Hindawi
Journal of Function Spaces
Volume 2023, Article ID 9797020, 1 page
https://doi.org/10.1155/2023/9797020

Retraction

Retracted: E-Commerce across Boarder Logistics Risk Evaluation Model Based on Improved Neural Network

Journal of Function Spaces

Received 3 October 2023; Accepted 3 October 2023; Published 4 October 2023

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] W. Qiao, "E-Commerce across Boarder Logistics Risk Evaluation Model Based on Improved Neural Network," *Journal of Function Spaces*, vol. 2022, Article ID 2355298, 10 pages, 2022.

Hindawi
Journal of Function Spaces
Volume 2022, Article ID 2355298, 10 pages
https://doi.org/10.1155/2022/2355298

Research Article

E-Commerce across Boarder Logistics Risk Evaluation Model Based on Improved Neural Network

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Received 19 May 2022; Revised 4 July 2022; Accepted 8 July 2022; Published 25 July 2022

Academic Editor: Miaochao Chen

BP neural network is a typical algorithm in artificial intelligence network. It has strong nonlinear mapping ability and is the most prominent part to solve some nonlinear problems. In the traditional BP algorithm, the coincidence initialization of weights and thresholds is random, which reduces the efficiency of the algorithm on the one hand and affects the accuracy of the algorithm results on the other hand. In order to solve these problems, this paper studies an e-commerce cross-border logistics risk assessment model based on improved neural network. This model can help merchants engaged in cross-border e-commerce to select appropriate third-party settlement platforms, so as to reduce the cost of merchants in the process of capital settlement. The key information in BP neural network algorithm is stored in weights and thresholds, which is enough to prove the importance of weights and thresholds for the effective operation of the whole network. The e-commerce cross-border logistics risk assessment model based on improved neural network aims to solve the problem of low level of risk assessment and the bottleneck of logistics risk assessment. The improved e-commerce cross-border logistics risk assessment model based on neural network can be used for risk rating before business development, so as to adopt different risk management methods for different risk levels.

1. Introduction

With the continuous development of economic globalization and the rise of mobile Internet, big data, cloud computing, and other information technologies, e-commerce across boarders has come into being. Under the background of the national macrodevelopment strategy of "One Belt, One Road" and "Pilot Free Trade Zone," China's e-commerce across boarders has become a "dark horse" in foreign trade [1]. E-commerce across boarders has also become a new hot spot, while the development of e-commerce across boarders is hot, and the development of e-commerce across boarder logistics can no longer meet the needs of e-commerce across boarder business development [2]. China's cross-border trade is developing at a fast pace, but the constraints of real factors such as capital, scale, and management level directly lead to the dilemma that Chinese cross-border e-merchants generally face high costs in the settlement link, poor timeliness, and difficulty in repayment [3]. While being highly valued, the instability and high failure rate of alliances make enterprises have to weigh the benefits and risks when joining them [4]. In addition, the lack of sufficient funds to build a modern information management system has led to "indigestion" and order loss in most logistics enterprises from time to time. Especially after the "double 11" promotional activities, it often highlights the weak links in China's e-commerce logistics distribution [5]. The commodity itself and its price are no longer the most important factor affecting consumer shopping, replaced by the merchant's customer service, logistics, and distribution of these services [6].

The government has continuously introduced relevant policies to support the development of e-commerce and has introduced laws and regulations and formulated regulatory systems at the level of standards and supporting systems, with a view to promoting the sustainable and stable development of e-commerce across boarders [7]. As more and more foreign logistics companies with advanced logistics technologies enter the Chinese market, domestic logistics companies are facing increasingly fierce competition and have to develop innovative services and find new profit points. The provision of logistics risk evaluation services can not only strengthen the cooperation with upstream and downstream enterprises in the supply chain but also gain new profits [8]. Logistics risk evaluation is a complex multifactor comprehensive analysis process with incomplete information, involving many evaluation objects [9]. Cross-border logistics in the context of international trade belongs to the concept in a broad sense. Cross-border logistics in a broad sense refers to the logistics service activities between two or more countries, and cross-border logistics is a manifestation of logistics service development to an advanced stage [10]. With the support of the government, China's e-commerce across boarders will certainly make great development and then promote the development of China's foreign trade. So in order to avoid the difficulties caused by incomplete survey information, reduce the influence of subjective factors in the evaluation, and avoid the problems caused by correlation among indicators, this paper adopts an improved neural network evaluation method with high nonlinear approximation ability, strong fault tolerance, self-learning, and easy to use [11].

Artificial neural network is a hot research field in recent years, involving many disciplines, and its application areas include modeling, time series analysis, pattern recognition, and control and are constantly expanding. The neural network will train the input according to its own network structure and learning rules and then perform specific tasks according to specific applications. Analyzing the risk indicators from the perspective of logistics enterprises is in line with the development of the times, which helps logistics institutions to rate the logistics of loan enterprises and reduce the loan risk. It avoids setting index weights artificially, effectively avoids some subjective and random factors, and makes the evaluation of logistics risk as objective as possible, so as to better avoid the risks in the implementation of logistics projects.

