



Research on Customer Relationship Management of DF Airlines

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Abstract

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<p>With the acceleration of economic globalization and the continuous improvement of people's living standards, the demand for air travel among people is constantly increasing. The entry of more and more airlines into the market has led to increasingly fierce competition in the aviation industry. Against this backdrop, customer Relationship management (CRM) has become a key factor for airlines to enhance their competitiveness. This paper takes DF Airlines as the research object, deeply analyzes the current situation of its customer relationship management, discovers the existing problems, and uses relevant theoretical models for analysis, aiming to propose effective optimization strategies to improve the customer relationship management level of DF Airlines and enhance its market competitiveness.</p> <p>This paper uses the SERVQUAL model and the NPS model to conduct quantitative analysis on the customer satisfaction and loyalty of DF Airlines respectively. The research finds that DF Airlines has deficiencies in terms of customer satisfaction and loyalty, such as the need for improvement in hardware facilities, low punctuality rate of flights, and slow response speed of customer service.</p> <p>Based on the above analysis results, this paper proposes specific optimization strategies from two aspects: satisfaction and loyalty. In terms of improving satisfaction, it is suggested that DF Airlines improve in-flight facilities, increase the punctuality rate of flights, and enhance the response speed of customer service, etc. In terms of enhancing loyalty, DF Airlines should improve the membership rights system, establish a service remediation mechanism, and strengthen brand image building, etc. DF Airlines can comprehensively enhance its customer relationship management level through the above measures, providing strong support for the sustainable development of the enterprise.</p>
Key words Customer Relationship Management, SERVQUAL model, NPS model, Optimizing strategy, Service quality

Table of contents

Abstract	2
Table of contents	1
1 Introduction	2
1.1 Research Background	2
1.2 Research purpose	2
1.3 Research question	3
2 literature review	5
2.1 Literature Review of Domestic Studies	5
2.2 Literature Review of Overseas Studies	7
3 Theoretical framework	10
3.1 Customer Relationship management theory	10
3.2 SERVQUAL model	10
3.3 NPS model	11
4 Research method	13
4.1 Selection of Research Methods	13
4.2 Other feasible research methods and selection basis	13
4.3 Collection of Survey Data	14
5 Analysis of the Current Situation of Customer Relationship Management in DF Airlines	15
5.1 A brief introduction to DF Airlines	15
5.2 The current situation of customer relationship management	15
6 Problems and Causes in DF Aviation Customer Relationship Management	19
6.1 Customer Satisfaction Analysis Based on the SERVQUAL Model	19
6.2 Customer Loyalty Analysis of DF Airlines	23
7 DF Aviation Customer Relationship Management Optimization Strategy	30
7.1 Strategies Based on Satisfaction Enhancement	30
7.2 Strategies Based on loyalty Enhancement	33
7.3 Comprehensive Measures	35
8 Conclusion	36
8.1 Research conclusions	36
8.2 Personal reflection	36
Sources	38
Appendices Questionnaire	41

1 Introduction

1.1 Research Background

Against the backdrop of the continuous acceleration of the process of global economic integration and the steady improvement of people's quality of life, the aviation industry, as a key component of the modern transportation system, has also ushered in brand-new development opportunities. According to relevant statistics from the International Air Transport Association (IATA), the global demand for air passenger transport has shown a strong growth trend and has recently reached a historical peak. The domestic aviation market also performed outstandingly, with both the annual passenger volume and passenger load factor breaking historical records. In 2024, the scale of domestic air passenger transport in China achieved a significant growth of 12.3% compared with the previous year.

The continuous expansion of the aviation market size, while injecting vitality into the industry's development, has also intensified the intensity of market competition. In order to occupy a favorable position in the limited market space, domestic and foreign airlines have taken a series of measures one after another. However, relying solely on traditional competitive strategies such as price competition and competition for shipping route resources has become difficult to support enterprises in obtaining long-term competitive advantages. Against this background, the customer-centered concept and strategy of customer relationship management (CRM) have gradually become an important path for airlines to enhance their core competitiveness. By implementing effective customer relationship management strategies, airlines can gain in-depth insights into customer needs, provide customized services for customers, and thereby enhance customer satisfaction and loyalty. Relevant studies show that for every 5-percentage-point increase in customer loyalty, corporate profits are expected to grow by 25% to 85%. Strengthening customer relationship management not only helps to increase customer retention rate and repurchase rate, but also assists airlines in optimizing cost structure and enhancing overall profitability. Especially in the current era of rapid development of information technology, with the help of new technological means, airlines can analyze customer data more accurately, explore potential demands, and thereby formulate more targeted marketing strategies and service plans.

1.2 Research purpose

Given the fierce competition in the aviation industry and the significance of customer relationship management for the sustainable development of enterprises, for DF Airlines, strengthening customer relationship management and enhancing customer satisfaction and loyalty have become an inevitable choice for achieving sustainable development of the enterprise. This article aims to

conduct a comprehensive exploration of the customer relationship management of DF Airlines. I will apply scientific methods such as the SERVQUAL model and the NPS model to accurately identify the problems existing in customer satisfaction and loyalty. Through in-depth analysis of the typical incident of "four passengers being left at the airport", the root cause of the problem is explored, and then targeted strategies for optimizing customer relationship management are proposed to help DF Airlines improve customer satisfaction and loyalty, enhance market competitiveness, and at the same time provide practical experience and theoretical references for domestic aviation enterprises in the field of customer relationship management.

1.3 Research question

This study focuses on the customer relationship management of DF Airlines, aiming to address the following key issues:

1. How to accurately assess customers' satisfaction with the service quality of DF Aviation?

This paper will apply the SERVQUAL model to design questionnaires from five dimensions, collect customers' expectations and perception data of various services of DF Airlines. Through quantitative analysis, the satisfaction scores of each dimension and the key factors affecting satisfaction will be clarified to accurately evaluate the satisfaction level of customers with the service quality of DF Airlines.

2. How to scientifically assess customers' loyalty to DF Airlines?

This paper uses the NPS model to analyze customers' willingness to recommend, determine the performance of DF Airlines in terms of customer loyalty, and analyze the proportion and loyalty status of different types of customers.

3. What factors drive customers to choose and recommend DF Airlines?

Based on the customer loyalty data collected by the NPS model and using the cross-analysis method, the key driving factors influencing customers' choice and recommendation of DF Airlines were determined, providing a strong basis for formulating marketing strategies.

4. How should DF Airlines optimize its service processes to enhance the customer experience?

Comprehensively review the existing service processes of DF Airlines, redesign the service processes in combination with the problems identified in the research on customer satisfaction and loyalty, and regularly evaluate the optimization effects to enhance the customer experience.

Through the coverage matrix, we can have a clearer understanding of the problems in DF Airlines' customer relationship management, providing a reference for DF Airlines to formulate strategies for optimizing customer relationship management.

Table 1 Overlay Matrix

Investigative questions	Theoretical framework (chapter)	Results (chapter)	Questionnaire questions
How to evaluate customers' satisfaction with the service quality of DF Aviation?	3.2	6.1	5-19
How to evaluate customers' loyalty to DF Airlines?	3.3	6.2.2	15-16,20-22
What factors drive customers to choose and recommend DF Airlines?	6.2.2	6.2.3	20-21
How should DF Airlines optimize its service processes to enhance the customer experience?	3	7	4-21

2 literature review

2.1 Literature Review of Domestic Studies

Although the research on customer relationship management in China started relatively late, on the basis of drawing on advanced foreign theories and combining the actual situation of domestic enterprises, many valuable achievements have also been made.

At the theoretical level, the theoretical construction of Customer Relationship Management (CRM) has always been the focus of academic attention. Wang Yao (2020) started from the theoretical framework level and deeply deconstructed the basic theoretical system of customer relationship management. Its research results show that this management model can be divided into two dimensions: concept and system. The concept layer, as the core strategic support, centrally reflects the value orientation and thinking paradigm of enterprises in customer relationship management. At the institutional level, through specific institutional designs and process norms, abstract management concepts are transformed into operational practical frameworks. The basic theory plays a fundamental role in the entire system. It not only shapes the evolution direction of the customer relationship management concept but also determines the practical effectiveness of the management subject, providing theoretical support for the entire management system. Meanwhile, Zhang Kaihui (2019) focused on the systematic integration of the CRM theoretical system and its future development trends. This study shows that as an important concept of modern enterprise management, CRM organically integrates information technology and management thinking, forming a closed-loop system that runs through the entire life cycle management of customers. Through in-depth mining and analysis of customer data, CRM can accurately grasp customer needs, optimize the allocation of enterprise resources, and ultimately become the key path to enhance the core competitiveness of enterprises.

