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## **E-SERVICE QUALITY MODEL OF B2C ONLINE SHOPPING PLATFORM BASED ON USER'S PERSPECTIVE**

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### **ABSTRACT**

In recent year, B2C has gradually become the main driving force of the network shopping market development, many B2C online shopping platform weakens the differences in product and price, which intensify the competition on e-service quality among B2C online shopping platform. Therefore, this paper discusses the composition of electronic service quality model of B2C online shopping platform from the user's perspective, combining with the analysis of literature and the trading process. And the e-service quality model, which has carried on the empirical test, determined the evaluation index of e-service quality evaluation for B2C e-commerce platform. The results of this study show that e-service quality evaluation model of B2C online shopping platform is composed of seven dimensions and twenty-nine measurement items.

*Keywords:* B2C online shopping platform, e-service quality, evaluation model.

### **INTRODUCTION**

On July 21, 2014, the thirty-fourth China Internet network development state statistic shows that ' by the end of 2013 ' the number of Chinese net citizen had reached 632 million, and the Internet penetration is 46.9%, internet applications to access to information, communication, network, entertainment, business transactions, etc., are changing the way people live and work [1]. As a commercial application, which is relatively mature in the internet industry, e-commerce always maintains a sound development momentum. Ire-search statistical data shows that the transaction scale of Chinese e-commerce market has increased from 2.9 trillion Yuan in 2008 to 9.9 trillion Yuan in 2013 with the annual average growth rate of 29.3% [2]. From the user's perspective, e-commerce is a new consumption mode called online shopping that refers to purchasing commodities or services through the internet, the process of which involving the transfer of information flow, logistics and capital flow [2]. In recent ten years, the online shopping mode has been increasingly applied by net citizen with the increasing improvement of logistics, payment and integrity protection system. Upon cultivation of more than ten years, users have gradually changed their consumption concept. They have higher demands for the quality and brand of commodities. Online shopping involves two markets, i.e. B2C and C2C. Compared with C2C market, B2C is more secure in reputation and quality and is easier trusted by users. Therefore, B2C gradually becomes the main driver for the development of the online shopping market. However, various websites in B2C market have differentiated development levels; moreover, compared with the offline transaction, the asymmetry in time, space and price etc. of the network transaction has decreased ' so that the competition between B2C shopping websites gradually rise to compete with each other in the service level. Meanwhile, the network consumption behaviour is tending towards rationalization as users' net age increases and the online shopping experience is gathered. In face of double pressure from industry competitors and online shoppers, B2C shopping websites desperately need to specifically improve their e-service quality with customers oriented so as to guarantee their survival and development.

Therefore, this paper is trying to discuss the constitutional dimension of e-service quality, establish the e-service quality model of B2C online shopping platform as well as provide science and valuable references for operating decisions of enterprises from users' perspective with B2C online shopping platform as the object of study.

### **LITERATURE REVIEW**

#### **Electronic service quality**

Service quality research began in the 1970s, Levitt was the first one explore the quality of service from the perspective of "enterprise orientation". Afterward, Scholars generally believes that service came into being in communication and interaction with customers, and the service quality shall be expounded from the perspective of "customer orientation". The majority studies also considered that the service quality is to be judged by the customer's subjective perception although the enterprise provided the service.[3][4] Therefore, this research is based on the customer-oriented service quality, which is the mainstream view in academia.

With the development of the electronic service, the e-service quality gradually aroused the attention of scholars. Zeithaml, Parasuraman & Malhotra considered the e-service quality as how convenient and efficient the website provided whilst users browse, search, select, purchase and wait for shipping [5]. Santos believes that the evaluation of e-service quality was based on the comprehensive evaluation and judgment of users toward the excellent degree of e-service quality, and the e-service also contains two parts, one is the quality about website design formed basically before launch, and the other is the quality about back-office support created and changed sustainedly in the process of site operation [6]. Fassnacht & Koese studied from the

perspective of service process and service results, they indicated that the e-service quality is the degree of efficiency and effectiveness of satisfying users requirements in the e-service delivery process and on the results of electronic service [7]. Although the start angle of the above definition were different, all emphasized the e-service quality was designed to assess the efficiency and effectiveness of electronic service. Thus, with reference to the scholars on the definition of e-service quality, the study considers e-service quality as the degree of convenience, effectiveness and safety that users obtained in the process of commodity browsing, searching, selecting, purchasing and after-sales serving on B2C online shopping platform .[5][6][7]

### Model of e-service quality dimensions

SERVQUAL model is generally concerned and accepted in academia and social practice, which is a typical model of service quality dimension. With bank, credit card company, long distance telephone company as well as equipment repair and maintenance as the object of study, it summarizes 5 dimensions and 22 measure indexes of service quality through the analysis of 3-phase demonstration. Five dimensions include tangibility, reliability, responsiveness, guarantee and empathy [8]. SERVQUAL model is widely used in traditional service areas, such as the hotel, insurance, medical care, retail industry and consultation etc. [9].