The innovations of this paper are

(1) This paper analyzes the obstacles affecting the growth of China's e-commerce across boarders—cross-border logistics—by using the latest developments in the industry and reviewing the current situation according to the environment and development of China's e-commerce across boarders

(2) The initial weights and thresholds of the improved neural network are used to conduct a comprehensive analysis of the parameters involved in the neural network, and the training model is used to determine the optimal parameters and select the most suitable network structure for empirical analysis

(3) By analyzing the basic principles of neural networks and addressing the problems of long search time for extremes and falling into local optima of BP neural networks, the improved neural network algorithm is analyzed in this paper. Initialize multiple neural networks with different parameter values, and take the smallest as the result. Using random gradient descent is not the same as using standard gradient descent to accurately calculate gradients. Random gradient descent method adds random factors to the calculation of gradient. So even if it falls into a local minimum, the calculated gradient may not be. In this way, it is possible to jump out of the local minimum and continue the search

2. Thoughts on the Construction of E-Commerce across Boarder Logistics Risk Assessment Model Based on Improved Neural Network

2.1. Establishment Method of Index System. The selection of logistics risk evaluation indicators faces more complex customer relationships.

First of all, for the establishment of logistics risk evaluation system, it is a systematic project, and each evaluation index subsystem consists of a set of indicators, which are independent of each other and linked to each other and can reflect the whole risk early warning system. Individual risk and overall risk are to determine the evaluation benchmark, which can be called individual evaluation benchmark and overall evaluation benchmark, respectively. Both risk suppression and risk compensation are measures to reduce losses after the occurrence of risks by adopting early warning programs and total programs. Through this series of methods, it constitutes the whole process of risk management, as shown in Figure 1.

Affecting logistics and transportation is also the degree of impact of natural disasters and changes in customs clearance policies of countries for e-commerce across boarder parcels; in addition, in terms of logistics capital chain settlement, the degree of impact of macroeconomic fluctuations of countries will also affect logistics costs to a certain extent. In the neural network, the neural favor nodes between layers are no longer in fully connected form. Using the local spatial correlation between layers, the neuron nodes of each adjacent layer are connected only to the upper layer neuron nodes that are close to it, i.e., locally connected. A multilayer forward network is built with the function to calculate the output M of the hidden layer.

$$M_j = f\left(\sum_{i=1}^{n} W_{ij}X_i - b_j\right), j = 1, 2, \cdots, m. \tag{1}$$

In the e-commerce across boarder logistics system, as the cross-border logistics chain covers several supplier enterprises and provides logistics services to customers all over the world, the complex supplier and customer groups make high requirements on logistics and transportation capacity and risk control ability. In summary, the selected primary evaluation index system is shown in Figure 2.

Once the learning samples are input to the neural network, they start to pass forward in the direction of the input, hidden, and output layers, based on the weights and bias vectors of each layer, and finally, the actual output is obtained. An input vector (provided by the training samples) is transformed through a series of hidden layers to obtain an output vector,

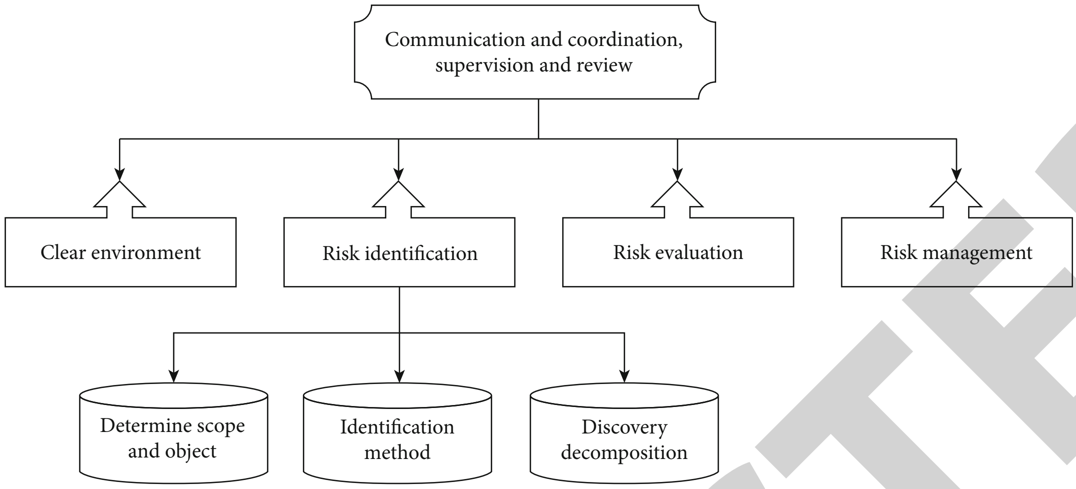

Figure 1: Risk management process.