At the practical application level of the industry, many scholars have conducted in-depth discussions in combination with the characteristics of different industries. Huang Huiyu (2024) pointed out that although enterprises often encounter challenges such as difficulties in information integration, unsmooth communication channels, and homogenized services in the practice of customer relationship management, these problems can be effectively improved by optimizing management strategies. Song Wei (2023) stated that in a complex and ever-changing market environment, customer relationship management is crucial for enterprises to maintain their competitiveness, especially in the context of serving small and micro enterprises, where it holds more practical value. In response to the development predicament of small and medium-sized enterprises, Hu Yongzhen (2023) pointed out that in the face of the problems of limited business scale, simple organizational structure and inefficient decision-making process of smes, they can

introduce systematic customer relationship management. This viewpoint has been verified in specific enterprise cases. For instance, Li Zonghan (2024) took RD Company as the research object. Through a comprehensive analysis of the current situation of customer relationship management and the application of digital tools in this company, he identified the existing problems and provided strategies for optimizing customer relationship management based on digital management, offering referenceable ideas for enterprises to adjust their management strategies. In the e-commerce industry, Liu Jia (2023) pointed out that e-commerce enterprises urgently need to solve key issues such as real-time synchronization of customer information, shaping of online brand image, and upgrading of system service capabilities during their operation. However, there are currently widespread practical predicaments such as lagging management concepts, low utilization of online resources, and poor communication channels with customers. In response to these situations, she suggests that enterprises should enhance their awareness of customer relationship management, improve database construction and implement precise customer classification, deeply explore potential commercial value, and focus on optimizing the after-sales service system. This will effectively enhance the efficiency of customer management and fully unleash the potential of customer value. With the rise of digital interaction platforms, Li Chunqing and Zhang Jieli (2022) believe that enterprises should conduct in-depth research on the relationship between customer experience and investment to enhance their market competitiveness. Guo Wei (2024) focuses on the Internet environment, exploring marketing strategies based on customer relationship management. He advocates integrating multi-channel data to formulate personalized marketing plans and promote enterprises to achieve data-driven sustainable development. In specific industry fields, many scholars have also offered targeted suggestions. Liu Hongmei (2022) advocates building and continuously improving the customer file system based on the CRM system. By tracking changes in customer data, it accurately captures the dynamics of demand and market trends, and then stimulates customers' purchasing enthusiasm with a customized sales strategy of "one customer, one policy". Fu Qiang (2022) took Deppon Logistics as the research object, deeply analyzed the advantages and disadvantages in its customer relationship management practice, and designed a customer relationship improvement and maintenance plan based on the IDIC theoretical framework, providing a reference for customer relationship management in the logistics industry. Zhang Lihong (2024) proposed strategies for strengthening customer relationships and market expansion for steel enterprises to help them enhance customer satisfaction. Hou Jialian (2024) proposed systematic customer relationship management optimization measures for the luxury clothing industry, injecting impetus into the high-quality development of the industry.

In terms of emerging technologies, many scholars have conducted in-depth research. Li Chun (2022) emphasized that enterprises can enhance the efficiency of customer relationship

management by deploying big data technology, introducing CRM systems and equipping professional management teams. Liu Xiaohua (2024) systematically sorted out the evolution of customer relationship management in the digital age, providing theoretical support for enterprises to grasp the direction of transformation and optimize customer management strategies. Mei Guangming (2024) pointed out that the in-depth application of big data technology has driven the comprehensive innovation of CRM systems. It not only helps enterprises achieve precise customer interaction but also significantly enhances customer service satisfaction, becoming an important driving force for the continuous development of enterprises. Du Jingyi (2024) holds that digital customer relationship management has reshaped the entire process of marketing, sales and service, breaking through the temporal and spatial limitations of traditional management models and building a closer real-time interaction network between enterprises and customers. Yang Deng and Jiang Liqian (2024) delved deeply into how digital technologies assist light chemical enterprises in optimizing customer relationship management, thereby enhancing their market competitiveness and customer satisfaction. Tao Mingfang (2024) further pointed out that the integration of AI technology has greatly expanded the functions of CRM systems, promoting the transformation of customer service from passive response to intelligent proactive service models. While reducing operating costs and improving efficiency, it has also opened up new growth space for enterprises. Based on the above research, it can be seen that in the future, customer relationship management will develop in the direction of intelligence, personalization and humanization, and will form an integrated online and offline service model. Enterprises should actively apply AI to explore innovative paths and achieve sustainable development.

2.2 Literature Review of Overseas Studies

Abroad, the theoretical research on customer relationship management started earlier and achieved fruitful results. In the late 1990s, Robert Welland and Paul Cole first proposed the concept of customer relationship value in "Getting Into the Customer's Heart", defining customer relationship as the core asset of an enterprise. Gartner Group was the first to propose the concept of customer relationship management, which has strongly promoted the iterative development of theories and methods in this field.

After years of accumulation, customer relationship management has gradually established a mature and complete theoretical and methodological system. In aviation, Almansour (2024) explores the Internet of things technology and the application of customer relationship management system integration, confirmed that the model can significantly improve customer satisfaction and loyalty in the airline industry. Teixeira (2024) found through empirical research that there is a strong correlation between airport operational efficiency and customer satisfaction,

providing a direction for airports to enhance customer satisfaction by improving customer relationship management. Awad (2024) systematically demonstrated the positive role of Electronic Customer Relationship Management (E-CRM) in enhancing customer engagement and improving service satisfaction, and confirmed that it has a significant positive correlation with the competitive advantage of enterprises.

In terms of customer satisfaction, Malki (2024) explored the impact of social customer relationship management on customer satisfaction and loyalty, clarified the mediating role of customer satisfaction therein, and compared the different influence paths of traditional CRM methods and the use of social media technologies. Kumar (2022) found that there is a significant positive correlation between electronic customer relationship management and customer satisfaction. Electronic customer relationship management has a positive impact on the customer experience. Alfayez (2024) also pointed out that customer experience plays a mediating role between electronic customer relationship management and customer satisfaction, and a good customer experience can effectively promote the improvement of customer satisfaction.

In every dimension of customer relationship management (CRM), Guerola - Navarro and Gil - Gomez (2024) explores the customer retention and customer development dimensions of CRM in the key role of entrepreneurial marketing decision-making and related elements influence. Binsaeed and Yousaf (2023) studied the positive impact of customer relationship management capabilities on innovation performance and customer engagement. Customer engagement plays a mediating role between customer relationship management capabilities and innovation performance, while customer distrust weakens the relationship between customer relationship management capabilities and customer engagement. This indicates that enterprises can promote customer participation and innovation by enhancing their customer relationship management capabilities, thereby achieving sustainable development. The Ndubisi (2023) study found that attitude and trust significantly influence the willingness to adopt CRM systems and the commitment to companies providing such systems, and confirmed the hypothetical mediating role of attitude and trust.

In emerging technology, with large data, the rise of emerging technologies such as artificial intelligence, foreign scholars further discusses these techniques can be integrated with the customer relationship management (CRM) application. The research by Del Vecchio and Mele (2022) pointed out that big data plays a key role in CRM, supporting personalized sales, customized services and customer interaction, which helps enhance customer loyalty. It is an effective way for enterprises to cope with uncertainties and achieve growth in the process of

internationalization, and can assist enterprises in better understanding consumer behavior and demands. And integrate it into the formulation of international market relations marketing strategies.

3 Theoretical framework

3.1 Customer Relationship management theory

Customer relationship management is a business strategy for enterprises to identify and develop valuable customers through technical means. Its essence is to establish a "customer-centered" business philosophy and achieve the long-term development of the enterprise by continuously optimizing the service experience. This management model requires enterprises to fundamentally change their concepts, prioritize customer needs, and fully consider customers' expectations and feedback at every stage. The core principles of CRM are the principle of maximizing customer value, the principle of personalized service and the principle of continuous communication. Xingrong (2022) research indicates that customer relationship management mainly includes three aspects: the development and maintenance of customer relationships, as well as the management of customer churn. Customer relationship management emphasizes that enterprises should have a deep understanding of customer needs and achieve the goals of maximizing customer value and enterprise profits by establishing, maintaining and developing good relationships with customers.

CRM as the important tool of enterprise management, its core purpose mainly is to promote customer satisfaction and loyalty to enhance the level of corporate profits. First of all, it is to enhance customer satisfaction. Enterprises can provide high-quality products and services, accurately respond to customer needs, and convey care and respect during the interaction process, thereby increasing customers' recognition of the brand. The second is to enhance customer loyalty. By continuously creating value for customers, enterprises build long-term and stable cooperative relationships with them, gradually cultivate customers' trust in the enterprise, and make customers willing to choose the enterprise for a long time and recommend it to others. The last point is to enhance the profit level of enterprises. Loyal customers will not only repurchase the products and services of an enterprise repeatedly, but also be willing to pay a higher price for high-quality products and services. Meanwhile, through word-of-mouth promotion, they can also bring new customers to the enterprise. All these are conducive to increasing the revenue of enterprises, reducing marketing costs, and thereby enhancing the profitability of enterprises. The aviation market is highly competitive. Only by implementing an effective CRM strategy can DF Airlines stand out in the market.

3.2 SERVQUAL model

The SERVQUAL model is a brand-new service quality evaluation system constructed in the service industry. Sui Dangchen, Zhang Shuoting & Liu Wei (2015) stated that the core of their theory is centered around the "service quality gap model", that is, service quality depends on the degree of

difference between the service level perceived by customers and the service level expected by customers. In this model, customers' expectations are a prerequisite for providing quality services, and the key to providing quality services lies in exceeding customers' expectations.