SERVQUAL model has been widely used in research of e-service quality area. Pitt, Richard, Watson & Bruce have checked the applicability of SERVQUAL model in e-service area through demonstrations [10]. Sullivan & Walstrom analyzed the comparison between the actual performance and the expectation of e-service quality of three online bookstores with SERVQUAL model as the evaluation index of e-service quality [11]. Iwaaden, Wiele & Ball directly investigated 20 websites of different types from 293 users in order to discuss the order of tangibility, reliability, responsiveness, guarantee and empathy in the environment of e-service with SERVQUAL model frame as the questionnaire content [12]. Please refer to table 1 for the division of e-service quality model dimensions in the past research.

Table 1. Literature Review of E-service Quality Dimensions

Category	Dimension	References
Reserve Dimensions	Website Design	[13][14]
	Usability	[15][16][17]
	Information Accuracy	[16][18]
	System Stability	[19][20]
	Fulfilment	[18][24] [23]
	Privacy	[13][14][22]
	Responsiveness	[13][14][15][22]
	Customization	[13][14][15]
Reject Dimensions	Compensation	[18][19][20]
	Integration of Communication	[15]
	Trust	[14][21][25][26]
	Hedonic	[27][28]

Through the reference of the research on SERVQUAL model, appropriate adjustment and addition are carried out on the basis of tangibility, reliability, responsiveness, guarantee and empathy in case of analyzing e-service quality dimensions.

The following three dimensions are deleted in this paper. First, integration communication dimension: on one hand, B2C platform has its service provided by one platform operator and multiple entering merchants with the integration communication hard to achieve; on the other hand, it is indicated in the demonstration result that the integration communication has small weight that is less than 0.05 [14]. Second, trust dimension: it is indicated in the demonstration research on e-service quality and user satisfaction & loyalty that trust is users' specific impression on websites after their experience in e-service and the intermediate variable with which e-service quality affects user loyalty.[15][21][25] Third, pleasantness dimension: most scholars consider that hedonism which is not based on the practicability of products/service and also is not controlled by product/service providers is an attitude tendency of consumers for commodity or service purchase as well as the demand for sensibility.[27][28] This paper hereby will not regard the integration communication, trust and pleasantness as e-service quality dimensions.

In conclusion, the research overview of e-service quality dimensions is indicated in table 1 with 9 dimensions reserved: website design, usability, information accuracy, system stability, fulfilment, privacy, responsiveness, customization and compensation.

### E-SERVICE QUALITY MODEL OF B2C ONLINE SHOPPING PLATFORM

This paper analysed e-service quality of B2C online shopping platform from users' perspective. The transaction process is shown in figure 1 when the user is logged in the website. The complete transaction process includes information search, in-store shopping, online payment, logistics distribution and after-sales service. Users may be interrupted in any of them, resulting in the transaction failure.

