International Journal of Hybrid Information Technology
Vol. 9, No.10 (2016), pp. 83-94
http://dx.doi.org/10.14257/ijhit.2016.9.10.09

Research on C2C- to-B2C Transformation Based on the Fuzzy Comprehensive Evaluation Method

Gan Xiaohong

School of Information Management, Jiangxi University of Finance & Economics, Nanchang, China 330013
xhg1596@163.com

Abstract

C2C-to-B2C transformation, as the inevitable development trend of the Chinese e-commerce, involves many uncertain indexes. The Paper adopts the quantitative and qualitative method to build the index system of the C2C-to-B2C transformation, confirms indexes playing the role in the transformation, and sorts out evaluation factor set and judgement set. And the Paper ensure the weight of evaluation factors by the analytic hierarchy process, confirms the membership degree of indexes to the judgement set baseed on the questionnaire survey, build the single-factor fuzzy judgement to do the comprehensive fuzzy judgement and analysis for each index, and then supply a constructive and instructive way for the transformation-seeking and in-transformation e-commerce.

Keywords*: E-commerce; E-commerce model transformation; Index system; fuzzy comprehensive evaluation method*

1. Introduction

In the stage of transformation and upgrading, Chinese e-commerce is in the increasingly heated competition market. The e-commerce wants to obtain to the further development only by adapting to market requirements and having preponderant website. Under the C2C model, anyone can open the online shop without registered capital and with less responsibility, which directly leds to the rampage of fake and parallel imports and to damage consumers' legal rights and interests. And the B2C model has the formal operational qualification, perfect after-sale service and high consumer confidence. Under the B2C model, enterprises have their own branded products, and have a chance to became bigger and stronger. Drawbacks of the C2C model has become more and more prominent, and its first-mover advantage is overshadowed by its disadvantages. And the B2C model's advantages has got more and more recognition, and its influence for the development of e-commerce will be stronger and stronger.

Presently, there is less scholar at home and abroad to research on the C2C- to-B2C transformation, and there is also less deep research achievement on the C2C- to-B2C transformation. And the C2C-to-B2C transformation has been the inevitable development trend of the e-commerce today. The Paper, based on the research of the C2C- to-B2C transformation, aims to solve problems during the C2C development, confirms all factors playing the role in the transformation and to supply a constructive and instructive way for the transformation-seeking and in-transformation e-commerce.

According to the latest development trends of the e-commerce website model, the Paper constructs the C2C-to-B2C transformation index system, collects data by the questionnaire survey, judges the index system by the fuzzy comprehensive evaluation method, confirms index weight and membership degree, and builds a bran-new C2C- to-B2C transformation with guiding significance. And the Paper also doese valid analysis on

ISSN: 1738-9968 IJHIT

the model, and brings forward relevant countermeasure and suggestion for the in-transformation enterprises.

2. Design of C2C-to-B2C Transformation Index System

The C2C-to-B2C transformation involves many influence factors, and each influence factor plays different role during the transformation. So, the first is to ensure the weight of each influence factor by rational analysis, to build reasonable index system, and finally to find out the key factor affecting the C2C-to-B2C transformation.

2.1. Principle on Building Model Index System

The C2C-to-B2C transformation is a complicated system. So, there should be related principles for confirming C2C-to-B2C transformation index and building model. The principles include comprehensiveness-typicalness-combined principle, independence-hierarchy-combined principle, quantitative-qualitative-index-combined principle, statics-dynamics-combined principle and comparability-feasibility-combined principle.

2.2. Design of Transformation Index System

Since there is little articles of the C2C-to-B2C transformation, and there is also little articles for building related index system. The Paper roughly deals with the related indexes based on latest information and research results on the C2C-to-B2C transformation, and gets the index system seeing Table 1.

