

ANALYSING THE MAJOR DETERMINANTS OF IMPLEMENTING ARTIFICIAL INTELLIGENCE IN ENHANCING CUSTOMER RELATIONSHIP MANAGEMENT IN PRIVATE BANKING COMPANIES

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Abstract

Technology advancements and the broad incorporation of digital practises into corporate operations have contributed significantly to the rapid development of customer relationship management during the last ten years. Because the firm's marketing activities have been using artificial intelligence (AI) to better understand its customers' shifting desires and requirements react more effectively to consumer enquiries, and deepen its connections with its clients, the company has been successful in reaching its goals. Automated responses to customer inquiries used to be monotonous and non-interactive; but, now that AI and other technologies are available, businesses are able to develop customised automation processes to enhance customer interactions and experiences. The abbreviation "Customer Relationship Management" (CRM) refers to a collection of computer software that is used to improve efficiency in dealing with customers and to boost sales.

Artificial Intelligence (AI) is fast revolutionising how consumer enquiries are answered to within customer relationship management by examining wants and requirements, concentrating on developing unique customer interaction, and enhancing customer loyalty. This is being done within the context of Customer Relationship Management (CRM). The use of Artificial Intelligence (AI) in the workplace is fast becoming ubiquitous in the 21st century as an increasing number of businesses see its usefulness. The purpose of this empirical study is to investigate the key facets of AI that have an influence on Customer Relationship Management (CRM). The researchers intend to conduct their quantitative analysis using IBM SPSS, and a comprehensive report of their findings will be produced.

Keywords: Artificial Intelligence, ANOVA, Customer Relationship Management, Regression Analysis

Introduction

Because the preferences and demands of customers are continually changing, it is more essential than ever for businesses and their managers to have a clear grip on the bare essentials of what their customers anticipate from them. As a consequence of this, a customer relationship management system has been put into operation (CRM). In recent years, the customer relationship management (CRM) sector has seen explosive expansion as a direct result of the growing need for improved customer communication on the part of companies and the employees who work for those firms.

In the early 2000s, automated CRM was utilised to enhance customer relationship management by making use of auto-responders for notification purposes. However, emerging technologies such as artificial intelligence (AI), robotic process automation (RPA), and others have made it possible to personalise customer interactions, ascertain clients' most urgent needs, and deliver answers on the spot (Mahdavinejad et.al., 2018). Tools for relationship marketing such as customer relationship management (CRM) are essential for attracting new customers and retaining existing ones.



Customer relationship management (CRM) software is viewed as a useful tool for optimising activities such as sales and support in the highly competitive internet market of today.

As a result of information technology's pervasiveness in today's society, many banking companies have grown to depend on it as a means to simplify their operations, provide superior service to customers, and strengthen their communication channels. The marketing department is now using cutting-edge technologies such as artificial intelligence (AI), machine learning (ML), corporate data analytics, and other similar systems (Hopkinson et.al, 2018). Artificial Intelligence marketing makes use of technology to improve customer service, satisfies client requirements, and offers superior products and services to consumers. Because of the use of artificial intelligence (AI) and other technologies, managers in the marketing industry now have a higher capacity to know their clients and to come up with novel methods to remain ahead of the competition. This is the case because to the increased usage of technology. Artificial Intelligence may help businesses improve their sales and profitability by streamlining processes, improving their capacity to communicate with customers, and making greater use of social media (Bipasha et.al, 2020). As more businesses realise the potential of AI and similar technologies to automate the customer relationship management (CRM) process, it is anticipated that the future will see an increase in the amount of customer interactions that make use of AI technology. In addition, AI may take over non-critical duties in an organization, which will make it simpler for employees to complete day-to-day responsibilities.

