The Impact of Customer Relationship Management (CRM) on Customer Loyalty: A Study Case of the W Automobile Sales Company

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Article Info
Received 5 February 2025
Revised 24 July 2025
Accepted 26 July 2025
Available online 31 August 2025

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Abstract

This study investigated the impact of Customer Relationship Management (CRM) on Customer Loyalty at W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China. The research aimed to analyze how specific CRM dimensions influence customer loyalty, addressing a critical need for data-driven strategies in the automotive sector. The research employed a quantitative approach, utilizing a questionnaire survey to collect data from a random sample of 450 customers, with the analysis based on 380 responses from current customers, determined using a Sample Size Calculator with a 5% margin of error and a 95% confidence level. The study focused on five key CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience. Prior to data collection, a pre-test was administered to evaluate the suitability of the questionnaire, and its validity and reliability were established using Cronbach's alpha coefficient, with an overall alpha of 0.942. The analytical techniques utilized included descriptive analysis, Cronbach's alpha coefficient, Pearson correlation analysis, and multiple linear regression.

The results of the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions and customer loyalty. This finding aligns with previous research emphasizing the multifaceted nature of CRM and its impact on customer loyalty. The regression analysis conducted in this study identified Customer Experience ($\beta = 0.211$, $p = 0.000$) as the strongest predictor of customer loyalty, followed by Communication ($\beta = 0.178$, $p = 0.000$), Customer Service ($\beta = 0.163$, $p = 0.001$), Personalization ($\beta = 0.142$, $p = 0.002$), and Technology Adoption ($\beta = 0.132$, $p = 0.007$). The overall model explained 40.3% of the variance in customer loyalty ($R^2 = 0.403$, $F = 59.901$, $p = 0.000$), indicating a significant predictive power. The study also revealed significant differences in customer experience and technology adoption across different age and income groups. Younger customers (18-25 years old) reported lower levels of customer experience, suggesting a need for tailored strategies to engage this demographic. Overall, this study contributes to the growing body of literature on CRM and customer loyalty, particularly within the automobile industry. The findings underscore the importance of a holistic approach to CRM, encompassing personalization, customer service, communication, technology adoption, and customer experience. These insights provide actionable recommendations for W Automobile Sales Company to enhance customer loyalty and achieve sustainable competitive advantage. In conclusion, the findings confirm that Customer Relationship Management (CRM) significantly impacts Customer Loyalty by fostering stronger customer relationships and driving repeat business.

Keywords: Customer Relationship Management, Customer Loyalty, Customer Service, Customer Experience, Automotive Industry

Introduction

The automobile sales industry experienced continuous transformation and development due to technological advancements and intensified market competition. The marketing focus of businesses gradually shifted from a product-centric approach to customer-centric strategies. Customer relationship management (CRM) gained widespread recognition among companies, with maintaining positive customer relationships and maximizing customer lifetime value becoming key aspects of CRM implementation. Managing customer loyalty served not only as a vital means of retaining existing customers but also as an effective method of maximizing customer value across industries. With the rise of the internet, new sales models and service experiences emerged, propelling the automobile sales industry toward a more digital and personalized direction. Enhancing customer loyalty became a key driver for improving corporate competitiveness. Reinforcing the importance of loyalty, the traditional Pareto principle suggested that 80% of a company's profits originated from 20% of its core, loyal customers. Research conducted by W. Earl Sasser Jr. and Frederick F. Reichheld demonstrated that a mere 5% increase in customer loyalty could lead to a 25-85% increase in a company's profitability. From a business standpoint, achieving a level of operational excellence and market competitiveness hinged on cultivating a substantial base of loyal customers. In today's highly competitive business environment, customer loyalty emerged as a critical factor influencing organizational success. CRM became a crucial tool for businesses to enhance customer loyalty and maintain a competitive advantage. Customer satisfaction was generally recognized as a significant determinant of repeat sales, positive word-of-mouth marketing, and, ultimately, customer loyalty. Satisfied customers tended to return and make additional purchases, and they were also more likely to share their positive experiences with others (Fornell, 1992). CRM theory also emphasized customer lifecycle management, advocating for tailored management strategies corresponding to distinct customer lifecycle stages. During the acquisition phase, businesses focused on attracting customers through effective marketing techniques. In the maintenance phase, the emphasis shifted to enhancing customer experience and satisfaction. Finally, in the value-added stage, businesses could augment customer lifetime value through strategies such as cross-selling and upselling (Kotler & Keller, 2016). For instance, after a customer purchased a vehicle from W Automotive Sales Company, the company could cultivate a sense of belonging and loyalty through regular follow-up communications and after-sales service. Furthermore, CRM theory highlighted the importance of technology in managing customer relationships. With advancements in information technology, businesses could utilize CRM systems to collect and analyze customer data for precise marketing and service delivery. For example, CRM software solutions like Salesforce facilitated the integration of customer information, optimized customer communication, and improved service efficiency. If W Automotive Sales Company implemented such management tools, it could effectively elevate the quality of customer interactions, consequently strengthening customer loyalty.