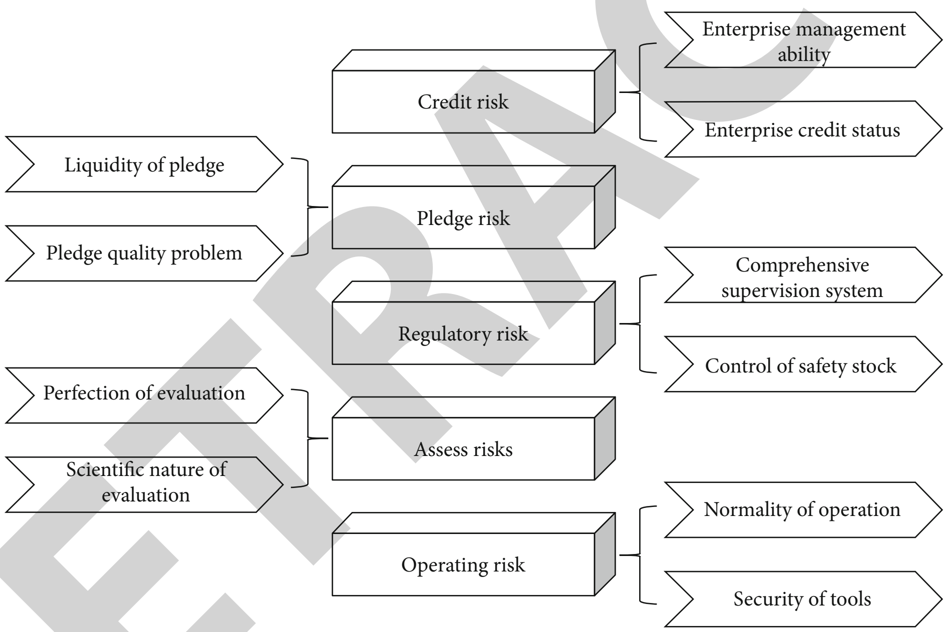

Figure 2: Initial evaluation index system of logistics risk.

thus achieving a mapping relationship between the input data and the output data. The Swish function is chosen as the activation function of the network model to improve the classification accuracy of the images. Its mathematical expression is given by the equations:

$$\mathrm{f}(x) = x \cdot \sigma(\beta x), \tag{2}$$

$$\sigma(x) = \frac{1}{1 + \exp(-x)}. \tag{3}$$

$\sigma(x)$ is Sigmoid activation function number.

Second, the scientific nature of index selection is reflected in the combination of theory and practice, which should have both theoretical basis and also reflect certain objective reality. In the management of overseas warehouse, the increase of product return rate, product life cycle fluctuation, and inventory risk will bring certain risks to the overseas warehouse storage link. To determine the overall risk level of logistics, we need to analyze the factors affecting the development of logistics, identify the logistics risks, and clarify the relationship between various risks, their interaction, and the extent and consequences of their impact on logistics implementation. The presence of a target in the region is determined by combining a set of weak classifiers through a simple linear boosting classifier with a decision function of the following equation:

$$\hat{y}_i = \sum_{m=1}^{M} \omega_m h_m(T_i). \tag{4}$$

h_m is a weak classifier. ω_m is the weight of the classifier should be weak. $\hat{y}_i$ is the probability of existence of target. M is the number of weak classifiers.

In the process of transportation and distribution, cross-border logistics involves multiple transit and multiple batches, which requires longer in-transit transportation time. From the management aspect, higher transit rate of goods will bring greater risk of lost and damaged parts. Therefore, the neural network is used to calculate the difference in error among the actual output and the ideal output, and if the magnitude of the error does not satisfy the preset requirements, the signal of the error is spread along the direction of the output layer, the hidden layer, and the input layer to gradually update the model parameters. The positive spread of the information on the input and the negative spread of the error on the output constitute the information loop of the network, and the information loop function is

$$x' = \frac{2[x - 0.5(\max + \min)]}{\max - \min}. \tag{5}$$

x' is the normalize the calculated value. x is the value of the current sample point. min is the minimum value of sample data. max is the maximum value of the sample.

It is similar to the traditional neural network model in that the input is added to the network, and the output is calculated for each input vector and then the value of each correlation weight W_{ji} is corrected according to the following equation:

$$W_{ji}(t+1) = W_{ji}(t) + \Delta W_{ji}(t). \tag{6}$$

Finally, the indicators selected for logistics risk indicators should be available for quantitative analysis, and each indicator should have a strong realistic operability and comparability. The utilization rate of facility resources indirectly affects the size of transportation risks, and high transportation costs can also increase the risk of enterprises. Long-distance transportation vehicle traffic safety, transportation equipment turnover bumps, and other factors are potential risks. Since the transformation between the hidden layer output to the output layer is a linear transformation, people more often use the RLS algorithm which has been relatively mature. In the context of e-commerce across boarders, cross-border logistics has significant e-commerce characteristics, and commodity transportation is no longer manifested as cross-border spatial displacement of bulk commodities, but small batch and multifrequency cross-border spatial displacement of commodities through cross-border logistics mode, so this belongs to the category of cross-border logistics in a narrow sense. In solving the actual problem, the network composed of single neuron can hardly meet the requirements because its structure is too simple. In addition, we can also make simple improvements to the above modified equations like BP networks. Therefore, neural networks usually need to be composed of multiple neurons, and when the problem is complex, it is also necessary to extend the single-layer neural network into a multilayer neural network. That is, the predictability of risk, the probability of occurrence, and the prediction of consequences are carried out in three aspects, and the influencing factors of logistics implementation risk are analyzed in a comprehensive and multilevel way.

2.2. Establishment of Risk Assessment Model. The learning process of BP network model consists of forward propagation and error backward propagation process, which embodies the best part of artificial neural network. Because of its better self-learning and self-association function among various neural network models, it has become the most widely used artificial neural network at present. E-commerce across boarder logistics is reasonably divided according to different customer states and provides reasonable and effective logistics services such as warehousing, distribution, and transportation. The node structure of e-commerce across boarders logistics supply chain is shown in Figure 3.