As a consequence of this, we have arrived at the conclusion that CRM may see a significant paradigm change when new AI developments are applied to the industry. Experts are in agreement that artificial intelligence plays a significant part in assisting companies in the process of collecting data from a wide range of sources, which can then be used for more in-depth analysis and decision-making, which, in turn, leads to more accurate projections of consumer trends and behaviours (Syam et.al, 2018). You can think of artificial intelligence, or AI, as the foundation of a wide variety of tools and systems that have been endowed with basic human intellectual processes, such as the ability to finish tasks, create reports and dashboards, and extract and analyse data to provide relevant insights that can be used to make decisions more effectively. Information can be automated, time can be saved, and a greater emphasis can be placed on tasks that are more productive if sales and marketing professionals make advantage of AI's capacity to combine AI with manual data input processing. It is also stated that artificial intelligence makes it simpler to centralise the customer database, assess the lifecycle of each individual customer, determine the customer's desires and needs, and deliver specialist services that are tailored to meet the customer's requirements. Gaining knowledge of artificial intelligence and how it operates might potentially be quite profitable for businesses. Because it is already having an effect in so many different domains, artificial intelligence could be able to design a business strategy that covers everything from accounting to marketing. It is reasonable to anticipate that artificial intelligence will have an influence on everything from business models to customer service to sales possibilities to consumer behaviours to advertising methods. According to research, artificial intelligence is seen as a powerful tool that has the potential to increase the efficiency and productivity of marketers via predictive analytics, automated email exchanges, customer evaluations, customer data, and a tailored customer experience. Therefore, customer relationship management (CRM) solutions that use artificial intelligence render real-time client participation and considerable interaction feasible. As a consequence of this, we will be in a position to wind up our discussion with the client in a time-efficient manner and zero in on the particular result, deliverable, or service that they need.

The nature of the interactions that take place between a company and its products is referred to as the "customer experience," and technologies that make use of artificial intelligence are used in order to better engage customers and enhance the quality of their experiences (Tahir et.al., 2021). More than 90 percent of all interactions with clients now include the use of artificial intelligence,



which significantly increases the effectiveness of businesses and the management of such businesses. User interactions and comments could also play a role in the creation of new products as well as their research and distribution. It's possible that the decreased requirement for human participation is the reason why artificial intelligence has the ability to make product personalisation and cross-selling more effective.

Implementing customer analytics with the assistance of AI enables organisations to better capture opportunities based on data from a range of sources, enhance the accuracy of management's pattern forecasts, concentrate on the variables that really drive sales, and more effectively deal with customer complaints and issues (Jarrahi et.al., 2018). It has been shown that the use of AI reduces the amount of customers that leave a firm and opens up several opportunities for development in a variety of domains, including repeat business, brand advocacy, product upselling, and operational efficiency. This study has focused its attention to those parts of AI that have the most important influence on customer relationship management (CRM) across a variety of industries. This is due to the widespread belief that AI is the primary factor behind enhanced customer interactions (Davenport et.al., 2019). This study provides light on how artificial intelligence may be used to redefine an organisation's offers, advice marketers as they design plans to enhance consumers' experiences, enable cross-departmental cooperation, and bring about the achievement of the company's broader objectives.

Review of Literature

Making choices is a significant part of a marketing manager's job responsibilities. Although advances in technology have made it easier for employees inside companies to share information with one another, the responsibility for making decisions has traditionally been left solely up to people. On the other hand, with the most recent upgrade, robots will be in charge of making reasonable conclusions.

Constructing the decision structure is the first step we take before determining whether or not marketing decisions can be automated or improved. The act of choosing a choice involves a combination of intuitive leaps and deliberate, logically-based manoeuvres. (Jarek et.al., 2019). Take System 1 as an example; its activities may be carried out with no intervention from the user and do not need the entry of any logical data. System 2 calls for thoughtful consideration, logical investigation, and deliberate action on the part of the user. On the other hand, problem-solving technology that relies on artificial intelligence rather than human intuition handles System 2 challenges by carrying out a series of computer evaluations in place of depending on human intuition. Although it may be possible to solve algorithms (artificial intelligence), human intuition is still very vital and cannot be completely replaced by computers since business operations and decisions are intricate and difficult to anticipate. This is considered as a roadblock in the employment of top-down AI in decision-making for governance.

