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Research Article

COMMODITY-SOURCED PUBLIC SERVICE PLATFORM-BASED COMMODITY INFORMATION REPUTATION ASSESSMENT METHOD IN THE CONTEXT OF INNOVATIVE DESIGN

Yenilikçi Tasarım Bağlamında Emtia Kaynaklı Kamu Hizmeti Platformu Tabanlı Emtia Bilgileri İtibar Değerlendirme Yöntemi

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ABSTRACT

This article, which aims to evaluate the problems related to e-commerce transaction issues in the online commerce platform, analyzes the factors affecting the reliability of online transactions. It also introduces a commodity information reputation assessment method based on the community's resource use and the innovative design of the public service platform. In the article, an information reputation evaluation model for commodity trade issues was created by using the innovative design community-sourced public service platform and scoring standards in the index system. Experimental results show that the algorithm is effective and suitable for the current e-commerce reputation assessment system.

Key words: innovative design; Crowdsourcing services; Commodity information; Reputation assessment; online commerce platform; the community's resource use; the public service platform

ÖZET

Online ticaret platformunda e-ticaret işlem sorunları ile ilgili sorunları değerlendirmeyi amaçlayan bu makale, online işlemlerin güvenilirliğini etkileyen faktörleri analiz etmektedir. Ayrıca, topluluğun kaynak kullanımına ve kamu hizmeti platformunun yenilikçi tasarımına dayalı bir emtia bilgisi itibarı değerlendirme yöntemini de sunar. Bu makalede, yenilikçi tasarım topluluk kaynaklı kamu hizmeti platformu ve endeks sisteminde puanlama standartları kullanılarak emtia ticareti konuları için bir bilgi itibarı değerlendirme modeli oluşturulmuştur. Deneysel sonuçlar, algoritmanın mevcut e-ticaret itibar değerlendirme sistemi için etkili ve uygun olduğunu göstermektedir.

Anahtar Kelimeler: yenilikçi tasarım; Kitle kaynaklı hizmetler; emtia bilgileri; İtibar değerlendirmesi; çevrimiçi ticaret platformu; topluluğun kaynak kullanımı; kamu hizmeti platformu

1. INTRODUCTION

The percentage of internet users who shop online the number of users is also increasing rapidly every year. Especially since the beginning of 2000, the introduction of web 2.0 sites into our lives, it has caused the consumer to be more knowledgeable, more conscious and demanding. Comments made by consumers about companies and their products on social media sites the effects of complaints and complaints are high, in addition to being a threat to companies. It also reveals opportunities that will enable them to get ahead of their competitors (Sözer, 2009; cited in Civelek, 2017). In today's world, where competition is increasing and the consumer is getting stronger, new sales and meeting the consumer's expectations of the internet as a marketing channel and regarding sustaining competition, its importance for businesses is gradually increasing. Today, companies that continue to use classical trading methods, they will gradually lose their advantage. Internet as a trading medium, using it is not an option but a necessity for today's companies (Sözer, 2009; cited in Civelek, 2017).

Studies since the 1960s have shown that technological developments increased the share of managerial workforce in the organization. This is because technological developments rapidly replace the unskilled workforce working in routine jobs (Lee, 1964).

User's social media due to the content importance of creativity, diversity, and difference. The age of participation was born. Another in other words, a large industrial enterprise large production facility hegemony of media organizations breaking and producing the content of the media now rigidity between the media and the audience the distinction disappeared. The virtual environment has brought the basis of distance from reality face-to-face or financially this is due to not being able to come. The most important point to be noted this.

Reputation or reputation; about an individual or a subject their views, the individual in question or the past period of the subject by their attitude or personality the extent to which he has earned the appreciation of others and how much it's accepted is a concept. Establishing reputation and reputation achieved it's pretty hard to maintain, it's just as easy to lose is the case.

In this context, a credit assessment method for commodity information based on an innovatively designed community-sourced utility platform is proposed. Taking Taobao and eBay as research objects, a simple cumulative model was established to predict the degree of trust of commodity information transactions based on the historical reputation value and the law of dynamic exchange of e-commerce platforms such as eBay (Bounouni&Bouallouche, 2018). Although the application method of the model is simple, it can effectively identify the malicious and misjudgment behavior of online transaction subjects. In the context of analyzing the factors affecting the integrity of online transactions, establishing an assessment method for the integrity of online transactions helps to improve the integrity of online transactions.

2. OPTIMIZATION OF THE CREDIT EVALUATION

2.1. Optimization Of The Credit Evaluation Mechanism In The Context Of Commodity Information

The three concepts of commodity information for the community-sourced public service platform mainly include trust, credit, and reputation. In the commodity trading process of the innovative design community-sourced public service platform, the buyer's trust in the seller and the buyer depends on many factors, which will also change depending on human factors (Abdelhamid, Hassanein, Takahara, 2018). Trust, honesty as a static feature of the economic entity, is its external performance. In other words, credit and reputation are the basis of mutual trust in economic activities (Magaia, Sheng, 2019). The quality of reputation depends on reputation, which affects the degree of mutual trust between economic entities. Based on Taobao store eBay's survey based on innovative design crowdsourcing service platform, to better evaluate the reputation of commodity information, the application of reputation management mechanism has been examined, and the reputation evaluation mechanism of commercial enterprises is shown in Figure 1.

