loyalty and satisfaction." According to Egbuhuzor et.al. (2021), additionally, AI-driven CRM systems improve operational performance via "automating tasks like lead scoring, client segmentation, marketing campaign management, as well as allowing companies to give more attention to strategy and purchaser engagement." By harnessing the power of AI, businesses can simplify workflows, limit manual duties, and make smarter, data-driven selections to deliver items within minutes to hours. The strategies of communication and promotion remain constantly relevant from normal goods to luxury goods (Das & Mittal, 2023). Rane et.al. (2024) asserted that early adoption of Artificial Intelligence in this quick commerce industry has shown the best-known results, drastically transforming the way corporations enhance their experiences. "AI-driven CRM systems can also encourage inventory management by predicting customer demand and optimizing inventory stages." Ramya et.al. (2024) stated AI's potential to rapidly process and analyse large volumes of data allows quick commerce, outlets to "respond swiftly to changing market tendencies and evolving customer needs." Therefore, integration of AI into CRM systems offers quick commerce companies with several benefits, though with large volumes of customer data. There are also several challenges associated with it, particularly regarding data privacy and security measures. There is a need to invest in cutting-edge technologies as well as highly skilled personnel needed to manage these sophisticated AI-based CRM solutions. Thus, Quick Commerce companies must have adequate infrastructure, talent acquisition, and resources available to implement and maintain advanced AI-controlled CRM systems effectively.

## Literature Review

"The integration of Artificial Intelligence (AI) in the current era of digital transformation, into Customer Relationship Management (CRM) systems, is reshaping a wide range of companies, especially quick commerce and e-commerce." Thereby, Iyelolu et.al. (2024) mentioned AI-driven CRM systems effectively address modern business challenges such as the management of high volumes of customer interactions and delivering personalised services. They help to manage customers in a better way, making it easier to review feedback and automatically reply to customer questions. By combining the predictive capabilities of artificial intelligence with the adaptability of cloud-based platforms, the above-mentioned technologies can help businesses and quick commerce companies to simplify customer service operations, make better decisions with good solutions, and improve customer satisfaction. According to Girchenko et.al. (2017), "Customer Relationship Management (CRM) systems have generally played a crucial role towards helping businesses monitor their sales processes, organise and manage customer information, and streamline communication with clients." An intelligent CRM framework is defined as an upgraded version of an AI-powered traditional customer relationship management system. Therefore, it deploys technologies like machine learning tools and robotic process automation (RPA), as well as natural language processing (NLP), to boost its business performance by automating routine tasks, understanding customer interactions more effectively, and making smarter, data-based decisions in an intelligent way. Such tools and technologies help companies handle vast

