Application of Big Data Analysis in E-commerce Enterprises—A Case Study of Taobao

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ABSTRACT

With the development of science and technology and the progress of the era, data have become an indispensable part of life. All things in life can be converted into data for analysis and prediction. Along with the development of cloud computing and the Internet, big data analysis has become increasingly important, especially in the field of e-commerce enterprises. By analyzing the data of consumers and marketing, enterprises can maximize their revenue to achieve a better development. Taking Taobao as an example, starting from the impact of big data analysis on e-commerce enterprises, the author discusses the impact of big data analysis on Taobao's marketing, and explores how Taobao applies big data analysis in its business activities to improve its competitiveness to gain a deeper and more accurate insight into big data analysis. The paper finds that big data analysis can help win customer trust by satisfying consumers' needs. Besides, it can help broaden Taobao's sales channels, and form a better marketing model to bring huge earnings. However, big data analysis may also have a bad impact. If data security is not effectively guaranteed, data leakage, whenever it happens, may cause serious losses. In addition, big data can be applied in different ways to improve Taobao's competitiveness in business activities, such as understanding marketing objects, accurately identifying resources, carrying out marketing services, etc.

Keywords: *Big data, E-commerce, Taobao, marketing services*

1. INTRODUCTION

When it comes to big data analysis, it is necessary to understand what big data are. Big data refer to those huge and complex data sets that cannot be handled by traditional data processing software. Big data not only have various forms, but also are characterized by instantaneity and reliability. Generally speaking, big data are useless before they are mined. However, in fact, they possess inherent values [1]. Enterprises can improve their operation efficiency and develop new products by analyzing these data. Therefore, these values have become a kind of capital that major enterprises yearn for, and big data analysis, as the only way to process and analyze such massive data, has become the most favored means of enterprises.

Big data analysis is a process of analyzing large and complex data sources to provide information for better business decisions by uncovering trends, patterns, customer behavior and market preferences [2]. When data gets unusually enormous in size, more powerful computing power is required to process all data from multiple sources. Therefore, analyzing the complexity of big data calls for the use of a variety of technologies, such as prediction analysis, flow analysis, intra-database and intra-cluster analysis.

Taobao, as one of the most popular online retail platforms in China and even the Asian-Pacific region, has always been a representative of the emerging field of e-commerce. With the development of e-commerce, more and more people choose to use Taobao for commodity transactions [2]. Therefore, there exist various huge data sets and big data analysis is of great significance to Taobao.

Therefore, in this paper, the author selects Taobao as the representative of e-commerce enterprises for a detailed analysis, and expounds the value of big data analysis through analyzing its role on Taobao's own sales and its impact on Taobao's marketing to comprehensively present the charm of big data analysis so that readers can more objectively and deeply understand the role of big data analysis. Through the in-depth study, this paper demonstrates great benefits that big data analysis brings to enterprises, especially e-

commerce enterprises, and shows how to improve the big data analysis technology to a higher level.

2. THE ROLE OF BIG DATA ANALYSIS ON TAOBAO'S MARKETING

Figure 1 area:

Percentage of Users by Type

24% Potential Customers
45% New User
3% General Maintenance Customer
28% Loss of Customers

Figure 1 Percentage of users by type

User Behavior

(Day1–Day7)

- Number Add to Cart Per Capita
- Collection Per Capita
- Number of Orders Per Capita
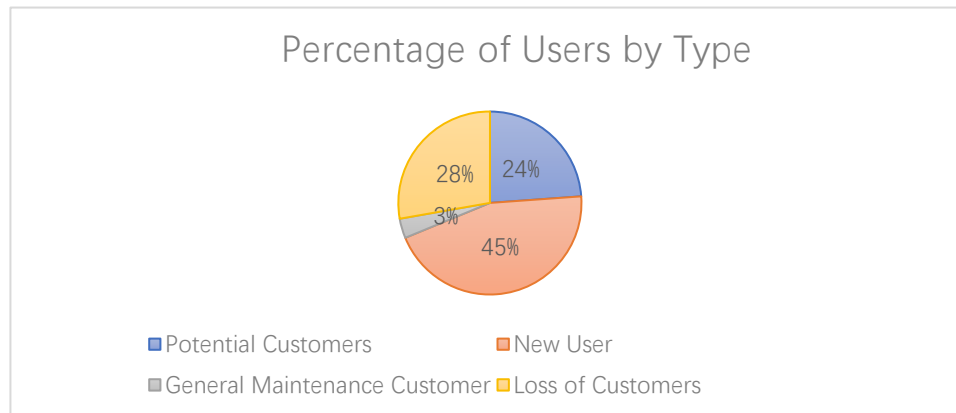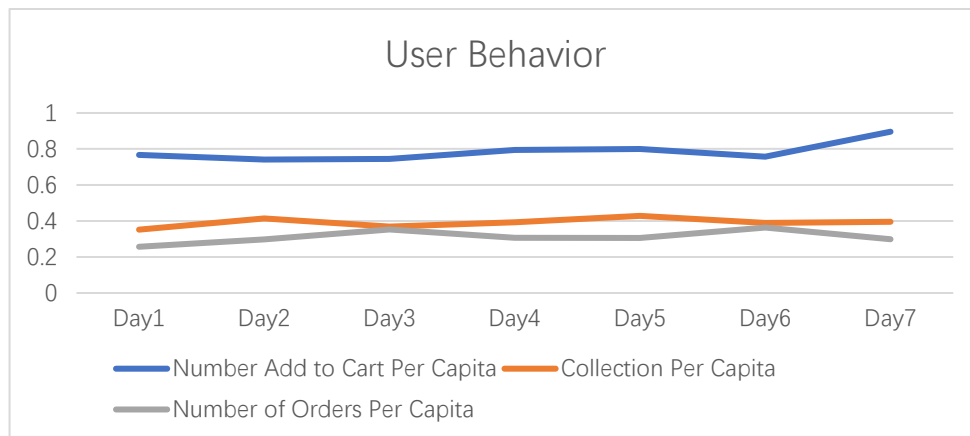
Figure 2 User Behavior

