Research on the evaluation of e-commerce website under the environment of big data

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Abstract─In general website evaluation includes website function and website content and website credit, customer service and enterprise strength, website security, its interface design and website technology. These studies mainly are based on evaluation approach on traditional websites. The arrival of the era of big data provides new opportunities and challenges to the construction and application of electronic commerce website. This paper analyzes the evaluation index of E - commerce website and introduce the evaluation method of e-commerce website ,especially the construction of website with big data.

Keywords: evaluation, e-commerce website, big data

Along with the social information process, the development and application of the e-commerce websites are growing, and these websites become the main components of the social economic information. Especially the B2C electronic commerce websites, for example, Tmall, Jingdong Mall and so on, in recent years have gradually covered our lives. Their transaction volume increase year by year and have become an important part of social economy in our country. Especially under the environment of big data the site will get more attention and more concern as the company's online sales continuously expand and online users grow. So how to evaluate the website construction effect has become an important issue.

I. The function of e-commerce website evaluation

E-commerce website evaluation refers to the assessment of the operation and quality of the site based on certain evaluation methods and contents and index. From three angles

business users and developers organizational point of view, its role embodied in:

(1) For the enterprise, the website can increase its popularity. Objective and fair evaluation results of sites will tend to increase the user's favor and has a good effect on website promotion and development. By rating and ranking of each site, companies can more clearly understand their own strengths and weaknesses in the industry, will help to improve corporate marketing, corporate decision-making provide an important basis.

(2) For the user, the evaluation of the e-commerce website has solved the problem of the information asymmetry between the commercial website and the user in a large extent. Through some neutral site evaluation results and other user experience evaluation users can obtain a reliable and useful information and reduce the cost of the search. Thereby they can more quickly and accurately choose a suitable site for shopping or access information and services.

(3) For the software development organization, the evaluation of the e-commerce website may have some guidance function while undertaking similar projects.

II .B2C evaluation of e-commerce website

User's transaction process in B2C e-commerce site can be summarized as follows: demanding (motivation), gathering information, evaluating information, shopping product or getting service. In the requirements phase, the users determine what they need to buy and look up the purchase goods information on the site .Then they assess the authenticity of this information or compare the price with other website. After they have finished online payment the sellers will deliver the goods. At last the customers will evaluate this

shopping satisfaction. In the process of the user's shopping, the recommendation of web pages and the menus and navigation of the site and comprehensive commodity information or other goods in the site and appropriate advertisement will give the customers the best experience. Evaluation of an impartial third party on e-commerce site is a great sense of security to the user. It will make users to search for the site motivately. Therefore the evaluation should be from both the technology and the user's experience.

A. The evaluation index of E - commerce website

The evaluation index of the e-commerce website is different from the customer and the target of the website. The company's technical staff focus on technical indicators and the users will focus on information services and the e-commerce site operators will focus on the evaluation of customer satisfaction. So for business e-commerce sites it is important to establish the site evaluation index.

- Information content index

The first is function. The function index of website include the integrity of the website function, the realization validity ,the characteristic function, the product service and so on. To meet the diverse needs of users, the site function must be as complete as possible.

The second is content. Meanwhile the number of product categories and the specialization of e-commerce site will directly affect the customer satisfaction.

The third is credit. In some sites there are some fake and shoddy goods and even false transactions. The products' effectiveness is exaggerated. So the credit index is an important indicator of the e-commerce website evaluation.

- The site survey index

The first is customer service. It includes selection of goods distribution and distribution methods, delivery on time, the communication between the website and users and privacy protection.

The second is operating results. It includes turnover, profit margins even as stock prices. Among them, the turnover is an important factor in the long-term running of e-commerce site. So there is a certain status in the evaluation of e-commerce site.

The third is strength. The company's strength is also a very important evaluation factor. The e-commerce with strong capital strength will focus more on the user's shopping experience and respond quickly to customer problems.

- Technical index

The first technical index is site security. Online trading the both side maybe strange to each other. To make the deal to be succeed we must confirm each other's identity. Therefore, it is a prerequisite for the transaction confirming easily and reliably each other's identity.

In addition, because of the ever-changing business, signed deal can't be denied. Otherwise, it will inevitably harm the interests of party. And the electronic trading documents also can't be modified to protect the fairness of transactions.

The third technical index is user interface. Simple interface can make new customers quickly understand and use the website for shopping. Navigation system is an indicative tool for the user to enter a website to search commodity information. It reflects the site how to organize and classify the information of the goods. The overall design of the site, including the overall visual effect, graphic design, page layout, etc., will directly relate to the user satisfaction on the site.

The fourth technical index is website performance. It includes system stability, scalability, security, and the effectiveness of the link. The response speed of the site must be within the acceptable response time of the user. At the same time, the demand of the user is not static, so the function of the website can be expanded to meet the different needs of the premise.

B. Evaluation method of e-commerce website

- Evaluation method based on website traffic

Website traffic index statistical method is to analyze the amount of browsing site through a specific software. It can directly show the popularity of e-commerce site users. In general if the site that has higher traffic its turnover will be

more higher and it has larger user base. Some well-known international consulting research firms, such as ACNielsen Media Research, use as traffic indicators to determine the website traffic, and regularly publish site traffic rankings. In China, there are also such institutions such as Netease's Chinese website ranking. But various sites take the different definition of methods. It results in this method is lack of certain authority and consistency. But these rankings still has role to improve the site visibility .