When it comes to brands, many researchers believe that it is always preferable to seek greater synergy between the decision-making processes of humans and machines rather than outsourcing every aspect of a brand. It is preferable to share the load and so develop social support rather than automating all decisions and actions. This is one reason why cooperative intelligence is vital. It is not recommended to employ artificial intelligence to automate jobs; rather, it should be used as a tool for decision-making. According to the author, the inability of robots to make judgements is a perceptual skill that should be considered a limitation (A. Jain et.al., 2019). In addition, AI assistants will soon be widely available, which will not only fundamentally transform the role of the marketer but also the relationship dynamic between businesses and their respective customers. Because AI experts are getting into the game of predicting and offering items and services to clients based on their individual preferences for quality, price, service, and other characteristics, the marketing landscape is about to undergo a huge upheaval in the near future. As a direct consequence of this, it will be difficult for marketers to live up to the expectations of customers.



As a result, it is essential for businesses that promote their items to understand how to include them into artificial intelligence guidelines and how to attract the clients they want.

As a direct result of these many circumstances, two distinct predictions on the foreseeable future of trading have surfaced. One school of thought contends that widespread job automation will one day eliminate the need for expert marketers, while another contends that the need for such individuals will increase in the coming years as a result of ongoing innovations in marketing that are brought about by AI data that is associated with advertising. The marketing department has a number of issues in the modern day (A. Jain ., 2019). As a result of changing client demographics, expanding data volumes, emerging technology, morphing business models, and the need to maintain competitiveness via diversification (Dash et.al., 2019). If the marketing staff is able to analyse and research the ever-changing preferences of clients, there is a good chance that the bottom line of the firm will improve. Because of the damage that was done to the company's reputation, the CEO may decide to absolve the marketing team of any responsibility for the situation. According to research that has been done in the past on this topic, the lead times for Chief Marketing Officer (CMO) jobs are often less lengthy and more varied than the lead times for other senior postings. Because it is difficult to assess the success of the CMO and because it is difficult to make them financially accountable for their actions, this is the situation. The use of artificial intelligence is required for a variety of tools and systems, including the ability to complete a task, generate reports and dashboards, as well as collect and analyse data in order to provide pertinent information that can be used for sound decision-making. AI opens the door to a variety of possibilities for the global execution of tasks using AI-assisted data entry. This allows professionals in sales and marketing to automate the gathering of data and save time on a broad variety of operations that do not bring value. And put your attention on the activities that will provide the best outcomes. Compiling customer databases and adding individual client life cycle studies are two of the ways that artificial intelligence (AI) may assist enhance service delivery and satisfy the demands of consumers, as was proven in a separate piece of study.

Methodology

The primary objective of this study is to conduct an analysis of the basic elements that influence the effect that AI has on CRM in firms. The researchers want to arrive at their conclusion by using a method known as deductive reasoning, which entails testing previously formulated hypotheses using information gleaned from a variety of places. The purpose of this strategy is to have an understanding of why and how AI is used in customer relationship management. The researchers evaluate the most significant features of AI's prospective influence on the commercial realm of marketing. This is done in addition to looking at what has previously been done in this area.

The researchers are focused in using descriptive research design to perform the study, the application of AI in banking space is increasing and the investments which are planned in AI is also augmenting every year in order to understand customer requirements and engage them so as to provide unmatched services. The researchers also used both primary and secondary data source for performing the study. For primary source, the data were collected using detailed questionnaire. The respondents were mainly chosen as the banking customers who have experienced using AI for using various services in banking. Convenience sampling is used to choose the respondents.

It is possible to perform an investigation that is comprehensive and supported by scientific study by making use of a planned set of inquiries produced by the researchers. This will increase the possibility that the appropriate solutions to the research problem will be located. (Martin 2020). The respondents were all currently employed individuals working for a firm that makes extensive use of artificial intelligence to assist with customer relationship management activities within the marketing industry. The authors were successful in gathering the required information by posing narrow and closed-ended questions to the respondents. In order to get an understanding of how AI is influencing the company's customer relationship management, the study makes use of both

primary and secondary sources. The researcher collected data from 153 different people chosen using Convenience sampling technique from Chennai City.