Through the analysis of customers' attitudes towards products and a series of data analysis, it is clear that Taobao has combined customers' needs with its own products, so as to win favour from customers and accurately grasp the development direction of enterprise. By categorizing these customers, we can have a better understanding of their stickiness and loyalty, so as to achieve better promotion. The following graph is a sample of Taobao users to show the proportion of lost, potential, new and general maintenance users. We can see that new users account for about forty-five percent, and the difference between lost customers and potential customers is not large. Therefore, how to make new users become potential customers and reduce the number of churned customers is the direction Taobao should work on, through the analysis of big data can let it fully understand the trend of their customers [3]. On the other hand, data can most intuitively show what customers really want. It determines the preferences of the general public through analysis of product information in user behaviour data, for example, the top 10 clicked products, the top 10 collected products, the top 10 products added to the shopping cart and the top 10 purchased products. For example, the data of one week can be analyzed to find the relationship between number add to cart per capita, collection per capota and number of orders per capita [4]. When Taobao change the analysis time from one week to a month or a year, then they will clearly get the consumption quantity of consumers at a specific point in time, so as to promote. Once an enterprise successfully understands its marketing objects, it can better meet their needs, so as to improve its sales volume qualitatively. This is also fundamentally different from traditional marketing strategies.

2.1 Understanding the Marketing Object and Satisfying Consumer Needs

2.2 Locking Resources

Whether in the past or in the future, various resources are critically important to any enterprise. More sufficient resources can better facilitate the enterprise development. Through big data analysis, enterprises can more specifically know about the situation of various resources and their mining methods in order to make better use of existing resources or develop new resources.

For Taobao, more and more online retailers and consumers present its main resources, and the efficient sales model also constitutes its existing resources. How to grasp these resources and forge further ahead in the future requires Taobao to make good use of the important instrument of big data analysis [5].

2.3 Good Operation

Compared with traditional marketing, operation is rather difficult. In the past, fuzzy conclusions could only be reached through the analysis of previous cases, in order to carry out limited market operation. Nowadays, if big data analysis can be used, Taobao can have access to more information [6]. Instead of being limited to its own cases, it can also analyze the relevant data of its competitors, so that it can update its strategic planning from time to time and take the overall situation into account in operation, and gain an upper hand in competition with a single tactic.

2.4 Provision of Marketing Services

In terms of marketing promotion, Taobao adopts diversified methods, such as through train promotion, Taobao community promotion, Q&A platform promotion, forum promotion, etc. Through the analysis of the interaction data between customers and its own social data as shown in Figure 2, Taobao brings them more meticulous services and make customers feel particularly comfortable with special services, so as to better cater to their needs and facilitate the conclusion of transactions.

3. IMPACT OF BIG DATA ANALYSIS ON TAOBAO'S MARKETING

3.1 Impact of Big Data on Product Strategy

In marketing, decision-making has been attached increasing importance. In today's environment, it is difficult for enterprises to succeed in the competition by only relying on their core products, as consumers entertain increasingly higher expectations for products. Once they are dissatisfied, they will choose another one to continue their search for ideal products. Therefore, enterprises should take the development and mining of augmented products and potential products as the key to the competition between enterprises, and make the right decision to win by surprise. Therefore, through the analysis of big data, enterprises can better learn about customers' needs and preferences, so as to conduct correct marketing[6]. For Taobao, with the support of its parent company Alibaba, it has been able to use big data as a medium to collect various market information and establish a database. Consumers can find the products they need and find the corresponding merchants through the database. In the meantime, Taobao also has a set of

evaluation system to ensure the transaction between the buyer and merchant. After transactions, buyers can give an evaluation of the transactions, and other customers can refer to these evaluations when making a buying decision. Moreover, for different customers, Taobao can also learn about what they are interested in through big data analysis, so as to push some products they like to their homepage, and help clinch transactions. This strategy has also become a very popular method simulated by other enterprises.