Table 1. Index System of C2C-to-B2C Transformation

Index I	Index II
Website credit index	Website credit evaluation
	Complaint handling information
	Security payment
Selling commodity index	Brand integrity degree
	Commodity quality
	Commodity classification
	Commodity price
Shopping platform	Website transaction amount
	Website registered users
	Website shopping experience
Website background	Capital strength
	Operating history
	Background supply capacity
Website service level	Logistics distribution
	After-sale service
	Customer service level

3. Model Building of C2C-to-B2C Transformation

3.1. Fuzzy Comprehensive Evaluation Method

The C2C-to-B2C transformation is a complicated research project, referring to many indexes. And many indexes are great uncertainty, and can’t be quantized concretely. And the fuzzy comprehensive evaluation method has sound evaluating effectiveness for multi-index and multilevel especially, and is also irreplaceable by other mathematical models and methods.

3.2. Confirm Evaluation Factor Set

The Paper assumes that there is an evaluation factor set "U" including the evaluation object composed of "n" factors, which can be expressed as $U=\{U_1,U_2,\cdots U_m\}$. In the formula, $U_i(i=1,2,\cdots m)$ means every influence factor. The C2C-to-B2C transformation is restricted by many factors, and the success of the transformation also turns on the index standard-reached degree. So, the scientific index system is the key during transformation. Based on the above index analysis, there are five Index I in the Layer I of the transformation, and sixteen Index II in the Layer II, which can confirm the evaluation factor sets in the two layers. And the evaluation factor set in the Layer I is as follows:

$U=\{U_1,U_2,U_3,U_4,U_5\}=$ {Website credit, Selling commodity, Shopping platform, Website background, Website service level}.

The evaluation factor set in the Layer II is as follows:

$U_1=\{U_{11},U_{12},U_{13}\}=$ {Website credit evaluation, Complaint handling information, Security payment}

$U_2=\{U_{21},U_{22},U_{23},U_{24}\}=$ {Brand integrity degree, Commodity quality, Commodity classification, Commodity price}

$U_3=\{U_{31},U_{32},U_{33}\}=$ {Website transaction amount, Website registered users, Website shopping experience}

$U_4=\{U_{41},U_{42},U_{43}\}=$ {Capital strength, Operating history, Background supply capacity}

$U_5=\{U_{51},U_{52},U_{53}\}=$ {Logistics distribution, After-sale service, Customer service level}

3.3. Build Judgement Set

The judgement set is the domain of all judegment object results, expressed as "v", *i.e.* $v=\{v_1,v_2,\ldots v_n\}$. In the formula, each $v_i(i=1,2,\ldots n)$ means every judgement result. The Paper confirms that there are many indexes with different importance during the C2C-to-B2C transformation. So, the judgement set can be expressed as five levels, *i.e.* $v=\{v_1,v_2,v_3,v_4v_5\}=$ {unimportance, lower importance, medium importance, key importance, extreme importance}.

3.4. Confirm the Weight of Judgement Factor

Generally speaking, the judgement object is affected differently by every judgement factor. So, each element ($U_i(i=1,2,\cdots,n)$) should be given with relevant weight ($W_i(i=1,2,\cdots,m)$) based on the normalized principle ($\sum_{i=1}^{m}W_i=1$) and for expressing the varying-degree importance between them. The Paper focuses on the C2C-to-B2C transformation which is related to many indexes with uncertainty. So, the Paper adopts the analytic hierarchy process to do qualitative and quantitative analysis, especially for the complex system multi-factor-composed. And the Paper will confirm weight based on the analytic hierarchy process and the expert investigation method, and then do the comprehensive weight calculation

3.4.1. Design Layer Model Illustration

The Paper, based on practical application, firstly designs the layer model illustration as shown in Figure 3-1.

3.4.2. Build Judgement Matrix

The Paper sends the questionnaire through the website, and invites teachers of Jiangxi E-Commerce Research Center, E-commerce-teaching teachers of Anhui University, graduate students, undergraduates and ordinary buyers with many-year online-shopping experience to complete the questionnaire. There are 160 people accepting the questionnaire survey, and the answering questionnaires are 128, meeting the pass percent of 80%. The questionnaire compares the importance between the indexes in the same layer. The Paper marks the indexes based on the 1~9ratio scale, collects all scores, and obtains the following comparative judgement matrix tables by calculating average value.