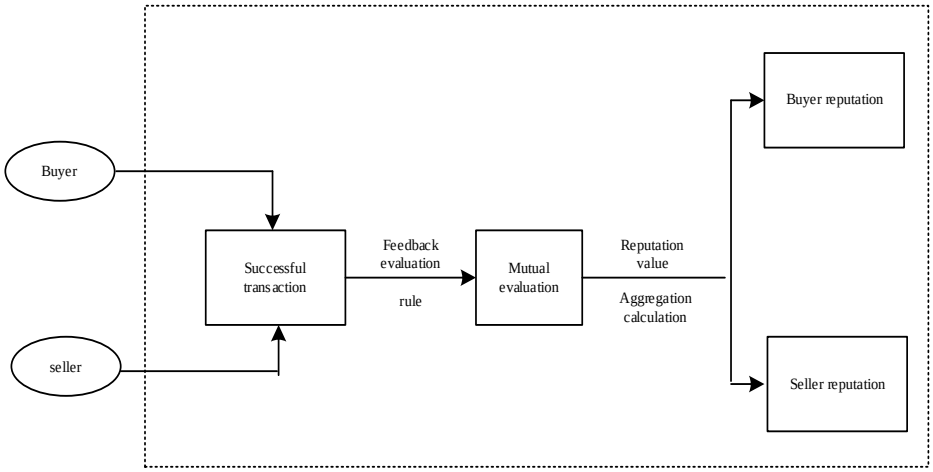

Fig. 1. Existing mechanism of credit evaluation of trading entities

As shown in Figure 1, after the transaction is successful, a party (buyer or seller) on the innovation design community-sourced public service platform can perform feedback evaluation on the trade object according to the rules specified on the e-commerce website (Agate, Paola, Re., et al. 2020). If neither party has a feedback evaluation, the innovative design community-sourced public service platform will be evaluated based on the default value. In the context of the feedback of the evaluation results of the innovation design crowdsourced service platform, the overall reputation value of a single transaction belonging to the transaction subject of the e-commerce platform is calculated using the calculation model, and the comprehensive reputation value is calculated as follows (Mehdi, Maghsoud, Edmundas, et al. 2018). In this context, we are establishing a reputation management system and improving the credit evaluation mechanism structure of commercial institutions, as shown in Figure 2:

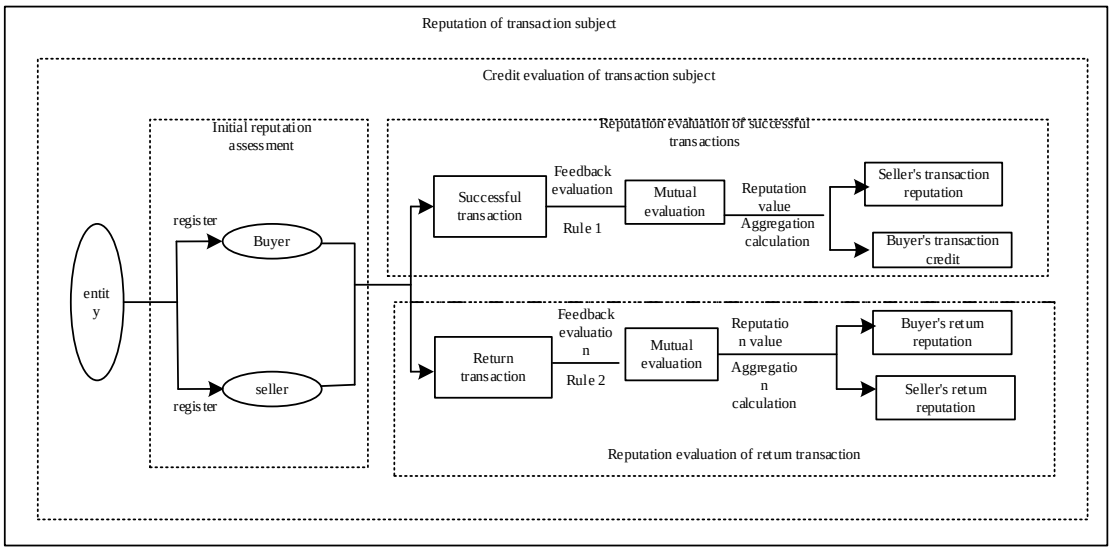

Fig. 2. Improving the existing mechanism structure within the scope of credit evaluation of commercial institutions

Through the research on the credit evaluation process of online transaction subject, combined with the factors affecting the buyer's reputation, this article constructs the credit evaluation index system of online transaction subject as shown in the figure, including evaluation content, evaluation feedback, transaction feedback, experience feedback, transaction feedback, etc., to realize the experience and effect of online transaction (Dass, Misra, Roy, 2020). The actual economic benefits of most of the current, online transaction assessment issues are derived through analysis, and most online transaction reputation assessment systems consider that the buyer does not present the credit assessment as a default assessment. But the buyer's online transaction assessment is based on the buyer's actual behavior (Buyukozkan, Gocer, Feyzioglu, 2018).