Despite the extensive literature on CRM and customer loyalty, there remains a notable research gap concerning the specific application and impact of various CRM dimensions on customer loyalty within the unique context of the automobile sales industry in China, particularly for dealerships like W Automobile Sales Company. While general CRM principles are well-established, empirical studies that provide granular insights into how personalization, customer service, communication, technology adoption, and customer experience collectively and individually contribute to customer loyalty in this specific market are limited. This study

aims to bridge this gap by offering a comprehensive quantitative analysis to inform targeted CRM strategies and enhance customer retention in a highly competitive automotive landscape.

Therefore, this study aims to analyze the key factors of CRM at W Automobile Sales Company, examine the impact of its CRM capabilities on customer loyalty, and propose effective strategies to enhance customer loyalty through improved CRM practices.

Research Objectives

The specific objectives guiding this study are as follows:

1. To investigate the relationship between specific Customer Relationship Management (CRM) dimensions (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and customer loyalty at W Automobile Sales Company.
2. To analyze the impact of each identified CRM dimension on customer loyalty at W Automobile Sales Company.

Literature Review

Customer Relationship Management (CRM)

Customer Relationship Management (CRM) has evolved significantly in recent years, driven by technological advancements and changing customer expectations. Contemporary CRM systems extend beyond basic customer data management, encompassing sophisticated analytics, artificial intelligence (AI), and automation capabilities to personalize customer experiences and build long-term relationships (Wirtz et al., 2021). Research highlighted the increasing importance of data privacy and ethical considerations within CRM practices, emphasizing the need for transparent data collection and usage policies (Davenport et al., 2020). Furthermore, the integration of CRM with other business systems, such as marketing automation platforms and e-commerce platforms, became crucial for creating a seamless and omnichannel customer journey (Kumar & Reinartz, 2020). Studies explored the impact of AI-powered CRM tools on customer service, noting their ability to provide personalized recommendations, automate responses to common queries, and predict customer needs (Huang & Rust, 2018). The focus of CRM shifted towards proactive customer engagement, with businesses leveraging data insights to anticipate customer needs and offer personalized solutions before problems arise (Brodie et al., 2021). Moreover, the rise of social media and digital channels prompted organizations to incorporate social CRM strategies, monitoring social media conversations, and engaging with customers on their preferred platforms (Tuten & Solomon, 2018). The effectiveness of CRM implementations became increasingly tied to organizational culture, with successful companies fostering a customer-centric mindset across all departments (Payne & Frow, 2017). Overall, CRM in the 2020s and beyond emphasized data-driven decision-making, personalized customer experiences, ethical data handling, and seamless integration across channels to cultivate enduring and profitable customer relationships.

Customer Relationship Management (CRM) in the Automobile Industry

The automobile industry has witnessed a paradigm shift in its approach to customer engagement, with Customer Relationship Management (CRM) emerging as a critical tool for fostering customer loyalty and driving sales. CRM in this sector transcends traditional transactional interactions, evolving into a comprehensive strategy that encompasses personalized communication, targeted marketing, and proactive customer service (Krishnan et al., 2019). Automobile dealerships and

manufacturers utilize CRM systems to amass a wealth of customer data, including purchase history, service records, preferences, and demographics. This data serves as the bedrock for tailoring marketing campaigns, anticipating customer needs, and delivering customized solutions (Jayachandran et al., 2005). For instance, CRM enables dealerships to send personalized service reminders, offer targeted promotions based on past purchases, and even anticipate potential vehicle upgrades based on customer profiles (Buttle, 2009). Moreover, CRM facilitates seamless communication across various touchpoints, such as email, phone calls, and social media, ensuring a consistent and personalized customer experience. The system enables service advisors to access a customer's complete interaction history prior to any contact, allowing them to provide informed and efficient support. Furthermore, manufacturers leverage CRM to manage leads, track customer inquiries, and analyze market trends, enabling them to make data-driven decisions about product development and marketing strategies (Hansotia, 2002). By harnessing the power of CRM, automobile companies strive to build enduring customer relationships, enhance customer satisfaction, and ultimately drive profitability in an increasingly competitive market. In recent years, the integration of AI and machine learning into CRM systems has further revolutionized the industry. These advanced technologies allow for more sophisticated customer segmentation, predictive analytics, and automated customer interactions, leading to even more personalized and effective CRM strategies.

Customer Loyalty and their Application to CRM

Customer loyalty, a cornerstone of sustainable business success, represents the consistent and positive attitude of customers towards a particular brand, product, or service, leading to repeat purchases and positive word-of-mouth referrals (Oliver, 1999). It encompasses both attitudinal loyalty, reflecting a positive emotional connection, and behavioral loyalty, demonstrated through repeated purchasing behavior (Dick & Basu, 1994). In the context of Customer Relationship Management (CRM), fostering customer loyalty became a central objective, with businesses implementing various strategies to cultivate and maintain strong customer relationships. CRM systems enabled businesses to collect and analyze customer data, providing insights into customer preferences, purchasing patterns, and service needs (Kottler & Keller, 2016). This information was then utilized to personalize interactions, tailor marketing campaigns, and provide customized customer service experiences, all aimed at enhancing customer satisfaction and building loyalty. CRM initiatives often included loyalty programs, offering rewards and exclusive benefits to repeat customers, thereby incentivizing continued patronage (Yi & Jeon, 2003). Furthermore, CRM facilitated proactive customer communication, allowing businesses to anticipate customer needs and address potential issues before they escalated, further strengthening customer trust and loyalty. By effectively leveraging CRM tools and strategies, businesses aimed to move customers along the loyalty ladder, from initial awareness to advocacy, ultimately creating a base of loyal customers who not only contribute to revenue but also act as brand ambassadors, influencing other potential customers. However, researchers also cautioned that customer loyalty was not solely dependent on CRM initiatives, but also influenced by factors such as product quality, brand reputation, and overall customer experience (Reichheld & Sasser, 1990).