(1) Layer I judgement matrix

Table 2. Weight Judgement Table of C2C-to-B2C Transformation

C2C-to-B2C Transformation Index I	Website credit	Selling commodity	Shopping platform	Website background	Website service level
Website credit	1	4	3	5	3
Selling commodity	1/4	1	3	3	2
Shopping platform	1/3	1/3	1	3	2
Website background	1/5	1/3	1/3	1	1/2
Website service level	1/3	1/2	1/2	2	1

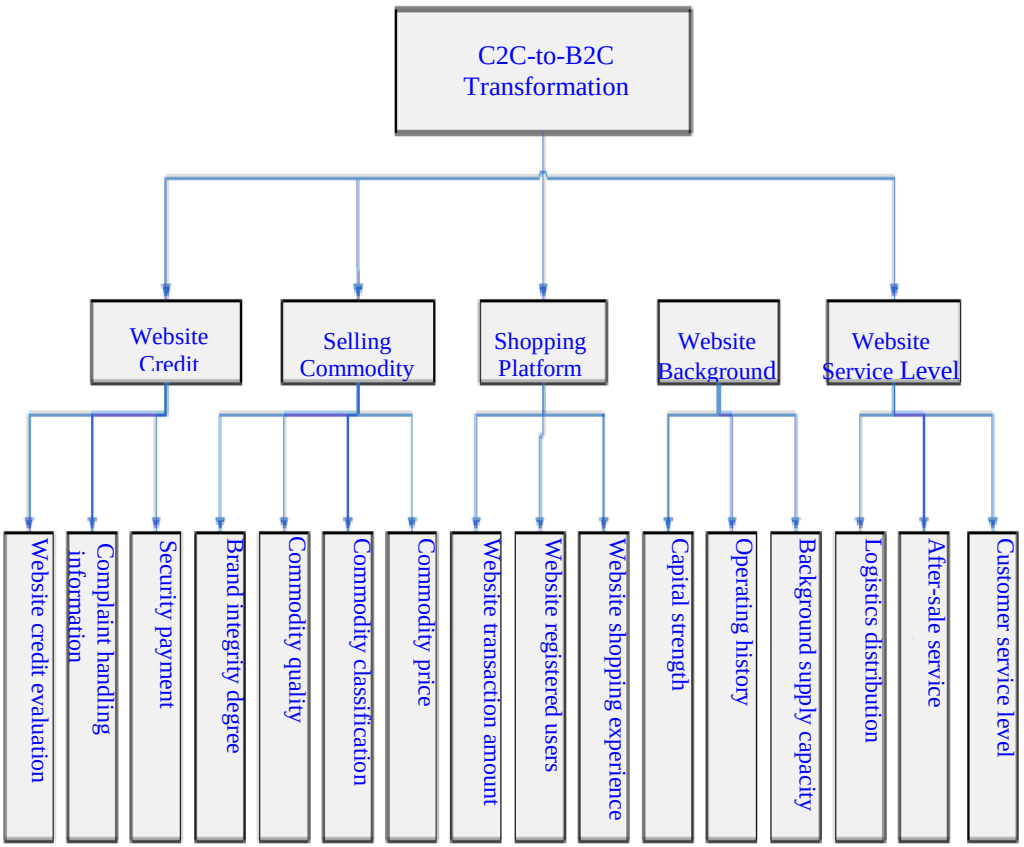

Figure 1. Index Layer Model Illustration of C2C-To-B2C Transformation

(2) Layer II judgement matrix

Table 3. Judgement Table of Website Credit Weight Factor

Website credit	Website credit evaluation	Complaint handling information	Security payment
Website credit evaluation	1	30	1
Complaint handling information	1/3	1	1/2
Security payment	1	2	1

Table 4. Weight Judgement Table of Selling Commodity

Selling commodity	Brand integrity degree	Commodity quality	Commodity classification	Commodity price
Brand integrity degree	1	2	3	2
Commodity quality	1/2	1	5	2
Commodity classification	1/3	1/5	1	1/3
Commodity price	1/2	1/2	3	1

Table 5. Weight Judgement Table of Shopping Platform

Shopping platform	Website transaction amount	Website registered users	Website shopping experience
Website transaction amount	1	2	3
Website registered users	1/2	1	3
Website shopping experience	1/3	1/3	1

