Research on Marketing Management Innovation based on Big Data Background

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Abstract
In the era of big data, enterprises can use big data to collect all kinds of consumer demand, so as to optimize the marketing strategy. In this paper, the author analyzes the marketing management innovation based on big data background. Big data contains a lot of consumer data, it can help the enterprise to deal with analysis of customer needs, develop appropriate consumer shopping list for customers to meet the personalized needs of customers, to help enterprises to develop specific marketing strategy. Perfect customer information processing system can help enterprises to establish a good corporate image, and greatly improve the competitiveness of enterprise products.

Key words: Big data, Network marketing, Model innovation, Decision mechanism

1. INTRODUCTION

In recent years, more and more enterprises pay attention to the big data which can help enterprises to make decision, acquire, process and arrange information in a reasonable time. With the development of Internet of things, network technology and the popularity of intelligent terminals, people ushered in the era of big data. In modern society, the traditional marketing ideas and ways of thinking are gradually changing, innovative marketing model has been widely concerned, the concept of marketing mode under the age of big data has been proposed, which has brought opportunities and challenges for many enterprises to carry out marketing. Enterprises are the main body to promote the development of national economy. With the progress of the times, the arrival of big data era has a profound impact on enterprises. Enterprises can not simply use the traditional marketing model to make marketing decisions. Enterprises need to analyze the consumer's favorite degree of products, the basic characteristics of products, and the distribution area through the data, so as to make more perfect products and corresponding marketing strategies. Now the data has penetrated into every industry, has become an important factor in production, to find out the inherent laws, can make big data to better serve the human beings, which is applied to marketing, at present there are many enterprises with this new mode of marketing. Countries around the world have begun to pay attention to the great commercial value behind the era of big data, a series of new production and lifestyle has been rapidly developed. In the process of rapid development, many enterprises began to focus on the development of self innovation strategy, this paper focuses on the enterprise marketing strategy, hoping to provide suggestions for the enterprise marketing strategy innovation, seeking to bring the era of big data welfare. Big data refers to a large amount of data, data types of complex data sets, more than ordinary data software acquisition, analysis, processing capabilities. The complex characteristics of big data makes the traditional management mode has not adapted to the requirements of the times, so enterprises in making marketing strategy, must carry on the innovation and development of the necessary in the era of big data in the background, to promote the development of enterprises in the future smooth and orderly.

In the era of big data, enterprises can use big data to collect all kinds of consumer demand, understand the consumer purchase motivation, with the current network marketing theory, combined with the integration of marketing and direct marketing, soft marketing mode in the traditional marketing mode, and gradually establish the concept of relationship marketing, with massive database and through the mining of valuable information in the database, the enterprise can find a lot of useful information, this information can help the enterprise to improve the marketing concept, the enterprise through these data can be analyzed in the regional distribution of consumer preferences and consumers, according to the performance of consumer demand changes of products, increase product sales. The era of big data can help enterprises to obtain the latest consumer information, and help to grasp consumer demand. The enterprises with advanced data management technology can grasp the development trend of the market in the market competition, and grasp the initiative of market competition. Big data contains a lot of consumer data, can help the enterprise to deal with analysis of customer needs, develop appropriate consumer shopping list for customers to meet the personalized needs of customers, to help enterprises to develop specific marketing strategy. Perfect customer information processing system can help enterprises to establish a good corporate image, and greatly improve the competitiveness of enterprise products.

2. DATA MINING BASED ON SVM ALGORITHM
2.1. Vector Machine Support

SVM algorithm is widely used in the field of data mining, but also by the scholars more and more attention. Support vector machine is a new machine learning method based on statistical learning theory, in order to find an optimal function \( f(x, \pi) \) to approximate the links between the input \( x \) and the output \( y \) and theory requirements follows the minimization of the expected risk:

\[
R(\pi) = \int L(y, f(x, \pi))dF(x, y)
\]

Therefore, the expected risk of \( R(\pi) \) to replace the experience of risk:

\[
R_{\text{emp}}(\pi) = \frac{1}{l} \sum_{i=1}^{l} L(y_i, f(x_i, \pi))
\]

Vapnik after in-depth study put forward the principle of structural risk minimization (SRM), that is:

\[
R(\pi) \leq R_{\text{emp}}(\pi) + \sqrt{\frac{h \ln \left( \frac{2l}{h} \right) - \ln \left( \frac{\eta}{4} \right)}{l}}
\]

First, the linear separable problem is analyzed. For linearly separable training sets:

\[
T = \{(x_1, y_1), (x_2, y_2), K, (x_n, y_n)\}
\]

Hypothesis existence discriminant function:

\[
f(x) = \text{sgn}((\omega \cdot x) + b)
\]

2.2. Data mining

In recent years, data mining has attracted great attention of the information industry, the main reason is the existence of a large number of data, can be widely used, and the urgent need to convert these data into useful information and knowledge. Access to information and knowledge can be widely used in a variety of applications, including business management, production control, market analysis, engineering design and scientific exploration, etc.. The use of data mining from the following areas: (1) from the idea of statistical sampling, estimation and hypothesis testing; (2) artificial intelligence, pattern recognition and machine learning algorithm, modeling technology and learning theory. Data mining has also quickly accepted ideas from other fields, including optimization, evolutionary computation, information theory, signal processing, visualization, and information retrieval. Some other areas also play an important supporting role. In particular, database systems are required to provide efficient storage, indexing, and query processing support. Techniques that are derived from high performance computing are often important in dealing with massive data sets. Distributed technology can also help to deal with massive data, and it is more important when the data cannot be concentrated together.
3. OPPORTUNITIES AND CHALLENGES OF MARKETING IN THE ERA OF BIG DATA

3.1. Opportunity

In the background of big data, consumer behavior has changed greatly compared with the traditional way. Through the data display, consumers can more easily understand the product information, accurately grasp the market situation, in the process of consumption is full of rational thinking. Therefore, consumers need to be more humane in the process of consumption, more attentive service, in the era of big data background, enterprise can through data analysis to understand the consumer's habits, accurate positioning of the consumer, provide convenient and humanized service in place. Therefore, we must accurately grasp the pursuit of consumers, and continue to provide consumers with humane services.