The Impact of CRM Components on Customer Loyalty

The impact of Customer Relationship Management (CRM) components on customer loyalty has been a subject of extensive research in recent years, with studies highlighting the multifaceted nature of this relationship. Effective CRM implementation, encompassing various interconnected components, significantly influenced customer loyalty by shaping customer perceptions, experiences, and behaviors (Morgan & Hunt, 1994). A primary component of CRM, data management, which included the collection, storage, and analysis of customer information, played a crucial role in personalizing customer interactions and tailoring services to individual needs (Kottler & Keller, 2021). Research indicated that personalized communication, enabled by robust data management, positively impacted customer satisfaction and trust, which are key drivers of loyalty (Brodie et al., 2011). Furthermore, service quality, enhanced through CRM-driven insights into customer preferences and needs, emerged as a critical factor influencing customer loyalty (Zeithaml et al., 2017). CRM systems facilitated efficient service delivery, prompt issue resolution, and proactive customer support, all of which contributed to positive customer experiences and increased loyalty. Another key component, relationship building, focused on fostering strong customer connections through personalized communication, loyalty programs, and community-building initiatives (Kumar & Reinartz, 2020). Studies demonstrated that customers who felt valued and connected to a brand were more likely to exhibit loyalty and advocacy behaviors. Moreover, technology, a fundamental enabler of modern CRM, played a crucial role in integrating various CRM components and facilitating seamless customer interactions across multiple channels (Turban et al., 2018). Cloud-based CRM solutions, mobile CRM applications, and social CRM platforms enabled businesses to engage with customers in real-time, provide consistent service experiences, and build stronger relationships. However, researchers emphasized that the impact of CRM components on customer loyalty was not uniform across all industries and customer segments, with contextual factors such as industry characteristics, customer demographics, and cultural nuances playing a moderating role (Singh & Khan, 2012). Despite these variations, the effective integration and utilization of CRM components consistently emerged as a significant driver of customer loyalty in the contemporary business landscape.

Research Methodology

Research Design

This study employed quantitative research methods, gathering data from both primary and secondary sources. Primary data were collected through a questionnaire survey, while secondary data were derived from existing reports, studies, and literature pertaining to customer relationship management and customer loyalty. The research specifically investigated the impact of customer relationship management on customer loyalty at W Automotive Sales Company. Customer Relationship Management at W Automotive Sales Company was designated as the independent variable, and Customer Loyalty at W Automotive Sales Company served as the dependent variable. Hypothesis testing was conducted to ascertain the relationship between these variables. A random sampling method was utilized for participant selection. Prior to data collection, a pre-test was administered to evaluate the suitability of the questionnaire. This study specifically adopted a quantitative, cross-sectional survey research design. This approach was chosen to systematically collect numerical data from a large sample, allowing for statistical analysis to identify relationships and impacts between CRM dimensions and customer loyalty. The cross-sectional nature facilitated data collection at a single point in time, providing a snapshot of customer perceptions and loyalty. This design is appropriate for testing hypotheses and generalizing findings to the broader population of W Automobile Sales Company customers.

Population and Sample Size

W Automobile Sales Company, the sole authorized Toyota 4S dealership in Beihai, Guangxi, China, primarily serves the Beihai market and its customer base is located within the same region. The population for this study comprised all customers who had interacted with W Automobile Sales Company, specifically those whose experiences encompassed the company's services and customer relationship management processes. To ensure data fairness and accuracy, the sample size was determined using a Sample Size Calculator, employing a 5% allowable margin of error and a 95% confidence level. This calculation indicated a requirement of 384 or more completed surveys to achieve a 95% confidence level, signifying that the true value resided within ±5% of the measured/surveyed value. Anticipating potential questionnaire return rates, a total of 450 questionnaires were distributed. The study utilized a random sampling method, wherein customers were randomly selected from the entire population. This approach was chosen to mitigate bias and ensure sample representativeness. To further enhance the study's validity and reliability, the questionnaires were designed to be comprehensive, covering various facets of customers' experiences with W Automobile Sales Company. These aspects included interactions with the company's services, customer relationship management processes, and overall satisfaction. Prior to broader distribution, the questionnaires underwent pre-testing with a small group of customers to ascertain clarity and comprehension. The random sampling method was specifically chosen to ensure that every customer in the population had an equal chance of being selected, thereby maximizing the representativeness of the sample and enhancing the generalizability of the findings to the entire customer base of W Automobile Sales Company. This method helps minimize sampling bias and strengthens the external validity of the study.

