Application of Data Mining Technique in Business to Consumer Electronic Commerce

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Abstract

In B2C e-commerce activities, it is involving vast amounts of customer data information. Introducing data mining technology to the electronic commerce, it provides a large number of valuable business information to electronic business enterprise, enhances the core competition of the electronic commerce enterprise. This paper starts from the model of data mining, analyzes the steps of the data mining and puts forward the application of data mining technology in B2C e-commerce.

Keywords: Data mining; B2C; Electronic commerce

1. INTRODUCTION

Along with information technology, networking, data bank technology unceasing development and mature, electronic commerce in commercial information society swift and violent development. B2C is in the electronic commerce one kind of main pattern, is faces the consumer to provide the service or the sales product network retail sales. According to China Electronic Commerce Research Center monitoring data show that in the first half of 2014, the national e-commerce transactions amounted to 5.85 trillion yuan, up 34.5%, of which B2C transactions reached 1085.6 billion yuan, up 43.9%, China's online shopping users up to 3.5 Billion with an increase of 26.4%. Such large-scale online shopping user data to e-commerce companies bring potential business value and how to better the user's relevant data for the full and reasonable use of the enterprise to create greater profit margins, which is the B2C e-commerce facing urgent problem.

Data mining is a process of extracting potentially useful information and knowledge from large, incomplete and random practical application data. The data mining technology into e-commerce, e-commerce enterprises to provide a large number of valuable business information, improve e-commerce enterprise's core competitiveness.
2. B2C E-commerce Features

2.1 B2C E-commerce Meanings and Definitions

B2C e-commerce is the enterprise to carry out e-commerce, through the Internet to the individual network consumers direct sales of products and services business model, that is, online retail, e-commerce development is the most mature business model is the most familiar with the public an electronic Business Type. At present, the representative of this model site has T-all, Jingdong Mall, Suning Tesco, Gome online, Dangdang, Weipinhui, Amazon China and so on.

2.2 B2C E-commerce Features

B2C e-commerce caused a reform of commodity marketing model, both in companies and consumers to benefit from it. The characteristics of the B2C e-commerce mainly reflect in the following respects.

- Merchants set up shops on the net, broke the traditional store business circle, client development to the country and the world. Consumer can be at home or office, housebound find, needed to buy goods online, merchants provided a series of service.
- B2C network retail is a direct way, the middle part of commodity trading greatly reduced, greatly reducing the transaction costs of goods. In addition, compared with traditional stores, online stores do not need physical stores, eliminating the rent, renovation costs, staff salaries and other costs, just spend the cost of the network maintenance, which makes the cost of sales to achieve the minimum that greatly enhance the competitiveness of enterprises.
- Online shop has no physical stores, e-commerce companies to sell a variety of the products in website, consumers can from many sellers and many choose the most suitable for their own goods. In addition, the consumer can through the network to communicate their requirements to the businessman, businesses to obtain consumer demand information can satisfy consumers' desire unique.

3. Data Mining Mode in B2C E-commerce

There are many patterns of data mining, and the data mining patterns commonly used in B2C e-commerce include classification, clustering, association and sequence.

3.1 Classification Pattern

Classification model is a data classifier, which can map the data in a data set to a given class, which can be applied to data prediction, such as statistical method, decision tree method and rough set method. Classification model is like a classification tree, which according to the value of the data from the roots began to search and along the data to meet the pillar up to find the leaves can determine the category. In data mining, the construction of classification model is usually the classification of e-commerce data for forecasting the use of data.
3.2 Clustering Pattern

Clustering model is based on some attribute data into different groups, there is a huge difference between the group and the group, but the difference of each group on the inner recognition properties as small as possible. Unlike classification model, clustering model no preset before clustering categories, do not know to be divided by the number of groups and categories. The data mining model is mainly used to segment customer base.

3.3 Association Pattern

The connection pattern is between the data item connection rule. But is connected the rule is describes the rule and the knowledge pattern which between the thing simultaneously appears. We must pay attention to the full understanding data in the connection rule excavation, the goal is clear about, the data preparation work must complete, selects the appropriate best support and the smallest confidence level, very good understanding connection rule. The connection pattern is widespread in the market marketing application, one of main applications is may through carry on the connection rule analysis to customer's purchase behavior, thus inquires customer's in commodity purchase time behavior pattern.

3.4 Sequence Pattern

Like an association pattern, the sequence pattern associates the association between data and time. In order to discover sequence patterns, it is necessary to determine not only the event occurrence but also the time at which the event occurred. Sequential patterns are widely used in marketing, such as catalog sales companies can use the sequence association analysis can be based on the purchase of this customer to design the next commodity directory.

4. The Data Mining Process of B2C E-commerce

Data mining is a decision support process that seeks patterns in a collection of facts or observations. B2C e-commerce data mining process is mainly composed of data preparation, data mining and results analysis of the three main stages.

