

Design and Development of Integrated Platform for Automobile Sales Model under the Background of Big Data

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Abstract:Based on the integration of the big data background and the exploration of related technologies in the enterprise service bus, this article focuses on the management strategy of auto parts, carries out theoretical analysis on parts classification, parts demand forecast, parts inventory control, and combines the characteristics of the auto parts industry. Research. At the same time, combined with the demand analysis of the actual business process of the car dealer, the car dealer business system based on the SOA integrated platform is designed. In the system design stage, the current more popular model-view-controller (MVC) three-tier design pattern is adopted to better focus on the hierarchical development of each level.

Keywords: Integrated Platform, Automobile Sales, Big Data, Platform Design

1. INTRODUCTION

Since 2010, China's automobile production and sales have consistently ranked first in the world for four consecutive years. In 2013, my country's automobile production and sales exceeded 20 million vehicles. The data is very beautiful. From another perspective, although the overall automobile production and sales scale has maintained a certain degree of growth, the growth rate has tended to slow down. In the second half of 2013, car sales were 10.782 million, a year-on-year increase of 12.34%, and the year-on-year growth rate was 9.41 percentage points higher than the previous year. Among them, passenger car sales were 8,665,100 units, a year-on-year increase of 13.81%, and the year-on-year growth rate was higher than the previous year. 6.73 percentage points; commercial vehicle production was 2,117,100 units, an increase of 6.68% year-on-year, and the data for the same period last year was negative [1-6].

However, as the sales growth of the new car market has encountered a bottleneck, automakers and their dealers also need to make strategic adjustments and strategic transformations. In 1986, 76% of the profits of American car dealers came from the sale of new cars. Seven years later, in 1993, this figure had dropped to 27%. Dealers also began to think: Since the increase in the new car market has been very limited, new car sales can no longer be the sole source of profit for their own profits, how can they more effectively improve the overall operation and after-sales marketing? At the 2013 Global Automobile Forum, Chinese and foreign auto dealers reached an unanimous consensus: in less than three years, the profitability of "post-market" will surpass new car sales. Shifting the battlefield to the "post market" can relieve sales pressure to a certain extent, and it is also a new development direction in the industry. Although the term "aftermarket" for automobiles is simple, it actually encompasses many aspects. Vehicle grooming, new car modification, second-hand car transfer, repair services, auto financial services, and auto technology upgrades are all within its scope. Domestic car sales adopt the franchise brand sales

model, which integrates "complete vehicle sales, spare parts supply, after-sales service, and information feedback" as a store model [7-14].

This kind of sales model is usually that the car manufacturer signs a contract with the car dealer, authorizing the car dealer to engage in the marketing activities of the designated brand car in a certain area. Automobile manufacturers make unified arrangements for automobile dealers' sales methods, publicity methods, service standards, and sales procedures. Only one brand of car products are sold in the same store. For automobile manufacturers, dealers are one of the important ways for them to collect customer needs and market information, which can guarantee the revenue and profit of automobile manufacturers in terms of after-sales service. In the face of a huge automobile marketing network composed of dealerships, how to communicate quickly and effectively with dealers, collect dealers' customer information and sales data in time, and realize real-time sharing of automobile and other product information is that automobile manufacturers are distributing automobiles. Real-world problems to be solved before the product. Obviously, relying on traditional information exchange and storage methods, such as intercommunication of messages between dealers and car manufacturers through telephones, faxes, etc., or paper storage of product data for transmission, is a time-consuming and laborious task [15-21].

Such information management methods cannot centrally manage data, nor can it improve the level of information sharing and business collaboration capabilities between automobile manufacturers and dealers. The establishment of a scientific and effective dealership business system is the prerequisite and core competitiveness for automobile brand manufacturers and dealers to occupy the leading position in the after market and expand market share. The dealership business system is mainly used for automobile the company's huge sales network for communication and management. The comprehensive customer information collected by the DBS system can help dealers carry out targeted after-sales service

reminders. Product and service recommendations that are user-friendly and directly address customer needs are not only easy to be accepted by customers, but also allow them to experience the dealers' Customer Care. Further strengthen the loyalty to dealers and increase their return rate. Once the information is not delivered in time, it may cause the decision makers of the enterprise to be unable to grasp the changes in the market in the first time, thus losing the opportunity to promote the enterprise's products [22-24].

2. THE PROPOSED METHODOLOGY

2.1 The Car Sales Model

For the "Internet +" marketing strategy, there are still many problems in the implementation process. Among them, there are serious limitations in the scope of consumers. It is worthy of in-depth consideration. For network marketing, its development scope and development efficiency often depend on the number of online consumer customers and the desire of online consumer groups to purchase. Although Internet technology has been rapidly developed and every household has a personal computer, the number of Internet cafes and cafes on urban streets has gradually increased. This has a promoting effect on the development of Internet marketing, but for rural areas, The Internet has not been fully popularized, and the Internet has not covered some remote areas. In addition, the problems of excessively high network charges and slow Internet speeds in some areas have not been resolved. This will cause serious obstacles to the development of automobile network marketing.