Research Instruments

The primary data collection tool was a structured questionnaire designed to evaluate the effectiveness and usability of various technologies across recruitment stages. A Likert scale was used to assess respondents' perceptions of technology features, such as the effectiveness of AI screening and the usability of data analytics tools. As can be seen from the table above: the KMO value is 0.920, and the KMO value is greater than 0.8, the research data is very suitable for extracting information. The research instrument was a structured questionnaire divided into two main parts. The development of the questionnaire items was based on a comprehensive review of existing literature and adapted to the specific context of the W Automobile Sales Company. A pre-test was conducted with a small group of customers (n=30) to assess clarity, comprehension, and face validity before the main data collection. To ensure the validity and reliability of the questionnaire, rigorous testing procedures were applied. Content validity was established through expert review by academic advisors and industry professionals to ensure that the questionnaire items adequately covered the intended constructs. Reliability was determined using Cronbach's Alpha coefficient for internal consistency. An overall Cronbach's Alpha coefficient of 0.942 was obtained, with individual dimension alphas ranging from 0.869 to 0.913, all exceeding the acceptable threshold of 0.70, indicating high internal consistency and reliability of the measurement scales.

Data collection

The purpose of this survey is to study the impact of customer relationship management on customer loyalty at W Automobile Sales Company. The independent variable is "Customer Relationship Management of W Automobile Sales Company," and the dependent variable is "Customer Loyalty of W Automobile Sales Company." The survey questionnaire was structured in two parts. Part 1 collected sample information, including demographic details such as gender, age, and education level. Part 2 comprised a customer loyalty measurement scale specifically designed for W Automobile Sales Company. Based on a comprehensive review of relevant theories and literature, and considering the specific context of W Automobile Sales Company, this research further categorized "Customer Relationship Management of W Automobile Sales Company" into three key dimensions - Customer, Relationship, and Management - to inform questionnaire development. The questionnaire was meticulously created using the Chinese software platform Wenjuanxing and disseminated primarily through online social media platforms and email. The survey was conducted anonymously to ensure participant confidentiality and privacy. A total of 450 questionnaires were distributed, and all 450 were collected, resulting in a 100% response rate. This high response rate was attributed to the convenience of online distribution and the clear communication of the study's purpose and confidentiality measures. However, for the purpose of analyzing the impact of CRM on customer loyalty, only data from current customers (380 responses) were selected for further statistical analysis, as their experiences directly reflect the company's CRM practices. Data collection was conducted over a period of three months, from September 2024 to November 2024.

Data Analysis

Data analysis was performed using SPSS, incorporating descriptive statistics, confirmatory factor analysis, exploratory factor analysis, Cronbach's α coefficient, Pearson correlation analysis, and multiple linear regression. The Statistical Package for the Social Sciences (SPSS) software was utilized for all statistical analyses. The choice of analytical techniques was driven by the study's quantitative nature and its objectives to identify relationships and analyze impacts. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize demographic data and respondent perceptions of CRM dimensions and customer loyalty, providing a foundational understanding of the dataset. Cronbach's Alpha coefficient was used for reliability testing to confirm the internal consistency of the scales. Pearson correlation analysis was conducted to examine the strength and direction of linear relationships between the independent CRM dimensions and customer loyalty, serving as a preliminary step to confirm associations. Finally, multiple linear regression analysis was performed to test the research hypotheses, determining the predictive power of each CRM dimension on customer loyalty and identifying the most influential factors. These robust statistical methods allowed for comprehensive data interpretation and the drawing of reliable conclusions.

Limitations

Despite its rigorous methodology, this study has certain limitations that warrant consideration for future research. Firstly, the study's geographical scope was limited to customers of a single Toyota 4S dealership in Beihai, Guangxi, China. While this provided in-depth insights into a specific context, the findings may not be fully generalizable to other automobile dealerships, brands, or regions within China or globally. Secondly, the reliance on self-reported data from customers might introduce response bias, as participants' perceptions could be influenced by social desirability or their personal experiences. Future research could incorporate objective behavioral data or triangulate data from multiple sources to mitigate this. Thirdly, the study employed a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships definitively or observe the long-term

evolution of customer loyalty in response to CRM initiatives. Longitudinal studies would be beneficial to track changes over time. Finally, while the study identified key CRM dimensions impacting loyalty, it did not delve deeply into the specific operational challenges or internal organizational factors that might influence the effective implementation of CRM strategies within the dealership. Future research could explore these practical aspects in more detail to provide actionable insights for management.

Conceptual Framework

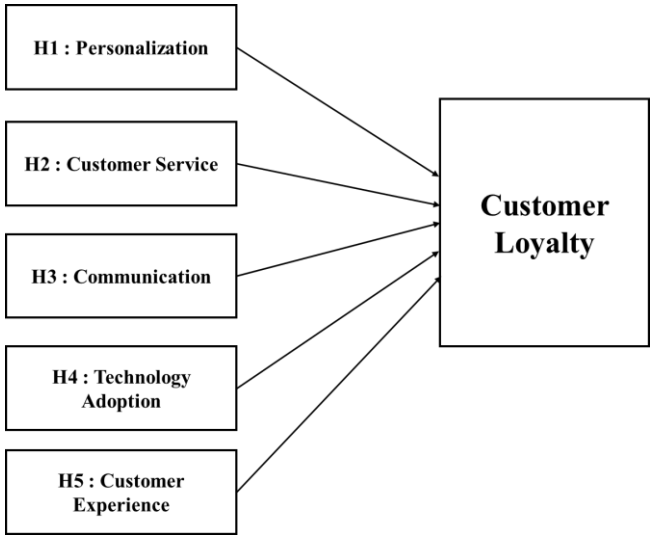

Figure 1: Conceptual Framework

As depicted in Figure 1, this conceptual framework is rooted in Customer Relationship Management (CRM) theory and customer loyalty theory, proposing that five key dimensions of CRM - Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience - are the primary independent variables. Each of these dimensions is hypothesized to positively influence Customer Loyalty, which serves as the dependent variable. These hypothesized causal relationships will be meticulously examined through quantitative analysis to confirm the role of each CRM dimension in driving customer loyalty within the context of W Automobile Sales Company.