The SERVQUAL model mainly measures services from five dimensions, namely tangibles, reliability, responsiveness, assurance and empathy. Tangibles is mainly reflected in the hardware facilities of the aircraft and the image of the service staff. Good tangible performance can leave a good first impression on customers and enhance their initial expectations of airline services. Reliability is mainly manifested in whether flights can take off and arrive on time, whether luggage transportation can arrive accurately and punctually, and whether other services promised by airlines to customers can be reliably fulfilled. Responsiveness mainly refers to whether the staff of an airline can respond and assist customers in a timely manner when they encounter problems or need assistance during ticket purchasing, waiting for flights, boarding, and the flight process. Responding quickly to customer demands can make customers feel valued by the airline and enhance their satisfaction. Assurance refers to the knowledge that employees possess and their ability to express confidence and credibility. Employees of airlines, including pilots, flight attendants and ground staff, all need to possess professional knowledge and skills. Pilots should possess excellent flying skills to ensure flight safety. Flight attendants should be familiar with the in-flight service procedures and emergency response measures, and be able to provide professional services to customers. Ground staff should be familiar with relevant business knowledge such as ticketing and boarding, and provide accurate information and assistance to customers. Empathy refers to the company's provision of care and personalized attention to customers. Airlines need to pay attention to the individualized demands of customers and provide them with personalized service recommendations based on their travel habits and preferences.

3.3 NPS model

Net Promoter Score (NPS) is a concise and effective indicator used to measure customer loyalty. The core of the NPS model lies in a simple question: "How likely are you to recommend our products or services to friends or colleagues?" Let the customers rate on a scale of 0 to 10 according to their own will.

According to the customers' scores, they can be classified into three categories. Customers scoring between 9 and 10 points are classified as promoters. These customers are loyal supporters of the brand and highly recognize the enterprise's products or services. They not only continue to purchase themselves but also actively recommend them to others. Their word-of-mouth promotion has a positive promoting effect on the business growth of the enterprise and can bring new customer resources to the enterprise. Customers scoring between 7 and 8 points are

classified as passives. They are generally satisfied with the company's products or services but lack sufficient enthusiasm to actively recommend them. When faced with the temptation of competitors, such customers are prone to wavering and have relatively low loyalty. Customers on a scale of 0 to 6 are detractors. They are dissatisfied with the company's products or services and may spread such negative reviews in front of their friends and family, preventing others from choosing the company's products or services and negatively affecting the company's brand image and market expansion.

Generally speaking, the higher the NPS score, the higher the customer loyalty and the stronger the competitiveness of the enterprise in the market. If the NPS score is above 50%, it is usually considered that the customer loyalty of the enterprise is at a relatively good level. When the NPS score reaches between 70% and 80%, it indicates that the enterprise has already accumulated a group of highly loyal word-of-mouth users. The continuous support and active recommendations of these users can bring stable business growth and a good market reputation to the enterprise. Airlines can intuitively understand the loyalty status of customers to their services by calculating the NPS value.

4 Research method

4.1 Selection of Research Methods

1. Questionnaire Survey Method.

This study designed the questionnaire based on the customer relationship management theory, the SERVQUAL model and the NPS model, aiming to comprehensively and deeply understand the travel experience, satisfaction with service quality and loyalty of DF air passengers. The content of the questionnaire covers aspects such as the basic information and travel habits of customers, expectations and perceptions of the service quality of DF Airlines, and the evaluation of customer loyalty. Questionnaires were distributed through a combination of online and offline methods to widely collect feedback data from customers. The questionnaire data were sorted out and statistically analyzed to evaluate the customer satisfaction and loyalty of DF Airlines in a quantitative way, providing data support for the research.

2. Case Analysis Method

This study takes the "Incident of Four passengers being left at the airport" as a specific research case to deeply analyze the current situation of its customer relationship management, existing problems, and the impact of typical events on customer satisfaction and loyalty. Through the analysis of specific cases and customer feedback, summarize experiences and lessons, identify the root causes of problems, and propose targeted optimization strategies. Case analysis method can make the research closer to reality and enhance the practicability and operability of the research results.

4.2 Other feasible research methods and selection basis

In addition to the questionnaire survey method and case analysis method, this research can also adopt the interview method or big data analysis method. Interview method, however, need to spend a lot of time and manpower deep communication with all parties, and sample co., LTD., interviewees subjectivity is stronger, and overview of this study is to customer satisfaction and loyalty, in the investigation if the interview will appear when a large number of customers inefficiency and representative in doubt. Although the big data analysis method can mine the value of massive data, it has high requirements for technology, data management and analysis capabilities, and is difficult to be effectively implemented. Therefore, the questionnaire survey method and case analysis method were ultimately chosen.

4.3 Collection of Survey Data

The data collection of this study was mainly carried out through questionnaire surveys and case analyses. During the data collection stage of the questionnaire survey, a combination of online and offline methods is adopted. Online, questionnaires are mainly released through social media platforms, and a mechanism is set up where rewards can be obtained by completing the questionnaire survey.

The offline questionnaire is mainly aimed at passengers waiting at the airport. During the distribution of the questionnaire, efforts are made to cover passengers of different age groups and with different travel purposes to ensure the diversity and representativeness of the sample. After the questionnaires are collected, a preliminary screening of the data is conducted first to eliminate invalid questionnaires. Finally, valid questionnaires are obtained and data analysis is carried out using statistical analysis software.

In terms of data collection for case analysis, it mainly relies on the detailed course of the event and personal feelings and other information posted by the event parties, Mr. C and Mr. D, on social media platforms. At the same time, collect news reports and passenger feedback related to the event, comprehensively restore the event process, and obtain detailed information about the event handling process, passenger demands, and airline response measures from multiple channels to provide sufficient data support for in-depth analysis of the case.

5 Analysis of the Current Situation of Customer Relationship Management in DF Airlines

5.1 A brief introduction to DF Airlines

The headquarters of DF Aviation Group is located in Shanghai. It is one of the three major state-owned backbone aviation enterprises in China. DF Airlines not only operates a modern fleet of over 800 aircraft, but also possesses the largest and technologically advanced Internet wide-body fleet in China. The route network layout of DF Airlines is extensive. Relying on the dual core hubs of "Two Cities and four Markets" in Beijing and Shanghai, as well as regional hubs such as Xi'an and Kunming, our business scope comprehensively covers provincial capital cities. In terms of international routes, DF Airlines actively expands long-haul routes to the Middle East and North Africa. Leveraging the advantages of the SkyTeam alliance, its routes reach 1,050 destinations in 166 countries and regions around the world, holding an important position in the international aviation market. In addition, DF Airlines has over 100 domestic and overseas branches worldwide, which facilitate business expansion and help understand customer needs. DF Airlines is constantly committed to improving service quality and has established a relatively complete service system. However, in the fierce market competition, DF Airlines still faces many challenges in customer relationship management and needs to continuously optimize and improve.

5.2 The current situation of customer relationship management

5.2.1 Current Situation of Customer Information Management

DF Airlines mainly adopts a diversified channel combining online and offline in customer information collection. By collecting customer information, it provides data support for customer relationship management. Online channels can collect customers' basic information, such as identity, contact details, consumption habits, travel frequency, route preferences and interaction data, through platforms like official websites, mobile apps, wechat official accounts and mini-programs. In offline channels, customer preferences and special service demands can be supplemented and collected during check-in and waiting for flights. DF Airlines will also obtain extended information such as customers' ticket purchasing behaviors and corporate travel policies by cooperating with third parties to share data. In addition, China Eastern airlines also through customer feedback channels, such as online evaluation, questionnaire survey, customer complaints, etc., collecting the opinions and Suggestions of customer to the service and client in the special experience and needs in the process of travel.

DF Airlines has established a relatively complete customer information database and adopted advanced data storage technology to ensure the security and stability of customer information. The database efficiently stores and classifies a vast amount of customer information, and at the same time encrypts and protects the data to prevent the leakage of customer information and data loss. DF Aviation uses big data analysis technology to conduct in-depth mining and analysis of the collected customer information. By analyzing the information and data of customers, we understand their needs and provide personalized services and marketing activities for them. DF Airlines will also optimize the route layout through customer information analysis, adjust the flight frequency and capacity input to improve the operational efficiency of the company.

5.2.2 The current situation of the customer service system

DF Airlines has established a three-dimensional service system to provide customers with a full-process service experience.

In terms of online channels, the official website and APP provide customers with a convenient one-stop service platform. Customers can obtain consultation and assistance through the online customer service in the form of text conversations. In addition, DF Airlines has also opened official accounts on social media platforms, interacting with customers through these platforms, promptly replying to their comments and private messages, and answering their questions.

At the ground service level, DF Airlines operates based on the physical network of airports. Service counters are set up at each hub airport to provide on-site services to customers. There are staff members in the check-in area to assist customers with check-in procedures and handle luggage check-in. The waiting area is equipped with an information desk and a special passenger service counter, providing personalized services such as wheelchair transportation and dedicated guidance for groups like the elderly, the weak, the sick, the disabled and pregnant women. Members and business travelers who meet the requirements can also enter the VIP lounge to enjoy exclusive services such as free meals, high-speed Internet access and newspaper reading.