Table 6. Weight Judgement Table of Website Background

Website background	Capital strength	Operating history	Background supply capacity
Capital strength	1	5	2
Operating history	1/5	1	1/3
Background supply capacity	1/2	3	1

Table 7. Weight Judgement Table of Website Service Level

Website service level	Logistics distribution	After-sale service	Customer service level
Logistics distribution	1	4	5
After-sale service	1/4	1	3
Customer service level	1/5	1/3	1

3.4.3. Index Weight Calculation

The Paper builds judgement matrix of the Index I and the Index II of the C2C-to-B2C transformation, and calculates the weight of every index of the C2C-to-B2C transformation by the judgement matrix and the Matlab software. And the following is the weight table of the weight factor of the Layer I and the Layer II.

(1) Weight table of the Layer I weight factor

Table 8. Weight Table of Weight Factor of the C2C-To-B2C Transformation

C2C-to-B2C Transformation Consistency ratio: 0.0659 Weight for general object: 1.0000						
C2C-to-B2C Transformation	Website credit	Selling commodity	Shopping platform	Website background	Website service level	Wi
Website credit	1.0000	4.0000	3.0000	5.0000	3.0000	0.4590
Selling commodity	0.2500	1.0000	3.0000	3.0000	2.0000	0.2234
Shopping platform	0.3333	0.3333	1.0000	3.0000	2.0000	0.1470
Website background	0.2000	0.3333	0.3333	1.0000	0.5000	0.0627
Website service level	0.3333	0.5000	0.5000	2.0000	1.0000	0.1079

(2)Weight table of the Layer II weight factor

Table 9. Weight Table of Weight Factor of Website Credit

Website Credit Consistency ratio: 0.0176 Weight for general object: 0.4590				
Website credit	Website credit evaluation	Complaint handling information	Security payment	Wi
Website credit evaluation	1.0000	3.0000	1.0000	0.4434
Complaint handling information	0.3333	1.0000	0.5000	0.1692
Security payment	1.0000	2.0000	1.0000	0.3874

Table 10. Weight Table of Weight Factor of Selling Commodity

Selling Commodity Consistency ratio: 0.0584 Weight for general object: 0.2234					
Selling commodity	Brand integrity degree	Commodity quality	Commodity classification	Commodity price	Wi
Brand integrity degree	1.0000	2.0000	3.0000	2.0000	0.4041
Commodity quality	0.5000	1.0000	5.0000	2.0000	0.3188
Commodity classification	0.3333	0.2000	1.0000	0.3333	0.0833
Commodity price	0.5000	0.5000	3.0000	1.0000	0.1938

Table 11. Weight Table of Weight Factor of Shopping Platform

Shopping platform Consistency ratio: 0.0515 Weight for general object: 0.1470				
Shopping platform	Website transaction amount	Website registered users	Website shopping experience	Wi
Website transaction amount	1.0000	2.0000	3.0000	0.5278
Website registered users	0.5000	1.0000	3.0000	0.3325
Website shopping experience	0.3333	0.3333	1.0000	0.1396

Table 12. Weight Table of Weight Factor of Website Background

Website Background Consistency ratio: 0.0035 Weight for general object: 0.0627				
Website background	Capital strength	Operating history	Background supply capacity	Wi
Capital strength	1.0000	5.0000	2.0000	0.5816
Operating history	0.2000	1.0000	0.3333	0.1094
Background supply capacity	0.5000	3.0000	1.0000	0.3090

Table 13. Weight Table of Weight Factor of Website Service Level

Website Service Level Consistency ratio: 0.0824		Weight for general object: 0.1079		
Website service level	Logistics distribution	After-sale service	Customer service level	Wi
Logistics distribution	1.0000	4.0000	5.0000	0.6738
After-sale service	0.2500	1.0000	3.0000	0.2255
Customer service level	0.2000	0.3333	1.0000	0.1007

All above weight tables are rounded to the following:

Weight of the Layer I weight factor: A=(0.459, 0.223, 0.147, 0.063, 0.108)

Weight of the Layer II weight factor: A1=(0.443, 0.169, 0.387), A2＝(0.404, 0.319, 0.083, 0.194), A3＝(0.528, 0.333, 0.140), A4＝(0.582, 0.109, 0.309), A5＝(0.674, 0.226, 0.101).