Research Hypothesis

H1: Personalization (e.g., customized offers, product recommendations, personalized communication) positively influenced customer loyalty.

H2: Customer service quality (e.g., responsiveness, problem-solving, empathy, accessibility of support) positively influenced customer loyalty.

H3: Communication effectiveness (e.g., frequency, preferred channels, clarity, message consistency) positively influenced customer loyalty.

H4: Technology adoption (e.g., CRM software usage, website usability, mobile application features, online self-service options) positively influenced customer loyalty.

H5: Customer experience quality (e.g., ease of interaction, perceived value, brand image, emotional connection) positively influenced customer loyalty.

Research Finding

This section presents the research findings obtained from the collected data. The primary objective of this study was to explore and analyze the Customer Relationship Management (CRM) factors influencing Customer Loyalty at W Automobile Sales Company. Additionally, the study aimed to analyze the specific impact of each CRM dimension on customer loyalty. The results will encompass descriptive statistics, reliability and validity analyses of the measurement instruments, subgroup difference analysis, correlation analysis, and regression analysis.

Descriptive Statistics

The demographic profile of the 450 respondents reveals a strong representation of operational HR roles, with hiring specialists (45.37%) and hiring managers (40.98%) constituting the largest segments, indicating insights from those directly involved in recruitment processes. The sample predominantly comprises professionals from general undergraduate universities (51.71%), reflecting the broad representation of typical higher education institutions, complemented by insights from key universities (32.20%) and vocational colleges (16.10%). A significant proportion of the surveyed institutions (43.41%) engage in moderate-scale recruitment, hiring 11-50 new employees annually. Furthermore, the respondents collectively possess substantial experience in recruitment, with over half having 3 or more years in the field (37.07% with 3-6 years, 31.71% with over 6 years), lending credibility to their perceptions of CRM practices. Regarding technology integration, the most prevalent adoption level falls within the 41-60% range (37.56%), suggesting a moderate but not yet full embrace of digital tools in recruitment. A smaller segment (12.20%) reported minimal technology usage (0-20%), highlighting varying levels of digital maturity across institutions. As shown in Table 1.

Table 1: The demographic characteristics of the population and sample.

Item	Option	Frequency	Percentage (%)
1. Age	18-25 years	38	8.44
	26-35 years	142	31.56
	36-45 years	122	27.11
	46-55 years	97	21.56
	56 years and above	51	11.33
	Total	**450**	**100**
2. Gender	Male	219	48.67
	Female	180	40
	Other	51	11.33
	Total	**450**	**100**
3. Annual Income Range	Below 50,000	37	8.22
	50,000 - 100,000	79	17.56
	100,000 - 200,000	179	39.78
	200,000 -	91	20.22

Item	Option	Frequency	Percentage (%)
	300,000		
	Above 300,000	64	14.22
	Total	**450**	**100**
4. Current Customer?	Yes	380	84.44
	No	70	15.56
	Total	**450**	**100**
5. Vehicle Ownership Duration (Current Customers Only)	Less than 1 year	141	37.11
	1-3 years	89	23.42
	3-5 years	82	21.58
	More than 5 years	68	17.9
	Total	**450**	**100**
6. Vehicle Type Purchased (Current Customers Only)	Compact car	194	51.05
	Mid-size car	108	28.42
	SUV	78	20.53
	Total	**450**	**100**

Note: The descriptive statistics and subsequent analyses in this study were conducted using data from the 380 current customers of W Automobile Sales Company, excluding the 70 respondents who were not current customers.

Correlation analysis

This section presents the results of Pearson correlation analysis to examine the linear relationships between the independent variables (CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and the dependent variable (Customer Loyalty). These findings serve to confirm preliminary associations prior to conducting multiple linear regression analysis.

Table 2: Correlation analysis of customer relationship management on customer loyalty

	Personalization	Customer Service	Communication	Technology Adoption	Customer Experience	Customer Loyalty
Personalization	1(0.000**)					
Customer Service	0.513(0.000**)	1(0.000**)				
Communication	0.408(0.000**)	0.47(0.000**)	1(0.000**)			
Technology Adoption	0.501(0.000**)	0.503(0.000**)	0.521(0.000**)	1(0.000**)		
Customer Experience	0.437(0.000**)	0.536(0.000**)	0.458(0.000**)	0.503(0.000**)	1(0.000**)	
Customer Loyalty	0.457(0.000**)	0.499(0.000**)	0.478(0.000**)	0.484(0.000**)	0.509(0.000**)	1(0.000**)

Note: ** indicates significance at the 1% level.

Table 2 presents the correlation analysis across the different dimensions. The results revealed statistically significant positive correlations between all variables.

