

## A STUDY ON INTEGRATION OF ARTIFICIAL INTELLIGENCE IN CUSTOMER RELATIONSHIP MANAGEMENT AND IT'S BENEFITS

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### ABSTRACT

CRM refers to procedures that are concentrated on turning each prospect into a customer and keeping your customers by interacting with them personally. Since its inception, the concept of CRM will help businesses enhance their communication with customers and achieve their goals. AI in CRM can help you make a needs-based, customer-centric business model. Therefore, business need to integrate these two in order to satisfy customers which is the easiest way to fulfill the objectives of the firm. By using AI in CRM, they can predict customer behavior, and they can take more personalized actions to increase their experience better. AI in CRM can also fulfill customers needs and satisfactions. And also Implementing AI in CRM can expect to experience rapid changes in the field. The study is made to know how Artificial Intelligence in CRM helps in customer satisfaction and how they make customers experience better. In the same way what benefits are receiving to the business with the integration of Artificial Intelligence in CRM. This study also explains which type of Artificial Intelligence tools and methods are used to enhance client relationship management.

**Keywords:** Artificial intelligence, Customer Relationship Management, BigData, Data analytics, virtual assistants.

### I. INTRODUCTION

Artificial intelligence (AI) is the term used to describe the development of human-like intellect that is capable of

learning, reasoning, planning, perceiving, or processing natural language. The broad topic of artificial intelligence in computer science is focused on creating intelligent machines capable of doing tasks that typically require human intelligence. Despite the fact that the multidisciplinary field of artificial intelligence (AI) is being investigated from a wide range of perspectives, innovations in machine learning and deep learning have brought about a change in perspective in virtually every sector of the tech sector.

Consumer courting management or popularly called CRM is an era for handling all of your corporation's relationships and interactions with clients and ability customers with a view to make them real clients. As essentially as each client is an asset, CRM is client-pushed and objectives at gratifying clients and keeping family members with them are a good way to increase the "purchaser base" to grow income.

The ability seems infinite when AI is used in CRM. Virtual assistants with AI capabilities will automate provider and sales jobs. Clients will use chatbots to assist with easy chores. Personally, tailor-made advertising and marketing substances may be produced by means of AI-powered content-producing technology. Records entry and data cleansing may be simplified by AI. Inner and client training enabled through AI turns into well-known. The listing is going on. Integrating those two technologies gives you extra predictive and customized purchaser facts in all regions of the business. It's far very hard to control huge sets of records concerning customers, so integration of AI makes it less difficult for statistics management. As a result, it enables enterprises to find new clients and preserve the dependable ones happy and hence pleasing the targets of the company. The ongoing growth of customer and market data, which has

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led to a demand for better processing and analysis of this data, and the popularity of the cloud, which enables CRM systems to interface with data from many digital sources, highlight the importance of AI.

### 1.1 Customer Relationship Management (CRM)

Customers, suppliers, and people can all be tracked and analyzed through the usage of a purchaser relationship control (CRM) system. In order to increase income effectiveness and profitability, it works to maintain and improve such commercial ties. "Customer relationship management," or CRM for short, refers to business-improving, client retention, and customer acquisition strategies, tools, and technological advancements. On the way to boosting overall profits, this software makes sure that every section of the relationship with clients runs easily and successfully[1]. The software program uses numerous methods to collect patron records. As a result, CRM maintains thorough data of personal information and even tendencies in buying activity.

CRM structures can get admission to clients' interplay histories and income data by gathering information approximately modern and potential customers. Because of this, CRM structures can

- Create more efficient advertising and promotional tactics.
- Find out new income opportunities
- Increase the effectiveness of your aid offers

### 1.2 Artificial Intelligence (AI)

Artificial intelligence is the intelligence exhibited with the aid of machines, in place of the herbal intelligence of human beings and animals. Main artificial intelligence textbooks outline the sector as they have a look at of "wise retailers": any tool that perceives its surroundings and takes movements that boom its possibilities of reaching its dreams. The term "artificial intelligence" is often employed in colloquial language to refer to machines (or computer systems) that

replicate "cognitive" characteristics that people undertake with the human mind, like "acquiring" knowledge and "problem-solving."