Research objectives and hypothesis

The main objective of the study is to understand the major determinants of implementing artificial intelligence in enhancing customer relationship management in private banking companies.

Hypothesis

- There is no mean difference between delivering better customer value through artificial intelligence and enhancing customer relationship management
- There is no mean difference between delivering customer engagement through artificial intelligence and enhancing customer relationship management
- There is no mean difference between delivering personalised customer experience through artificial intelligence and enhancing customer relationship management
- There is no mean difference between Quick addressal of queries through artificial intelligence and enhancing customer relationship management

Results and Discussion

This section is mainly involved in performing detailed analysis through percentage analysis, and Regression analysis

Percentage analysis

Table 1: Percentage analysis of Demographic variables

Gender	Frequency	Percent
Male	135	88.2
Female	18	11.8
Age groups	Frequency	Percent
Less than 25 years	43	28.1
25 - 29 years	60	39.2
30 - 34 years	19	12.4
35 - 39 years	31	20.3
No. of Dependants	Frequency	Percent
1 - 2	99	64.7
3 and Above	54	35.3
Area of living	Frequency	Percent
Metro City	103	67.3
Non-Metro	50	32.7
Type of Organisation	Frequency	Percent
Retail Sector	43	28.1
Food and Beverages Sector	90	58.8
Telecom and IT	20	13.1
Total experience	Frequency	Percent
Less than 3 years of experience	39	25.5
3 - 5 years	46	30.1
5 - 10 years	27	17.6
10 -15 years	9	5.9
More than 15 years	32	20.9
Total	153	100

Based on the analysis, it is noted that 88.2% of the respondents were male and remaining were female, 28.1% of the respondents were in the age group between less than 25 years, 39.2% were in the age group between 25 - 29 years, 12.4% of the respondents were in the age group between 30 - 34 years and remaining were in the age group between 35 - 39 years. 64.7% of the respondents have stated that they have dependents between 1 - 2 and remaining stated that they have more than 2

dependents. 67.3% of the respondents stated that they are living in metro city and remaining has stated that they are living in non-metro city. 58.8% of the respondents are working in food and beverage sector, 28.1% were working in retail sector and remaining were working in Telecom and IT sector. 30.1% of the respondents possess between 3 - 5 years, 25.5% of the respondents were having experience of less than 3 years, 17.6% were possessing 5 - 10 years, 20.9% were working more than 15 years and remaining 5.9% of the respondents were having between 10 - 15 years.

Regression analysis

The next set of analysis is related to linear regression, this enables in analysing the extent of association between independent variables and dependent variable

Table 2: R squared analysis

Model Summary			
Model	R	R Square	Adjusted R Square
Regression	0.869	0.755	0.749
Model	B	P Value	
(Constant)	0.125	0.499	
Better customer value	0.362	0.001	
Customer Engagement	0.343	0.001	
Personalised Customer Experience	0.022	0.027	
Quick addressal of queries	0.11	0.039	
F	114.185		
Sig.	.000b		

From the above table, it is noted that the R squared value is 0.755 which is more than 0.600, hence the model is considered to be best fit.

From the analysis, it is noted that F value is 114.185 and significance value is 0.00 which is less than 0.05 hence they are statistically significant. The regression equation can be stated as

Y (Enhancing Customer Relationship Management) = $0.125 + 0.362 \times \text{Better customer value} + 0.343 \times \text{Customer Engagement} + 0.022 \times \text{Personalised Customer Experience} + 0.11 \times \text{quick addressal of queries}$

Table 3: ANOVA between Enhancing Customer Relationship Management and Better customer value

Null: There is no mean difference between delivering better customer value through artificial intelligence and enhancing customer relationship management

Enhancing Customer Relationship Management * Better customer value					
Particulars	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	162.748	4	40.687	119.564	0.00
Linearity	150.959	1	150.959	443.613	0.00
Deviation from Linearity	11.789	3	3.93	11.548	0.00
Within Groups	50.363	148	0.34		
Total	213.111	152			

From the above analysis it is noted that the p value is 0.00 which is less than the threshold level of 0.05, hence alternate hypothesis is accepted. Therefore it is concluded that there is a mean

difference between delivering better customer value through artificial intelligence and enhancing customer relationship management.