Personalization correlated with Customer Service at 0.513, Communication at 0.408, Technology Adoption at 0.501, Customer Experience at 0.437, and Customer Loyalty at 0.457. All p-values were less than 0.01, indicating highly significant positive correlations. This suggests that when W Automobile Sales Company provides more personalized services, such as customized offers or product recommendations, it tends to enhance customer satisfaction with service, improve communication effectiveness, increase acceptance of technology, enrich overall customer experience, and ultimately strengthen customer loyalty. This finding aligns with the general principle that tailoring services to individual needs makes customers feel valued, thereby fostering goodwill and positive perceptions across various touchpoints. The company should continue to optimize personalized services and explore more elements that meet diverse customer needs to drive positive development in other CRM dimensions.

Customer Service correlated with Communication at 0.470, Technology Adoption at 0.503, Customer Experience at 0.536, and Customer Loyalty at 0.499, with p-values also less than 0.01, demonstrating highly significant positive correlations. High-quality customer service, characterized by prompt responses and efficient problem-solving, is crucial. It not only enhances the effectiveness of communication with customers but also improves their acceptance of technological solutions, leads to a better overall customer experience, and consequently boosts customer loyalty. When customers feel well-cared for and supported, their trust and satisfaction with the company grow, influencing their perceptions across all interactions. Therefore, W Automobile Sales Company should prioritize strengthening its customer service team and continuously improving service quality to promote collaborative improvements across all CRM dimensions.

Communication correlated with Technology Adoption at 0.521, Customer Experience at 0.458, and Customer Loyalty at 0.478, all significant at the 0.01 level. Effective communication enables customers to better understand the company's personalized services and technological applications, which in turn enhances their customer service experience and ultimately improves customer loyalty. For instance, clear and timely delivery of product information and technical advantages through various communication channels can significantly increase customer recognition and appreciation for the company's services and products. W Automobile Sales Company needs to optimize its communication strategies to ensure accurate and timely information dissemination to customers, which is critical for fostering positive development across all dimensions of customer relationships.

Technology Adoption correlated with Customer Experience at 0.503 and Customer Loyalty at 0.484, with p-values less than 0.01, showing a highly significant positive correlation. The implementation of advanced and user-friendly automotive technologies, such as intelligent driver assistance systems or intuitive online car-buying platforms, can profoundly impact customer perceptions. These technologies not only improve customers' experience with specific technical services but also optimize customer service processes, enhance communication, and contribute to a superior overall customer experience, thereby strengthening customer loyalty. This suggests that W Automobile Sales Company should increase its investment in the research, development, and application of cutting-edge automotive technology to drive overall improvement in other CRM dimensions.

Finally, Customer Experience correlated with Customer Loyalty at 0.509, with all p-values less than 0.01, showing a highly significant positive correlation. A positive customer experience, which encompasses all touchpoints from personalized service and efficient customer service to effective communication and seamless technology adoption, is a strong predictor of customer loyalty. Optimizing these interconnected elements creates a virtuous cycle where each improvement contributes to a more satisfying overall experience, further reinforcing loyalty. W Automobile Sales Company should focus on comprehensively optimizing the entire customer journey, from the initial car purchase environment to post-sales service and ongoing vehicle usage, as this is of paramount importance for enhancing customer loyalty.

Regression Analysis

This section presents the results of the multiple linear regression analysis, which was conducted to examine the predictive power and unique contribution of each Customer Relationship Management (CRM) dimension on Customer Loyalty. The analysis aims to identify the most influential factors and provide actionable insights for W Automobile Sales Company to enhance customer loyalty.

Table 3: Regression model coefficient of customer relationship management on customer loyalty

	Non-standardized coefficient		Standardization coefficient	t	P	Collinear statistics	
	B	Standard error	Beta			Tol	VIF
(constant)	0.719	0.183		3.934	0.000**	-	-
Personalization	0.128	0.041	0.142	3.094	0.002**	0.641	1.561
Customer Service	0.162	0.048	0.163	3.355	0.001**	0.571	1.751
Communication	0.174	0.045	0.178	3.905	0.000**	0.644	1.552
Technology Adoption	0.129	0.047	0.132	2.718	0.007**	0.57	1.753
Customer Experience	0.212	0.047	0.211	4.509	0.000**	0.611	1.636
Dependent variable: Customer Loyalty							

Note: ** indicates significance at the 1% level.

Table 3 presents the results of the multiple linear regression analysis, examining the influence of various customer relationship management (CRM) components on customer loyalty. The findings revealed that all five CRM components (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) had a statistically significant positive impact on customer loyalty ($p < 0.01$). Customer Experience exhibited the strongest positive influence on customer loyalty (Beta = 0.211), followed by Communication (Beta = 0.178) and Customer Service (Beta = 0.163). Personalization and Technology Adoption also demonstrated significant positive effects, with Beta values of 0.142 and 0.132, respectively. The variance inflation factor (VIF) values for all predictor variables were below 10, suggesting no significant multicollinearity issues.

Personalization: The unstandardized coefficient (B = 0.128) and standardized coefficient (Beta = 0.142), with a p-value of 0.002 ($p < 0.01$), indicate a statistically significant positive effect of personalization on customer loyalty. This means that for every one-unit increase in personalized service, customer loyalty is expected to increase by approximately 0.128 units, holding all other factors constant. This finding underscores the critical importance for W Automobile Sales Company to provide highly personalized services that address the unique needs and preferences of individual customers, thereby effectively enhancing their loyalty.