At the ticket purchasing service level, DF Airlines not only offers a variety of convenient ticket purchasing channels, but also introduces differentiated fare strategies, meeting the travel budgets of different customers through promotional activities such as discounted air tickets, round-trip discounts, and group discounts. The check-in service implements an integrated "online + offline" model. On the basis of retaining the traditional counter service, it vigorously promotes online check-in, self-service equipment check-in and mobile phone check-in. Staff will also provide seat selection suggestions based on customer needs and member levels.

In terms of in-flight services, DF Airlines is committed to providing customers with a comfortable and considerate service experience. The flight attendants warmly welcomed the boarding passengers, assisted them in packing their luggage and guided them to their seats. During the flight, a wide range of catering services are provided. Depending on different routes and flight times, Chinese and Western meals and beverages are offered. It is also equipped with a film and television entertainment system to meet the entertainment needs of passengers during the flight. In addition, DF Airlines also attaches great importance to the creation of the cabin environment, maintaining a clean and comfortable cabin to provide passengers with a good rest environment.

In terms of arrival services, DF Airlines attaches great importance to ensuring a smooth baggage claim process and provides relevant information and assistance in a timely manner. If customers encounter any problems during the luggage retrieval process, the staff of DF Airlines will actively assist them in searching and handling the issues to safeguard their rights and interests.

Overall, DF Airlines has established strict service standards and procedures, and provided professional training for service personnel to enhance service quality. However, in terms of the actual situation, there are still some deficiencies in the service quality of DF Airlines. The professional quality and service attitude of some customer service staff need to be improved. When dealing with customer inquiries and complaints, they cannot solve problems in a timely and effective manner, resulting in a decline in customer satisfaction. Furthermore, in special circumstances such as flight delays, the service guarantee measures of DF Airlines are still not perfect. The information notification is not timely, and the work of comforting and compensating passengers is not in place, which is likely to cause dissatisfaction and complaints from passengers.

5.2.3 Current Status of Customer Relationship Maintenance

DF Airlines systematically promotes the maintenance of customer relationships by constructing a multi-dimensional strategy system.

As one of the core measures for maintaining customer relationships with DF Airlines, the frequent flyer program plays a crucial role in the "Oriental Journey of Ten Thousand Miles". This plan offers members a rich variety of benefits to encourage passengers to continuously choose DF air travel. This program enables members to accumulate points based on flight miles when taking DF Airlines and partner flights. These points can be flexibly exchanged for air tickets, cabin upgrades, hotel accommodation, car rental services and special gifts. The "Oriental 10,000-Mile Journey" adopts a tiered membership classification system. Members are divided into different levels such as Silver, Gold, and platinum cards based on flight frequency and mileage, implementing differentiated benefit allocation. High-level Gold and Platinum Card members not only enjoy priority check-in,

boarding, baggage claim and other fast-track services, but also have access to over 750 airport VIP lounges worldwide. They can enjoy exclusive discounts and earn additional points during the ticket purchasing process. These privileges significantly enhance the loyalty of high-end customers.

At the digital interaction level, DF Airlines actively lays out social media platforms, regularly pushing flight updates, discount information, travel guides and service highlights through channels such as wechat, Weibo and Douyin to attract customers' attention. The customer service team has established a rapid response mechanism to handle customers' messages, private messages and complaints on the platform in a timely manner. For instance, in response to the in-flight meal issues reported by customers on Weibo, the customer service team promptly contacted the customers to understand the details, apologized and promised to rectify the situation. This efficient interaction made the customers feel cared for by the enterprise and effectively enhanced brand recognition.

The customer feedback mechanism is an important support for DF Aviation to optimize its services. The company collects customer opinions through multiple channels and pushes online questionnaires after the flight ends, covering the entire process experience such as ticket purchasing, check-in, and in-flight services. Physical suggestion boxes are set up at the airport to facilitate passengers' on-site feedback. The customer service department records the content of inquiries and complaints in detail and promptly conveys the relevant information to other departments. Each business department conducts an in-depth analysis of the service shortcomings based on the feedback and formulates targeted improvement plans.

6 Problems and Causes in DF Aviation Customer Relationship Management

6.1 Customer Satisfaction Analysis Based on the SERVQUAL Model

6.1.1 Questionnaire Design and Implementation

This study designed the questionnaire based on the SERVQUAL model and the NPS model, aiming to comprehensively and accurately collect passengers' expectations and perceptions of the service quality of DF Airlines, in order to evaluate customer satisfaction and loyalty. This questionnaire collects the basic information of customers and analyzes the differences in the demands of different customers for aviation services, providing a basis for DF Airlines to implement precise market segmentation and formulate marketing strategies. This questionnaire helps airlines optimize the allocation of route and cabin resources by collecting passengers' flight travel information. This questionnaire strictly follows the five dimensions of the SERVQUAL model to construct an index system for evaluating service quality. Each dimension contains three questions to ensure that the measurement of each dimension is comprehensive and representative. In terms of tangibility, through issues such as the cleanliness of airport facilities and the hardware configuration on board, the customer's evaluation of the service entity elements is examined. The reliability dimension focuses on key indicators such as flight punctuality rate and information accuracy to measure the ability of enterprises to fulfill their commitments. The responsiveness dimension assesses the service level of an enterprise in quickly responding to customer demands around customer service efficiency and the speed of demand processing. The security dimension starts from the professional image and service attitude of employees to examine the professional quality and credibility of the staff. The dimension of empathy explores the depth of an enterprise's concern for customer needs through issues such as care for special groups and perception of personalized services. The customer loyalty survey of the questionnaire is based on the NPS model. Customer loyalty is evaluated through the core issue of "willingness to recommend to others", supplemented by the analysis of choice motivation and the prediction of repurchase possibility, providing data support for DF Airlines to formulate customer retention strategies.

The questionnaire was scored using the Likert scale method. For each question, customers were asked to rate on a scale of 1 to 5 based on their expectations and actual perception. A score of 1 indicated "very dissatisfied" or "very dissatisfied with expectations", 3 indicated "average" or "basically satisfied with expectations", and 5 indicated "very satisfied" or "very satisfied with expectations". This scoring method can quantify customers' attitudes and feelings relatively accurately, facilitating subsequent data statistics and analysis.

6.1.2 Statistical Analysis of the Survey Results

In this study, the statistical analysis software SPSS was used to conduct an in-depth analysis of the collected valid questionnaire data, aiming to understand the satisfaction of customers of DF Airlines, reveal the advantages and disadvantages of DF Airlines in terms of service quality, and provide strong data support for the subsequent proposal of targeted improvement strategies.

Based on the results of the questionnaire survey, I will conduct descriptive statistical analysis and calculate the satisfaction index of each dimension, as shown in Figures 1 and 2.

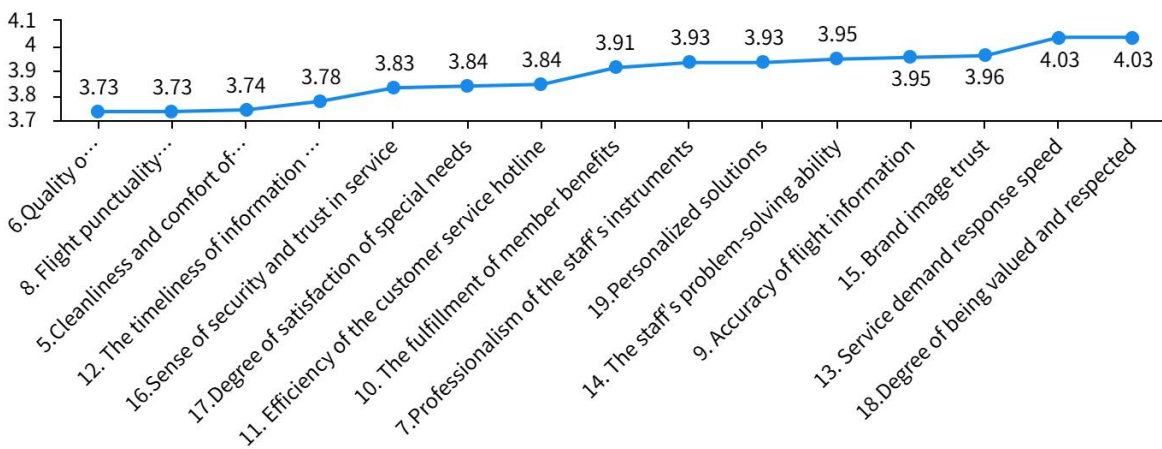


Figure 1 Average value comparison chart



Figure 2 Satisfaction score

The tangibles dimension mainly involves aspects such as the hardware facilities and service environment of DF Aviation. The average score of the tangibility dimension was 3.8 points, and the average satisfaction score was 3.8 points. Among them, the satisfaction score for the cleanliness and comfort of airport facilities was 3.47 points, which was relatively low. Some passengers have reported that the number of seats in the waiting area is insufficient, especially around the boarding gates. The satisfaction score for the quality of facilities on the aircraft was 3.37 points, which was the lowest score in this dimension. Many passengers have expressed that the seats are too close to each other. They have difficulty stretching their legs and feet when sitting in the seats and maintain an uncomfortable posture throughout the flight, resulting in low comfort. The satisfaction score for the professionalism of the staff's appearance is 3.98 points, which is the best-performing item in this dimension. This indicates that the appearance of the crew, ground staff, etc. is neat and professional, leaving a good impression on passengers. It is the advantageous part in the tangible dimension.