Enterprises can analyze consumers' shopping cart through data analysis, and understand the internal unspoken rules when consumers buy composite products. Through the data analysis, grasp all the information about consumers, draw up the cross strategy for the development of enterprises. Through cluster analysis, mining consumption combination, improve the enterprise marketing mode, to better grasp the cross selling, launched for consumers to identify the product portfolio, make full use of the data in a convenient, under the new opportunities for enterprises to provide the development of new world. Big data era makes it easier for enterprises to obtain consumer shopping information, big data era to reduce channel costs, so that faster turnover of enterprise funds. Through data analysis, enterprises can find more appropriate channel partners, eliminate the channel partners without performance, and optimize the management of enterprises. The reduction of the channel cost gives the enterprise a wider sky, and more funds are put into the production of the products. Only by reducing the cost of the channel to the lowest level can the enterprise have a foothold in the highly competitive society.
3.2 Challenge

Everything is a double-edged sword, there is a positive side, there is a harmful side. The massive data exchange makes the business environment more complex. Under the influence of big data, information transfer makes the convergence of information more convenient, but the huge amount of information also makes the data screening become a big problem. All kinds of data, how to extract valuable information successfully, and ensure the data accuracy and rationality has become a challenge to every enterprise. Traditional data analysis methods cannot adapt to the background of big data, so the sales personnel must learn, improve their skills to adapt to the modern background data. As an enterprise, it is also necessary to set up its own management department rationally, and cultivate sophisticated talents to adapt to the development of the times, so as to help enterprises to remain invincible in the face of challenges.

In the era of big data, the widespread use of the media makes the traditional promotion methods can not adapt to consumer spending habits, convenient and fast way of consumption makes the traditional promotion strategy pale. Big data network marketing makes consumption not restricted by region and time, and the trend of globalization is becoming more and more obvious. The changes of time and space require enterprises to make strategies to adapt to the changes of the times.

Figure 4. Analysis of big data consumption habits

4. MARKETING INNOVATION

4.1 Precision marketing, to provide personalized services for customers

In precision marketing, the most important thing is to realize precise positioning, the use of information technology to establish contact with consumers, through good communication with consumers, enterprises can understand the needs of consumers, can also promote effect on products. The most important elements of precision marketing are customer, cost, convenience and communication four elements, should adhere to the consumer oriented principle, enterprise all behavior should be around the service of consumers to carry out. In the era of big data, enterprise marketing channels become shorter, saving a lot of cost, in the era of big data, consumers can also buy goods of good quality and low price. Consumers can by way of big data, search their interested products, big data can provide a lot of goods and services to consumers of information on the network, consumers can buy the products they want, provided many convenience for consumers.

In the era of big data, two-way communication between consumers and businesses is more convenient, through the network, consumers can inform their own needs of businesses, businesses can also introduce the performance of products to consumers. Under the era of big data, laid the foundation for the precision of marketing, based on a large amount of data, the user can analyze the behavior of the individual, but also understand the user's preferences, between businesses and consumers can even one-on-one exchanges, enterprises in product design, can also be carried out in accordance with the requirements of consumers so, the value of the products increase, providing more valuable products for consumers.
4.2. Cross selling of products

Cross selling refers to a customer, you can dig out more customers, but also can find a lot of potential customers, effectively expanding the market, break through the limitations of time just to meet the customer demand, to achieve horizontal and vertical markets. In general, large supermarket, cross selling marketing measures is more obvious, the supermarket every day statistics on the sales data, with big data technology to the data mining and finishing, to understand consumer buying habits, then the supermarket will be the optimum combination of products, improve product sales. For example, take care of the baby's mother will buy diapers in the supermarket, the supermarket will analyze these data, found diapers and toilet paper together, take care of the baby's mother will buy diapers after he buy a bag of toilet paper, which will greatly enhance the supermarket sales. Open the mall in the network can also be based on the purchase of short-term consumer data analysis, the data integration analysis, consumer buying habits, for example, consumers in the purchase of a product, businesses can regularly send product information for consumers, allowing consumers to patronize again, to learn the preferences of consumers, enterprises can according to consumer preferences, sending some of their love products.
growth for customers, old customers should be given preferential policies, improve customer loyalty. With the advent of the era of big data, in the homogeneous product marketing phenomenon is more serious, the enterprise wants to obtain a serious product homogeneity in, it is necessary to establish a long-term relationship with customers, improve customer loyalty, at the customer's angle of thinking should be customer relationship management, and strive to create more the value for the customer, and taking into account the needs of individual customers, provide more personalized products for customers, enhance the customer satisfaction of products.

5. CONCLUSION

The arrival of big data brings enterprise wide development space, but also improved the enterprise must keep pace with the trend of the times, starting from the core enterprises, improve their own management system, take advantage of big data, accurate access to consumer information, cross selling, and reduce the channel cost, so as to make the enterprise in an invincible position. Seize the opportunity, will grow their own. Big data technology is an important factor restricting the innovative marketing strategy of enterprises, so enterprises must strengthen the big data technology development efforts, based on the data analysis to find a suitable enterprise development marketing system, starting from the key product design concept, product quality and marketing innovative concept, continue to meet consumer consumption demand.

REFERENCES