At the same time, the online transaction evaluation grades that other users can choose from are only positive, moderate, and poor, and the evaluation granularity is not sufficiently confirmatory. Therefore, the buyer does not send the online transaction evaluation as the default evaluation, and zero credit value is given to the buyer to further improve the evaluation granularity and improve the accuracy of the online transaction evaluation (Craciun&Moore, 2019).

2.2. Evaluation Algorithm Within The Scope Of Commodity Information Reputation

Secondly, the algorithm of commodity information reputation evaluation is optimized, and the relative importance of each evaluation index to the influencing factors of evaluation object is expressed by numerical value (Samreen, Ahmad, Zeshan, et al. 2020). Whether the evaluation weight of commodity information reputation is scientific or not directly affects the accuracy and objectivity of the evaluation results. The accuracy of the weighted calculation of commodity information reputation evaluation mainly depends on the professional level and knowledge and experience of the respondents (Baranwal and Vidyarthi, 2019).

AHP is an effective system analysis method, which combines qualitative analysis with quantitative analysis to evaluate the importance of each evaluation index. Yaralioğlu, Forecasting and decision-making in 2001 AHP technique used for revised for evaluation and the model worked on an example (Yaralıoğlu, 2001). Eraslan et al. human resources in 2005. Performance appraisal system in evaluation methods to contribute suggested the AHP method to make changes. Uludag et al. 4 different mobile phones in 2016 to investigate the reasons for the preference of the brand applied to MCDM methods and evaluated their service quality. From TOPSIS and VIKOR in addition to AHP when comparing has been used. It is a combination of many methods; the aim of the study is to compare the Fuzzy AHP method to the AHP method relatively easier than the solution process to show.

When all the literature studies are examined, MCDM among the methods, the AHP method is the most widely used, appears to be one of the methods. with this sometimes to reduce subjectivity in performance measurement. It is observed that the AHP method is used. The feature of the study is that it is in the institution where the application will be made. For the first time, the AHP method was used in performance measurements that it has been used.

The first step in AHP applications is the goal of the decision maker is to determine a decision problem in line with these main criteria, sub-criteria, and decision alternatives of the problem, a hierarchical structure is

established. Items comparison by making pairwise comparisons in matrices are obtained these comparison matrices of the two factors means comparison and depends on the personal opinion of the decision maker it depends. Then, the importance levels of each criterion are determined is being done.

At the last stage of the application, all criteria are evaluated, and the most suitable decision alternative is determined happens (T. L., 2001).

In order to facilitate the research, firstly, the credit evaluation index system of online transaction evaluation subject is optimized. The specific information content is shown in Table 1:

Table 1. Credit evaluation index system of online transaction evaluation subject

First level evaluation index	Secondary evaluation index	Manifestation of secondary evaluation index
Transaction evaluation content (A)	Delivery speed（A_1）	Default, high praise, good, medium, general, poor
	Logistics distribution(A_2)	
	Seller services(A_3)	
	commodity price(A_4)	
	Commodity quality(A_5)	
	Additional evaluation(A_6)	
Transaction evaluation feedback（B）	Buyer's current reputation(B_1)	Text evaluation information filled in and submitted by the buyer
	Seller's feedback on transaction evaluation(B_2)	Data calculated automatically by the system
	Feedback from other buyers(B_3)	Default, high praise, good, medium, general, poor
Online trading experience（C）	Number of successful transactions(C_1)	The value of system automatic statistics
	Commodity category(C_2)	The category of trading commodities automatically recorded by the system
	item pricing(C_3)	The transaction unit price of a single commodity automatically recorded by the system
	Number of commodity transactions(C_4)	The quantity of goods included in a single transaction automatically recorded by the system
Evaluation completion time（D）	Time for buyer to submit transaction evaluation(D_1)	Date and time automatically recorded by the system
	Other time for feedback evaluation(D_2)	
	Time for seller to feedback transaction evaluation(D_3)	

Furthermore, we use the innovation design crowdsourcing service platform to evaluate, establish the hierarchy model of commodity information reputation evaluation, judge the data input of matrix, weight ranking, and matrix consistency modification, and complete the incomplete matrix and make group decision based on the above table information (Moreri, Fairbairn, James, 2018). So as to carry on the reputation analysis, the decision-making, choice of commodity trading, strategic analysis and evaluation (Tian, Gao, Su, et al. 2019). By analyzing the collected data, pv6.0 was used for analysis. Five credit evaluation indexes for the developing of e-commerce are determined as Table 2:

Table 2. Evaluation index of commodity information reputation

Primary indicators	Secondary indicators
Business M_1	Business reputation M_{11}
	Business trust tendency M_{12}
	Business objection handling ability M_{13}
Customer M_2	Personal trust tendency M_{21}
	Consumption and use experience M_{22}
	Online consumption cost M_{23}
	Offline consumption cost M_{24}
Products and services provided by businesses M_3	Service process provided M_{31}
	product quality M_{32}
	Consistency of online and offline product description M_{33}
O2O network platform M_4	Platform word of mouth M_{41}
	Functionality M_{42}
	Ease of use and convenience M_{43}
	Security M_{44}
Trading environment M_5	Policy and legal environment M_{51}

	Convenience and security of third party payment M_{52}
	Customer protection mechanism M_{53}
	Business recommendations M_{54}
	Offline store environment M_{55}

Based on the information in the table above, the weight of each evaluation index is determined, and a method of 1-9 credit characteristics comparison is proposed. The relative importance of each evaluation index is explained by two dimensions (Phillip, Lina, Simon, et al. 2018). Each evaluation index is further allocated according to the meaning of the reputation evaluation. The details are shown in Table 3.