3.5. Single-Factor Fuzzy Evaluation

In the fuzzy analytical hierarchy process, the membership degree plays the role of mapping relation between the judgement factor and the judgement set. $r_{ij}(i=1,2,\cdots,m;\ j=1,2,\cdots,n)$ means the "u_i" (the ith element in the judgement factor set)'s membership degree for the "v_j" (the jth element in the judgement set). So, the membership degree of each factor must be confirmed. And each factor must be done the membership degree judgement for getting the memebership function. Each factor has a corresponding judgement vector expressed as $R_i=(r_{i1},r_{i2},\cdots,r_{ij})$. And the matrix constituted by the above-mentioned judegment vector forms the single-factor judgement matrix:

$$R=\begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix}$$

The Paper also confirms the membership degree of each factor by the questionnaire survey, *i.e*. to design the questionnaire based on every-level indexes of the C2C-to-B2C transformation, invite experts, scholars and ordinary netizen familiar with the e-commerce to answer the questionnaire, and to score for every index. Based on the questionnaire, the Paper confirms the Layer II indexes' membership degree for every-level review "v_j". There are 200 people accepting the questionnaire survey, and the effective questionnaires are 166, meeting the pass percent of 83%. After collecting the questionnaire, the u_{ij} index has m_{ijk} options in the Level k judgement set of the C2C-to-B2C transformation. So, its membership degree can be expressed as $r_{ijk}=m_{ijk}/n(k=1,2,\cdots,5)$. And the row matrix of the membership function of the Layer II judgement indexes.

$$R_1=\begin{bmatrix} 0.01 & 0.06 & 0.40 & 0.49 & 0.04 \\ 0.33 & 0.21 & 0.41 & 0.02 & 0.03 \\ 0.05 & 0.18 & 0.34 & 0.40 & 0.03 \end{bmatrix} \quad R_2=\begin{bmatrix} 0.08 & 0.39 & 0.46 & 0.05 & 0.02 \\ 0.09 & 0.63 & 0.22 & 0.05 & 0.01 \\ 0.15 & 0.36 & 0.30 & 0.11 & 0.08 \\ 0.08 & 0.30 & 0.31 & 0.25 & 0.06 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0.03 & 0.16 & 0.33 & 0.39 & 0.09 \\ 0.06 & 0.27 & 0.34 & 0.31 & 0.02 \\ 0.10 & 0.32 & 0.25 & 0.31 & 0.02 \end{bmatrix} \quad R_4 = \begin{bmatrix} 0.00 & 0.18 & 0.32 & 0.34 & 0.16 \\ 0.36 & 0.21 & 0.28 & 0.11 & 0.04 \\ 0.18 & 0.15 & 0.31 & 0.26 & 0.10 \end{bmatrix}$$

$$R_5 = \begin{bmatrix} 0.03 & 0.07 & 0.32 & 0.34 & 0.24 \\ 0.08 & 0.15 & 0.24 & 0.36 & 0.17 \\ 0.21 & 0.19 & 0.27 & 0.21 & 0.12 \end{bmatrix}$$

3.6. Comprehensive Fuzzy Judgement

3.6.1. Level I Comprehensive Fuzzy Judgement

The Paper does the judgement for the Layer II index factor, which forms the Level I comprehensive fuzzy judgement. And the factor u_{ij}'s fuzzy membership degree for the kth judgement element is expressed as $r_{ijk}(i=1,2,\cdots,m; j=1,2,\cdots,n; k=1,2,\cdots,p)$, which forms the Layer II index judgement matrix:

$$B_i = W_i * R_i = (w_1\ w_2\ \cdots\ w_n) * \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ r_{i1} & r_{i2} & \cdots & r_{in} \end{bmatrix} = (b_{i1}\ b_{i2}\ \cdots b_{ip})$$