The score of the reliability dimension indicates that the punctuality rate of flights is an aspect that DF Airlines needs to focus on improving. The average score of this dimension is 3.87 points, and the average score of satisfaction is 3.65 points. Among them, the satisfaction score for the punctuality rate of flights is 3.23 points, which is the lowest score in this dimension. The punctuality rate of flights is a key factor affecting the customer experience. DF Airlines has prominent problems in terms of flight punctuality. Frequent flight delays have caused dissatisfaction among a large number of passengers and even led many passengers to no longer choose to fly with DF Airlines. DF Airlines needs to improve the punctuality rate of flights from multiple aspects such as flight scheduling, weather warnings, and airport coordination. The satisfaction score for the accuracy of flight information is 3.95 points, which is relatively high. This reflects that the accuracy of flight information is relatively strong and passengers have a high level of trust in information services, which is an advantageous item in the reliability dimension. The satisfaction score for the redemption of member benefits is 3.78 points. Although it is slightly higher than the average score of overall satisfaction, it still has not reached a relatively high level. This means that DF Airlines has not yet fully met the expectations of its members in terms of member benefit redemption. DF Airlines can further investigate the needs of its members, enhance their satisfaction with the redemption of benefits, and thereby strengthen customer stickiness.

The responsiveness dimension measures the response speed and problem-solving efficiency of DF aviation staff when facing customer issues and demands. The average value of this dimension is 3.88, and the average satisfaction score is 3.68 points. Among them, the satisfaction score for the connection speed and problem-solving efficiency of the customer service hotline was 3.44, which was relatively low. Some passengers have expressed that they have to wait in line for a long

time to call the customer service hotline, and sometimes even no one answers the phone. Some passengers also indicated that they often encounter customer service staff with a bad attitude, who cannot help customers solve problems promptly. All of this has led to a poor customer experience. The satisfaction score for the timeliness of information communication during delays is 3.54 points, indicating that in special circumstances such as flight delays, the information transmission is not timely and accurate enough, and customers fail to obtain dynamic updates or effective explanations in a timely manner. DF Airlines needs to strengthen the information synchronization mechanism. The satisfaction score for the response speed of service demands is 4.08 points, which is relatively high. This indicates that when customers put forward service demands, the staff respond promptly and can meet the customers' needs in a timely manner.

The assurance dimension has received favorable evaluations from customers, indicating that the professional quality and service guarantee capabilities of DF Aviation employees have been recognized by the majority of customers. The average value of this dimension is 3.91, and the average satisfaction score is 3.85 points. Among them, the satisfaction score of the staff's problem-solving ability was 3.91 points, indicating that the staff had certain professional abilities in communication and problem-solving. The score of brand image satisfaction is 3.98 points, indicating that the brand image of DF Airlines is highly recognized in the minds of customers. DF Airlines, as one of the three major state-owned backbone airlines in China, has a relatively recognized brand image among passengers.

The empathy dimension mainly assesses DF Airlines' attention to and satisfaction of customers' personalized needs. The average value of this dimension is 3.93, and the average satisfaction score is 3.96 points. Among them, the satisfaction score of the satisfaction degree of special needs was 3.74 points. Although the score was at a medium to upper level, it was lower than the other two items within the same dimension. This indicates that DF Airlines has significant deficiencies in the service supply for special groups. The satisfaction score for the degree of being valued and respected is 4.25 points, indicating that DF Airlines performs well in the aspect of basic service attitude, and the staff can generally make customers feel respected during the service process. In the future, this advantage can be further strengthened and the concept of respecting customers can be integrated into more service scenarios. The satisfaction score of the personalized solution is 3.88 points, which indicates that DF Airlines has a certain problem-solving ability when dealing with emergencies. However, there is still a gap from being "very satisfied". DF Airlines can draw on the rapid response mechanisms of other enterprises, establish an intelligent emergency service system, predict risks through big data, and provide customers with immediate and diverse solutions.

6.1.3 Customer Satisfaction Issues and Cause Analysis

In the tangibles dimension, passenger satisfaction with both airport facilities and in-flight facilities is relatively low. In terms of airport facilities, the number of seats in the waiting area is insufficient, especially around the boarding gates. Many passengers had no seats while waiting for their flights. There is a problem of too narrow seat spacing in the onboard facilities. If it is a long-haul flight, it is difficult to stretch one's legs and feet, which will greatly cause dissatisfaction among passengers. This is mainly because the company has not fully considered the growing demand for comfortable travel of passengers in the investment and planning of hardware facilities. At the same time, DF Airlines still has many aircraft that have been in use for a long time, and the maintenance and update of the equipment are not timely.

In terms of reliability, the issue of flight punctuality rate is prominent. Many passengers are dissatisfied with the flight delays of DF Airlines. Due to this reason, many passengers are reluctant to take DF Airlines again, and some passengers have left. The punctuality rate of flights is affected by multiple factors, such as insufficiently scientific and reasonable flight scheduling, and failure to fully consider issues like airport capacity and route congestion. The weather early warning mechanism is not perfect, and there is a lack of effective response measures when facing bad weather. Insufficient coordination with relevant departments such as airports and air traffic control, and poor information communication have led to untimely flight adjustments.

In terms of responsiveness, there are obvious deficiencies in the customer service hotline and information communication during delays. The slow connection speed, lack of answers, poor service attitude and low problem-solving efficiency of the customer service hotline reflect the insufficient staffing and inadequate training of the company's customer service staff, as well as the absence of an effective service quality supervision and assessment mechanism. When flight delays occur, the information transmission is not timely and accurate, indicating that the company has deficiencies in the emergency management process and fails to establish an efficient information synchronization mechanism, resulting in passengers being unable to obtain flight updates in a timely manner.

6.2 Customer Loyalty Analysis of DF Airlines

6.2.1 Conduct in-depth analysis of loyalty based on cases

6.2.1.1 Event review

On July 4, 2024, Flight FM9273 from Shanghai to Xining, Qinghai Province, turned back and made an emergency landing at Lanzhou Airport in Gansu Province when it was approaching its destination due to bad weather. After waiting for about half an hour, passengers on the plane were

asked to carry their luggage and get off the plane to wait. Among them, four passengers holding Platinum cards were guided as VIPs to the DF Airlines' self-operated lounge to rest and were told to wait patiently for the news of the resumption of flights. During the waiting period, the passenger repeatedly refreshed the flight status through the DF Airlines APP and inquired about the flight situation from the staff. The response received was always "No further notice yet. Please wait for the notice with peace of mind." However, at 18:24, Mr. D, one of the four passengers, suddenly received a call informing him that the flight he was on had taken off.

After the incident, the four passengers immediately had an urgent communication with the staff to negotiate a solution. As there were no flights and the high-speed rail couldn't meet the passengers' demands, four passengers requested the staff to send them to their destinations by vehicle. At the repeated requests of four passengers, DF Airlines eventually only arranged one vehicle that was booked online. The four passengers all carried a large amount of luggage and had different destinations, but in the end they could only take one vehicle together. The journey took as long as three hours, but DF Airlines did not provide water. The flight was at 9:20 and it didn't arrive at the destination until 10 p.m. It took up a lot of the customer's time, which seriously affected the customer's itinerary arrangement.

Four hours after the incident, Mr. D still didn't receive any reply or apology, so he chose to file a complaint. After Mr. D published an article to expose this incident, it soon sparked public discussion. Many netizens have criticized DF's aviation services for being full of loopholes and lacking protection of members' rights and interests. The media also promptly followed up with reports, pushing DF Airlines to the forefront of public opinion, making this incident a typical negative case of service mistakes in the aviation industry and triggering deep public doubts and widespread attention to the quality of service provided by airlines.

6.2.1.2 Analysis of the Root Cause of the problem

Mr. D and others logged into the DF Airlines APP many times but failed to find the relevant boarding information. When Mr. D and others got off the plane, the ground staff at the alternate airport only registered their seat numbers but not other relevant contact information. When reboarding, the ground staff forgot to notify the relevant personnel in the VIP lounge, and the staff in DF Airlines' self-operated lounge also forgot about this alternate flight. Because some other passengers on this flight gave up boarding, the relevant staff members believed that Mr. D and others were also passengers who gave up boarding without confirming with them. Boarding announcements are made in the waiting hall. DF Airlines' self-operated lounge has no boarding announcements and no staff to remind passengers to board. Many factors led to the occurrence of

the incident where four passengers were left at the airport. From this, it can be seen that there are still many problems in DF Airlines' customer relationship management.