Table 4: ANOVA between Enhancing Customer Relationship Management and Customer Engagement

Null: There is no mean difference between delivering customer engagement through artificial intelligence and enhancing customer relationship management

Enhancing Customer Relationship Management * Customer Engagement					
Particulars	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	159.886	4	39.972	111.147	0.00
Linearity	151.08	1	151.08	420.102	0.00
Deviation from Linearity	8.806	3	2.935	8.162	0.00
Within Groups	53.225	148	0.36		
Total	213.111	152			

From the above analysis it is noted that the p value is 0.00 which is less than the threshold level of 0.05, hence alternate hypothesis is accepted. Therefore it is concluded that there is a mean difference between delivering customer engagement through artificial intelligence and enhancing customer relationship management

Table 5: ANOVA between Enhancing Customer Relationship Management and Personalised Customer Experience

Null: There is no mean difference between delivering personalised customer experience through artificial intelligence and enhancing customer relationship management

Enhancing Customer Relationship Management * Personalised Customer Experience					
Particulars	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	147.713	4	36.928	83.571	0.00
Linearity	126.107	1	126.107	285.389	0.00
Deviation from Linearity	21.606	3	7.202	16.298	0.00
Within Groups	65.398	148	0.442		
Total	213.111	152			

From the above analysis it is noted that the p value is 0.00 which is less than the threshold level of 0.05, hence alternate hypothesis is accepted. Therefore it is concluded that there is a mean difference between delivering personalised customer experience through artificial intelligence and enhancing customer relationship management

Table 6: ANOVA between Enhancing Customer Relationship Management and Quick addressal of queries

Null: There is no mean difference between Quick addressal of queries through artificial intelligence and enhancing customer relationship management

Enhancing Customer Relationship Management * Quick addressal of queries					
Particulars	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	161.943	4	40.486	117.102	0.00
Linearity	139.998	1	139.998	404.934	0.00
Deviation from Linearity	21.945	3	7.315	21.158	0.00
Within Groups	51.168	148	0.346		
Total	213.111	152			



From the above analysis it is noted that the p value is 0.00 which is less than the threshold level of 0.05, hence alternate hypothesis is accepted. Therefore it is concluded that there is a mean difference between Quick addressal of queries through artificial intelligence and enhancing customer relationship management

Conclusion

Over the course of the last ten years, there have been significant shifts in customer relationship management as a direct consequence of the advent of the digital age, an era in which innovation and digitalization are reshaping businesses. The marketing department's use of artificial intelligence, particularly in customer engagement, query management, and relationship building, is primarily responsible for the success of the firm in adapting to the ever-changing desires and requirements of its customers. This success can be directly attributed to the use of artificial intelligence in the marketing department. As more and more businesses become aware of the opportunities offered by artificial intelligence, its impact in today's fast-paced, competitive business world is growing steadily. For instance, AI in CRM is enabling the analysis of demands and requirements, which is radically changing the management of client inquiries. This is one of the many ways that AI is transforming the business world seeks to increase the level of commitment and loyalty shown by customers.

The goal of marketing done using AI is to supply clients with what they want while also exceeding their expectations via the use of cutting-edge technologies. Marketers have made success with the use of AI technology and accompanying analytics, which has helped them to better understand the customers they are targeting and build strategies that are superior to those used by their competitors that boost the profits and overall performance of the firm. As more businesses become aware of the potential of these technologies to automate the customer relationship management (CRM) process, it is anticipated that in the future, a greater amount of customer contacts will make use of technology that is powered by artificial intelligence. In addition to simplifying day-to-day activities, artificial intelligence has the potential to replace humans in a variety of physiological jobs that are not vital to existence.

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