Customer Service: With an unstandardized coefficient (B = 0.162) and standardized coefficient (Beta = 0.163), and a p-value of 0.001 ($p < 0.01$), customer service demonstrates a statistically significant positive impact on customer loyalty. Specifically, a one-unit improvement in customer service level is associated with an approximate 0.162-unit increase in customer loyalty. This highlights the crucial role of investing in strengthening the customer service team and continuously improving service quality to foster enhanced customer loyalty.

Communication: The unstandardized coefficient (B = 0.174) and standardized coefficient (Beta = 0.178), with a p-value of 0.000 ($p < 0.01$), indicate that communication has a statistically significant positive effect on customer loyalty. This implies that a one-unit increase in the company's communication effectiveness with customers is associated with an approximate 0.174-unit increase in customer loyalty. Optimizing communication strategies to ensure accurate, timely, and consistent information delivery to customers is therefore critical for improving customer loyalty.

Technology Adoption: Showing an unstandardized coefficient (B = 0.129) and standardized coefficient (Beta = 0.132), with a p-value of 0.007 ($p < 0.01$), technology adoption has a statistically significant positive impact on customer loyalty. For each one-unit increase in the adoption level of automotive technology, customer loyalty is estimated to increase by approximately 0.129 units. This suggests that W Automobile Sales Company should strategically increase its investment in the development and application of advanced and user-friendly automotive technology to enhance customer loyalty.

Customer Experience: Exhibiting the strongest influence, Customer Experience has an unstandardized coefficient (B = 0.212) and standardized coefficient (Beta = 0.211), with a p-value of 0.000 ($p < 0.01$). This indicates a highly significant positive effect of customer experience on customer loyalty. Specifically, a one-unit enhancement in customer experience is associated with an approximate 0.212-unit increase in customer loyalty. This emphasizes the paramount importance for W Automobile Sales Company to comprehensively optimize the entire customer experience, from the initial car purchase and usage phases to consistently meeting customer needs. This holistic approach is of great significance for sustainably enhancing customer loyalty.

Furthermore, the collinearity statistics, including Tolerance (all > 0.1) and Variance Inflation Factor (VIF, all < 10), confirm that there are no serious multicollinearity issues among the independent variables. This indicates that Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience, while potentially interrelated, independently contribute to explaining customer loyalty, thus ensuring the accuracy and reliability of the regression analysis results

Hypothesis Testing Results

Based on the correlation and regression analyses above, the hypothesis testing results can be summarized in the following Table 4.

Table 4: Hypothesis testing results

Hypothesis	Correlation Analysis Results	Regression Analysis Results	Conclusion
H1: Personalization positively influenced customer loyalty.	Significant positive correlation ($r = 0.457$, $p < 0.01$)	Significant positive influence (Beta = 0.142, $p = 0.002$)	Hypothesis Accepted
H2: Customer service quality positively influenced customer loyalty.	Significant positive correlation ($r = 0.499$, $p < 0.01$)	Significant positive influence (Beta = 0.163, $p = 0.001$)	Hypothesis Accepted
H3: Communication effectiveness positively influenced customer loyalty.	Significant positive correlation ($r = 0.478$, $p < 0.01$)	Significant positive influence (Beta = 0.178, $p = 0.000$)	Hypothesis Accepted
H4: Technology adoption positively influenced customer loyalty.	Significant positive correlation ($r = 0.484$, $p < 0.01$)	Significant positive influence (Beta = 0.132, $p = 0.007$)	Hypothesis Accepted
H5: Customer experience quality positively influenced customer loyalty.	Significant positive correlation ($r = 0.509$, $p < 0.01$)	Significant positive influence (Beta = 0.211, $p = 0.000$)	Hypothesis Accepted

Conclusion

This study, conducted at W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China, aimed to investigate the relationships between specific Customer Relationship Management (CRM) dimensions and customer loyalty, and to analyze the impact of each identified CRM dimension on customer loyalty. Data for the analysis were collected from 380 current customers. In line with Objective 1, the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions (Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience) and customer loyalty. This indicates that as the perceived quality or effectiveness of these CRM dimensions increases, customer loyalty also tends to increase. Addressing Objective 2, the multiple linear regression analysis demonstrated that all five CRM dimensions had a statistically significant positive impact on customer loyalty. Specifically, Customer Experience emerged as the strongest predictor (Beta = 0.211, p = 0.000), followed by Communication (Beta = 0.178, p = 0.000) and Customer Service (Beta = 0.163, p = 0.001). Personalization (Beta = 0.142, p = 0.002) and Technology Adoption (Beta = 0.132, p = 0.007) also showed significant positive effects. The overall model explained 40.3% of the variance in customer loyalty ($R^2 = 0.403$, $F = 59.901$, $p = 0.000$), confirming its significant predictive power. Furthermore, the study identified notable differences in customer experience and technology adoption across various age and income groups, suggesting the need for tailored

CRM strategies for different customer segments. Overall, the findings underscore that a comprehensive and integrated approach to CRM, focusing on enhancing personalization, customer service, communication, technology adoption, and especially customer experience, is crucial for fostering stronger customer relationships, driving repeat business, and achieving sustainable competitive advantage for W Automobile Sales

Discussion

This study investigated the impact of customer relationship management (CRM) on customer loyalty in the context of the W Automobile Sales Company, a Toyota 4S dealership in Beihai, Guangxi, China. The research employed a quantitative approach, utilizing a questionnaire survey to collect data from a random sample of 450 customers. The study focused on five key CRM dimensions: Personalization, Customer Service, Communication, Technology Adoption, and Customer Experience.