The imperfect information communication mechanism leads to the poor transmission of information. The poor information transmission between the ground dispatch and the boarding system has led to the failure to update the boarding status of passengers in a timely manner, and the staff cannot accurately grasp the actual situation of passengers. The staff in the VIP lounge and those at the boarding gate lack an efficient communication mechanism. The untimely and inaccurate update of information leads to deviations in their understanding of the boarding situation of passengers.

Insufficient internal management and training have led to omissions in the service process. When reboarding the flight, the staff did not conduct a comprehensive and accurate confirmation of all passengers. Based solely on the boarding announcement in the waiting hall and the fact that some passengers had abandoned the board, they subjectively judged that these four passengers had also abandoned the board. Before boarding, there was a lack of a dedicated confirmation process for passengers in the VIP lounge, and the boarding status of all passengers was not proactively verified. Inadequate employee training and the lack of clear operational norms and responsibility divisions in key environments have led to errors in the implementation by staff.

The weak service awareness of the staff has led to the failure to protect the rights and interests of passengers. Throughout the entire incident, the staff in the VIP lounge demonstrated a lack of responsibility and a weak sense of service. When passengers repeatedly inquired about flight status, the staff failed to pay sufficient attention. They merely replied mechanically and waited for notifications without proactively verifying the information, thus missing the opportunity to identify the problem. When negotiating solutions with passengers, the staff failed to promptly soothe the passengers' emotions and provide practical remedial measures, further intensifying the conflict and escalating the passengers' dissatisfaction.

6.2.2 Customer Loyalty Analysis Based on the NPS Model

According to the questionnaire survey in this study, "Based on your experience, how likely are you to recommend DF Airlines to your relatives, friends or colleagues?" The answer to this question was calculated and analyzed by using the NPS model on the customer loyalty of DF Airlines. The analysis results are shown in Table 2.

Table 2 NPS grouping

The proportion of each type				
	Detractors (0-6)	Passives (7-8)	Promoters (9-10)	NPS
20. Based on your experience, how likely are you to recommend DF Airlines to your relatives, friends or colleagues?	46.26%	31.29%	22.45%	-23.81%

It can be known from the calculation results that the NPS value of DF Aviation is -23.81%. This figure indicates that the customer loyalty of DF Airlines is relatively low and the risk of customer churn is high. The proportion of detractors was 46.26%, which was significantly higher than that of Promoters. This poses a considerable threat to the development of DF Aviation. DF Aviation needs to attach great importance to this issue, conduct in-depth analysis of the needs and feedback from Detractors, Passives and Promoters, and adopt differentiated management strategies for different customer groups. For promoters, DF Airlines needs to continue improving the quality of service to consolidate the relationship with promoters. DF Airlines can enhance customer loyalty to DF Airlines by offering more exclusive discounts and personalized services, and encourage promoters to actively promote the brand. For passives, DF Airlines needs to enhance the emotional connection with them and increase their willingness to recommend them. DF Airlines needs to have a thorough understanding of their needs and preferences, enhance interaction with them, and provide personalized services for them. DF Airlines needs to enhance the service detail experience, bring emotional experiences to customers, and strive to transform passives into recommenders. For detractors, DF Airlines will proactively communicate with customers to understand the core reasons for their dissatisfaction, promptly address issues and offer reasonable compensation, and strive to restore their trust and loyalty. DF Airlines needs to make rectifications based on customers' feedback to reduce the risk of customer churn. Only in this way can DF Airlines effectively enhance customer loyalty and win more support and trust from customers in the fierce market competition. DF Airlines needs to address the core service pain points, strengthen the membership system and enhance the emotional experience, gradually transform detractors into passives, passives into promoters, and ultimately achieve the dual improvement of customer loyalty and brand reputation.

Through cross-analysis, I identified three key factors influencing customers' willingness to recommend. The specific analysis is shown in Table 3.

Table 3. Cross (chi-square) analysis results

Question	Satisfaction	NPS grouping(%)			Total	χ^2	p
		Detractors	Passives	Promoters			
6.The quality of facilities on the aircraft	1	1(100.00)	0(0.00)	0(0.00)	1	22.276	0.004**
	2	5(71.43)	2(28.57)	0(0.00)	7		
	3	26(65.00)	12(30.00)	2(5.00)	40		
	4	31(38.27)	28(34.57)	22(27.16)	81		
	5	5(27.78)	4(22.22)	9(50.00)	18		
Total		68(46.26)	46(31.29)	33(22.45)	147		
8.Flight punctuality rate	1	4(100.00)	0(0.00)	0(0.00)	4	36.171	0.000**
	2	9(100.00)	0(0.00)	0(0.00)	9		
	3	22(56.41)	14(35.90)	3(7.69)	39		
	4	28(43.08)	22(33.85)	15(23.08)	65		
	5	5(16.67)	10(33.33)	15(50.00)	30		
Total		68(46.26)	46(31.29)	33(22.45)	147		
13.Service demand response speed	1	2(100.00)	0(0.00)	0(0.00)	2	21.862	0.005**
	2	3(100.00)	0(0.00)	0(0.00)	3		
	3	14(63.64)	7(31.82)	1(4.55)	22		
	4	38(46.91)	28(34.57)	15(18.52)	81		
	5	11(28.21)	11(28.21)	17(43.59)	39		
Total		68(46.26)	46(31.29)	33(22.45)	147		
* $p < 0.05$ ** $p < 0.01$							

It can be known from Table 3 that the chi-square analysis p of the three factors, namely the facility quality on the aircraft, the flight punctuality rate and the service response speed, is all less than

0.01, indicating that they have a significant correlation with the NPS group (customer recommendation willingness). As can be seen from visualization Figure 3, when customer satisfaction with flight punctuality rate is 1, 100% customer satisfaction is Detractors. As customers' satisfaction with the punctuality rate of flights continues to rise, the proportion of Promoters is also increasing. When the customer satisfaction rate with the flight punctuality rate reached 5, promoters accounted for 50%, which was much higher than 23.08% when the satisfaction rate was 4 and 7.69% when the satisfaction rate was 3. When punctuality is high, the detractors ratio decreases and the promoters ratio increases, indicating that flight punctuality is a key factor influencing referrals, and an increase in punctuality can effectively enhance customers' referrals. Similarly, it can be known that the quality of facilities on the aircraft and the response speed of service demands also have a positive impact on customers' willingness to recommend. Improving onboard facilities, ensuring flight punctuality, and speeding up service response can effectively reduce detractors, increase promoters, and thereby enhance customers' overall willingness to recommend.

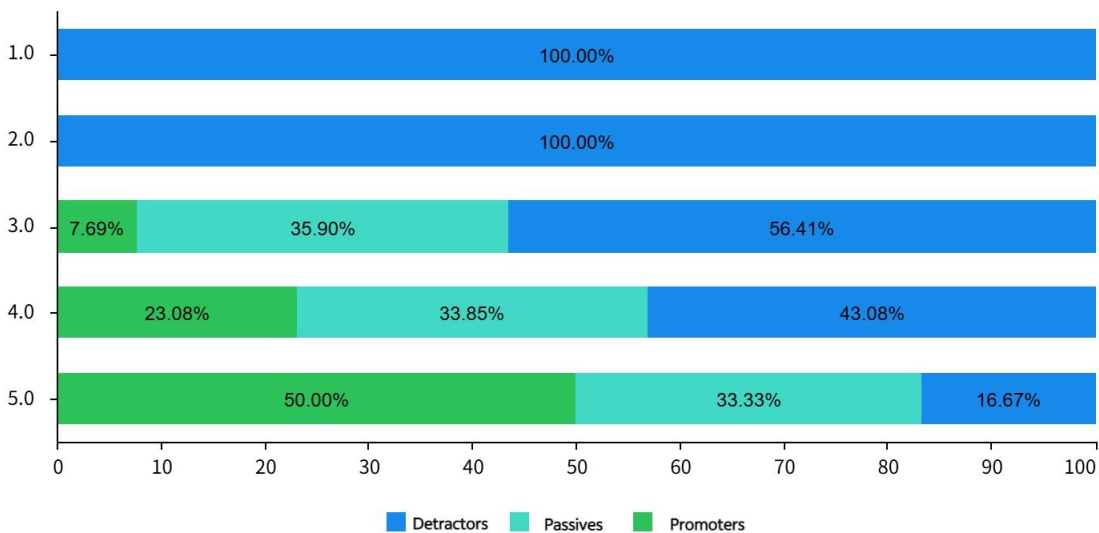


Figure 3 The crossover plot of NPS grouping and flight punctuality rate

6.2.3 Customer Loyalty Issues and Cause Analysis

Through the case analysis of customer loyalty of DF Airlines and the analysis of the NPS model, the problems and causes of its customer loyalty are as follows:

1. Service mistakes have led to damage to the brand image. The handling method of DF Airlines in the incident where four passengers were left at the airport has aroused people's dissatisfaction and

doubts about DF Airlines, which has seriously damaged the brand image of DF Airlines in the public's mind and affected customers' trust and choice of the brand.