In the formula, the b_{ik} means the ith factor's membership degree for the kth element during the comprehensive assessment of the up-level judgement factors. During the C2C-to-B2C transformation, all membership degree can be confirmed by the above formula and the identified judgement factors and weights:

$$B_1 = A_1 * R_1 = (0.443\ 0.169\ 0.387) * \begin{bmatrix} 0.01 & 0.06 & 0.40 & 0.49 & 0.04 \\ 0.33 & 0.21 & 0.41 & 0.02 & 0.03 \\ 0.05 & 0.18 & 0.34 & 0.40 & 0.03 \end{bmatrix}$$

$$= (0.0796\ \ 0.1317\ \ 0.3741\ \ 0.3752\ \ 0.0344)$$

$$B_2 = A_2 * R_2 = (0.404\ 0.319\ 0.083\ 0.194) * \begin{bmatrix} 0.08 & 0.39 & 0.46 & 0.05 & 0.02 \\ 0.09 & 0.63 & 0.22 & 0.05 & 0.01 \\ 0.15 & 0.36 & 0.30 & 0.11 & 0.08 \\ 0.08 & 0.30 & 0.31 & 0.25 & 0.06 \end{bmatrix}$$

$$= (0.0890\ \ 0.3466\ \ 0.4411\ \ 0.0938\ \ 0.0296)$$

$$B_3 = A * R_3 = (0.528\ 0.333\ 0.140) * \begin{bmatrix} 0.03 & 0.16 & 0.33 & 0.39 & 0.09 \\ 0.06 & 0.27 & 0.34 & 0.31 & 0.02 \\ 0.10 & 0.32 & 0.25 & 0.31 & 0.02 \end{bmatrix}$$

$$= (0.0498\ \ 0.2192\ \ 0.3225\ \ 0.3526\ \ 0.0570)$$

$$B_4 = A_4 * R_4 = (0.582\ 0.109\ 0.309) * \begin{bmatrix} 0.00 & 0.18 & 0.32 & 0.34 & 0.16 \\ 0.36 & 0.21 & 0.28 & 0.11 & 0.04 \\ 0.18 & 0.15 & 0.31 & 0.26 & 0.10 \end{bmatrix}$$

$(0.0949\ \ 0.1740\ \ 0.3125\ \ 0.2902\ \ 0.1284)$

$$B_5 = A_5 * R_5 = (0.674\ 0.226\ 0.101) * \begin{bmatrix} 0.03 & 0.07 & 0.32 & 0.34 & 0.24 \\ 0.08 & 0.15 & 0.24 & 0.36 & 0.17 \\ 0.21 & 0.19 & 0.27 & 0.21 & 0.12 \end{bmatrix}$$

$= (\ 0.0595\ \ 0.1003\ \ 0.3317\ \ 0.2972\ \ 0.2123)$

3.6.2. Level II Comprehensive Fuzzy Judgement

Level II comprehensive fuzzy judgement is the judgement for the Layer II indexes. And its judgement matrix is as follows:

$$R = \begin{bmatrix} B_1 \\ B_2 \\ \vdots \\ B_m \end{bmatrix} = (b_{ik})_{m*p}$$

Level II comprehensive fuzzy judgement set can be calculated by the judgement matrix, *i.e.* $B = A * R = (b_1, b_2, \cdots, b_p)$ in which b_k means the judgement object's membership degree in the judgement set after integrating all factors. Based on the Level I comprehensive fuzzy judgement, the following can be got:

$$B = A * R$$

$$= (0.459\ 0.223\ 0.147\ 0.063\ 0.108) * \begin{bmatrix} 0.0796 & 0.1317 & 0.3781 & 0.3752 & 0.0344 \\ 0.0890 & 0.4466 & 0.3411 & 0.0938 & 0.0296 \\ 0.0498 & 0.2192 & 0.3225 & 0.3526 & 0.0570 \\ 0.0949 & 0.1740 & 0.3125 & 0.2902 & 0.1284 \\ 0.0595 & 0.1003 & 0.2972 & 0.3317 & 0.2123 \end{bmatrix}$$