3.2 Impact of Big Data on Price Strategy

In the transaction, price is also an extremely important aspect. On the other hand, just as big data helps enterprises to carry out accurate marketing, when enterprises have consumer data, they can more accurately understand the commodity prices acceptable to different consumers by means of big data analysis to facilitate marketing commodities suitable for their consumption level. On the other hand, enterprises can also consider a series of factors such as production cost, storage cost and transportation cost to bring quality commodities with low prices to consumers, which enables them to kill two birds with one stone, i.e., reaping a profit, and satisfying the consumption needs of consumers[7]. Therefore, Taobao has made much effort in this aspect by taking a gradual pricing strategy, and recommending commodities of different prices to different customers for their selection, so as to accumulate a lot of customers, and attract many merchants to sell their commodities on the Taobao platform to better facilitate enterprise development.

3.3 Impact of Big Data on Channel Strategy

To enable target customers to get products more conveniently, enterprises use the big data analysis technology to dig up and integrate more information, effectively make use of various intermediaries and marketing service facilities, and provide customers with products and services more efficiently. When facing different customers with different consumption ideas in different countries, big data analysis makes it possible for enterprises to quickly obtain the current fashion trends and current needs of consumers, so as to facilitate the conclusion of transactions [8]. Taobao, as one of the most popular online retail platforms in China, does not merely confine itself to the domestic market. It is also gradually expanding its tentacles to the international market. It has launched its overseas version, and consumers can also buy the products they desire by filling in the international address. This enables people in other countries or Chinese living overseas to become Taobao users and buy the products they need. Therefore, big data analysis can open up brand-new sales channels for enterprises and help them find the right sales direction, thereby boosting their development.

3.4 Impact of Big Data on Promotion Strategy

Promotion strategy is a method to promote the sale of goods, such as timely displaying goods to goad customers' consumption desire according to the changes in customer psychology during purchase activities, or arousing customers' purchase interest through stimulating their buying impulse. With the application of big data analysis, e-commerce enterprises can get to know what consumers would like to have through data and achieve transactions through pushing relevant information, giving discounts and other means [9]. On the other hand, the application of big data analysis effectively reduces the communication cost between merchants and consumers and the time of commodity transportation. Through analysis, the transaction can be completed in less time, and then be shipped through the fastest delivery channel. By analyzing the search data of consumers, Taobao pushes the goods they are interested in to the homepage of consumer software. These goods are not only suitable in price, but also rich in type. This proves to be one of its effective means to stimulate consumers to buy.

3.5 Impact of Big Data on Information Security

Information security has always been of great importance. Personal information is privacy and worth protecting. Big data analysis can bring many benefits to enterprises. However, when these data are not effectively protected, the leakage may cause many unwanted hidden dangers. The most obvious example is the leakage of phone numbers. Therefore, for an enterprise, it should strictly abide by the requirements to protect big data [10]. Once the data are leaked, consumers will gradually lose trust in it. What is worse, when personal information becomes a tool for outlaws to seek benefits, it will cause a huge loss to either the enterprise or consumers. Therefore, data protection should also become an important part of enterprise business.

4. CONCLUSIONS

On the whole, big data analysis can exert a huge impact on Taobao's marketing. By catering to the needs of consumers and using better operations and strategies, it can win the trust of customers, make its commodities more competitive, broaden its sales channels, and form a better marketing pattern to reap huge benefits. At the same time, data security has also become a hidden danger. Once these data are leaked, the loss will be very severe. Therefore, Taobao should enhance the protection of data and regard information security as one of its important goals. In addition, there are many ways to apply big data to improve Taobao's competitiveness in business activities, such as understanding marketing objects, accurately identifying resources, carrying out marketing

services, etc. The combination of big data analysis with these methods can allow Taobao to gain a cutting edge in the competition.

Some limitations are still present in this study, as there is no in-depth investigation of various facets of Taobao marketing through market survey, and as a result, the research is not very comprehensive. Therefore, in the future, the author will continue to probe into this aspect through questionnaire survey and in-depth survey. Nowadays, big data have become a trend of the era. All things can be described with data, and new data can also be generated in the development of all things. If an enterprise wants to succeed, it must know how to extract the useful part from the massive data, so as to formulate a better sales strategy, just like Taobao, which, through data analysis, understands the customer needs, explores new markets and becomes a benchmark of the industry.

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