2. Customer trust and loyalty have declined. The basic demand of passengers is a safe and punctual destination. The negligence of DF Airlines in this incident seriously affected the trips of four Platinum Card passengers. This has led high-value customers to have doubts about DF Aviation's service capabilities and guarantee capabilities. Their satisfaction and loyalty to DF Airlines have dropped sharply, which may lead to high-value users choosing to fly with DF Airlines less and significantly reducing their willingness to recommend. Ordinary customers also became concerned about DF Airlines' services due to this incident and thus chose other airlines.

3. The NPS value indicates low loyalty: DF Airlines' NPS value is -23.81%, and Detractors' s proportion is as high as 46.26%, which is much higher than Promoters' 22.45%, indicating low customer loyalty and high risk of customer churn. The demands of different customer groups have not been fully met, and there is a lack of targeted management strategies. The relationship with promoters has not been strengthened, passives' willingness to recommend has not been enhanced, and detractors' s trust in DF Airlines has not been restored.

4. Key service factors affect the willingness to recommend: Chi-square analysis shows that the quality of aircraft facilities, the punctuality rate of flights, and the response speed of service demands have a positive impact on customers' willingness to recommend. Currently, DF Airlines performs poorly in services such as the quality of aircraft facilities and the punctuality rate of flights, resulting in low customer satisfaction. This leads to a low willingness of customers to recommend, which in turn affects customer loyalty.

7 DF Aviation Customer Relationship Management Optimization Strategy

7.1 Strategies Based on Satisfaction Enhancement

7.1.1 The dimension of tangibility

1. Upgrading and transforming in-flight seats: Li Qiang found through the analysis of customer satisfaction in airlines that the relationship between service quality and customer satisfaction is not a simple linear one. Just as the quality improvement of in-flight entertainment does not necessarily increase customer satisfaction, the enhancement of seat comfort has a significant impact on customer satisfaction (Li Qiang, 2023.) In terms of in-flight facilities, DF Airlines should upgrade and renovate the seats on board according to the characteristics of different aircraft models and routes, improving the comfort and adjustment functions of the seats to meet the needs of passengers for long rides.

2. Promote the renewal of aircraft: Formulate an aircraft renewal plan, gradually phase out old models, and introduce new aircraft with more spacious space and more comfortable rides.

3. Strengthen facility maintenance and inspection: Regularly carry out maintenance and inspection work on the facilities on board to ensure their normal operation and enhance the comfort of customers' travel.

7.1.2 Dimensions of Reliability.

1. Scientifically formulate scheduling plans: DF Airlines should apply advanced data analysis technology, comprehensively consider factors such as airport capacity, route conditions, and weather changes, and formulate scientific and reasonable flight scheduling plans to reduce flight delays.

2. Improve the weather warning mechanism: DF Airlines should enhance cooperation with professional meteorological institutions to obtain accurate meteorological data, adjust flight takeoff and landing times in advance and formulate alternate landing plans in response to adverse weather conditions.

3. DF introduces an advanced air transport management system: By introducing the system, DF monitors the operation of flights in real time. In case of sudden weather changes, air traffic control and other unexpected situations, it can quickly adjust flight plans, providing a scientific basis for dispatching decisions and ensuring the safe and efficient operation of flights.

4. Strengthening departmental collaboration: DF Airlines needs to enhance cooperation with airports, air traffic control and other departments, build an efficient information communication platform, achieve real-time information sharing, ensure that passengers can be promptly notified when flights are adjusted, and improve flight punctuality and customer trust.

7.1.3 Responsiveness Dimension

1. Strengthen the construction of the customer service team: Reasonably increase the number of customer service staff to ensure that the customer service hotline can be connected in a timely manner. Formulate a comprehensive training plan, covering service attitude, professional knowledge, communication skills and problem-solving abilities, to enhance the overall quality of customer service staff. Establish a strict service quality supervision and assessment mechanism, conduct regular evaluations of the work of customer service staff, incorporate customer satisfaction into assessment indicators, and encourage customer service staff to proactively solve problems for customers.

2. Improve emergency management: In special circumstances such as flight delays, establish a dedicated emergency command team to be responsible for information collection, organization and release, ensuring that passengers can obtain flight dynamic information in a timely and accurate manner.

3. Build diversified communication channels: Expand communication approaches. In addition to traditional customer service hotlines and counter services, social media platforms, online customer service and other channels are utilized to facilitate customers' access to assistance at any time. Strengthen platform interaction. Respond promptly to customer inquiries and complaints on social media platforms, release flight information and service updates, and enhance interaction with customers. Online customer service should provide 24-hour uninterrupted service, respond quickly to customers' problems, and offer accurate and effective solutions to customers.

4. Establish a customer feedback mechanism: Regularly send satisfaction questionnaires to customers to collect their feedback and suggestions. Conduct in-depth analysis of customer feedback, promptly improve existing problems, continuously optimize service processes and service quality to meet customer needs.

7.1.4 Assurance Dimension

1. Strengthen the training of employees' service awareness: By conducting service concept training courses, case analyses and other means, enable staff to deeply understand the importance of customer service, establish a customer-centered service concept, cultivate their enthusiasm,

patience and sense of responsibility, and enable them to proactively and positively provide high-quality services to customers.

2. Carry out targeted professional training: Develop training content based on the requirements of different positions, provide flight technology improvement training for pilots, service skills and emergency response capabilities training for flight attendants, and business knowledge and communication skills training for ground staff.

3. Establish a performance assessment and incentive mechanism: Regularly assess staff members and link the assessment results to their performance to motivate employees to continuously enhance their service awareness and professional qualities.

4. Strengthen brand building: Actively participate in social public welfare activities, create a distinctive service brand, and enhance the brand image and recognition of DF Airlines in the minds of customers.

7.1.5 Empathy Dimension

1. Establish a demand forecasting model: DF Airlines can leverage big data to analyze customers' travel habits, preferences, and special needs. Based on the analysis results, DF Airlines can provide personalized service recommendations for customers in advance.

2. Improve service guarantees for special groups. Establish exclusive service processes and standards for special passengers, and provide full accompaniment and assistance throughout the entire process from ticket purchase, check-in, waiting for the flight to boarding. Personalized services are provided based on the individual needs of special passengers. Increase the number of service personnel for special passengers, strengthen relevant training, and ensure that special groups receive adequate care during their travels.

3. Deepen personalized services and marketing. DF Airlines should make use of the customer information database to deeply analyze the needs and preferences of customers and provide personalized services for them. DF Airlines can also carry out personalized marketing activities, launching different promotional plans for different customer groups to enhance customer participation and purchase intention.

4. Continuously optimize service plans: During the service process, pay close attention to collecting customer feedback. Based on the feedback, continuously optimize personalized service plans to convey the importance and respect for customers.

7.2 Strategies Based on loyalty Enhancement

7.2.1 Improve the membership rights system

1. Optimize the membership level benefits. DF Airlines should further optimize the "Eastern Miles" membership program to enhance customer loyalty. In terms of membership level benefits, DF Airlines should enrich the exclusive benefits for members of different levels, especially by providing more high-end value-added services for Platinum Card members to attract passengers to become higher-level members. DF Airlines can establish a member growth incentive mechanism to encourage members to upgrade their membership levels through consumption, participation in activities and other means, enjoy more high-level membership benefits, and enhance the stickiness and loyalty of members. Meanwhile, DF Airlines needs to regularly evaluate and adjust the member rights system to ensure that the member rights can continuously meet the expectations of members and encourage them to keep choosing DF Airlines.

2. Improve the mechanism for obtaining and redeeming points. DF Airlines should broaden the channels for obtaining points. In addition to accumulating points by taking DF Airlines' flights and spending at DF Airlines' partners, DF Airlines can also carry out online interactive activities. Members can receive corresponding point rewards after participating in the event. Meanwhile, DF Airlines can also strive to cooperate with more well-known brands. Members can accumulate DF Airlines points when making purchases at the offline stores of partner brands, increasing the diversity of point acquisition. In terms of points redemption, the variety of products and services for points redemption has been enriched. Besides the traditional services such as air ticket redemption and cabin upgrade, options such as hotel accommodation, car rental services, and vacation products have been added to meet the diverse needs of members. Launch a limited-time points redemption event. During specific festivals or promotional periods, lower the threshold for points redemption to enhance members' participation and loyalty.

7.2.2 Service Recovery and Crisis Management

1. Establish a sound service remediation mechanism. When unexpected situations occur, measures can be taken promptly and effectively to remedy the situation. DF Airlines should formulate emergency response procedures in cases such as flight delays, cancellations or alternate landings. In this way, when facing unexpected situations, solutions can be found quickly and the emotions of passengers can be stabilized. For instance, in the face of delayed passengers, airlines should offer reasonable compensation, such as subsidies for meals, accommodation, transportation and other expenses. When dealing with passenger complaints, DF Airlines should establish a rapid response mechanism for passenger complaints, set up a dedicated complaint

handling team, classify and handle passengers' complaints, and provide solutions on the spot for simple complaints. For complex complaints, the situation will be investigated and verified within the prescribed time limit, and the progress and results of handling will be fed back to the passengers. Follow up and visit the results of complaint handling to understand passengers' satisfaction with the handling results, continuously improve service quality, and ensure that passengers' complaints can be accepted and resolved in a timely manner.