First, the fitting accuracy of the network is positively correlated with the number of layers and the number of nodes per layer, and increasing the number of layers can improve the fitting accuracy, but it complicates the network and increases the training time. Forward propagation is used to compute the forward network, i.e., to compute the output of a certain input information by the network. The original $n \times n$ size convolutional kernel now needs approximately only 2 $a + n + 1$ numbers to preserve the sparse structure, where a is the number of connection weights being preserved, n is the number of convolutional kernel rows or columns, and the remaining one digit preserves the position of the weight matrix in the whole filter set. Thus, the total compression ratio for network pruning is

$$\mathrm{CR}_p = \frac{2a + n + 1}{n \times n}. \tag{7}$$

In order to reduce the transportation distance and transportation time of overseas e-commerce shipments, the overseas e-commerce goods can be transported and stored in bonded warehouses in the free trade zone in advance, and when the orders are generated, the goods will be cleared directly from the bonded warehouses into the Chinese territory. In subtractive clustering, each of its data points will be considered as a potential cluster center, and then, the probability of the point being considered as a cluster center is calculated based on the data density around each data point its. For an arbitrary signal $f(t)$ or function that satisfies $f(t) \in L_2(R)$ and $\psi(t)$ satisfies the wavelet tolerance condition, the continuous wavelet transform of $f(t)$ is defined as

$$\mathrm{WT}_f(a, b) = |a|^{-1/2} \int_{-\infty}^{+\infty} f(t) \psi\left(\frac{t-b}{a}\right) dt, a \neq 0. \tag{8}$$

In this process, the update parameters (weights and bias values) of the model are gradually applied starting from the output layer to the input layer, and the error function is used to find the gradient of the weights and update the weight vector from the output layer to the concealed layer. There is a weight matrix w between the input layer and the hidden layer. The value of the hidden layer is obtained by multiplying the input X by the weight matrix. There is also a weight matrix from the hidden layer to the output layer. Each value of the

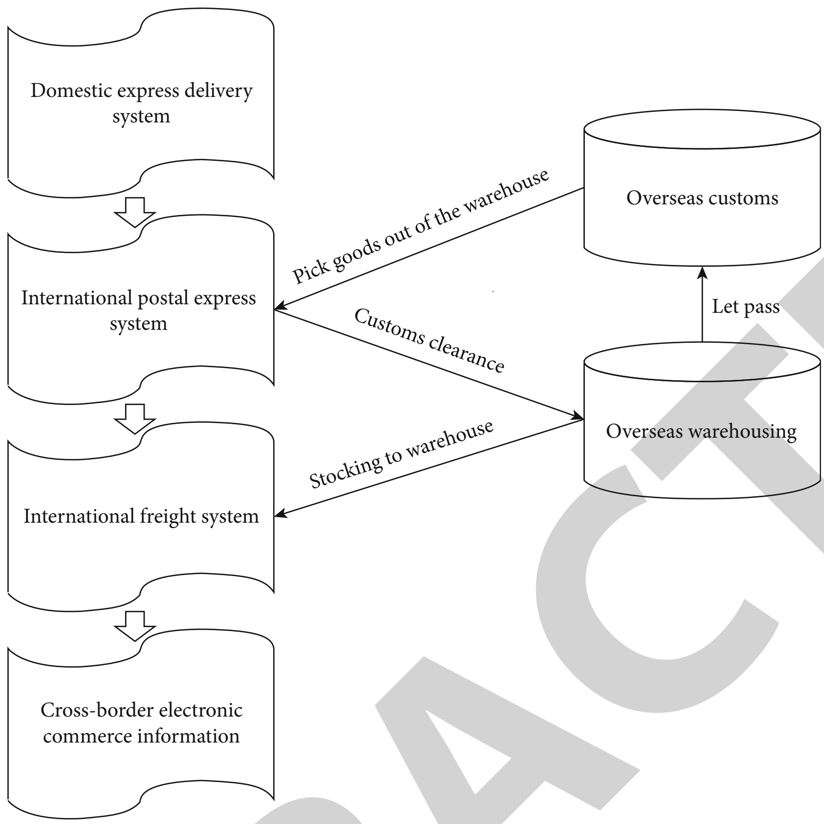

Figure 3: E-commerce across boarders logistics supply chain node structure diagram.

output layer vector y is actually the vector point of the hidden layer multiplied by each column of the weight vector $W^{`}$. The class of forward neural network functions is dense in the space of vector-valued continuous functions, and in a consistent parametric sense, the class of forward network functions is defined here as a set of the following type:

$$N = \left\{ Y \in R^m, Y = W^{(K+1)} N_k \{ N_{k-1} [\cdots N_1(X)] \} \right\}, K = 1, 2, 3 \cdots . \tag{9}$$

Second, the input data is processed so that the data changes between 0 and 1. The middle part of the tansig function changes more obviously and can better distinguish the input data, so the tansig function is used as the transfer function of the implicit layer. The selection probability proportional to the individual fitness value is usually used to randomly select individuals, so the selection probability is defined as

$$P_i = \frac{f_i}{\sum_{i=1}^{n} f_i, i = 1, 2, \cdots, n}. \tag{10}$$

P_i is the selected probability. f_i is the individual fitness value. n is the population size.