As machines grow to be greater successful, duties requiring "intelligence" are regularly removed from the definition of artificial intelligence, a phenomenon called the AI phenomenon. Artificial intelligence is what hasn't been finished yet, in Tesler's words. For instance, because it has become a commonplace technique, optical character recognition is frequently overlooked while discussing artificial intelligence. The modern era, that's often-called artificial intelligence, is able to interpret human speech, compete at a high level in strategic sports systems (like chess and move), use autonomous cars, wise routing in content material transport networks, and simulate conflict. Since artificial intelligence became a recognized academic field in 1955, there have been repeated waves of excitement, followed by disappointment and funding cuts (dubbed the "AI winter"), new strategies, successes, and renewal. Throughout the most of its existence, AI research has been broken down into distinct domains that frequently cannot communicate with one another. These areas are mostly concerned with technical difficulties, such as specific goals (such as "robotics" or "machine learning"), the use of certain tools ("logic" or artificial neural networks), or significant discussions about philosophy. Subfields were also based on social factors (certain institutions or the work of individual researchers).

### 1.3 CRM artificial intelligence

The modern-day market's greatest and maximum robust mixture is CRM and AI operating together. Within the modern-day surroundings, wherein the net has taken over because the number one channel for advertising and income, CRM need to acquire statistics on businesses, clients, and so forth.

Any worker with a CRM at their disposal has get right of

entry to sales leads, in-intensity facts, employment history, social media profiles, and greater. It might be tough to control this kind of massive volume of facts. In these situations, the AI steps in and receives the activity performed. Programs of AI with CRM consists of

1. Virtual assistant:

When CRM and AI are combined, they serve as virtual assistants for businesses, steering them in the direction of profitability. To help with follow-ups, communications, client responses, and recovery-related activities, they hire a remote assistant.

2. Data analytics:

For searching for new ideas and research, simulated intelligence is used. The data is used to predict results, understand designs, propose pertinent tactics, and support the client contact process. This fact makes it possible to engage with every client, regardless of size, and intelligently groom the organizations. When the information gathered is not utilized appropriately, CRM-using businesses struggle. The only way for company to comprehend the client is when the information has been organized, cleaned up, and studied.

3. Automated data capturing:

Several sophisticated CRM programmes use Facebook, WhatsApp, and other social media sites for data about clients. Because automated data collecting doesn't require human involvement, businesses can save time by bypassing the manual entering of information.

4. Big data:

To gather information from the internet and understand their clients' online behaviours, previous purchases, etc., many businesses use CRM and AI. Such data can be used for sales, risk analysis, and customer interaction. Data mining and AI complement one another effectively, and according to 44% of CEOs, one benefit of AI is automated communication that aids in decision-making. Using AI data, marketers may find high-quality leads and learn new strategies.

Businesses using big data may have control over how they connect with CIOs and customers.

5. Sales enabling:

CRM and AI are helpful for enabling sales. With the use of clever algorithms, AI can identify staff members who generate less sales reports and identify top performers in the sales team. The data can be used to investigate sales strategies, and new marketing strategies can be used to generate quality leads.

6. Customer experience:

AI and voice recognition go hand in hand. Voice commands can be used to ask a smartphone personal assistant to search the internet. The most recent CRM includes these features. Sales and customer support representatives can enter data while speaking into a microphone. The finest AI technology now employed in almost all industries is speech recognition. This number might rise as more CRM software providers integrate speech recognition into their products.

## II. METHODOLOGY

Combined with a sample technique, an academic evaluation was conducted to meet the research objective. A subset of people is chosen from a statistical population in order to estimate the characteristics of the entire population in the second stage of the method, which involves sampling. The first stage of the method involves searching for and gathering the articles to be analyzed, which should accurately represent the field of AI in CRM.

### 2.1 Search strategy and data collection

Today Customer Relationship Management (CRM) is explicitly driven by emerging technologies. Companies employing CRM and those that are developing CRM systems are both reliant on technology. Intrusive technologies are emerging that have started penetrating into the minds of the customers. The role has further extended to accessing the customer's needs and wants and offering products that customer may like to purchase with the applications of Artificial Intelligence (AI). Companies like Amazon,

Netflix, Google, Facebook, and many others are using AI to better understand their customers. AI recommends new products to clients by looking at their purchase histories, how much time they spend on various things, their social media activity, and how similar they are to other customers.

According to Mark Taylor (2020), [2] before a human takes any action, AI can analyze signals and predict the customer's desire to buy, upgrade, or even cancel. With the help of real-time data, AI can generate personalized, pertinent offers automatically, enabling customer support representatives (CSRs) to concentrate on providing the most effective service possible. Businesses which get investments due to AI really focuses on fixing problems of customers and give them the best experience. AI helps the business to concentrate on high-impact, low-effort, less invasive opportunities. Moreover, he states that a company can really grow with AI but should not only depend on AI and should include certain tools like machine learning algorithms, predictive analytics etc. for better performance.

