

Data Driven Customer Relationship Management and Its Impact on Consumers' Net Promoters Score (NPS): An Empirical Investigation

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Abstract

In the contemporary competitive landscape, businesses are increasingly adopting data-driven approaches to revolutionize Customer Relationship Management (CRM) practices. This study delves into the profound impact of data-driven CRM strategies on enhancing consumers' Net Promoter Scores (NPS), a pivotal metric that measures customer loyalty and advocacy. Through an extensive review of literature and empirical analysis, this research scrutinizes how adeptly leveraging customer data, encompassing behavioural insights and personalized marketing tactics, shapes NPS outcomes. Data-driven CRM denotes the strategic utilization of customer data to optimize interactions and inform strategic decisions. People from Customer Relationship Management Department were considered for study survey to know the factors that shows “Data Driven Customer Relationship Management” and its impact on Consumers' Net Promoters Score. Customer Segmentation, Personalization, Predictive Analytics and Customer Feedback Analysis are the factors that shows significant impact on NPS.

Keywords: Customer Relationship Management, (CRM), Net Promoters Score (NPS), Loyalty, Customer Satisfaction,

Introduction

Customization of products and services has become a widely embraced strategy in the business sector to strengthen relationships with customers by addressing their unique needs and preferences, ultimately delivering a more satisfying and personalized experience. This approach forms the foundation of Customer Relationship Management (CRM), a comprehensive process that enables businesses to engage with customers more effectively by tailoring their offerings and interactions. By leveraging CRM systems, companies can gather, analyze, and utilize valuable customer data to better understand consumer behavior, preferences, and expectations. This, in turn, allows them to create customized experiences that resonate with individual customers, fostering a deeper sense of connection and loyalty. A study by **Saha et al. (2021)** emphasizes the importance of data-driven CRM systems in this context, focusing on how businesses can gather and utilize customer knowledge to refine their offerings. Through the effective use of data-driven CRM, companies can not only enhance customer satisfaction but also build long-term relationships that translate into increased customer retention, loyalty, and advocacy. The Net Promoter Score (NPS) is a relatively recent model that provides a quantitative assessment of customer loyalty and its influence on overall business performance. NPS offers significant advantages due to its simplicity and the actionable insights generated through modern technologies. By determining the degree of customer loyalty, NPS highlights that satisfied customers are more likely to have a positive perception of the company and share their

experiences with both current and potential customers. As a result, businesses can leverage NPS to enhance their performance, as it helps identify and foster advocates who contribute to brand growth through positive word-of-mouth (Florea, Tănăsescu & Duică, 2018). This study investigates the integration of data analytics into customer relationship management (CRM) to bolster customer connections in contemporary business settings. In an age marked by extensive customer data, leveraging advanced analytics techniques has emerged as pivotal for optimizing CRM strategies. Such approaches empower businesses to monitor and evaluate critical performance indicators (KPIs) like customer loyalty and satisfaction. By analyzing metrics such as customer satisfaction ratings, Net Promoter Scores (NPS), and retention rates, organizations can identify areas for improvement and measure the long-term effectiveness of their initiatives (Chaplot, et al., 2023). The Net Promoter Score (NPS) is widely used by service organizations as a key indicator of customer loyalty and a predictor of growth. To enhance its effectiveness, service organizations may benefit from investing in Big Data technologies to capture and analyze customer sentiments expressed on social media at various points along the servitization journey. By integrating these insights with NPS data, organizations can make more informed decisions about resource allocation, ensuring their efforts align with customer needs and preferences (Lacohee et al., 2023). Artificial intelligence (AI) plays a crucial role in enhancing customer engagement and loyalty by enabling personalized interactions. Through interactive agents, AI improves customer experiences by offering real-time support, fostering deeper and more meaningful customer connections. Additionally, AI delivers valuable data-driven insights that empower organizations to make informed decisions throughout the customer journey. These AI-driven strategies not only boost sales but also strengthen brand loyalty, fostering long-term relationships with customers (Tung & Lan, 2024). AI-driven analytics enable more accurate and effective personalization, significantly enhancing customer engagement and satisfaction. Studies highlight the role of predictive analytics in anticipating customer needs and tailoring interactions accordingly. Personalization has become a vital aspect of customer relationship management (CRM), allowing companies to build stronger connections with their customers by understanding their individual preferences and behaviors. The combination of CRM and personalization provides companies with key advantages, including a deeper understanding of their customer base and the ability to deliver more meaningful, memorable experiences. As a result, CRM has become a crucial element of business strategy in today's highly competitive marketplace (Nangare & Wankhade, 2024). Digital transformation has provided unprecedented access to vast amounts of customer data and advanced analytics tools, allowing organizations to gain valuable insights into customer behavior, preferences, and sentiment. By effectively leveraging this data, businesses can make informed decisions, identify key engagement opportunities, and implement targeted strategies to improve customer satisfaction and loyalty. As customer data grows and analytics technologies advance, this will increasingly shape the future of customer relationship management (CRM). Organizations will harness big data analytics, predictive modeling, and machine learning algorithms to extract actionable insights into customer behavior, preferences, and emerging trends. This data-driven approach enables businesses to transition from reactive to proactive strategies, allowing them to anticipate customer needs and expectations with greater precision. This personalized approach not only enhances engagement but also builds long-term loyalty. Furthermore, digital transformation enables businesses to utilize social media and sentiment analysis, offering deeper insights into customer opinions and preferences (Auttri, et al., 2023).