amounts of customer data more efficiently by automatically carrying out different customer management tasks, from running marketing campaigns to handling service requests. Motevalli & Razavi. (2024) stated, “AI-driven By studying customers' data, like their browsing habits and past purchases, AI systems can suggest products tailored to each shopper in quick commerce, making the shopping experience better and increasing the chances of a product purchase. These systems led to providing personalised recommendations, by making customer support smoother, and guiding better decision-making, all of which help build customer loyalty and boost business profits. Rahevar & Darji. (2024) described that AI-driven chatbots help to provide customers with 24*7 support by managing customer inquiries promptly and effectively. They also recognise and identify when a problem needs human assistance, ensuring the customers get a smooth and responsive support experience with timely help. Chatbots have emerged as one of the most effective tools of AI in today’s digital market. Online shopping platforms are now using AI-powered chatbots to give personalised, fast, and scalable customer support, helping businesses manage more customers while relying less on human agents. Abiagom & Ijomah. (2024), explained that AI-powered systems can understand what customers want to make sense of complex questions, and recommend products in a way that feels like talking to a real person, thereby making the shopping experience smooth and easy to follow. AI-based chatbots in online shopping play a major role, as they help in improving product searches, making it easier and faster for customers to find what they’re looking for. Therefore, in this fast-moving world of quick commerce platforms, with a huge number of products available in quick commerce platforms, customers often find difficulties while deciding which product to purchase. According to Gupta et.al. (2021), “AI-powered chatbots address such challenges by leveraging natural language processing (NLP) and machine learning (ML) algorithms to understand their customer preferences and refine product options, thereby making the selection process more personalised and efficient.” AI algorithms can handle large amounts of customer data, like their past sales records and seasonal trends, to predict market demands more accurately. This helps businesses manage their stock properly, avoid delays in delivery, and keep products available consistently. Unlike older methods of CRMs, Artificial intelligence tools and technologies can now spot detailed patterns and small shifts in customers' behaviour that people often miss, thereby leading to more accurate and useful predictions. Muthukalyani. (2023) mentioned that AI-driven demand forecasting helps quick commerce businesses reduce wastage by accurately predicting the need for perishable products. This accuracy allows companies to avoid or help prevent overstocking of products, minimise spoilage, and handle inventory more effectively. By accurately forecasting customers' demand, integration of AI into CRMs leads to ensuring that "products are well-stocked and readily available when needed, reducing the risk of missed sales caused by out-of-stock items.” Demand prediction analysis of AI-based tools and technologies assists quick commerce companies like Blinkit, Zepto, and BigBasket to reduce delays in delivery timing by ensuring products are in stock and ready to be delivered when customers place their orders. Kaul & Khurana. (2022) stated, “Artificial Intelligence enhances delivery efficiency in such companies by streamlining inventory management and optimising delivery routes, leading to significantly faster order fulfilment times.” Thus, as quick commerce platforms continue to evolve, incorporating AI into demand forecasting has become essential. Businesses that embrace such technologies are better positioned to meet customer demands and thrive in this competitive digital landscape. For example, organisations like Blinkit gain several advantages by integrating AI-driven analytics to get valuable insights into their customer behaviours to consider data-driven decisions about their inventory, services and marketing. As the demand for personalised services in electronic

customer relationship management continues to rise, organisations are turning towards data mining and advanced techniques to obtain deeper, more targeted insights into their customers. By gaining a clear understanding of customer needs and delivering personalised experiences, AI-driven CRM systems help businesses build deeper relationships with their customers and boost long-term loyalty. Ahmed et.al. (2025) asserted that Artificial Intelligence-powered predictive analytics revolutionises demand forecasting by delivering "real-time insights and the flexibility to respond to market fluctuations, which allows companies to quickly adapt to their strategies, based on evolving customer preferences or unforeseen circumstances. This shift paves the way for AI-based methods to improve price forecasting and identify emerging trends. The relatively unexplored potential of integrating multiple data sources for predictive pricing presents significant opportunities for innovation. Okeleke et.al. (2024) mentioned that by deploying the abilities of AI-driven analytics, marketers of quick commerce companies can gather a deeper understanding of customer preferences, behaviours, and emerging trends, which allows them to craft highly personalised advertising campaigns to boost customer engagement and drive higher conversion rates. "Ethical issues like data privacy and transparency must be carefully handled by CRMs to create and maintain customers' trust in these commerce platforms." Assuring the responsible use of customers' data is essential for sustaining longer-term relationships with them. Adoption of AI in digital marketing is also recommended, as it can "drive innovation and significantly boost productivity in the coming years ahead." (Mittal, et al., 2024). Overall, Kattula. (2025), mentioned AI has become an essential part of CRMs, enabling quick commerce companies to personalise their products and services, develop innovative solutions, and create targeted marketing strategies, ultimately delivering greater value to customers, as well as gaining a competitive advantage. With 70% of companies viewing AI as essential to their operations and 90% of executives placing high importance on AI-powered personalization, it's evident that the technology is reshaping the marketing landscape.