When carries on the data mining, carries on the data mining the object is not generally the primary data, must carry on some pretreatments beforehand to the primary data. In the B2C electronic commerce, carries on the data mining the data origin to have two aspects: One is the customer background material, main origin and customer registration form, but because the customer background material involves individual privacy, therefore the customer was not willing own real information truthfully filling in the registration form, this has brought for the data analysis and the excavation the difficulty. Two, the browsing click class, mainly inspects the customer with this part of data the behavior. Through from the browsing performance data extrapolated the customer the background information, uses. The data preparation first retrieves the network documents which needs, discovers the resources, then carries on the data pretreatment, from discovery network resources automatic choice and pretreatment special information. The actual mining operation is performed at this stage. The preprocessing
information obtained in the first stage is obtained by different mining methods according to different mining tasks, and then the valuable data model is obtained. Mainly statistical analysis, knowledge discovery and other visualization methods and the statistical analysis can be found through the laws of data, and can use statistical and mathematical models to explain the laws of discovery; through knowledge discovery for data search, find the law and then available data model; also available through other visual methods multivariable graphical analysis, and enhance data mining capabilities.

The result of the data obtained from the second phase, based on the user's decision-making purpose to analyze the result information, the information redundancy, meaningless, leaving the most valuable information, this information by decision support tools presented to decision makers. In this stage, therefore, should not only give expression to effectively explain the results of the analysis, but also to present information filtering screening process. Once policymakers are not satisfied with the results, we need to repeat the process. The complete data mining is a process which a relapse feeds back revises. In excavation process, when the user discovery data access is inappropriate, when or the excavation method cannot satisfy the expectation result, the user carries on in the data mining process on the repetition some one step, sometimes even must start from the beginning.

5. The Application of Data Mining Technology in B2C E-commerce

Data mining technology in B2C e-commerce is widely used, the main application is reflected in the following aspects.

5.1 To Optimize the Design of the B2C E-commerce Sites

B2C e-commerce sites have large amounts of data need to collect and deal with every day, to a higher level of analysis of the explosion of data, better use of these data. By using data mining techniques for B2C e-commerce sites in the log files and related data analysis processing, found on the site of the customer and the visitor's access sequence, habits and behavior patterns, it is the result of mining information, can be analyzed to determine the different customer groups or individuals access patterns, the result becomes site topology optimization, the basis to determine the relations of the links between pages. According to which customers can be interested in the content or items to increase, adjust the page content. Through the site to adjust the organizational structure and services to change the way to improve the efficiency of the site, thereby promoting sales

5.2 Strengthen the B2C E-commerce Customer Relationship Management

In B2C e-commerce, customer relationship management is an important management content, you can use data mining technology to enhance customer relationship management. B2C e-commerce companies can use data mining technology to marketing data, business data and customer data mining analysis, the resulting data information can be used to guide the business decision-making and market planning. Through data mining, we can identify
potential customer groups, the implementation of its targeted strategy to early registration as a customer. Using the data mining technology can make customer satisfaction analysis, find out the influence factors of customer satisfaction and importance, B2C e-commerce enterprises enhance the overall level of customer service. Using the data mining technology to mining of customer access to information, analyze customer browsing behavior, get the customer's needs and interests, targeted to provide some advertisements or information, extend the customer the dwell time on the site. Using the data mining technology to analyze has lost customer characteristics, in before the loss of customers with similar characteristics to take effective measures to retain the customer.

5.3 Raise the Level of B2C Electronic Commerce Network Marketing

Network marketing is the B2C e-commerce business through its website for a series of marketing activities. Network marketing involves a large number of customer-related data, through the use of data mining technology to mine these data analysis, can help B2C e-commerce enterprise evaluation of the implementation of marketing strategies, but also for different user groups targeted products promotions. In the B2C electronic commerce network marketing, data mining can be used to analyze large amounts of data, the hidden data link, seemingly unrelated, and through the analysis of these data can be found in some important information, such as market demand information, customer information, and this information to develop effective marketing plan according to the. For example, for different customer groups to provide different personalized service that can also use data mining technology to effectively collect all kinds of information, such as: industry technology, market environment, competitors, policies and regulations and international market information, thereby establishing marketing intelligence system and for B2C e-commerce enterprises to provide strong support for network marketing.

6. Conclusion

Effectively uses the data mining technology reasonably in the B2C electronic commerce activity, may cause the business management personnel to excavate the hideaway from the mass data audiences, has the significance knowledge that helps the B2C electronic commerce enterprise to optimize the electronic commerce website design, the enhancement customer relations management, raises the network marketing level, thus enterprise's superiority display fuller, also can further raise the management level, the promotion technological innovation, finally enhances the enterprise competitive power.

References