Table 3. Meaning of hierarchy of credit evaluation

Proportional scale	Meaning
1	Compared with the two factors, they have the same importance
3	Compared with the two factors, the former is slightly more important than the latter
5	The former is more important than the latter
7	The former is more important than the latter
9	The former is more important than the latter
2,4,6,8	Represents the intermediate value of the above adjacent judgments
The reciprocal of the scales listed above	Denotes the opposite of what is described in the above definition

The credit evaluation index system of commodity trading evaluation subject is complex, and the calculation result of judgment matrix is unreasonable. Therefore, it is necessary to test the consistency of judgment matrix to ensure the validity of reputation value calculation. Based on this, the mean random consistency index RI of the judgment matrix is further calculated. If the consistency index of the judgment matrix is set as the maximum eigenvalue Max, then the consistency test value CR of the judgment matrix is:

$$CR = \frac{CI}{RI} = \frac{(\lambda_{\max} - n)/(n-1)}{RI} \quad (1)$$

When the consistency ratio of the judgment matrix is less than 0.1, it indicates that the judgment array has satisfactory consistency, and the weight distribution is reasonable. When the consistency ratio of the judgment array is greater than 0.1, it indicates that the judgment array needs to be adjusted and modified again. Until CR is less than 0.1, it indicates that the judgment array needs for analysis to use SPSS statistics is a software package used to determine the judgment matrix of the online transaction evaluation subject and modify the evaluation results to achieve a satisfactory CR value. With GI and WI as the actual scores of each second-level evaluation index and their weights to the overall target I, then the credibility of the online transaction evaluation subject is

$$R = \frac{CI}{RI}\sum_{i=1}^{n} G_i \times W_i \quad (2)$$

Further develop the rating standards of online trading reputation evaluation subjects:

Table 4. Is the scoring standard of the credibility evaluation index of the online transaction evaluation subjects

General objective	evaluating indicator	Index weight	The scoring standard of evaluation index
Reputation value of online transaction evaluation subject	Delivery speed	0.023 3	The default evaluation of the system is processed according to the user's no evaluation, no scoring, and no recalculation of the buyer's credit value; 95 points for positive evaluation, 85 points for good evaluation, 70 points for medium evaluation, 65 points for general evaluation and 50 points for poor evaluation.
	Logistics distribution	0.066 2	
	Seller services	0.035 1	
	commodity price	0.134 2	
	Commodity quality	0.209 6	
	Additional evaluation	0.018 4	
	Buyer's current reputation	0.034 7	The current reputation value of online transaction evaluation subject
	Seller's feedback on transaction evaluation	0.118 6	
	Feedback from other buyers	0.202 7	
	Number of successful transactions	0.059 1	Count the number of successful transactions within 180 days from the current date, including the transactions returned and exchanged. A successful transaction is scored 3 points, and the highest score is no more than 100 points.
	Commodity category	0.006 1	90 points for physical goods and 100 points for other virtual goods or services.
	item pricing	0.022 6	C_3= Unit price / 5, full score is 100.
	Number of commodity transactions	0.010 7	Each item in the order is 15 points, with a full score of

		100 points.
Time for buyer to submit transaction evaluation	0.042 2	According to the days between the submission date of transaction evaluation or evaluation feedback and the date of confirmation of receipt, 65 points are counted for 1-2 days, 75 points are calculated for 3-5 days, 90 points are calculated for 6-18 days, and 80 points are calculated for 19-30 days.
Time for feedback from other buyers	0.011 4	
Time for seller to feedback transaction evaluation	0.005 2	

Since corporate reputation is the result of the combined action of many factors, determining of each factor mainly depends on the efforts of the enterprise in its commercial selling activities.

Regarding business reputation and reputation, this tracking and measurement on new media together with the new media must be managed accordingly.