## Objective

1. To ascertain the Role of AI in Artificial Intelligence for Intelligent CRM
2. To examine the impact of effective implementation of AI driven CRM in quick commerce

## Research Methodology

**Research Design:** An exploratory and descriptive research approach is followed in this current study, including surveys and questionnaires. In the descriptive design, the goal of the research is to ascertain relation among variables with the help of vision and understanding extracted from previous studies to recognize the variables. "Quantitative and Qualitative secondary data" obtained from different resources is examined by the researcher to enrich the research process in significant manner. Data from specified sources supports the tables and figures in the research and facilitate the clarity and transparency. The collected data underwent thorough analysis, visualization, and presentation through a database framework.

**Statistical Techniques:** Data has been reduced to extract the factors with the help of "Exploratory Factor Analysis" for further analysis. Application of "Stepwise regression" helps in determining the impact of effective implementation of AI driven CRM in quick commerce. The independent variables in the form of factors were represented by the "Factor Scores" obtained from the EFA process. The set of variables, along with their respective codes has been presented in Table 1:

**"Table 1 Details of the Dependent and Independent Variables"**

| "Variables" | "Type of the Variable" | "Denotation" |
|---|---|---|
| Personalisation & Predictive insights | "IDV" | "$\beta_1$" |
| Customer Interaction Automation | "IDV" | "$\beta_2$" |
| Customer Retention & Loyalty | "IDV" | "$\beta_3$" |
| Operational Intelligence | "IDV" | "$\beta_4$" |
| Effective implementation of AI driven CRM | "DV" | "Y" |
| Constant | | $\alpha$ |

**"Note: IDV- Independent Variable, DV – Dependent Variable"**

**"Multiple Regression Equation proposed:**
Y = "$\alpha$ (Constant) + $\beta_1$* ($X_1$) + $\beta_2$* ($X_2$) + $\beta_3$* ($X_3$) + $\beta_4$* ($X_4$) + $\epsilon$"
Y = Dependent Variable
$\alpha$ = Constant or Intercept
$\beta_1$ to $\beta_4$ = Parameters to be estimated
$\epsilon$ = Error Term or Residual"

**Sample collection**

**Primary data:** The "primary data" of the study is collected through "Judgmental sampling method" with the help of structured questionnaire as the major findings are based on the Primary data.

**Secondary Data Research:** The foundation of the study is established with the help of Secondary data. Main role of this such data is to contribute to recognize key indicators to be analyzed. Textbooks, scholarly journals, websites, and articles are the key sources of secondary data.

**Sample**
**Sample method:** The method of sampling was "Judgemental sampling" for the collection of data, and examination was done by "Explanatory Factor Analysis and Stepwise Regression" for the results.
***Judgement sampling*:** We followed the 2 judgement criteria
a) First criteria are experience of the employee where minimum 5 years of experience employee were chosen
b) Second criteria are level of employees where minimum functional level employees were chosen.
**Sample size:** A sample of 229 employee respondents was collected from employees of quick commerce businesses.

**Data Analysis and Interpretation:** The gathered data is summarized, consolidated and analyzed throughout the previous phases in order to evaluate the impact in relation to secondary data findings. Data collected is tabulated in suitable manner, analysed and presented. Appropriate statistical tool is used for the analysis and interpretation of data.

## Findings

Table 2 demonstrates demographic details, which shows that 56.33% are Male, 43.67% are female. Looking at the age, 30.13% are between 35 and 40 years of age, 38.87% are between 40 and 45 years of age, and 31.00% are above 45 years of age. 56.3% of the respondent are working from last 5-10 years in quick commerce sector, 34.5% from 10-15 years and rest 9.2% are having the experience of above of 15 years. 47.6% of them are working at functional level, 38.0% are managerial level, and 14.4% at strategic level. With regards to the Type of Sector, 31.88% are small-scale businesses, 38.86% are medium-scale businesses, and 29.26% are large-scale businesses.