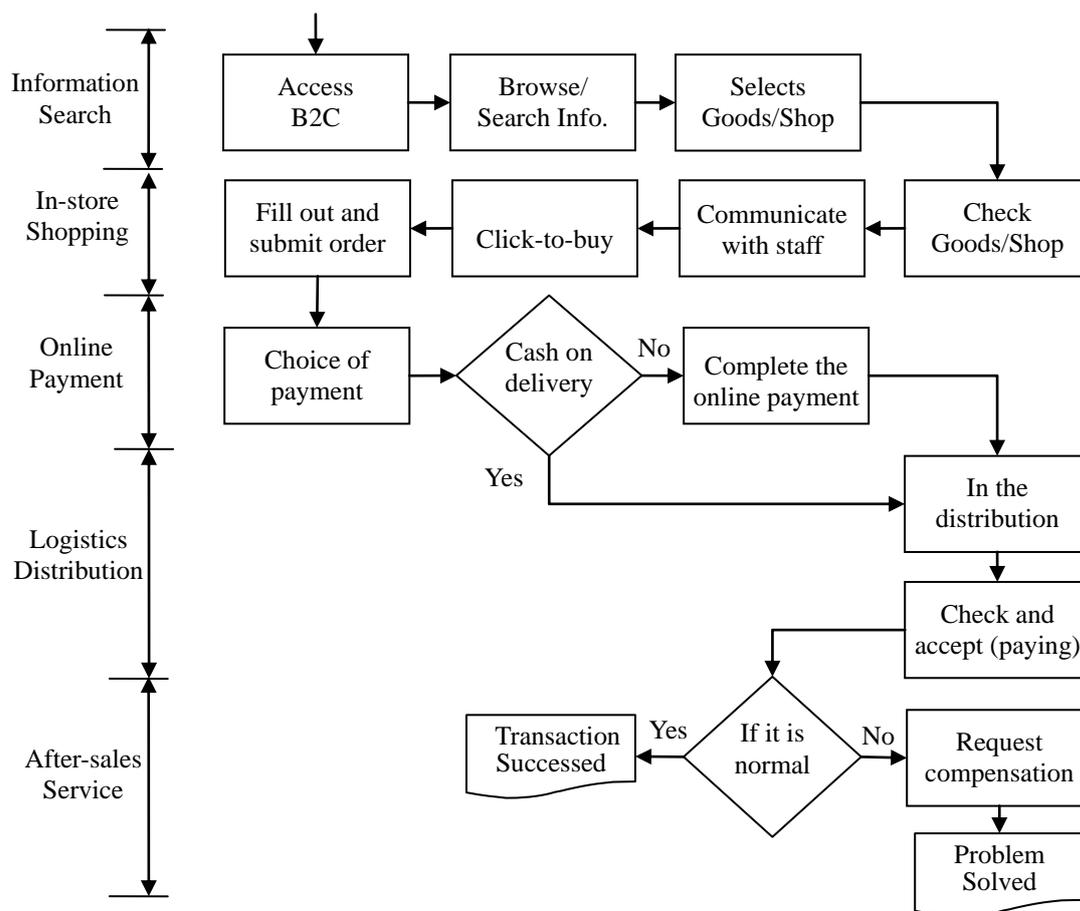


Figure 1. The Transaction Process on B2C

E-service quality of B2C online shopping platform is analysed through the combination of the research result (table 1) and the transaction process (figure 1) of e-service quality dimensions.[27] It is indicated in table 2 that cells with “√” shows dimensions mainly concerned by users in corresponding transaction process. As to the particularity of B2C online shopping platform, this paper requires three adjustments as follows:

To delete fulfilment dimension. Fulfilment that describes order execution capacity is decided by entering merchants and shall not be included in e-service quality of B2C online shopping platform.

To delete responsiveness dimension. Responsiveness dimension describes websites' capability of rapid and efficient reply to users. Users focus more on online customer service of entering merchants when transacting in B2C online shopping platform. Users need customer service from the platform only when the failure and dispute occur to the transaction. Online customer service of entering merchants is not considered for it is not included in the research. Customer service of B2C online shopping platform is service recovery behaviour and is included in compensation. [18][20]

To replace information accuracy dimension with functionality. Information accuracy describes the extent of website information meeting users' demands for amount and reliability. In B2C online shopping platform, users concern merchant information, product information, promotion information and user evaluation information. The reliability of production information depends on entering merchants and is not considered. To a large extent, the amount and reliability of other information rely on the performance of websites as the online shopping platform in playing functions of recruiting merchants, managing merchants and implementing promotion activities. Therefore, this paper replaces information accuracy dimension with functionality dimension.

Table 2. E-service Quality Dimensions in the Transaction Process on B2C

Dimension Process	Information Search	In-store Shopping	Online Payment	Logistics Distribution	After-sales Service
ebsite design	√				
Usability	√	√	√		
Information accuracy	√	√			
Customization	√	√		√	
System Stability	√	√	√		
Responsiveness		√			√
Privacy		√	√		
Fulfillment				√	
Compensation					√

Through above adjustment, e-service quality of B2C online shopping platform includes website design, usability, functionality, customization, system stability, privacy and compensation. Please refer to figure 2 for the model. Table 3 lists definitions and corresponding 37 measure indexes of 7 dimensions. Measure indexes are provided on the basis of literature and in combination with feedback of over 20 informants who are all masters/doctors of majors related to e-commerce or social workers in e-commerce area with experiences in shopping on B2C platform of more than 3 times.