The basic effects of AI systems on how businesses handle their connections with customers are examined by Barak Libai (2020) [1]. Additionally, consider the broader ramifications of how AI-CRM affects the structure of customer relationships, including the results for customers and other stakeholders. As per the study, AI helps in the immediate development and access to customized personal needs more efficiently than manual work, which makes humans less efficient than the artificial beings. The study focused on how AI's capacity to manage customer relationships may lead to discriminatory treatment of customers and the ramifications thereof. It also critically investigated how AI systems impact the fundamental nature of CRM.

PetrSauman (2019) [3], focused on CRM systems and the implementation of AI as one of the most innovative powers in business. Top vendors like Microsoft, Oracle, Salesforce & SAP shows interest in AI. It is also suitable for small businesses too. The end results are effective marketing, increased sales, and the most important better customer

experience.

In 2019 Barton Goldenberg [4] AI gives businesses strong tools to better understand the behavior of their customers, develop innovative products and services to meet their demands and connect with customers in a more focused way. focus on these three areas;

**1) Lead scoring:** With the development of AI, lead scoring now incorporates user-defined variables in addition to those algorithms. Artificial intelligence delivers more desirable lists of potential customers than the sales prospect algorithms since it self-learns by weighing each factor that contributes to the lead scores of sales people.

2) Sales forecasting: For sales teams, applying AI to sales forecasting is the most promising development sector.

**3) Chatbots:** CRM apps are increasingly employing robots that resemble human chats to help clients discover answers to their questions and make sure they're directed to the right channel.

In 2018, Reuben Yonatan [5] states Artificial intelligence and machine learning capabilities have recently gained popularity in both consumer devices and commercial applications, causing a buzz in the IT sector. A new product or ability seems to be released every few months, intensifying the excitement to new heights. They've put together a list of 15 ways that companies can employ artificial intelligence (AI) technologies to aid their work and increase their profits. These include automating time-consuming chores and analyzing sales calls, and callers, nurturing, identifying hidden trends in massive amounts of data, and transcription and analysis of sales conversations. A trend analysis of support ticketing, lead qualification and follow-up via email, etc. According to Paul John Hopkins (2018) [6], continuous AI implementation will cause rapid shifts within the CRM industry. They used a stages-based approach to dealing with relationships to carry conduct their research and investigate potential uses for AI.



**The stages of CRM are:**

- 1) Attract/ acquire - It comprises automated servicing, intelligent content marketing, and adjusting adverts depending on consumer behavior patterns.
- 2) Retain/ maintain – Utilizing predictive analytics to assess client stability, it is considered automated servicing to handle post-sale inquiries.
- 3) Enhance/ develop – Intelligent servicing of client’s routine needs servicing customized content to promote complementary or supplementary products.
- 4) Terminate - Aiding clients in completing the necessary paperwork to end a relationship.

One of the most quickly expanding sectors in marketing is CRM. Additionally, as CRM places a high value on invention and originality, this should appeal to AI's creative qualities. In the year 2018, Shane Emerson[7] mentioned the software with the most demand worldwide is CRM. Presently people are looking for CRM software’s with more AI capabilities. These AI has a significant influence in humans due to the following features:

- 1) Virtual assistant –CRM with AI capabilities will help employees be more productive and effective, and it will also help with all of their routine manual tasks.
- 2) Customer segmentation - With the help of cutting-edge algorithms, it is simple to categories customers based on a number of variables.

The way we engage, nurture, qualify, and follow-up with leads is revolutionized by AI, which enables us to raise output without compromising the quality of interactions.

- 4) Improve customer retention and engagement - AI and

CRM connections can track data from customer contact touch-points and provide precise predictions of their behavior and intention.

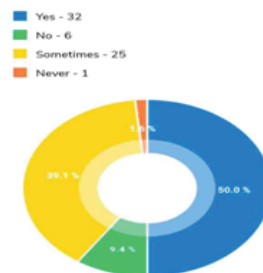
- 5) Close more deals and lose less money - AI-based CRM can analyze various sales scenarios where deals were accepted and denied. It also helps to identify the real intention of customers.

**2.2 Data Analysis and Data Interpretation**

Analysis of the study was conducted using primary data which has been collected from various people of the age group of 20 to 50 through questionnaire method. It is through analysis the underlining features of data are revealed and valid generalization can be made. Analysis makes the description exact and meaningful.