**Table 2: Respondents' Details**

| Variables | Participants | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 129 | 56.3 |
| Female | 100 | 43.7 |
| **Total** | **229** | **100** |
| **Ages in years** | | |
| 35 to 40 | 69 | 30.1 |
| 40 to 45 | 89 | 38.9 |
| Above 45 | 71 | 31.0 |
| **Total** | **229** | **100** |
| **Experience (years)** | | |
| 5-10 | 129 | 56.3 |
| 10-15 | 79 | 34.5 |
| Above 15 | 21 | 9.2 |
| **Total** | **229** | **100** |
| **Level at workplace** | | |
| Functional level | 109 | 47.6 |
| Managerial level | 87 | 38.0 |
| Strategic level | 33 | 14.4 |
| **Total** | **229** | **100** |
| **Sector type** | | |
| Electronics | 73 | 31.9 |
| Apparel and Footwear | 89 | 38.9 |
| Food and Beverages | 67 | 29.2 |
| **Total** | **229** | **100** |

**“Factor Analysis”**

***"KMO and Bartlett's Test"***

**"Table 3: Kaiser-Meyer-Olkin Measure of Sampling Adequacy"**

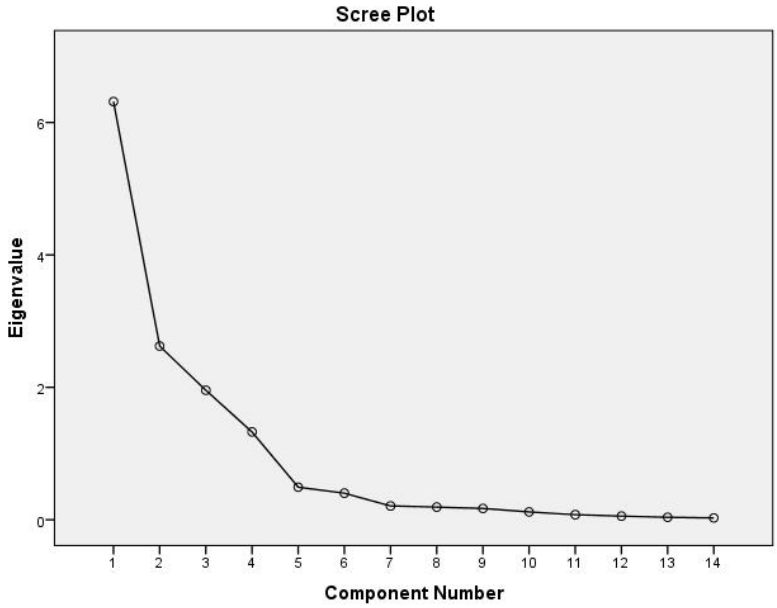
| | | |
|---|---|---|
| "Kaiser-Meyer-Olkin Measure of Sampling Adequacy" | | .764 |
| "Bartlett's Test of Sphericity" | "Approx. Chi-Square" | 3856.304 |
| | df | 91 |
| | Significance | .000 |

"KMO and Bartlett's Test", value of KMO is .764 (Table 2).

**Table 4: "Total Variance Explained"**

| "Component" | "Initial Eigenvalues" | | | "Rotation Sums of Squared Loadings" | | |
|---|---|---|---|---|---|---|
| | "Total" | "% Of Variance" | "Cumulative %" | "Total" | "% Of Variance" | "Cumulative %" |
| 1. | 6.315 | 45.109 | 45.109 | **3.792** | 27.086 | 27.086 |
| 2. | 2.624 | 18.743 | 63.852 | **3.652** | 26.084 | 53.169 |
| 3. | 1.956 | 13.970 | 77.822 | **2.482** | 17.731 | 70.900 |
| 4. | 1.326 | 9.474 | 87.296 | **2.295** | 16.396 | **87.296** |
| 5. | .492 | 3.517 | 90.812 | | | |
| 6. | .402 | 2.870 | 93.682 | | | |
| 7. | .208 | 1.489 | 95.171 | | | |
| 8. | .191 | 1.364 | 96.535 | | | |
| 9. | .170 | 1.218 | 97.753 | | | |
| 10. | .118 | .846 | 98.599 | | | |
| 11. | .076 | .544 | 99.143 | | | |
| 12. | .055 | .392 | 99.535 | | | |
| 13. | .037 | .265 | 99.800 | | | |
| 14. | .028 | .200 | 100.000 | | | |

The four factors contribute towards explaining a total of 87.296% of the variance. Variance explained by Personalisation & Predictive insights is 27.086%, Customer Interaction Automation is 26.084%, Customer Retention & Loyalty is 17.731%, and Operational Intelligence is 16.396%. (Table 4).