Back propagation is used to pass the error layer by layer, modifying the connection weights and thresholds between neurons so that the output obtained by the network for the input information after calculation can meet the desired error requirements. In addition to overseas e-commerce customers, the group's bonded warehouse can also provide short-term warehousing services to other international trading companies or domestic e-commerce companies or even other third-party logistics companies. All neurons between two adjacent layers are interconnected, while neurons that are on the same layer cannot be linked. The number of convolutional kernels in the lower layers is small because the structures in the lower layers are generally less diverse and smaller in size, while the higher convolutional layers are used to extract structural information in the higher layers, which are more diverse and larger in size, so the higher convolutional kernels are more numerous and larger in size. Therefore, it is also necessary to train a layer of convolutional network to get the region correction parameters. Suppose the a priori region parameters are defined as

$$P\left\{ P_x, P_y, P_w, P_h \right\}. \tag{11}$$

P_x, P_y are coordinates of the central point of the prior area. P_w, P_h are the width and height of prior area.

Finally, a momentum term is added to the training function of the conventional algorithm as a damping term to reduce the tendency of oscillation in the learning process. Moreover, the learning rate of this function is adaptive, thus varying the learning rate according to the complexity of the problem to control the training time of the network. The input signal is transmitted from the input layer through the hidden unit to the output layer, and the output signal is generated at the output end, which is the positive propagation of the working signal customs declaration and inspection is an important part of the customs clearance process. Inspection business before the customs clearance business, the object of inspection and quarantine departments, only the goods required by law need to be declared. In artificial neural networks, these units are called nodes, and each unit has a threshold value that is reached to receive and transmit information. By learning from valid data and training themselves, the processing units can then mine the information in the data and save it in the form of connection weights and thresholds. Usually, the customs clearance of the goods can be issued only after the inspection and quarantine department's inspection business is completed, and the customs will accept the application for customs clearance and examine and tax or detain the goods according to their category, value, quantity, and other factors. As import and export proceeds, the prices of the two commodities change accordingly, thus affecting consumption. Equilibrium is reached when the relative prices of the same commodity in both countries are the same, and the result of equilibrium is that both sides of the trade raise the level of domestic consumption and receive the benefits from international trade.

3. Application Analysis of Improved Neural Network in Logistics Risk Evaluation Model

3.1. Analysis of Learning Process of Neural Network. First of all, the learning algorithm of the neural network is actually the method of finding the minimum value of the error function, which uses the most rapid descent method, so that it is repeatedly trained to learn multiple samples and modify the connection weight coefficients by back propagation of the error. The objective function and network parameters are modified in the same way as the gradient descent method, except that a threshold value must be given. The optimal number of hidden nodes is selected by training the number of hidden nodes between [5, 10] and [10,15] one at a time. The variation of the mean squared deviation of the network structure between [5, 10] and [10,15] for different functions is shown in Figures 4 and 5.

Since, the cross-border logistics process is more complex, including not only the traditional logistics links and international freight but also the customs and commodity inspection of the output country, customs and commodity inspection of the input country, logistics and distribution of the input country, reverse logistics, and other links. Therefore, the pruning rate has a great impact on the overall accuracy of the network, and the higher the proportion of retained connections, the smaller the loss of network accuracy, especially the pruning of the initial network layer conv1 causes a great loss of accuracy. Neural networks can have multiple layers, each layer can have multiple neurons, the number of neurons in each layer can be unequal, and even each neuron in the same layer can have a different transfer function. Through the variance variation graph of each network structure above, the mean square error and the number of training steps for different number of hidden layer nodes are compared as shown in Table 1.

Next, the neural network is changed along the negative gradient direction of the output error function, and the error function is made to converge to the minimum point of the function at the end. The number of nodes in the hidden layer is taken as one, and then, the value of the objective function at the last time is recorded after a certain number of iterations using the gradient descent method. The target classification and detection layers have great fluctuations in the network pruning rate, mainly because this part is mainly divided into two parts of the network, where the target classification network is not sensitive to the network pruning degree. The original input of the multilayer neural network is the input layer of the network, the last layer is the output layer of the network, and the middle layer is the hidden layer. The output of each neuron is connected to other neurons, thus forming a dynamic feedback relationship, and the network structure has the ability of self-searching for superiority regarding the energy function. Besides, e-commerce across boarders and other species such as payment and customs will also produce synergy, cross-border logistics and other species such as payment and customs will also produce synergy, and both e-commerce across boarders and cross-border logistics will face the influence of internal environment and external environment. So in neural networks, there are two ways to reduce the error and improve the accuracy, one is to increase the number of network layers, and the other is to increase the number of neurons in the hidden layer; the former tends to make the network too complex, and the network training time is greatly increased; compared with the former, the training effect of the latter is easier to observe and adjust than the former. Searching for the sample individuals with the optimal fitness, obtaining the optimal decoding value, and applying it to the established neural network structure are the initial weight threshold between the connections of each layer of this network, and the comparison of the actual output of the training samples with the fit results of the desired output values is shown in Figure 6.