In the 1990s, my country's automobile market entered the threshold of the international market. At this time, the domestic automobile market was in full swing. People's enthusiasm for buying cars was high, and the market was in short supply. Therefore, sales and publicity by personnel were not required. At this time, the seller's sales form on the market is single, and the most common are the direct sales of products by manufacturers and the sale of products by dealers. In the mid-1990s, with the increasingly fierce market competition and the influence of the social economy, the trend of the market changed from a seller's market to a buyer's market, which means that the previous sales model could no longer support automakers to profit from it. Therefore, sellers need to find ways to attract customers, sell vehicles, and ensure the relative balance of their production and sales. Therefore, special stores are needed to complete a series of after-sales problems after car sales. With the emergence of "Fengshen Auto Stores" and "Shanghai General Motors Sales and Service Center", it indicates that my country has begun to learn from the business model of foreign auto 4S stores. The 4S shop officially introduced the automobile sales market.

Automobile sales are divided into four parts: production, sales process, transaction, and after-sales. Comprehensive service is the goal requirement that all industries must achieve nowadays.

2.2 The Big Data Model

The content of data is huge, and we need to sort out the data that is beneficial to ourselves to organize and utilize it, provide a database for auto companies, and establish a data marketing model that suits the needs of auto companies. Every consumer's car purchase behavior contains a large amount of data and information. The consumer's consumption behavior is expressing his needs to the car company. You can observe which information is related to the consumer's consumption behavior, such as buying a car product. What is

this point of attention, such as: brand, function, model, price, service, etc. These are all very important. Car companies can analyze these data and obtain customer needs from them. The positioning, marketing and after-sales service of automobile products have important reference value.

Reasonably arrange human resources to inject fresh power from big data analysts and customer resource allocation personnel into the marketing team. Form a progressive workflow relationship from data mining to resource allocation and finally to sales positions. Data analysts mainly use big data technology to efficiently and accurately mine potential customers, as well as to sort and store customer resources to achieve centralized management of enterprise customer resources. It not only ensures the accuracy of customer information resource mining, but also reduces the risk caused by the loss of corporate sales staff; resource allocation personnel are the hub of marketing and are mainly responsible for the allocation of customer resources. According to the sales staff's personal experience and work ability, the customer resources of different values divided by data analysts are matched. This allows sales staff to pay more attention to the improvement of their professional quality and focus on providing better services to customers who come to the store instead of focusing too much energy on customer mining that they are not good at. More importantly, this can avoid malicious competition among internal sales staff of the company's customer resources for performance, which blurs the focus of competition and brings losses to auto companies. Reasonably arrange human resources to inject fresh power from big data analysts and customer resource allocation personnel into the marketing team.

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2.3 The Integration Platform of Automobile Sales Model Based on Big Data

First, the salesperson receives customers who have car purchase needs and registers customer reception information. Customers who have not signed a sales contract are called potential customers. The sources of potential customers are as follows: customers who come to shop to buy cars, customers who call for inquiries, customers who accept salesmen's door-to-door sales, customers who buy cars online, etc. Customer reception information consists of two parts: one is the customer's basic information, including name, gender, address, phone number, nature of work, travel mode, dressing, etc.; the other is the vehicle information the customer wants to buy, including car series, model, color, etc. Price, ways to learn about vehicle information, expected time of car purchase, degree of car purchase intention, whether to purchase a car for the first time, car focus, etc.

This information helps the sales staff to initially understand the customer's ability to buy cars, and then formulate a targeted follow-up plan for the customer to facilitate the continuation of the car purchase transaction. WSDL is used to provide a language for describing services and how to communicate. It is an excuse definition standard for SOA. It mainly consists of five elements, including data types, definitions of input and output parameters for a set of

messages, definition of web service operations, descriptions of specific service interface protocols and bound port addresses. Its language is based on XML and is used to describe web service functions, return values, and formal parameters. Web service and WSDL can be converted to each other through tools, which is very convenient. Through the analysis in the previous chapters, dealers should better manage vehicle sales and after-sales services through effective accessory management. All of these require a large amount of data support, including a series of 1) standard data (accessory codes, names) , Minimum order quantity, etc.) 2) Real-time data (parts inventory, parts in transit, parts waiting to be collected) 3) Other department data (service department: service appointment, due maintenance) 4) Historical data (historical sales records, inventory records) 5) Manufacturer data (parts replacement information, discontinuation notice, promotion plan) 6) Reference data (local auto market and after-sales parts market sales, competitors, etc.) to determine key indicators such as order cycle, safety stock, and reorder points.

3. CONCLUSIONS

Aiming at the business needs of the dealership of a certain automobile brand manufacturer, as well as the information exchange and data sharing needs with the manufacturer, this article considers the cross-platform and scalability of the system, and weighs the differences with these two system development models. Advantages and disadvantages, designing the B/S structure of the automobile 4S shop sales management system based on the JAVA platform; at the same time, in order to shorten the response time of the SQL system, the technology is applied to the system design.

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