Literature Review

NPS serves as a valuable metric and has been shown to be a strong indicator of a company's potential for growth. Research indicates that NPS has a significant impact on customer loyalty, which in turn strongly influences a company's financial performance. Furthermore, the data reveals a direct correlation between NPS and financial outcomes, suggesting that higher NPS scores can lead to better financial results. NPS adds considerable value to both the company and its customers by incorporating customer feedback into continuous improvement processes. By listening to and acting on this feedback, businesses can refine their offerings to better meet, and even exceed, customer expectations (Hardianto & Wijaya, 2023). Customer relationship management (CRM) involves tracking and analyzing data and customer experiences throughout their entire lifecycle, using strategies, processes, and technology to enhance interactions. Strengthening customer relationships is crucial for increasing revenue and attracting new clients. Big Data analytics plays a key role in this process by employing predictive techniques to forecast which products will perform well and be preferred by customers. Retailers leverage Big Data analysis to significantly impact recommendation systems, decision-making strategies, price optimization, trend forecasting, and overall customer experience improvement (Agrawal, 2024). Artificial Intelligence (AI) plays a

vital role in elevating customer relationship management (CRM) by equipping businesses with advanced tools to better understand, engage with, and serve their customers. AI enables businesses to forecast customer behavior and trends, helping them anticipate customer needs, identify potential challenges, and make data-driven decisions to boost customer satisfaction. This predictive capability allows businesses to proactively address issues and enhance overall customer experiences. AI-driven algorithms analyze large volumes of customer data in real-time, extracting valuable insights and identifying patterns quickly. This enables businesses to make informed, data-backed decisions and improve operational efficiency by responding promptly to evolving customer demands **(Sathyamoorthy & Pattabiraman, 2024)**.

The Net Promoter Score (NPS) is a highly effective tool for measuring and managing customer satisfaction levels. In addition to evaluating satisfaction, NPS is used to gauge user attitudes and predict the likelihood of customer loyalty. There is a recognized correlation between user satisfaction and NPS scores, making it a valuable indicator of customer sentiment. Compared to other metrics, such as repeat purchases, NPS is widely regarded as the most effective tool for assessing user loyalty. When user satisfaction is met, loyalty to a service or product, such as a library's offerings, tends to strengthen. As a result, the NPS score improves, reflecting the increased likelihood of users recommending the service to others. In the context of libraries, a higher NPS score indicates that users are satisfied with the services and are willing to advocate for the library, driving positive word-of-mouth and potentially attracting more users **(Srirahayu, Anugrah & Layyinah, 2021)**. The Net Promoter Score (NPS) has gained widespread acceptance among managers as a key measure of customer sentiment and a predictor of sales growth. Initially designed as a transaction-based metric for assessing customer loyalty, the application of NPS has evolved significantly over time. Practitioners now leverage NPS not only to gauge loyalty but also to track the overall health of a brand, incorporating feedback from both customers and non-customers. Research indicates that fluctuations in NPS can provide valuable insights into future sales performance, making it a powerful tool for forecasting growth. By analyzing changes in NPS, organizations can anticipate shifts in customer sentiment and adjust their strategies accordingly. This predictive capability highlights the importance of using NPS as a measure of brand health rather than solely as a loyalty metric. In this broader context, NPS serves as a barometer for how well a brand is resonating with its audience. It reflects the likelihood of customers recommending the brand and can influence new customer acquisition through positive word-of-mouth. As such, integrating NPS into overall brand management strategies allows organizations to monitor their reputation, identify areas for improvement, and make informed decisions that align with customer expectations. By embracing this perspective, managers can ensure that NPS effectively informs their understanding of brand health and strategic direction **(Baehre et al., 2022)**. NPS serves as a key indicator of customer experience and is a strong predictor of business growth, making it a foundational measurement for customer experience management programs globally. As a survey-based metric, NPS excels in forecasting future revenue growth, relying on customer responses to a single question about their likelihood to recommend a product. Changes in NPS hold predictive value for anticipating near-term sales growth, underscoring the importance of using it as a measure of brand strength rather than merely a customer loyalty metric. This study offers managers valuable insights on how to effectively utilize NPS, encouraging further research into this critical practitioner metric and its implications for enhancing customer relationships and driving business success **(Megaladevi, 2023)**. Customer Relationship Management (CRM) encompasses the methodologies and tools that enable businesses to systematically manage customer relationships. Data mining, on the other hand, is the process of employing various data analysis and modeling techniques to uncover patterns and relationships within data, which can be leveraged for accurate predictions. The ability to utilize customer information to address their needs directly correlates with increased profitability. However, operational CRM must be complemented by analytical CRM that incorporates predictive data mining models. To navigate the path to a successful business, marketing managers must possess a deep understanding of their customers and their requirements **(Gupta & Aggarwal, 2012)**. The primary goal of these recommendations is to enhance customer loyalty, measured through the Net Promoter Score (NPS), a widely recognized metric for assessing customer satisfaction. The NPS framework categorizes customers into three groups: promoters (loyal customers), passives, and detractors (disloyal customers who may harm the company's reputation). Customer Relationship Management (CRM) systems play a critical role in collecting enterprise-wide customer data and often include data analysis and decision support capabilities. However, the integration of intelligent systems—particularly recommender systems that leverage machine learning and text mining techniques within their recommendation engines—remains limited in practice **(Tarnowska & Ras, 2021)**.