Finally, with the logistics risk level as the output, the BP neural network uses MATLAB to randomly generate the weights and bias values in the initial stage, and after training the input and output data, the BP neural network finally obtains the weights and bias values. According to the results of the comprehensive model evaluation, it is found that the evaluation result of e-commerce across boarder ecosystem synergy is "average," which indicates that the overall e-commerce across boarder ecosystem synergy is weak at present, which is a significant lack of synergy. Therefore, the number of nodes in the hidden layer is increased by one, and it is still iterated with a certain number of gradient decreases as in the beginning. If, after the iteration, the objective function decreases by a value greater than the threshold value, this indicates that an additional hidden node has been added, which is more useful for the network. At this point, the number of hidden nodes does not make the objective function of the system extremely small, so the number of hidden nodes is added by one, and the iterations are continued as above. And its corresponding target region transformation parameter prediction network needs to get more accurate data values, so it is extremely sensitive to network pruning, and a smaller connection retention rate will cause a rapid decrease in the overall network detection

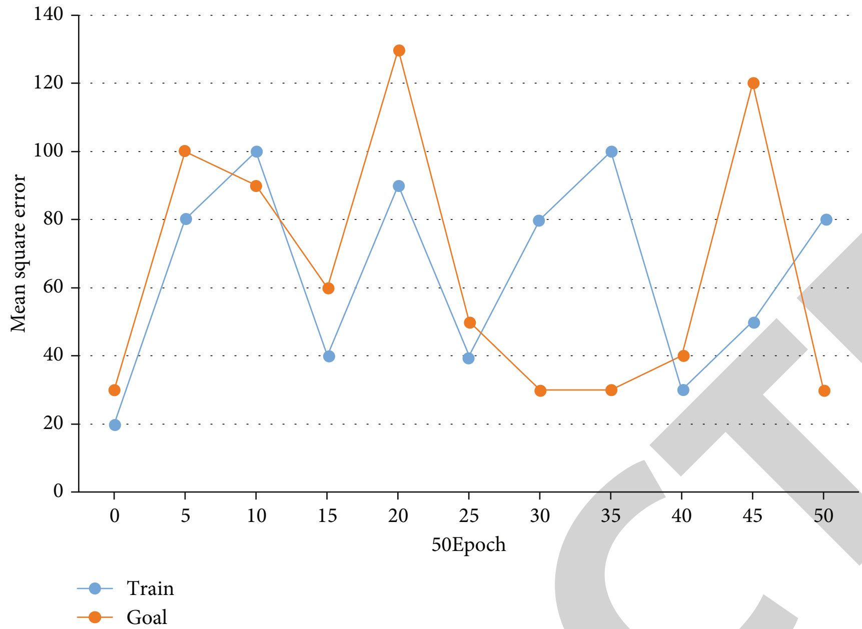

Figure 4: Mean square deviation of network structure on [5, 10].

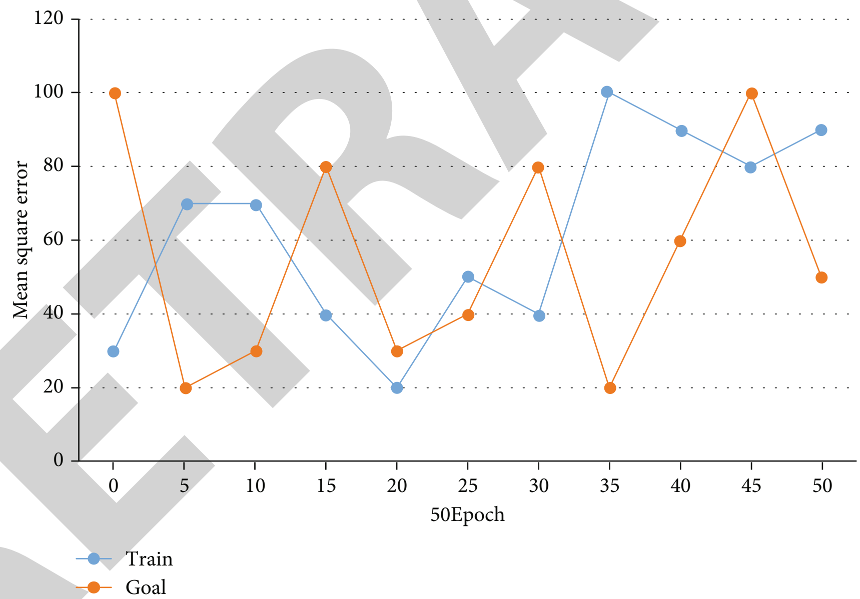

Figure 5: Mean square deviation of network structure on [10,15].

Table 1: Comparison of training results of different numbers of hidden nodes.

Hidden node number	6	8	10
Mean-squared error	0.00007765	0.00003561	0.00001462
Training steps	187	129	84

accuracy. Since the input layer does not contain any neuron, but only an input vector, the input layer is not counted in the number of layers of the neural network in this paper. In this network structure, there are interconnections between the same layers, and there are mutual constraints between neurons, but it is still a feed-forward network structure in terms of the relationship between layers, and many self-organizing neural networks mostly have this structure. It indicates that the path is invalid, i.e., e-commerce across boarder synergy with other species has no positive effect on cross-border logistics chain synergy.