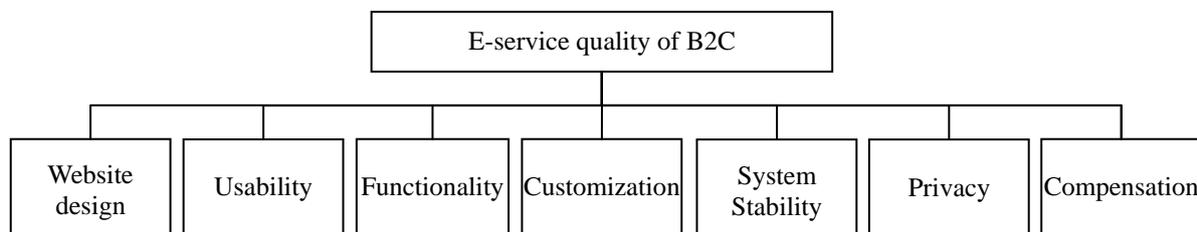


Figure 2. E-service Quality Model of B2C Online Shopping Platform

Definitions of those dimensions are as follows: (1) website design describes users' feelings in overall image and style of the platform interface; (2) usability describes users' efficiency in information search, in-store shopping and online payment; (3) functionality describes the performance of websites as the online shopping platform in playing functions of recruiting merchants, managing merchants, user evaluation and implementing promotion activities etc.; (4) customization describes the capability of B2C online shopping platform in recognizing users' personal reference so as to provide personalized information and service; (5) system stability describes the platform's capacity in technology to guarantee successful transaction; (6) privacy describes users' perception degree in the platform protecting personal information and transaction safety; (7) compensation describes the promptness and efficiency of website recovery service in case transaction process goes wrong.

**RESEARCH METHOD**

In order to ascertain the e-service quality model of B2C online shopping platform, we need to measure the actual perceived value of users towards 37 items by questionnaire survey, and each item is measured with a five-point Likert scale.

Table 3. Variable measurement reference

Dimension	Item	Description	References
Website design	INTE1	The layout of the site is clean and simple.	[29][30]
	INTE2	The website has an attractive appearance.	
	INTE3	This website has natural and uniform style.	
	INTE4	I feel comfortable shopping at this website.	
Usability	EASE1	The organization and layout of the website facilitate searching for products.	[18][20][24][25][30]
	EASE2	It is easy to get anywhere on the website	
	EASE3	The organization and structure of website content is easy to follow.	
	EASE4	It enables me to complete or cancel a transaction quickly with a minimum number of clicks.	

	EASE5	The payment is very convenient	
	EASE6	The site doesn't waste my time	
Functionality	FUNC1	The online retailer provides complete products.	
	FUNC2	The site has a wide variety of products that interest me.	
	FUNC3	The website provides believable Information about products and shops.	[16][24]
	FUNC4	User comments are reliable.	
	FUNC5	The frequency of promotion on this website is reasonable	
	FUNC6	The promotion is quite cost-effective	
	FUNC7	The bonus point plan on this website is significant to me.	
Customization	CUST1	The website recommends products to me.	
	CUST2	The website show sales promotion information to me.	
	CUST3	The website provides useful recommendation	[30][31][32]
	CUST4	The website recorded the historical information of users.	
	CUST5	The website has the ability to track individual orders in real-time.	
System Stability	STAB1	Rarely can't access this website because of technical failure	
	STAB2	Information such as images, links, can always be shown correctly.	[18][20]
	STAB3	Transactions will not be interrupted due to technical problems.	
	STAB4	This website records accurate content	
Privacy	SECU1	I don't worry about merchant fraud on this website	
	SECU2	In general, making payments on the website is secure.	[18][33]
	SECU3	I feel secure when providing private information to this website	
	SECU4	I hadn't found my privacy being abused by this website.	
Compensation	COMP1	This website will guide users when problems happening.	
	COMP2	It is easy to get in contact with this customer service representatives	
	COMP3	The communication with customer service representatives is smooth.	[18][20][27]
	COMP4	It is convenient to changing or refunding.	
	COMP5	The website showed sincerity in dispute handling	
	COMP6	The website had a good procedure for dealing with disputation	
	COMP7	I was satisfied with the dispute handling the website provided	

The netizens, which have the shopping experiences on B2C, were invited to participate in the survey. Subjects were asked to evaluate the e-service quality, by filling out the questionnaires, on the basis of the real shopping experiences on a B2C online shopping platform. This paper adopted the simple and convenient samples. We issued the questionnaires through emails and face-to-face, two hundreds and ninety eight valid questionnaires returned , with 92.5% recovery ratio. There are ninety eight portions from email survey, and two hundreds portions from face-to-face survey.