The results of the correlation analysis revealed statistically significant positive relationships between all five CRM dimensions and customer loyalty. This finding aligns with previous research emphasizing the multifaceted nature of CRM and its impact on customer loyalty. For instance, a 2023 study by Alghwery and Alzahrani highlighted the positive influence of personalized experiences on customer loyalty in the Saudi Arabian banking sector, underscoring the importance of tailoring services to individual customer needs. Similarly, a 2022 study by Kumar and Sharma, focusing on the Indian retail industry, demonstrated the significant role of effective communication in fostering customer loyalty, emphasizing the need for clear, consistent, and customer-centric messaging.

Furthermore, the regression analysis conducted in this study identified Customer Experience as the strongest predictor of customer loyalty, followed by Communication and Customer Service. This finding is consistent with research by Wirtz et al. (2021), who emphasized the increasing importance of customer experience in shaping loyalty and advocacy behaviors. Their study highlighted the role of technology in enhancing customer experience, particularly through the use of service robots and AI-powered tools. In the context of the W Automobile Sales Company, this suggests that investing in technologies that enhance the customer experience, such as personalized online platforms and interactive showrooms, could significantly contribute to increased customer loyalty.

The study also revealed significant differences in customer experience and technology adoption across different age and income groups. Younger customers (18-25 years old) reported lower levels of customer experience, suggesting a need for tailored strategies to engage this demographic. Similarly, customers with lower annual incomes (<50,000 yuan) reported lower levels of customer experience and technology adoption, indicating a potential need for targeted initiatives to improve their experience and engagement with the company. These findings are in line with research by Huang and Rust (2021), who emphasized the importance of considering demographic factors when designing and implementing CRM strategies.

Overall, this study contributes to the growing body of literature on CRM and customer loyalty, particularly within the automobile industry. The findings underscore the importance of a holistic approach to CRM, encompassing personalization, customer service, communication, technology adoption, and customer experience. By effectively leveraging these CRM components, the W Automobile Sales Company can cultivate stronger customer relationships, enhance loyalty, and achieve sustainable business growth.

The research findings can be synthesized into a conceptual model framework, as illustrated in Figure 2.

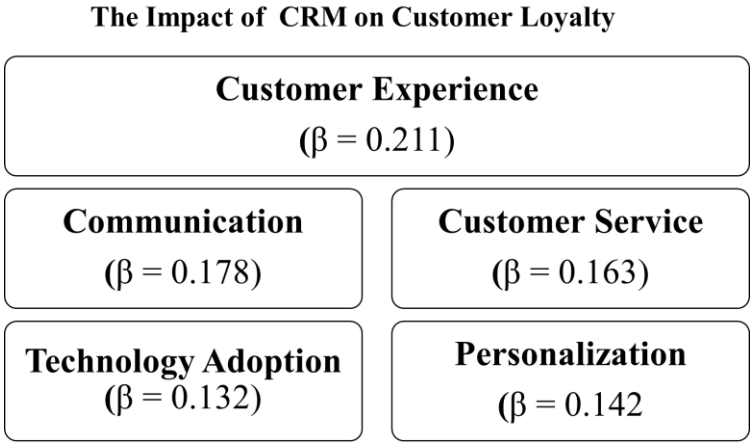

Figure 2: A conceptual model framework illustrating the impact of CRM on customer loyalty.

Suggestion

1. Market Segmentation and Customer Characteristics: Future studies will track evolving needs of younger consumers (18-25) as their economic power increases. Research will refine understanding of the middle-aged market (26-35), analyzing how factors like income and family structure influence vehicle choices. Further exploration will investigate the underlying reasons for gender-based differences in car purchasing decisions.

2. Income Stratification and Consumption Preferences: Research will examine how income fluctuations impact car buying decisions across different income groups. Studies will explore market acceptance of high-end customized models, including consumer preferences for personalized features. Future research will investigate enhancing the competitiveness of cost-effective models through cost optimization and feature enhancement.

3. Customer Relationship Management and Loyalty Enhancement: Future studies will explore enhancing customer emotional connections through personalized services, such as customized consultations and after-sales support. Research will examine the role of social media in CRM to improve customer satisfaction and loyalty. Studies will develop customer loyalty prediction models to identify and target high-potential loyal customers.

4. Technology Application and Customer Experience Optimization: Future research will monitor automotive technology trends (e.g., intelligent driving, connected vehicles) to inform product strategies. Studies will investigate evolving customer acceptance of new automotive technologies and their impact on sales and services. Research will analyze customer feedback to optimize the car purchase and after-sales service processes.

5. Brand Building and New Customer Acquisition: Future studies will explore the relationship between brand loyalty and market share. Research will investigate innovative new customer acquisition strategies, such as social media and word-of-mouth marketing. Studies will examine the effectiveness of customer referral programs to attract potential customers.

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