Objective

1. To ascertain the factors that shows Data Driven Customer Relationship Management.
2. To know the impact of Data driven Customer Relationship Management on Consumers' Net Promoters Score (NPS)

Methodology

People from Customer Relationship Management Department (sample size 200) were considered for study survey to know the factors that shows Data Driven Customer Relationship Management and impact of Data driven Customer Relationship Management on Consumers' Net Promoters Score. Data collection and analysis is done through "Random sampling method" and "Factor Analysis" following "multiple regression analysis".

Findings

57% male contribute to total 200 respondents and rest 43% are female. 33% are >32 years, 40% range from 32-42% and rest 27% are <42 years of age. 24% of them are Marketing Operations Manager, 25% are CRM Specialists, 28% are CRM Analyst and rest 23% respondents are CRM Automation Specialist.

Table 1 "KMO and Bartlett's Test"

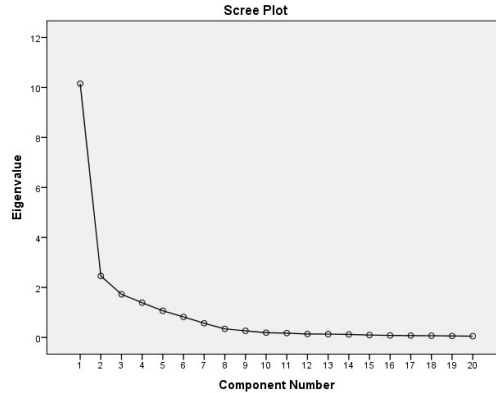
"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.876
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	4653.875
	"df"	190
	"Sig."	.000

KMO value in table 1 is 0.876 and the "Barlett's Test of Sphericity" is significant.

"Table 2 Total Variance Explained"

"Component"	"Initial Eigen values"			"Rotation Sums of Squared Loadings"		
	"Total"	"% of Variance"	"Cumulative %"	"Total"	"% of Variance"	"Cumulative %"
1	10.155	50.773	50.773	3.578	17.892	17.892
2	2.462	12.308	63.080	3.462	17.312	35.204
3	1.726	8.632	71.713	3.434	17.169	52.373
4	1.392	6.958	78.671	3.335	16.676	69.049
5	1.066	5.330	84.001	2.990	14.951	84.001
6	.823	4.115	88.116			
7	.568	2.842	90.958			
8	.344	1.720	92.678			
9	.267	1.334	94.012			
10	.191	.956	94.969			
11	.174	.869	95.837			
12	.137	.687	96.525			
13	.136	.678	97.203			
14	.120	.600	97.803			
15	.099	.495	98.297			
16	.082	.408	98.706			
17	.075	.377	99.083			
18	.070	.351	99.434			
19	.060	.301	99.735			
20	.053	.265	100.000			

In "principal component analysis" it is found that 20 variables form 5 Factors. The factors explained the variance of 17.892%, 17.312%, 17.169%, 16.676% and 14.951% respectively. The total variance explained is 84.001%.