In this context, ERA Research & Consultancy and Bersay Communication Turkey's first new media trends study, conducted in cooperation with the consultancy, marketing and communication managers to bring the concept of new media to the fore of importance regarding. Based on this, the main factors that influence the reputation of merchants are further determined, including five level indicators of merchants, customers, commodity providers, website platforms, and trading environment, which are calculated as follows:

$$\mathbf{U} = \left(u_1, u_2, u_3, u_4, u_3\right) \quad (3)$$

In the expression, each part of the vector corresponds to each first-level indicator in the table, and each first-level indicator contains the corresponding second-level indicator. According to the calculation requirements of the fuzzy theory of business reputation, the dependent vector is set as:

$$\mathbf{U}_1 = \left(u_{11}, u_{12}, u_{13}\right) \quad (4)$$

$$\mathbf{U}_2 = \left(u_{21}, u_{n2}, u_{23}, u_{24}\right) \quad (5)$$

$$\mathbf{U}_3 = \left(u_{31}, u_{32}, u_{33}\right) \quad (6)$$

$$\mathbf{U}_4 = \left(u_{41}, u_{42}, u_{43}, u_{44}\right) \quad (7)$$

$$\mathbf{U}_5 = \left(u_{51}, u_{52}, u_{53}, u_{54}, u_{55}\right) \quad (8)$$

Based on this, the commodity information reputation evaluation vector is further established:

$$\mathbf{V} = \left(v_1, v_2, v_3, v_4, v_5\right) \quad (9)$$

Where, V1 is the difference, V2 is the mean, V3 is the median, V4 is good, V5 is general, then further calculation can be obtained.

$$y_i = \frac{\mathbf{V}\ (t_i - t_{\min})}{ut_{\max} - ut_{\min}} \quad (10)$$

Further quantify a group of corresponding ratings of reputation evaluation, and obtain a new reputation evaluation vector:

$$Y = \left(y_1, y_2, y_3, y_4, y_5\right)_0 \quad (11)$$

Where Yi represents the quantized I fraction, if Ti represents the I fraction of the original fraction vector. The corresponding score vector is standardized to obtain a new score vector:

$$Y = \mathrm{t}_i \left(y_1, y_2, y_3 + y_4, y_3\right) = (0, 0.25, 0.5, 0.75, 1) \quad (12)$$

To ensure the accuracy and reliability of weighted data processing, the article has been analyzed from four aspects. This article analyzes the relationship between corporate reputation evaluation and various factors of corporate reputation, establishes the evaluation system with corporate reputation as the target level, and determines the specific evaluation index according to previous analyzes and the guiding principles of the decision-making level. Second, the importance of high-level indicators is compared twice for each item in the same tier. The judgment matrix of the two comparison factors is created (Phillip, Lina, Simon, et al. 2018). To

improve the objectivity of the data, the 9-level calibration method is used to determine the judgment matrix, and MATLAB programming is used to determine the weight coefficient of each index. The consistency test of the judgment matrix is determined by the eigenvector corresponding to the maximum eigenvalue of each factor judgment matrix, to ensure the accuracy of commodity information reputation evaluation.

2.3. Optimization Of The Credit Evaluation Method Within The Scope Of Commodity Information

In the process of credit assessment of commodity information, the buyer's initial credit limit is related to the credit limit and authenticity that the buyer provides when registering on the trading platform. The third-party certificate chosen by the buyer determines information integrity. Information integrity is determined by the required information to be filled at the time of registration and the available information (Tian, Gao, Su, et al. 2019). To ensure the effectiveness of reputation evaluation, the influencing factors of buyer's initial reputation are analyzed based on the innovative crowdsourcing service platform. The specific structure is shown in Figure 3.

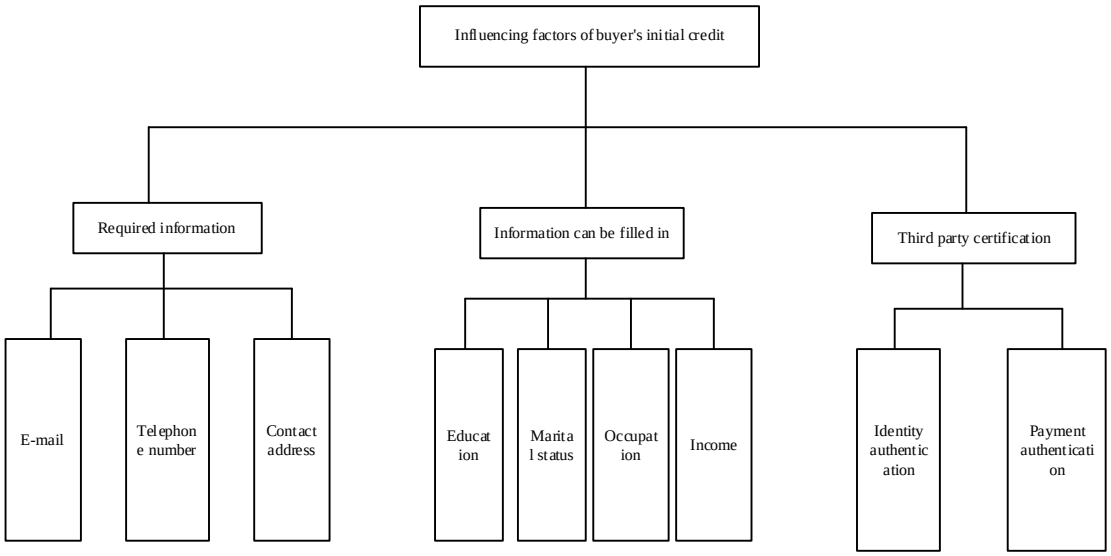

Fig.3. Factors influencing buyer's initial reputation

Furthermore, the transaction price of the transaction commodity is transformed into the transaction value utility coefficient u by the formula, to express the influence of the transaction price of the transaction commodity on the buyer's real credibility utility. The specific algorithm is as follows:

$$u_1^b = f_1^b\left(\theta_1^b\right) \quad (13)$$

$$\theta_1^b = \left(P_j^b - \overline{C_i^b}\right) / \overline{C_i^b} \quad (14)$$

$$f_1^b\left(\theta_1^b\right) = \begin{cases} 1 & \theta_1^b \le 0 \\ f_{1(1)}^b\left(\theta_1^b\right) & 0 < \theta_1^b \le \theta_{1(1)}^b \\ f_{1(2)}^b\left(\theta_1^b\right) & \theta_{1(1)}^b < \theta_1^b \le \theta_{1(2)}^b \\ a & \theta_1^b \ge \theta_{1(2)}^h \end{cases} \quad (15)$$

Also, the overall process of online platform transaction reputation assessment has been optimized. After receiving the goods and confirming the receipt, the buyer can evaluate the products.

When the buyer submits the new online transaction evaluation information and the seller provides the new evaluation feedback for the existing online transaction evaluation, the system will automatically recalculate the buyer's reputation value and dynamically generate the buyer's reputation value curve.

The credit evaluation process specific to the subject of the transaction is shown in Figure 4.

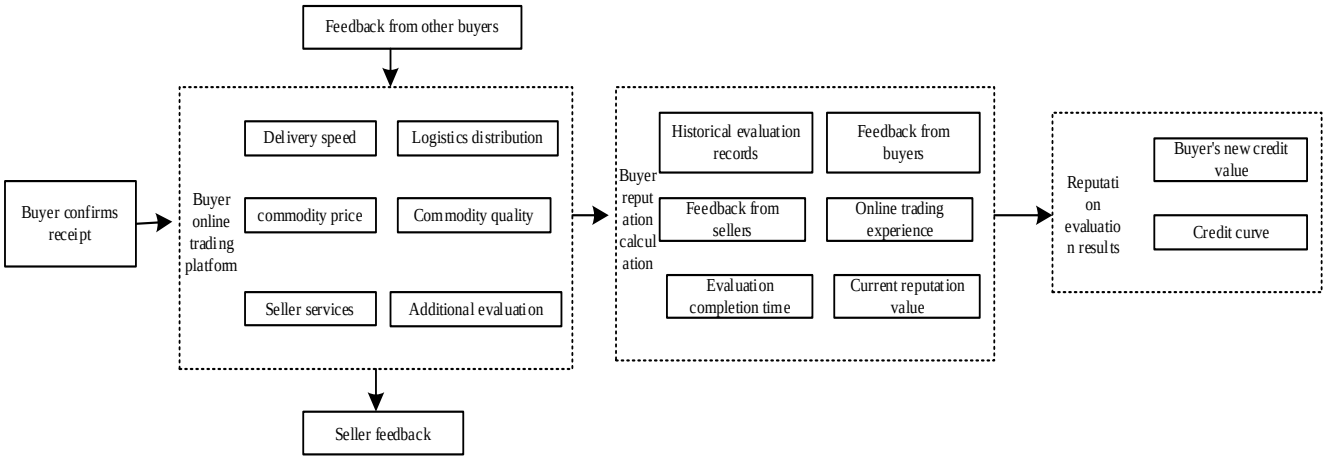

Fig. 4 Credit evaluation process of transaction subject

Combining the factors that affect the reputation value of a network transaction with the evaluation procedure, it can be divided into the following categories: the reputation value that the buyer already has. The platform's e-commerce reputation evaluation system dynamically calculates the reputation value according to the buyer's online transaction evaluation records. Buyer feedback on online transactions can be used to evaluate transactions (Phillip, Lina, Simon, et al. 2018).

The seller or other online buyers who purchase the evaluated goods on the Internet can evaluate the accuracy of the evaluation, feedback the commodities, evaluate the online transactions of the commodities, evaluate the commodities to be evaluated, and evaluate the online commodity transactions.

Also, a hierarchical model should be established, which includes the target level (the highest level, the elements describing the problem goal), the guidance layer (the middle layer, the intermediate link to achieve the goal), the indicator layer (the third layer, the specific evaluation index) and the scheme level (the bottom layer, designed by the expert group and the buyer group according to the rich experience of online purchasing), and the hierarchical structure model of credit evaluation index should be improved Row optimization, as shown in Figure 5:

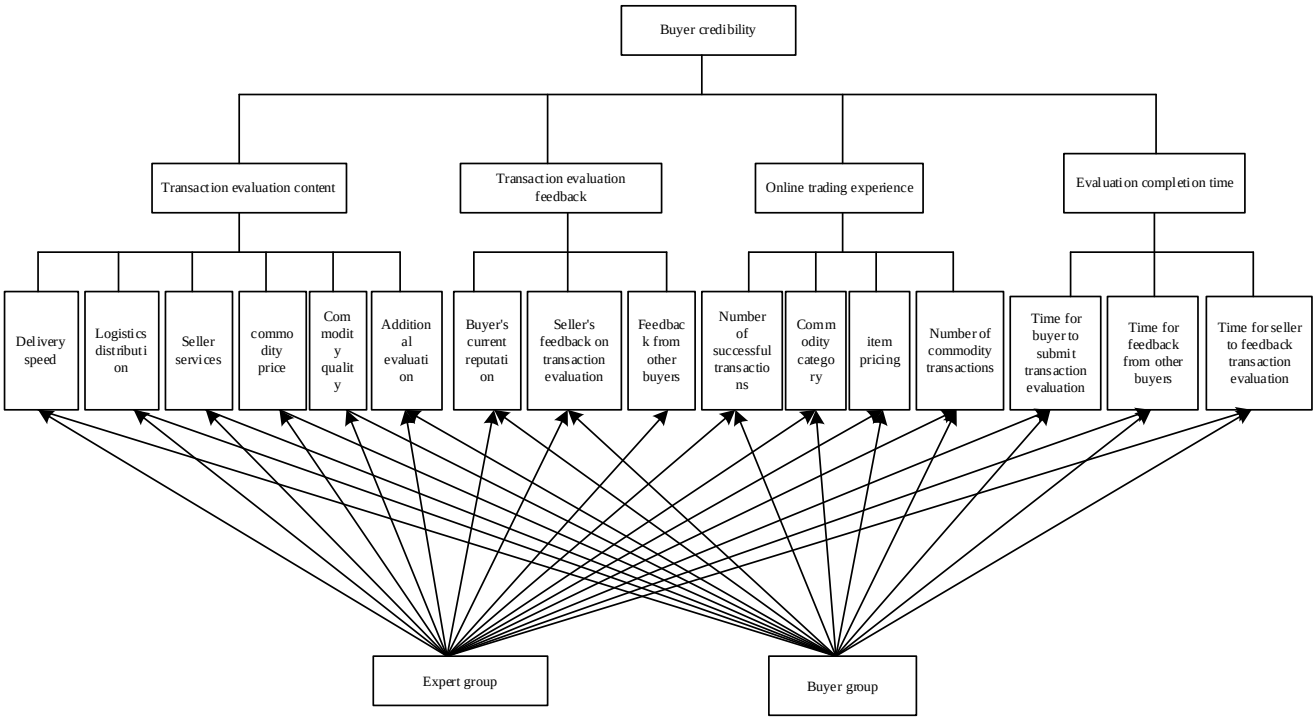

Fig.5. Hierarchy model of reputation evaluation index

As shown in Figure 5, the main factors affecting the seller's reputation are discussed from the seller's initial reputation, transaction reputation and return reputation. The quantitative rules and calculation methods of various impact indicators are designed, and the seller's initial reputation, transaction reputation and return reputation are classified. To realize the accurate evaluation of commodity information and ensure the accuracy

of information evaluation.

3. ANALYSIS OF EXPERIMENTAL RESULTS

With the MATLAB simulation tool, it is possible to evaluate the reputation of the buyer and seller. The model evaluates the buyer's reputation by assuming transaction characteristics in different transaction behaviors of the buyer. While validating the seller's reputation evaluation model, the seller's reputation evaluation model is used to evaluate the seller's reputation. The weight of factors determining the buyer's initial reputation is as shown in Table 5:

Table 5. Weight table of influencing factors of buyer's initial credit

Essential information $w^b_{0(1)}$	Information can be filled in $w^b_{0(2)}$	Identity authentication $w^b_{0(3)}$	Payment authentication $w^b_{0(4)}$
0	0.2	0.5	0.3

The weight algorithm of influencing factors of buyer's initial credit is as follows:

$$f_0^b\left(w_{0(k)}^b\right)=1\text{-}w_{0(k)}^b(t\in\{1,\cdots 4\}) \quad (16)$$

The weight of factors influencing the seller's first reputation is as shown in Table 6:

Table 6. Weight table of influencing factors of seller's initial credit

Payment authentication $w^b_{0(1)}$	Business alliance certification $w^b_{0(2)}$	Worry free return and exchange $w^b_{0(3)}$	The Seller shall bear the return freight $w^b_{0(4)}$
0.1	0.2	0.3	0.4

The weight algorithm of seller's initial credit influencing factors is as follows:

$$f_0^s\left(w_{0(k)}^s\right)=1+w_{0(k)}^s(t\in\{1,\cdots 4\}) \quad (17)$$

Based on the information in the table above, the transaction value utility function of transaction subject transaction reputation evaluation is set as follows:

$$f_1^b\left(\theta_1^b\right)=\begin{cases}1 & \theta_1^b\le 0\\ 2\left(\theta_1^b\right)^2 & 0<\theta_1^b\le 0.5\\ -2\left(\theta_1^b\right)^2+4\theta_1^b & 0.5<\theta_1^b\le 1;\\ 2 & \theta_1^b>1\end{cases} \quad (18)$$

$$f_1^s\left(\theta_1^s\right)=\begin{cases}1 & \theta_1^s\le 0\\ 2\left(\theta_1^s\right)^2 & 0<\theta_1^s\le 0.5\\ -2\left(\theta_1^s\right)^2+4\theta_1^s & 0.5<\theta_1^s\le 1\\ 2 & \theta_1^s>1\end{cases} \quad (19)$$

Based on the number of merchants algorithm, the initial credit value (Comprehensive reputation value) of network entities registered in a certain way before any transaction is calculated as shown in Table 7:

Table 7. Initial credit value of commodity information

Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
0	0.2	0.5	0.7	0.8	1.0

From the initial reputation values in the table, we can see that the model can effectively distinguish the reputation values of buyers with different registration methods. The larger the value, the better the reputation of buyers. The buyer only needs to fill in the basic information when registering, the initial credit value is 0, the credibility is low; after the buyer is authenticated, the credit value is greater than or equal to 0.5, and the credibility is high.