**Scree Plot**

**Table 5: "Rotated Component Matrix"**

| S. No. | Statements | Factor Loading | Factor Reliability |
|---|---|---|---|
| | **Personalisation & Predictive insights** | | **.952** |
| 1. | Machine learning algorithms analyse purchase history and browsing behaviour | .951 | |
| 2. | AI personalises promotions and discounts in real time based on customer profiles and demand | .906 | |
| 3. | Identify customers who are likely to disengage and offer targeted retention incentives | .859 | |
| 4. | Simplify customer service operations, make better decisions with good solutions | .847 | |
| | **Customer Interaction Automation** | | **.963** |
| 1. | Powered by natural language processing (NLP) for instant, 24/7 customer handling | .958 | |
| 2. | Integrate with voice-based ordering and customer service | .907 | |
| 3. | Detect emotions in feedback, review and chat to adjust engagement strategies | .905 | |

| | | | |
|---|---|---|---|
| 4. | Address the modern business challenge of customer interaction and deliver personalised service | .879 | |
| | **Customer Retention & Loyalty** | | **.875** |
| 1. | AI tracks engagement to customise rewards & challenges | .910 | |
| 2. | Grouping customers by lifestyle, frequency, and preference for marketing | .842 | |
| 3. | Automatically requesting, analysing, and acting on customer feedback | .799 | |
| | **Operational Intelligence** | | **.824** |
| 1. | AI assures CRM suggestions are based on available stock | .923 | |
| 2. | CRM insights integrated with logistics AI to provide accurate delivery ETAs | .917 | |
| 3. | AI predicts high-demand products and aligns marketing communication | .640 | |

**Factors of the study and its related variables**

The first of the study is Personalisation & Predictive insights, it includes variables like Machine learning algorithms that analyse purchase history and browsing behaviour, AI personalises promotions and discounts in real time based on customer profile and demand, identifies customers likely to disengage and offer targeted retention incentives, and simplifies customer service operations, making better decisions with good solutions. Customer Interaction Automation is the second factor, variables it includes are powered by natural language processing (NLP), for instance, 24/7 customer handling, integrating with voice-based ordering and customer service, detecting emotions in feedback, review and chat to adjust engagement strategies, and address modern business challenges of customer interaction to deliver personalised service. The third factor is Customer Retention & Loyalty, the variables it includes are AI tracks engagement to customise rewards & challenges, grouping customers by lifestyle, frequency, and preference for marketing, and automatically requesting, analysing, and acting on customer feedback. The last factor is Operational Intelligence, the variables are AI-assured CRM suggestions are based on available stock, CRM insights integrated with logistics AI to provide accurate delivery ETAs, and AI predicts high-demand products and aligns marketing communication.

**Table 6 "Reliability Statistics"**

| "Cronbach's Alpha" | "Number of Items" |
|---|---|
| .895 | 14 |

Total reliability of 14 items that include variables for Role of AI Artificial Intelligence (AI) For Intelligent CRM (Customer Relationship Management) 0.895 (Table 6).

***"Regression"***

The model summary shows that the adjusted R-squared value is 0.876 with approximately 87% of the variation.