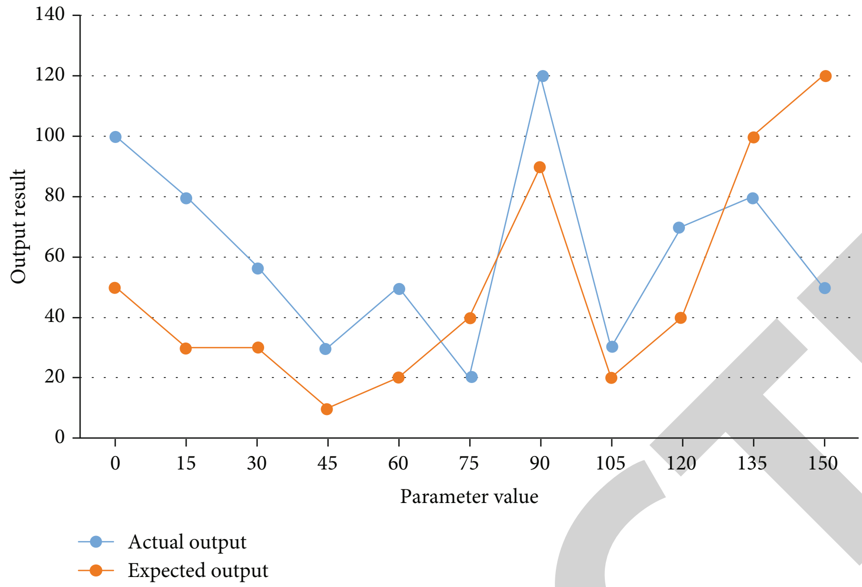

FIGURE 6: Comparison of the fitting results between the actual output of the training sample and the expected output value.

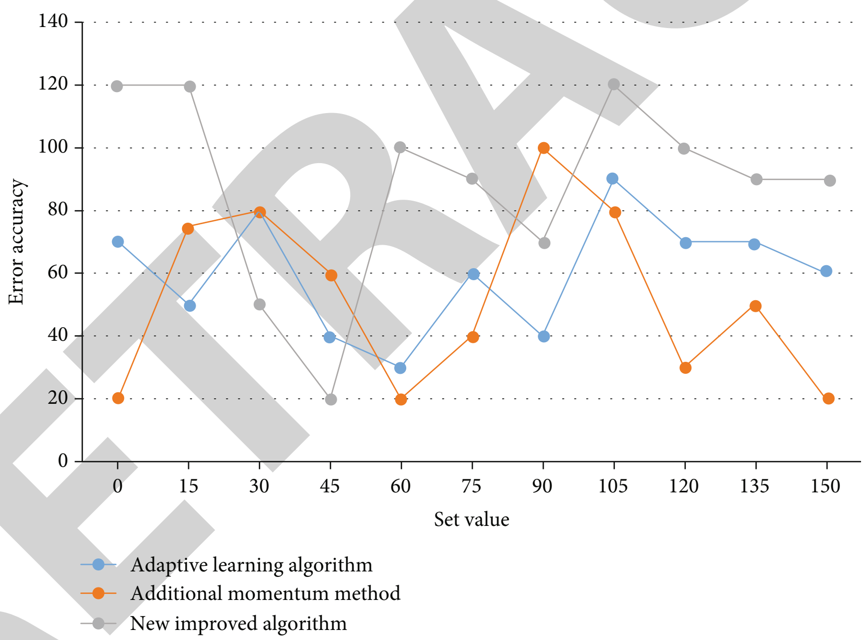

FIGURE 7: Error curves of new improved algorithm, additional momentum method, and adaptive learning rate algorithm.

3.2. Analysis of Improved Neural Network Algorithm. According to the shortcomings of neural network algorithms, there are now a variety of improved algorithms, and these improved algorithms are broadly classified into two main categories: one is heuristic learning methods, and the other is numerical optimization methods. The optimal individual is found mainly by calculating the fitness, and the weights and thresholds carried by the optimal individual are given to the network for training, in order to have faster convergence and higher prediction accuracy of the model. The improved neural network has differentiability and saturated nonlinear properties, which can enhance the nonlinear mapping ability of the network and

TABLE 2: Robustness detection.

Infected input	Expected output	Actual output	Mean square deviation
0.0265	0.0187	1	3.71
0.0261	0.0173	0	1.45
0.0342	0.0165	1	4.62

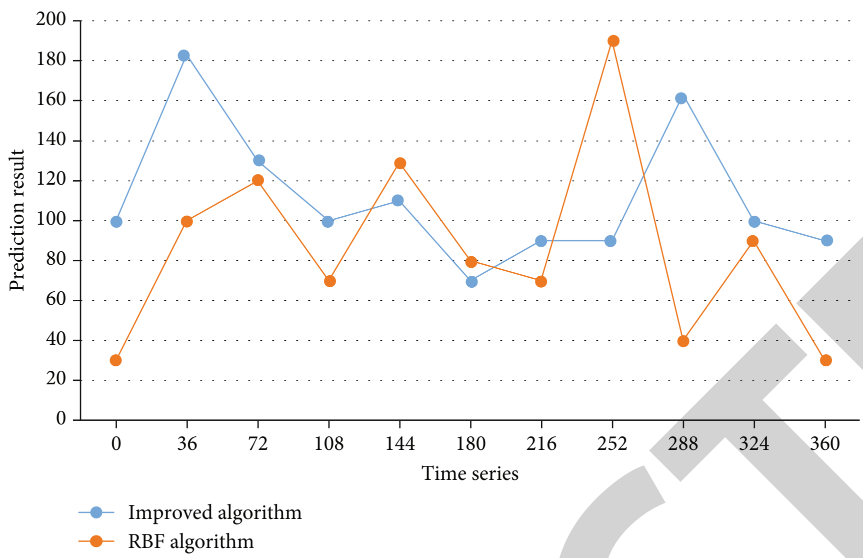

Figure 8: Comparison chart of prediction effect.

meet the requirement of continuous differentiability of the activation function in the hidden layer. In the algorithm, the amount of variation of the connection weight coefficients is determined by both the learning rate and the gradient of the error function, however, the learning rate is a homogeneous value in the standard algorithm. After several runs of the algorithm, the error profile plots of the new improved algorithm, the additional momentum method, and the adaptive learning rate algorithm were derived. This is shown in Figure 7.