- Evaluation method based on expert

The expert evaluation is a kind of method that the experts take the investigation on the e-commerce site and make evaluation and judgements about the site according to the knowledge and experience of experts. This method can make comprehensive evaluation of all aspects of the website from the expertise of expert. The method of this assessment also has the advantages of diversification and more comprehensive for every expert has variant focus. But its limitations are obvious, such as a limited number of experts, vulnerable to outside influence and individual authority figures or influential experts discuss the results could change and so on.

- Evaluation method based on user experience

User experience means that what the user doing or thinking or feeling when he visits an electronic commerce site. Website provide to the user's rational values and perceptual experience by the its products and service. The attraction is a very important factor when the user chooses and browse the product and make purchase decision in many e - commerce websites. B2C e-commerce site appearance and interface designing can give the user a good initial impression. Commerce website content index, function index, safety index and customer service indicators is the most direct feeling of the user experience and these indicators can reflect the customers favorability to the site. Evaluation based on the user experience can enhance the credibility of e-commerce sites, improve the products reputation and it is high persuasion for the users.

- Evaluation method based on information architecture

The core of the information structure of e-commerce website is organizational system, identification system, navigation system and searching system. Organizational system determines how the site content is classified. The identification system decides how to address and call the groupings and create a consistent identity scheme. Navigation system determines a user how to navigate the site and retrieve the classified contents. It helps the site users traveled and view contents by different navigation paths(such as navigation bars and site maps). The searching system helps people develop the searching expression matching with the related documents .

- **Evaluation method based on AHP**

The analytic hierarchy process (AHP) is a decision method that will decompose the elements of decision related to target, criterion, plan, etc. and then take qualitative and quantitative analysis.

Ⅲ .Evaluation of e-commerce website under the

environment of big data

The arrival of the era of big data has brought the new opportunities and challenge to the construction and development of e-commerce website. The characteristics of big data can be summarized as 4 "V", that is, Volume, Variety, Value and Velocity. 'Volume' means data scale is big. 'Variety' means there are many type of data type. In the course of the operation of the electronic commerce website, there are three types of data, such as structured, semi-structured and unstructured including national text, blogs, audio, video, pictures and location information.

Value refers to the value of massive data generated by the low density website daily, but the overall value of the data is high However, big data has a high requirement for real-time data processing, "the current results" obtained through the traditional database query way has been more and more no practical value.

The development of e-commerce website based on big data, mainly embodies the following aspects:

A.User data analysis

Internet users, including mobile Internet users and e-commerce users generally is registered users. They have their own accounts by registering and Internet companies have a lot of user data, such as user Email, password, birthday, mobile phone and their residence.

If it is a social media, the information will be more abundant, this is undoubtedly the important resources of enterprises. The site can provide more personalized service to the user through the analysis of massive user information.

B. User behavior analysis

That is the behavior of Internet users log analysis, such as clicks within the page elements, time on page, click on the relevant recommendations hobby; the site itself behavioral analysis, commodity browsing and selection process, and so on.

C. Recommendation system based on big data correlation analysis

Whether to establish a recommendation system is the key for an electronic commerce website can improve customer service by using big data technology. Using some of the recommendation algorithm can analyze the user's purchase behavior data and provide the relevant products recommended.

D. Accurate advertising

Electronic commerce website based on the big data will make full use of multi-channel, multi dimension of the original user data, such as user's terminal, user's time and space information, behavior, interests. And the data is aggregated to analyze the demographic characteristics of the users and other various attributes, and hobbies and consumption habits and other complete user information. Then the site determine the identity of the user and social relationship and life style through its social media account registration and personal sharing interactive content. At last, based on the mobile Internet technology the site may expand the analysis of these data to the mobile terminal and more three-dimensional and real-time user behavior can be obtained combining with the user real-time location.

E. Analysis of customer loyalty based on big data

Net recommended value (NPS) is first mentioned in 2003 by Reichheld Fred, who is the founder of customer loyalty and works in an internationally renowned consulting company. This approach divide the customers into "recommenders", "passive satisfied users" and "derogatorily" three groups through the customers answer the question "how many chances do you have to your friends or colleagues to recommend our company's products or services" .NPS is the difference between the Percentage of recommendations and the percentage of derogatorily. The business logic of the NPs is that the recommender will continue to buy goods in website and recommend the site to other people and the detractors not only stop buying but also prevent the surrounding friends to buy that affect the growth of product and website. NPS has important value to the management of the website and enhance the customer's loyalty. Through the analysis and mining of user feedback data the "recommender" can be given more benefits and additional services. Instead of giving up the "derogatory" easily the site should analysize the reason for "derogatory" by the text analysis technology and data mining technology to understand the historical behavior of the user and optimize the user experience comprehensively and timely.

F. Customer group classification based on big data

Customer groups can be divided according to the customer's location, population statistics, purchasing behavior and purchasing ability, etc.. The divided way can be single dimension or multi dimension. The basic data, especially the behavioral data will be more comprehensive and more timely while the division of customer groups with the application of big data technology. Due to the use of the algorithm of data modeling, the classification results will be more detailed and accurate.

Ⅳ Summary

In general website evaluation includes function of website and website content and website credit, customer service and enterprise strength, website security, its interface design and website technology. These studies mainly are based on evaluation approach on traditional web sites. The arrival of

the era of big data provides new opportunities and challenges to the construction and application of electronic commerce website. Therefore the website based on big data evaluation should not be limited to the traditional index. At present e-commerce website evaluation index system is not perfect and evaluation method is relatively single. Therefore, how to choose a suitable evaluation method for specification of e-commerce website in order to improve the level of construction of website still is a problem to be solved.

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