The results of ANOVA test shows that the value under significant column indicates a significant relationship between Personalisation & Predictive insights, Customer Interaction Automation, Customer Retention & Loyalty, and Operational Intelligence in providing customised solutions to insurance customers and effective implementation of AI driven CRM

**"Table 7 Coefficients"**

| "Model" | "Unstandardized Coefficients" | | "Standardized Coefficients" | "t" | "Sig." |
|---|---|---|---|---|---|
| | "B" | "Std. Error" | "Beta" | | |
| (Constant) | 4.275 | .015 | | 293.347 | .000 |
| Personalisation & Predictive insights | .531 | .015 | .847 | 36.363 | .000 |
| Customer Interaction Automation | .219 | .015 | .349 | 14.986 | .000 |
| Customer Retention & Loyalty | .120 | .015 | .192 | 8.250 | .000 |
| Operational Intelligence | .032 | .015 | .050 | 2.162 | .032 |
| DV: Effective implementation of AI driven CRM | | | | | |

All the factors namely Personalisation & Predictive insights, Customer Interaction Automation, Customer Retention & Loyalty, and Operational Intelligence in providing customised solutions to insurance customers shows significant and effective implementation of AI driven CRM.

**Discussion**

AI tools and technology like chatbots and mobile digital assistants enhance customer service by delivering on-the-spot responses, reducing wait times, and offering 24/7 assistance, especially valuable in fast-paced quick commerce platforms. India's online Quick commerce sector has seen a significant boost in purchaser engagement and loyalty, in large part driven by the transformative integration of Artificial Intelligence (AI) into Customer Relationship Management (CRM) systems. CRM systems play a very important role towards the success of quick commerce businesses by significantly improving customer experiences, streamlining operations, and supporting their overall business growth. In addition, with predictive analytics capabilities, these systems enable companies to predict what the customers may need, communicate with them accordingly, and address any issues that might arise related to the products offered. Over the past few decades, CRM systems have grown alongside advancements in technology. Thus, in the beginning, they were mostly simple tools that were used to manage sales activities and store numerous customers' contact details of such organisations. AI-driven demand forecasting is transforming the quick commerce industry by "equipping businesses with powerful tools to streamline their operations, deliver better customer experiences, and drive substantial cost-efficiency and revenue expansion." Additionally, by analysing customers' behaviour and preferences, AI-integrated CRMs could deliver personalised product suggestions and targeted promotions, enriching the shopping experience on quick commerce platforms (Kudeshia & Mittal, 2015; Mittal et al., 2023). Therefore, in today's competitive environment, artificial intelligence has become an essential asset towards marketing products, aiming to refine their strategies and achieve the best

possible results. Retailers or small dealers often face challenges in assessing the impact of AI-powered tools such as chatbots and predictive analytics on customer satisfaction and operational efficiency. While measuring the true value, such technologies still bring a complex task. AI-driven CRM systems are expected to become the primary tool for managing nearly every aspect of a business in the future, including management, finance and accounting, marketing and sales, customer service, operations, human resources, research and development, information technology and many more.

## Conclusion

From the above-mentioned study, this research work concludes that "integration of AI tools and technologies into CRM systems marks a major shift from traditional data-based systems to advanced predictive models which can boost customer engagement, strengthen loyalty, and improve organisational competitiveness altogether." By exploring AI applications in CRM systems, organisations can take a proactive approach towards integrating technology, which will improve strategic decision-making and help CRM systems to prioritise resources and efforts for gaining maximum impact. Convergence of AI and CRM systems signals a major change toward more dynamic, personalised, and efficient systems. Strategic use of AI within CRM processes is becoming a key driver for stronger customer engagement services, improved operational efficiency within organisations, and a competitive edge as businesses navigate the complexities of the digital landscape. AI offers the solution to scale intelligently, deliver personalisation on a large scale, and maintain a competitive edge in a saturated market for e-commerce marketers grappling with increasing customer acquisition costs and retention hurdles. A sample of 229 was collected from different sectors. The factors identified in the study are Personalisation & Predictive insights, Customer Interaction Automation, Customer Retention & Loyalty and Operational Intelligence. All the factors such as Personalisation & Predictive insights, Customer Interaction Automation, Customer Retention & Loyalty, and Operational Intelligence in providing customised solutions to insurance customers shows significant and effective implementation of AI driven CRM.

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