$= (0.0761\ \ 0.2141\ \ 0.2991\ \ 0.3488\ \ 0.0618)$

4. Model Analysis and Suggestions of the C2C-to-B2C Transformation

4.1. Model Analysis of the C2C-to-B2C Transformation

4.1.1. Index Importance Analysis

Based on the foregoing model analysis, the importance sequence of the indexes in the Index I of the C2C-to-B2C transformation is as follows: Website credit >Selling commodity>Shopping platform>Website service level>Website background. The above shows that the website credit is the key during the C2C-to-B2C transformation. And the credit imperfection of the C2C website is increasing seriousness, so, only transforms to the B2C for solving the issue. During the C2C-to-B2C transformation, the commodity is still focused by the customer nd the website Under the B2C model, the website uniformly manages commodity, which is better than the C2C model. So, the importance of commodity ranks only second to the website credit. Shopping platform ranks the thrid,

which shows that the chinese customers like to shop in high-profile shopping websites and more trust famous website. For this reason, great-scale and high-profile C2C websites are easy to transform to the B2C model. And the trend conforms to the e-commerce development, and also meets websits' development requirement. Taobao website presently focuses on the Tmall with high standard and strong strength, which is also confirmed this point. Website service level ranks the fourth, which shows that customers still concern the websit's service level to some extent. Presently, most websits cooperate with the third-party logistics, which improves the after-sale service and the customer service level greatly. So, the role of the website service level is not very important. Website background ranks the last during the C2C-to-B2C transformation, which shows that whichever and whatever website only transform to B2C for solving the development issue. So, the role of the website background is limited during the transformation.

4.1.2. Analysis on Index Membership Degree

The Paper, based on the questionnaire survey, confirms the Index II's membership degree for the judgement set and the improtance of every index during the C2C-to-B2C transformation. There are three Index II *i.e*. website credit evaluation, complaint handling information and security payment under the website credit (Index I). Among them, the website credit evaluation's max. data is 0.49, and its corresponding judgement set is the higher importance which means the website credit evaluation is key of the website credit (Index I). So, the website credit must be concerned during the C2C-to-B2C transformation. The complaint handling information's corresponding judgement set is the medium importance, and the security paymen is the key importance. So, to confrim the membership degree of every Index II's corresponding judgement set is to determine every Index II's importance during the C2C-to-B2C transformation.

4.1.3. Comprehensive Fuzzy Judgement Analysis

During the Level I comprehensive fuzzy judgement, the Paper has respectively calculated the five Index I's membership degree for the judgement set, and also confirms their position and importance degree during the C2C-to-B2C transformation. See Table 14 for details.

Table 14. Membership Degree Table of Index I

Index I	Website credit	Selling commodity	Shopping platform	Website background	Website service level
Max. membership degree	0.3752	0.4411	0.3526	0.3125	0.3317
Corresponding judgement set	Key importance	Medium importance	Key importance	Medium importance	Medium importance

Max. data of the website credit and the shopping platform are 0.3752 and 0.3526, and their corresponding judgement sets are the key importance, which means that the website credit and the shopping platform of the C2C website play an important role during the C2C-to-B2C transformation and also affect and promote the transformation. So, the website credit and the shopping platform are the key factors during the transformation. And the corresponding judgement sets of selling commodity, website background amd website service level are the medium importance, which means they are also indispensable influence factors during the transformation.

During the Level II comprehensive fuzzy judgement, the Paper researches all indexes during the the C2C-to-B2C transformation for confirming whether the present website needs to do the transformation or not. As you can see from the membership degree, the

max. data is 0.3488, and the corresponding judgement set is the medium importance. According to the maximum membership principle, the above means the C2C-to-B2C transformation has the medium importance in today's society, which is consistent with the newest development trend of the e-commerce. The C2C-to-B2C transformation is a dynamic process. And its importance and urgency become more and more prominent with the e-commerce development, which is also the research direction in the next step.

4.2. Suggestion on Promoting C2C-to-B2C Transformation

The Pape suggests to do website credit, selling commodity, shopping platform and website service level well for preferably promoting the C2C-to-B2C transformation.