**General statistics**

The demographic data of the sample is reported in Table 4. The respondents were mainly 18-30 years old and the ratio of male to female is 42.2 to 57.8. Thus our sample matched the characteristics of online customers reported in iResearch. [34]

Table 4. General statistics

Variable	Classification	Number	Percent
Sex	Male	125	41.9%
	Female	173	58.1%
Age	≤18	1	0.3%
	19-24	175	58.7%
	25-30	101	33.9%
	31-40	16	5.4%
	≥40	5	1.7%

The data analysis was carried out in accordance with a three-stage methodology using SPSS 18.0 and AMOS17.0. In the first phase , we examine the reliability of the questionnaire by SPSS18.0. Then the second step was to test the measurement model by establishing convergent validity and discriminant validity of the constructs. During the third step, the structural model was examined using SEM to test the model fits.

Table 5. Results of convergent reliability testing

Dimension	Item	Factor Loading	Cronbach's alpha	AVE	CR
Website design	INTE1	0.725	0.842	0.573	0.843
	INTE2	0.778			
	INTE3	0.716			
	INTE4	0.806			
Usability	EASE1	0.676	0.852	0.538	0.853
	EASE2	0.760			
	EASE3	0.802			
	EASE4	0.726			
	EASE5	0.697			
Functionality	FUNC3	0.748	0.809	0.514	0.809
	FUNC4	0.758			
	FUNC5	0.686			
	FUNC6	0.673			
Customization	CUST1	0.766	0.829	0.629	0.835
	CUST2	0.878			
	CUST3	0.728			
System Stability	STAB1	0.779	0.827	0.574	0.802
	STAB2	0.728			
	STAB3	0.765			
Privacy	SECU1	0.746	0.828	0.550	0.830
	SECU2	0.737			
	SECU3	0.766			
	SECU4	0.717			
Compensation	COMP2	0.755	0.910	0.629	0.910
	COMP3	0.757			
	COMP4	0.748			
	COMP5	0.801			
	COMP6	0.833			
	COMP7	0.858			

### Instrument reliability

In the first phase, we examined the reliability of the questionnaire using SPSS18.0. We identify some of the corrected item-total correlation were less than 0.5, so we decided to adjust the model through deleting the item which the corrected item-total correlation is the minimum one by one. Finally, we delete EASE6, FUNC1, FUNC2, FUNC7, CUST5 and CUST4. The alphas for each constructs were reported in Table 5. The internal consistency reliability was measured by Cronbach's alpha with a 0.7 guideline value. [35] Finally, our questionnaire overall Cronbach's alpha reached 0.927, each item of Cronbach's alpha is between 0.809 and 0.910, [36][37] and all the corrected item-total correlation of the items were more than 0.6. Thus, the instrument was proved to be reliable.

### Instrument validity

Our validity analysis included convergent validity and discriminant validity. First, we tested the convergent validity with confirmatory factor analysis (CFA) using Amos 17.0. The criteria of good convergent validity are the following: factor loading  $> 0.7$ , the average variance extracted (AVE)  $> 0.5$ , and the combination validity (CR)  $> 0.6$ . [35]

We adjusted the model through deleting the items with factor loadings less than 0.7. In case an item was deleted, and the AVE increased with the CR still meeting the standards and the model fit improving, we would decide to delete that item. This way, we deleted COMP 1 and SATB 4. Table 5 shows the final results, and only 29 items remaining. There were still 4 factor loadings less than 0.7 but both the AVE and CR are meet the standards and which don't meet condition are very close to standards recommended. [35] So, we considered that the instrument had acceptable validity.

Next, we tested the discriminant validity. The results are reported in Table 6. We found that all values met the recommended standards, thus, the model had good discriminate validity. [35]

Table 6. Discriminant validity analysis

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	INTE	EASE	FUNC	CUST	STAB	SECU	COMP
INTE	0.757						
EASE	0.480	0.734					
FUNC	0.411	0.405	0.717				
CUST	0.384	0.327	0.390	0.793			
STAB	0.401	0.584	0.384	0.248	0.758		
SECU	0.468	0.420	0.620	0.276	0.524	0.742	
COMP	0.399	0.367	0.569	0.282	0.359	0.664	0.793