“Table 3 Rotated Component Matrix”

“S. No.”	“Statements”	“Factor Loading”	“Factor Reliability”
	Customer Segmentation		.946
1	Segment users into different categories	.871	
2	Help businesses to identify at-risk customers and develop targeted retention strategies	.868	
3	Segmentation helps businesses target the right audience	.854	
4	Businesses allocate resources more effectively by focusing on high-value customer segments	.852	
	Personalization		.943
5	Personalize communication and product recommendations	.898	
6	Offer customers unique experiences	.807	
7	Deliver personalized messages such as follow-up emails, reminders	.712	
8	Offer personalized promotions to customers who show interest in a particular product	.698	
	Predictive Analytics		.931
9	Leverage historical customer data to predict future behaviour, preferences, and trends	.888	
10	Leveraging AI and machine learning to recommend specific actions based on data	.885	
11	Help to identify which customers are most likely to make high-value purchases in the next month	.858	
12	Forecast a customer’s lifetime value based on their previous transactions and engagement	.765	
	Customer Feedback Analysis		.936
13	Collect and analyse customer feedback from surveys, reviews, or social media comments	.850	
14	Understand what customers appreciate and where they face challenges	.810	
15	Customer Feedback Analysis helps in Product development	.810	
16	Feedback analysis can identify dissatisfaction early	.803	
DV	Net Promoters Score (NPS)		.905
17	My company focus on personalized communication, offers, and services, leads to higher consumer satisfaction	.838	
18	Faster resolution times, consistent interactions, and proactive service gives higher NPS	.780	
19	Addressing issues early, businesses can turn detractors into promoters, improving NPS	.778	
20	My company strengthen relationships to foster loyal and engaged	.518	

	customers		
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Table shows the factors that shows Data Driven Customer Relationship Management where factor “Customer Segmentation” includes the variables like Segment users into different categories, help businesses to identify at-risk customers and develop targeted retention strategies, Segmentation helps businesses target the right audience and Businesses allocate resources more effectively by focusing on high-value customer segments. Factor “Personalization” includes the variables like Personalize communication and product recommendations, offer customers unique experiences, Deliver personalized messages such as follow-up emails, reminders and offer personalized promotions to customers who show interest in a particular product. Factor “Predictive Analytics” includes the variables like Leverage historical customer data to predict future behaviour, preferences, and trends, Leveraging AI and machine learning to recommend specific actions based on data, Help to identify which customers are most likely to make high-value purchases in the next month and Forecast a customer’s lifetime value based on their previous transactions and engagement. Factor “Customer Feedback Analysis” includes the variables like Collect and analyse customer feedback from surveys, reviews, or social media comments, understand what customers appreciate and where they face challenges, Customer Feedback Analysis helps in Product development and Feedback analysis can identify dissatisfaction early. Factor “Net Promoters Score” includes the variables like My company focus on personalized communication, offers, and services, leads to higher consumer satisfaction, Faster resolution times, consistent interactions, and proactive service gives higher NPS, addressing issues early, businesses can turn detractors into promoters, improving NPS and Strengthen relationships foster loyal and engaged customers.

“Table 4 Reliability Statistics”

“Cronbach’s Alpha”	“No. of Items”
.948	20

Total reliability is 0.948 for 5 constructs including twenty items

“Table 5 Model Summary”

“Model”	“R”	“R Square”	“Adjusted R Square”	“Std. Error of the Estimate”
1	.530 ^a	.281	.266	.63238
Predictors: (Constant), Customer Segmentation, Personalization, Predictive Analytics and Customer Feedback Analysis				

The Value of R square is 0.281 and the model explains around 28% of the variation.

Table 6 “Coefficients”

“Model”	“Un standardized Coefficients”		“Standardized Coefficients”	“t”	“Sig.”
	“B”	“Std. Error”	“Beta”		
(Constant)	3.811	.045		85.232	.000
Customer Segmentation	.179	.045	.242	3.992	.000
Personalization	.278	.045	.377	6.210	.000
Predictive Analytics	.150	.045	.203	3.350	.001
Customer Feedback Analysis	.145	.045	.196	3.232	.001
a. Dependent Variable: Overall Impact of Data driven Customer Relationship Management on Consumers' Net Promoters Score					

In Table 6 it is found that all the factors Customer Segmentation, Personalization, Predictive Analytics and Customer Feedback Analysis are showing significant impact on Net Promoter Score. Highest impact is shown by Personalization with beta value .377 followed by Customer Segmentation (.242), Predictive Analytics (.203) and Customer Feedback Analysis with beta value .196.

Conclusion

Based on the research into data-driven Customer Relationship Management (CRM) and its impact on consumers'

Net Promoter Score (NPS), several key conclusions can be drawn. Implementing data-driven CRM strategies positively influences NPS. By leveraging customer data effectively, businesses can better understand customer needs, personalize interactions, and enhance overall satisfaction levels, thereby increasing NPS. Data-driven CRM allows for more personalized and targeted communication with customers.

In conclusion, integrating data-driven CRM strategies effectively can significantly impact consumers' Net Promoter Scores by enhancing satisfaction, engagement, and loyalty. Businesses that prioritize data-driven insights and customer-centric strategies are likely to see tangible improvements in their NPS metrics over time. Customer Segmentation, Personalization, Predictive Analytics and Customer Feedback Analysis are the factors related to data driven CRM and shows significant impact on NPS.

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