**2.2.1 Do you think AI is the future of CRM?**

| Options   | Frequency | Percentage |
|-----------|-----------|------------|
| Yes       | 32        | 50.00      |
| No        | 6         | 9.38       |
| Sometimes | 25        | 39.06      |
| Never     | 1         | 1.56       |
| Total     | 64        | 100        |



**INTERPRETATION:**

It was seen from the above graph that 50% of the people have said a ‘yes’, 39.06% for ‘sometimes’, 9.38% for a ‘no’ and 1.56% has said ‘never’.

**2.2.2 What are the various applications you have dealt with?**

| Options           | Frequency | Percentage |
|-------------------|-----------|------------|
| Face recognition  | 39        | 60.94      |
| Voice recognition | 17        | 26.56      |
| -----             | 5         | 7.81       |
| Zoho CRM's Zia    | 1         | 1.56       |
| Conversica        | 2         | 3.13       |
| Total             | 64        | 100        |

| OPTIONS               | FREQUENCY | MEAN  | RANKING |
|-----------------------|-----------|-------|---------|
| Face Recognition      | 39        | 0.60  | 1       |
| Voice Recognition     | 17        | 0.26  | 2       |
| Salesforce's Einstein | 5         | 0.078 | 3       |
| Zoho CRM's Zia        | 1         | 0.015 | 4       |
| Conversica            | 2         | 0.031 | 5       |
| Total                 |           | 64    |         |

**INTERPRETATION:**

From the above data it is evident that out of 64 respondents, 39 of them said that they have used face recognition and is ranked no.1 compared to other applications. At the second rank comes face recognition with a frequency of 17, followed by sales force's Einstein, Zoho CRM's Zia and conversica ranked 3rd, 4th and 5th respectively

**2.2.3 What according to you is the most beneficial option of integrating AI in CRM?**

| Options  | Frequency | Percentage |
|--|-----------|------------|
| Transcribe and analyze sales calls   | 14        | 21.88      |
| Identify the emotional states of mind of callers to improve phone interactions               | 6         | 9.38       |
| Develop, nurture, qualify, and follow up with customers.                                     | 21        | 32.81      |
| Approaching potential customers by getting information about them by their online activities | 11        | 17.19      |
| Examine trends in public data and CRM for forecasting  | 12        | 18.75      |
| Total  | 64        | 100        |

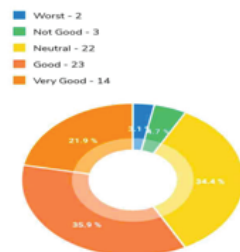
| OPTIONS  | FREQUENCY | MEAN  | RANKING |
|--|-----------|-------|---------|
| Transcribe and analyze sales calls   | 14        | 0.21  | 2       |
| Identify the emotional states of mind of callers to improve phone interactions               | 6         | 0.093 | 5       |
| Develop, nurture, qualify, and follow up with customers.                                     | 21        | 0.328 | 1       |
| Approaching potential customers by getting information about them by their online activities | 11        | 0.171 | 4       |
| Examine trends in public data and CRM for forecasting  | 12        | 0.187 | 3       |

**INTERPRETATION:**

According to the respondents, engaging, nurturing and qualifying and following up the customers was ranked 1st, followed by transcribing and analyzing phone calls. Analyzing patterns in CRM, approaching potential customers by getting information and analyzing their emotional states were ranked 3rd, 4th and 5th respectively

**2.2.4 Is AI integrated in CRM useful?**

| Options   | Frequency | Percentage |
|-----------|-----------|------------|
| Worst     | 2         | 3.13       |
| Not good  | 3         | 4.69       |
| Neutral   | 22        | 34.38      |
| Good      | 23        | 35.94      |
| Very good | 14        | 21.88      |
| Total     | 64        | 100        |



**INTERPRETATION:**

This graph shows that 35.94% of the people said that integrating AI in CRM was a good option, 34.38% of the people said that they have a neutral opinion about integrating, 21.88% of the people said that integrating AI in CRM was a very good option, 4.69% of the people said that it was not a very good option to integrate and 3.13% said that it was the worst option to integrate AI in CRM.

**2.2.5 WHAT ACCORDING TO YOU AI's MAIN FOCUS AREA IN CRM ? ( from the point of customers)**

| Options                                    | Frequency | Percentage |
|--|-----------|------------|
| Customer satisfaction                      | 39        | 46.88      |
| Customer redressal                         | 8         | 12.50      |
| Quick responses in cases of confusion etc. | 16        | 25.00      |
| Quick fulfilment of demand                 | 10        | 15.63      |
| Total                                      | 64        | 100        |



**INTERPRETATION:**

From this graph it is evident that 46.88% of the people feel that the main focus area AI in CRM is customer satisfaction, 25% of the people found that quick responses in cases of

confusion etc. was the main point of focus for AI, 15.63% of the people felt quick fulfilment of demand is the main area of focus and finally 12.5% of the people felt that customer redressal was more important.