### Model fitness

Finally, we examined overall fitness of the model. The factor loadings and significance level (t value) of the 7 constructs are reported in Table 7, so we know the interpretation of the seven dimensions for the e-service quality is significant. Mostly indices used to estimate the model fit were higher than the recommended standards ( $p=0.00$ ,  $CMIN/DF=1.944$ ,  $IFI=0.920$ ,  $TLI=0.912$ ,  $CFI=0.920$ ), another 3 indices ( $RMSEA=0.056$ ,  $GFI=0.847$ ,  $NFI=0.849$ ) are also close to the recommended standards. Considering the sample size, our model is reasonably acceptable to assess the results. [35][38]

Table 7. The factor loadings and significance level (t value) of the 7 dimensions

Dimension Parameter	Website design	Usability	Functionality	Customization	System Stability	Privacy	Compensation
Factor Loading	0.614	0.610	0.733	0.444	0.622	0.821	0.717
t-value	—	6.495	6.896	5.395	6.657	7.595	7.306

Notes: the factor loading of website design was fixed for 1, so there is not t-value of website design.

## CONCLUSION

This paper discussed the e-service quality evaluation model of the B2C online shopping platform from users' perspective. Firstly, combining with the results of e-service quality dimensions and transaction process, we built the e-service quality model of B2C e-commerce platform, including seven dimensions and 37 metrics; secondly, we collect 298 valid questionnaires via E-mail and face to face survey, used for testing the reliability and validity of the model and the model fitness, leaving seven dimensions and 29 metrics as the evaluation index of e-service quality model.

This paper mainly formulated the B2C e-commerce platform of electronic service quality evaluation index system, contains seven primary indexes and 29 secondary indicators. Seven primary index and its weights, website design, usability and functionality, customization, system stability, privacy and compensation.

Website design has four secondary indices: tidy interface, attractive appearance, uniform style, comfortable design. Usability has five secondary indices: easily searching, easy to get anywhere on the website, easy operation by the organized structure of website content, quick and easy to complete or cancel a transaction, convenient payment. Functionality has four secondary indexes: believable information about products and shops, reliable user comments, cost-effective sales promotion, significant bonus point plan. Customization has three secondary indexes: individual recommendation, show sales promotion information for individual, useful recommendation. System stability has three secondary indexes: rarely can't access this website because of technical failure, information can always be shown correctly, transaction is smooth technically. Privacy has four secondary indexes: no merchant fraud, secure payment, secure privacy, being not abused of user privacy. Compensation has five secondary indexes: available customer service, smooth communication with customer service representatives, convenient changing or refunding, sincerely dispute handling, complete system of disputation management, high satisfaction.

Contribution of this study lies in constructing the e-service quality model of B2C e-commerce platform within the transaction process on website, and putting forward the measure index of e-service quality evaluation of B2C, which has great significance to the B2C e-service quality evaluation research.

## DIRECTION FOR FUTURE RESEARCH

This study builds the e-service quality model of B2C online shopping platform with 7 dimensions and 29 measure indexes from the user's perspective and verifies fitting effect and scientificity of the model through data analysis. Future research is also needed proceeding, subsequently, we intend to do some research from the following directions:

First of all, this paper had already constructed an e-service quality evaluation model, and a more relevant integrated evaluation system shall be achieved on premise that the follow-up study is carried out on the basis of the model in this paper and the index weight and main evaluation content are confirmed with efficient evaluation method. Moreover, the follow-up study could combine with the analysis of practical cases, to diagnose defects of B2C platform service so as to provide effective reference

basis for business decisions of improving the service level of e-service.

B2C online shopping platform simultaneously involves the platform, entering merchants and users during the operation process. As the service provider, the platform provides e-service for users and entering merchants at the same time. Therefore, the complete B2C online shopping platform e-service includes users' e-service and the e-service provided by the platform for entering merchants. This paper constructs the e-service quality model of B2C online shopping platform from users' point of view. The follow-up study can discuss the e-service quality evaluation model of B2C online shopping platform from entering merchants through the reference of the research approach in this paper.

In addition, the e-services to users and entering merchants are correlative for they are consistent with each other in system stability of B2C online shopping platform and the demand tendency between entering merchants and users. This shows that the quality of the two e-services have different effects of various dimensions. The follow-up study can explore mutual influence orientation and strength of various dimensions in the quality of the two e-services, assist B2C online shopping platform in considering interests of users and entering merchants as well as provide them with the more qualified e-service so as to guarantee sustainable development of the platform.

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