First, check and judge whether the corrected weights have achieved the effect of reducing the value of the error function. If the value of the error function is indeed reduced; then, it means that the learning rate value chosen by the algorithm is small, and the learning rate can be increased on the basis of the original one with appropriate treatment. The size of the response of the improved neural network to the input depends on the distance between the input vector and the center of the network, and the smaller the distance between the input vector and the center, the larger the response of the neuron will be. So the center correction process of the improved neural network is essentially a process of clustering the input samples based on the distance between them, and the input vectors with small distances from each other are grouped into one class, and the center of the clusters is the network center. In order to retain the target detection accuracy of the overall network as much as possible, it is necessary to reduce the pruning for network layers with higher pruning sensitivity and increase the pruning for network layers with lower sensitivity. Network pruning after pruning, it is the most critical to ensure that the network accuracy remains unchanged. It can be clearly said that after deleting some network connections directly, the network accuracy will certainly decline. Therefore, in order to keep the accuracy of the network unchanged, it is necessary to retrain the pruned network. After repeated retraining, the accuracy of the network will be improved to reach the accuracy of the original network.

In order to test the robustness of the new algorithm, we assume that the input samples are contaminated by random noise. The robustness test results of the improved neural network algorithm are shown in Table 2.

E-commerce across boarder platforms exist as core species in the e-commerce across boarder ecosystem, and the lack of synergy within themselves will affect the synergy of the e-commerce across boarder ecosystem. In addition, the e-commerce across boarder platform and key species such as suppliers and consumers also have the problem of missing synergy. Therefore, it is sufficient to take the most compact structure as possible under the premise of satisfying the accuracy requirement, i.e., adding up to one neuron to speed up the decrease of error as long as it can solve the problem.

Second, the adjustment of the connection weight coefficients will all contain a portion of the previous adjustment of the connection weight coefficients. The clustering of all the input vectors is performed according to the k-means clustering method to obtain the cluster centers, which are the centers of the improved network; this is followed by a supervised weight determination process, which uses the LMS method to determine the weights of the network based on the actual output values of the system and the network center values obtained in the previous step. On the other hand, as the network deepens, the number of parameters is more enormous for deeper network layers because the number of channels in the feature map increases. To pass the sensitivity vectors from backward to forward, we need to obtain a recursive equation between the sensitivity vectors of different layers. The fitness value of each individual in the population is then used to perform the search, and the fitness value is used to determine the degree of excellence of the individual. If the risk is caused by controllable factors, under the condition that the risk control cost allows, such as the price volatility of pledges is high, the risk warning should be strengthened, and the risk should be controlled by reducing the pledge rate and setting the inventory risk warning in many aspects. We use the test sample to test the trained network and compare the effect of the improved neural network algorithm with the traditional RBF network, as shown in Figure 8.

Finally, if a zero value is assigned to the momentum factor of the algorithm in this algorithm; then, only the fastest descent method will have an effect on the change of its connection power factor. The network accuracy obtained with each additional network center is further improved, and the next center chosen each time is the one that contributes most to the error reduction in the remaining part. Intuitively, in the network layer, the pruning strategy can be summarized as the shallower layers with fewer parameters can be retained as much as possible, and the deeper layers with more parameters should be pruned as much as possible. It is not necessary to provide a corresponding target output for each input in the training set, but only to give an evaluation level, which is a performance measure of the network on the input, and the network adjusts the network parameters by reinforcing those actions with a high evaluation level.

4. Conclusions

The prosperous development of the e-commerce across boarders industry is an opportunity for the development of e-commerce across boarder logistics is a constant challenge for e-commerce across boarder logistics. E-commerce across boarder logistics highlights the advantages of online platform, collection of multienterprise, multimode is the direction of development and growth of logistics enterprises, but also to provide a good platform for the cooperation of enterprises. E-commerce across boarders is an important way and means to promote the transformation of trade development, which brings innovative sales channels and trade forms, breaking through the constraints imposed by the traditional trade marketing model, facilitating enterprises to explore and use diversified marketing channels, creating new economic and trade growth points. As a typical representative in the field of artificial intelligence, neural networks are also thriving and tending to mature. Neural networks are capable of modeling complex nonlinear systems, providing a new way to solve complex problems that may not be easily solved using traditional methods with reasonable solutions or no good solutions at all. Therefore, this paper proposes a new evaluation method: an e-commerce across boarder logistics risk evaluation model based on improved neural networks, which aims to solve the problem of low level of risk assessment and intends to solve the development bottleneck problem of logistics risk evaluation. The improved neural network-based e-commerce across boarder logistics risk evaluation model can be used for risk rating of business before business is carried out, so that different risk management approaches can be adopted for different risk levels.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

This work was supported by a key project set up in 2020 under the Special Research Program for Wuxi's Vocational Education Innovation and Development: a Study of Lifelong Vocational Skills Training Strategy for Rural Migrants in Wuxi under the Background of Industrial Transformation and Upgrading (no. 2020ZJZD02).

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