**WHAT ACCORDING TO YOU IS AI's MAIN POINT OF FOCUS IN CRM?**

(answer from business point of view)

| Options  | Frequency | Percentage |
|--|-----------|------------|
| Enhancing customer base                                | 15        | 23.44      |
| Getting, keeping and growing customers                 | 13        | 20.31      |
| Enhancing the services provided to them                | 15        | 23.44      |
| Making customer data management easier for the company | 14        | 21.81      |
| Approaching potential customers                        | 7         | 21.88      |
| Total  | 64        | 100        |



**INTERPRETATION:**

There is an equal vote for enhancing customer base and enhancing the services provided to them with a percentage of 23.44, next making customer data management easier was chosen giving a percentage 21.88, getting, keeping and growing customer comes next with 20.31% and finally 10.94% of the people chose approaching potential customers as their option.

**III. FINDINGS**

The study covers response from 64 people under the age group of 20 to 50. Sample responses of 64 were selected conveniently for this study. The data were collected through questionnaire method. In order to quantify and analyze the information collected, tools like tables, percentages, graph, diagram and ranking method are being used. The findings arising from analysis are of the following:

1. The majority of respondents are in the 20–30 age range.
2. It is observed that there is an equal number of respondents,

32 males and 32 females.

3. It is observed that a major portion of the respondent have heard or had prior knowledge about artificial intelligence.
4. Most of the respondent felt that artificial intelligence is very useful and also another significant portion of the respondent knew that it was a modern concept.
5. A major portion of the respondent said “Yes” when they were asked whether artificial intelligence was likely to automate many jobs over in next 20 years.
6. Majority of the respondent said “Yes” when they were asked whether they were interested to learn more about artificial intelligence.
7. Half of the respondents think that artificial intelligence is the future of customer relationship management.
8. It is evident that majority of the respondents use face recognition and it is ranked no.1 than the others.
9. It is evident that, engaging, nurturing and qualifying and following up the customers was ranked 1st.
10. From the analysis it was seen that a significant portion of the people feel that integrating AI in CRM was a good option.
11. Major portion of the respondent felt that AI was costly and other significant portion felt that in may be sometimes costly.
12. It was observed that the respondent has got mixed reaction when they were asked about the difficulties of using AI in CRM,
13. Some of them felt that it was difficult to understand the concept while others said that they

14. When people were asked about the main focus area of AI in CRM, a major portion of respondent felt that customer satisfaction was the main focus area.

15. A significant portion of the respondent felt that "Quick responses in case of confusion etc...." was the main focus area for AI.

16. There was a equal vote among the response for "enhancing customer base" and "enhancing the services provided to them", when they were asked about AI's main point of focus in CRM (from business point of view)

17. A significant portion also said that getting, keeping, and growing customers and also customer data management became easier for the company.

18. Over all the people have got a good opinion or an experience in AI integrated in CRM.

#### IV. SUGGESTIONS

- Integration of artificial intelligence in CRM requires more expertise and knowledge. Therefore, efforts need to be made to provide the required knowledge.
- Schools and colleges need to make it a point to educate children regarding new concepts and ideas.
- Companies need to train employees regarding this and keep them under experts till they are ready to do this by themselves
- Government can take an initiative to help fund companies to introduce and accept such technologies for better production and increased efficiency.
- More young entrepreneurs including women entrepreneurs need to be motivated to use such technologies to use for their benefit.
- They should be educated on how to use them properly so that they avoid any chaos and tensions.
- People should be aware about the pros and cons of using artificial intelligence.

#### V. CONCLUSION

In conclusion we can say that by the integration of artificial intelligence in CRM a lot of businesses and young entrepreneurs can manage their relations with their customers in a better way. They are able to get, keep and grow more customers by providing them faster services and redressing their complaints quicker. Moreover, it has become easy for the businesses to handle all the details about their current and prospective customers which would have been very difficult if AI wasn't a part. Businesses can now concentrate on more important key areas rather than just on this.

As usual a coin has it's two sides, this integration too has negatives. Nothing comes for free and so does the technologies of AI. Integration of AI is costly and time consuming as the time taken for learning the new concepts and then getting used to it takes time. Lack of knowledge and cost is the main concern of this integration.

If the government takes an initiative in helping businesses and young entrepreneurs with funds it motivates them to integrate AI. Moreover, it saves time and energy and thus will help businesses to focus on key areas and thus help in overall economic development.

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