2. Strengthen crisis management. DF Airlines should strengthen crisis management and formulate a complete crisis plan. For various possible crisis events, such as passenger stranded, safety accidents, and public opinion crises, the responsible departments and individuals for crisis handling should be clearly defined, and detailed response measures and procedures should be formulated. Strengthen communication and cooperation with the media. When a crisis occurs, release information in a timely and accurate manner to prevent the spread of false information and maintain the brand image of DF Airlines. Establish a public opinion monitoring mechanism, pay real-time attention to the public opinion dynamics about DF Airlines on social media, online forums and other platforms, promptly identify potential crisis risks, and take corresponding measures to handle them. Through effective crisis management, reduce the negative impact of crisis events on customer loyalty and maintain the good image of DF Airlines.

7.2.3 Personalized Services and Communication

1. Utilize big data to achieve precise marketing. By applying big data analysis technology, information such as customers' travel history, consumption habits and preferences is mined, and customers are segmented into different customer groups such as business, leisure and family. Formulate personalized marketing strategies for different customer groups.

2. Strengthen customer interaction and communication. Carry out online interactive activities through social media, official websites, apps and other channels, and reward passengers who actively participate with points and coupons. DF Aviation staff can establish a customer community to enable customers to communicate and share their flight experiences with each other. They can also interact with customers in the community, promptly answer their questions, and collect their feedback and suggestions. By strengthening interaction and communication, enhance customers' recognition and loyalty to DF Airlines.

7.2.4 Strengthen brand building and promotion

1. Clarify brand positioning and shape a unique image. DF Airlines can position itself as a "high-quality, humanized and innovative" airline, emphasizing its advantages in service quality, customer care and technological innovation. Convey the brand concept and values of DF Airlines to

customers through brand stories, brand slogans and other means. Carry out a series of brand promotion activities, shoot infectious brand promotional videos, and showcase the high-quality services, advanced fleet and innovative achievements of DF Airlines; Hold a brand launch event to release new service products, route expansion plans, etc., to attract the attention of the media and customers.

2. Strengthen the maintenance of brand image. For negative incidents, DF Airlines should establish a rapid response mechanism. At the first moment of the incident, it should proactively communicate with customers to understand the situation, sincerely apologize to customers, and promptly take effective remedial measures to reduce the damage to the brand image caused by the incident. Strengthen communication and cooperation with the media, promptly release accurate and objective information, and guide the direction of public opinion.

3. Actively fulfill social responsibilities and enhance social image. DF Airlines should actively participate in public welfare activities, win the recognition and praise of the public by actively fulfilling its social responsibilities, and enhance the brand awareness and reputation of DF Airlines.

7.3 Comprehensive Measures

1. Optimize service processes: DF Airlines should conduct a comprehensive review of its existing service processes to identify unreasonable links within them. Redesign the service process, clarify the responsibilities and work standards of each position, and ensure the smoothness and efficiency of the service process. Establish a service process monitoring mechanism to monitor the operation of the service process in real time, promptly identify problems and make adjustments and optimizations. By regularly evaluating the effectiveness of the service process, continuously improving and perfecting the service process, the quality of service and customer satisfaction can be enhanced.

2. Build a scientific evaluation system: DF Airlines should establish a scientific customer relationship management evaluation system, clearly taking customer satisfaction, customer loyalty, NPS value, customer complaint rate, etc. as key evaluation indicators to comprehensively and objectively assess the effectiveness of customer relationship management. Regularly evaluate the customer relationship management work and adjust and optimize the customer relationship management strategies and measures in a timely manner based on the evaluation results. Link the assessment results of customer relationship management with the performance evaluation of employees to motivate them to actively participate in customer relationship management work and improve the quality and efficiency of the work.

8 Conclusion

8.1 Research conclusions

This study conducts an in-depth discussion and analysis on the customer relationship management of DF Airlines, and comprehensively dissects the current situation of customer relationship management of DF Airlines. By means of questionnaire surveys and case analyses, problems can be accurately located. From the perspective of various dimensions of the SERVQUAL model, there are deficiencies in aspects such as the facilities on the aircraft in the tangible dimension, the punctuality rate of flights in the reliability dimension, and the response speed of customer service in the responsiveness dimension. These problems directly affect customer satisfaction and loyalty. The NPS model shows that DF Airlines' customer loyalty is relatively low, while the detractors ratio is relatively high, which seriously restricts the development of the enterprise. Based on these problems, targeted optimization strategies are proposed, including enhancing satisfaction, loyalty and comprehensive improvement measures. The research provides a reference for DF Airlines to improve customer relationship management, and at the same time offers practical experience that domestic aviation enterprises can draw on.

However, this study also has certain limitations. In terms of the research scope, only DF Aviation is taken as the research object, and the sample is relatively single, which may not fully represent the customer relationship management situation of the entire aviation industry. In terms of research methods, it mainly relies on questionnaire surveys and case analyses. The application of emerging technologies such as big data analysis is not in-depth enough, and the potential value behind the massive customer data has not been fully explored. Future research can expand the sample range to cover more airlines of different scales and operating models for comparative studies. Meanwhile, strengthen the application of emerging technologies in the research of customer relationship management, deeply mine customer data, provide more comprehensive and in-depth research results for the customer relationship management of aviation enterprises, and promote the improvement of the customer relationship management level of the entire aviation industry.

8.2 Personal reflection

During this research on the customer relationship management of DF Airlines, I gained a lot, but at the same time, I also realized that I still have many deficiencies.

From the perspective of the application of research methods, the questionnaire survey method and case analysis method have provided me with relatively comprehensive data and actual case support, enabling me to deeply analyze the current situation of customer relationship management

of DF Airlines. However, during the research process, I found that these two methods have certain limitations. Although questionnaire surveys can collect data on a large scale, when conducting offline questionnaire collection, there will be situations where passengers are reluctant to fill in or do not fill in carefully, which leads to difficulties in data collection and the true thoughts of some customers cannot be fully captured. Although the case analysis method can deeply explore problems, the selected "incident where four passengers were left at the airport" is only an individual extreme case and may not cover all potential customer relationship management issues. I realize that in future research, more diverse research methods should be attempted to be introduced, the learning and application of big data analysis technology should be strengthened, the potential patterns and trends behind massive customer data should be explored, and the deficiencies of traditional research methods should be made up.

Furthermore, in terms of time management and the implementation of the research plan, I also had some deviations. Due to the difficulty of some research links exceeding expectations, the research progress lagged behind and the tasks of each stage were not completed strictly in accordance with the initial plan. This made me understand that when formulating a research plan, all possible difficulties and risks should be fully considered, a certain amount of flexible time should be reserved, and at the same time, the monitoring and adjustment of the research progress should be strengthened to ensure the smooth progress of the research work and avoid affecting the research quality and the timeliness of the results due to time delays.

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Appendices Questionnaire

1. What is your occupation?

- A. Student
- B. Office worker
- C. Freelancer
- D. Retired personnel
- E. Other

2. How many times have you taken DF Airlines flights in the past year?

- A. Once
- B. 2 to 3 times
- C. 4 to 6 times
- D. Seven times or more

3. The cabin class you usually choose:

- A. Economy class
- B. Business class
- C. First class Cabin

4. What is your membership level?

- A. Non-member
- B. Puka Member
- C. Silver Card member
- D. Gold Card Member
- E. Platinum Card member

Please complete the satisfaction score of questions 5 to 19. (1 point: Very Dissatisfied -5 points: Very satisfied)

- 5.The cleanliness and comfort of the facilities in the airport check-in area/waiting area
- 6.The quality of hardware facilities such as seats, catering equipment and restrooms on the aircraft
- 7.The overall image of the staff
- 8.The fulfillment status of member benefits
- 9.Accuracy of flight information
- 10.Flight punctuality rate
- 11.The connection speed of the customer service hotline and the efficiency of problem-solving
- 12.The timeliness of information notifications when flights are delayed or cancelled
- 13.The response speed of the staff
- 14.The communication skills and problem-solving abilities of the staff (check-in/security check/luggage handling)
- 15.The brand image of DF Airlines
- 16.The overall service of DF Airlines brings you a sense of security and trust
- 17.Does the staff proactively pay attention to your special needs
- 18.Did you feel respected and valued during the service process
- 19.When encountering unexpected situations, do the staff provide personalized solutions
20. Based on your experience, how likely are you to recommend DF Airlines to your friends, relatives or colleagues? (1-10 points)
- 21.The main reasons for your choice of DF Airlines are (multiple choices available) :
 - A. Ticket price discount
 - B. The flight routes have a wide coverage.
 - C. High punctuality rate

- D. Membership benefits appeal
- E. The in-flight service experience is good
- F. Brand trust
- G. Other

22. What is the possibility that you will choose DF Airlines again within the next year?

- A. Completely impossible
- B. Low possibility
- C. General
- D. High possibility
- E. Completely possible

23. Which service aspect do you think DF Airlines needs to improve the most?