4.2.1. Value Website Credit

Based on the above, the importance of the website credit determines the e-commerce development. And the websit credit is the key during the C2C-to-B2C transformation. So, the website credit must be improved and valued by building uniform credit evaluation platform, improving credit evaluation method, enhancing complaint process rate, positively dealing with customer problem, strenuously creating safe payment, fully protecting consumers' property safety, *etc*.

4.2.2. Standardize Selling Commodity

During the C2C-to-B2C transformation, the selling commodity must be standardized by continually improving commercial quality, reducing repeated commodity and supplying high-quality commodity to consumers, which can enhances consumers' brand loyalty and even promotes the transformation.

4.2.3. Strengthen Shopping Platform

The shopping platform is the virtual environment for consumers shopping online, which is also a influence factor for the C2C-to-B2C transformation. Consumers hope to easily and efficiently find out what they need, and take more time and effort to commodity not searching. A easy and simple shopping platform can make consumers shopping easy, and also attract more and more returned customers. So, the shopping platform must have strong strength and advanced shopping experience for multi-aspect ensuring consumers' shopping experience.

4.2.4. Improve Website Service Level

The website service level also plays an important role during the C2C-to-B2C transformation. Under the B2C model, the website service level is uniform and standardized, which is superior to the C2C model. So, the website service level must by continually improved by enhancing speed and safety of the logistics distribution, the after-sales service and the deliverability of backstage commodities.

5. Conclusion

The Paper focuses on how to determine all indexes during the C2C-to-B2C transformation and the indexes' importance. The Paper initially take shape the transformation index system of the e-commerce website based on scientific index-system-building principle, chinese fundamental realities, practical situation of the e-commerce website and existing correlational research. Comparison and evaluation of the indexes have certain fuzzification, which is hard to be quantified full. So, the Paper adopts the fuzzy comprehensive evaluation method to analyze and research the indexes, which is a precedent for researching the website transformation in the domestic academia. And the

Paper has many deficiencies, such as the index syste is imperfect, the e-commerce complexity has not been reflected fully, the evaluation subjectivity should be further eliminated. All of them will be solved in the follow-up study.

References

[1] X. Zhang, L. Wang and P. Zhang, "Development Question and Solution of Chinese E-commerce", in Information Research Methods, no. 6, **(2005)**.
[2] L. Qian, "Forewarning Study on C2C E-commerce Credit Risk", Harbin: Harbin Engineering University, **(2012)**.
[3] Z. Yan, "Study on C2C E-commerce Credit Management", Wuhan: Central China Normal University, **(2009)**.
[4] W. Qingming, "Credit Realization Form and Comparative Study on B2C and C2C E-shop", in Land-Resources Higher Vocational Education Study, no. 02, **(2008)**.
[5] J. Tianjia, "Study on C2C Website Credibility Mechanism based on System and Fair---Taobao", Zhejiang: Zhejiang University, **(2010)**.
[6] Y. Yu, "Chines C2C E-commerce Website and Evolutionary Mechainsm", Harbin: Harbin Institute of Technology, no. 06, **(2011)**.
[7] X. Song, "Fuzzy Mathematics Principle and Method", 2nd ed., China University of Mining and Technology Press, **(2008)**, pp. 201-206
[8] T.L. Satty, "The Analytic Hierarchy Process", New York: McGraw-Hill, **(1980)**.
[9] T.L. Satty, "How to make a decision：The Analytical Hierarchy Process", in European Journal of Operational Research, vo. 48, **(1990)**, pp. 9-26.
[10] T.L. Satty, "Fundaments of Decision Making and Priority Theory with the Analytic Hierarchy Process", RWS Publication, **(1994)**.
[11] T. Wang, G. Wang and C. Yue, "Forewarning Model of Online Public Opinion based on Fuzzy Comprehensive Evaluation Method", in Information Research Methods, no. 06, **(2012)**.
[12] K. Xueli, "E-commerce Website Evaluation Strategy based on Fuzzy Comprehensive Evaluation Method", in Sci-Tech Information Development & Economy, vol. 21, no. 18, **(2011)**.

Author

Gan Xiaohong, she was born in 1959, professor, master tutor, published over 30 papers in public.