On the existing e-commerce platform, through the establishment of the buyer's initial reputation evaluation model, the buyer's reputation can be evaluated, which can provide a reference for the transaction, thus making

up for the shortage of the initial reputation value of 0. Suppose there are four buyers with different reputation on the platform, and the transaction frequency is evenly distributed. The characteristics of trading behavior are shown in Table 8.

Table 8. Credit attribute table of different commodity information transaction

Attribute	Dimensions of successful transactions			Return transaction dimension		
Buyer	Feedback score distribution	Distribution of relative price deviation	Evaluation accuracy of sellers	Feedback score distribution	Return rate	Evaluation accuracy of sellers
1	Praise 100% Medium rating 0% Poor rating 0% Praise 100%	N(0,1)	95%	Praise 100% Medium rating 0% Poor rating 0% Praise 90%	0.05	95%
2	Medium rating 0% Poor rating 0% Praise 70%	N(0,1)	95%	Medium rating 0% Poor rating 10% Praise 70%	0.6	95%
3	Medium rating 0% Poor rating 30% Praise 30%	N(0,1)	30%	Medium rating 0% Poor rating 30% Praise 30%	0.05	30%
4	Medium rating 0% Poor rating 70%	N(0,1)	30%	Medium rating 0% Poor rating 70%	0.6	30%

Based on Table 8, the test objects are online transaction evaluation data of Taobao A and B2 users, evaluation index weight and scoring standard (i.e. reputation evaluation model CT) and simple cumulative model st of scores of both parties. Finally, a dynamic change curve of buyer's credit value is obtained, as shown in Figure 6.

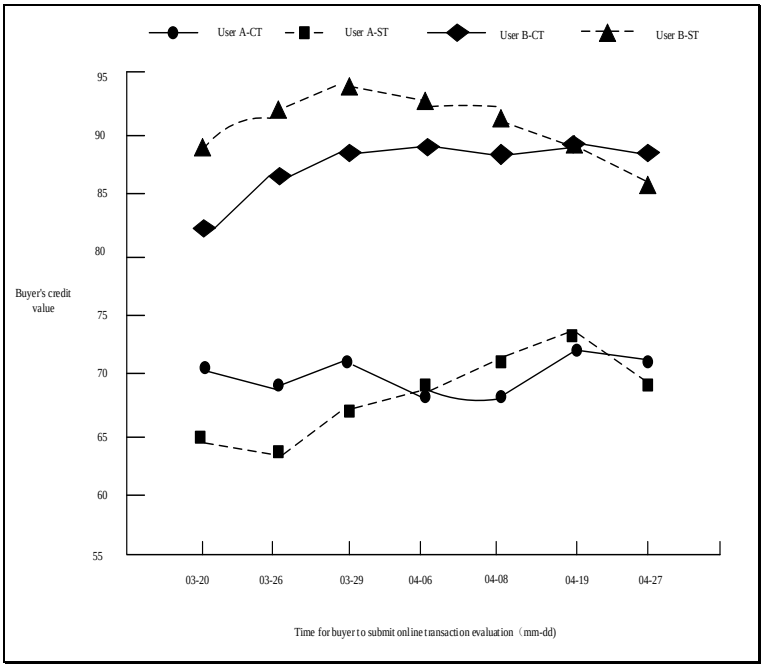

Fig. 6. Dynamic change curve of reputation value

When the results are examined, it has been determined that the evaluation index system and weight distribution of this method have certain advantages and that the quantity of each evaluation index is simple, accurate and applicable. On this basis, the three-dimensional dynamic reputation value of each buyer is consistent with the trading behavior, which can better represent the buyer's reputation, and the reputation value tends to be stable with increasing transaction times. This model can reflect dynamic changes in the buyer's reputation value to the trading environment and compare the reputation value of the same buyer in different periods. In e-commerce, the model can be used to assess the buyer's reputation.

4. CONCLUSION

This article optimizes the evaluation method of online business reputation based on the analysis of relevant factors that affect the reputation of online transactions. In this context, it determines the weight of each

evaluation index and analyzes the scoring standard of each by using the innovatively designed community-based public service platform and the AHP method.

It also examines the evaluation index and analyzes the application method and application effect of the reputation evaluation model by collecting empirical data.

Using the credit evaluation method of commodity information based on the innovative design community-sourced public service platform, can promote online transaction, facilitate the evaluation issue to evaluate each online transaction order, encourage online transaction to standardize online marketing behavior, improve the credibility of e-commerce platform reputation. In this context, it is thought that the evaluation system and research requirements can be met.

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