

Evaluating the Cooperation Performance of Logistics Network in E-business Enterprise Based on DEA method

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Abstract

With the development of network economy and information technology, the importance of logistics network has been gradually recognized by enterprises. In this paper, we make an empirical analysis of enterprise logistics network performance, and build the evaluation index by using four dimensions as inventory, transportation, information level, comprehensive competitiveness. Result shows that this evaluation model has strong practical significance, and can help e-commerce enterprises to improve their logistics network performance. Therefore, enterprise should start from two angles as efficiency and effect, efficiency evaluation is mainly aimed at minimize the resource cost. At the same time, the main purpose of the evaluation is to ensure that the logistics network can achieve the goal of the enterprise, and provide more effective service.

Keywords: *E-commerce, logistics network, performance evaluation, DEA method*

1. Introduction

China Electronic Commerce Research Center data shows that in 2014 China's e-commerce market turnover has reached 13 trillion RMB, the development of China's e-commerce enterprises have shown a rapid growth trend. With the expansion of the scope of business, e-commerce enterprises, especially with a certain size of modern e-commerce enterprises in the face of customer service speed, service quality is increasingly high demand; found that the logistics has its own development constraints. Some logistics scale, strength of e-commerce enterprises, such as Jingdong Mall, Dangdang, etc. In order to have more control over the logistics functions, to ensure the accuracy and timeliness of delivery, to meet the increasingly stringent requirements of customers, has begun to participate in self logistics construction. However, in order to improve the quality of logistics services, self logistics facilities, logistics and distribution center, logistics information construction, human and material resources is bound to increase the logistics cost, then we need to improve and improve the logistics network system for self logistics, so as to achieve the effect of system management.

In the developed countries, the electronic commerce enterprise has formed a mature logistics network system which is based on scale, automation, information and integration. A lot of enterprises are in the effort to build or merge the logistics network, in order to maintain their own competitive advantage in cost and speed. In our country, the development of network technology and the maturity of the electronic commerce enterprise logistics service network provide a good external environment; the integration of logistics service functions has formed the internal power of the electronic commerce enterprise logistics network. However, compared with the rapid development of e-commerce enterprises, the logistics operation for its service is still not up to the pace of its. Therefore, e-commerce enterprises, especially self logistics e-commerce enterprises to a

very good solution to the logistics service and its own development requirements are not coordinated, inconsistent with the timely evaluation of the logistics network performance, help them to find their own advantages and disadvantages, to improve their economic efficiency, but also to improve and improve their management level. But for now, the research on the performance evaluation of the electronic commerce enterprises in our country is not very systematic and comprehensive. In the selection of indicators, there is a random, and the evaluation of the angle is relatively simple. Therefore, to establish an effective evaluation system for logistics network performance, and to make objective evaluation of the performance of enterprise logistics network, has received considerable attention and become an urgent need to solve the problem[1].

In practical application, the logistics network is very important for the enterprise, especially for the logistics service dependence of e-commerce enterprises, but also the logistics as a new economic growth point of enterprise development. Perfect logistics network is the necessary condition for the final realization of the electronic commerce activities. It is the basis for the normal operation of the electronic business enterprise, and it will become the most important field of the electronic commerce enterprise. If the logistics network is not reasonable, it may be due to the interaction of each other and cause the enterprise into a vicious circle, so more and more e-commerce enterprises, as well as to carry out online marketing companies are trying to build their own logistics network, to expand and consolidate their market. It can ensure the normal operation of e-commerce enterprises, such as the delivery of goods to customers in the appropriate delivery time, to meet the customer's orders, and to ensure the information flow. It can also be more reasonable to improve logistics efficiency, reduce transportation costs and warehouse packaging costs, in order to meet customer needs, to meet the needs of customers in a reasonable range, in a good information system support, constantly adjust the mode of transportation, thereby reducing logistics costs and costs, compressed inventory, reasonable transportation, and ultimately to improve customer service levels, improve customer satisfaction, and promote the development of enterprises. In addition, logistics as the electronic commerce enterprise business flow, capital flow of another start business flow, logistics network optimization also intends to enterprises to guarantee the global optimality, which for e-commerce enterprises to improve the market competition ability and comprehensive management level has a very important significance.

2. Literature Review

2.1. Logistics Network

Logistics network has been discussed by many scholars. Shoki (2012) points out that the network design is the most basic responsibility of logistics management [2]. The number, size and location of logistics facilities are directly used for logistics operations, which directly affect the quality and cost of logistics service to customers. There is a high degree of dependence between e-commerce enterprises and logistics, so the logistics network is more important in the electronic commerce enterprise. Zaridis(2014) points out performance evaluation is a vivid description of performance evaluation is an organization of the language of continuous progress[3]. E-commerce industry as a logistics operation has a strict requirement of the industry, it was born in the product homogeneity, the brand is not differentiated today, is in a rapid development stage. In this environment, the optimization of logistics network is a very important part in improving the competitiveness of enterprises. How to scientifically and reasonably evaluate the performance of logistics network has very important practical significance and theoretical significance.

Manjit (2013) design method of discrete manufacturing enterprise logistics network, from the point of view of system analysis[4], the paper puts forward the design of

logistics network of discrete manufacturing enterprise. Through the comparison of different types of logistics network, the paper puts forward the basic structure model and basic decision-making problem of logistics network, and puts forward the method of solving the problem. Grant (2014) has carried on the research to the traditional enterprise's logistics network operation, to its regional distribution center's function, the site selection principle and the location step and so on [5]. Gebauer (2012) simulates the small scale logistics network and describes the logistics network[6]. It proves that the dynamic changes of logistics parameters bring great instability to the whole logistics network. Savrul (2014) uses heuristic algorithm to study the logistics network design [7]. The research thinks that the distribution network is the high level managers in the design of the facility location model, which is based on the cost model. And based on a heuristic algorithm can achieve information sharing, which from the top and middle, strategic and tactical two levels of logistics network design. The problem of the design of the single level logistics network with no information sharing is improved. Djelassi (2013) make the integration of multi-level logistics network design research[8], proposed a consideration to transport, distribution and storage, and other aspects of the integration of multi-level logistics network model, and a numerical example proved the validity of the model.

2.2. Enterprise Logistics Performance

Performance evaluation usually requires the use of a certain technical method, and according to the technical method to establish the evaluation index system, according to the unified evaluation criteria of the evaluation method, according to a certain procedure, through quantitative, qualitative or the combination of the analysis method to evaluate the effectiveness and efficiency of the object to make an objective, standard comprehensive judgment. Effective performance evaluation can truly reflect the present situation, and can predict the future development prospects, to provide the basis for the management of the decision[9]. Enterprise performance evaluation is the specific application of the theory and method in the economic field. It is based on the management and accounting. The use of econometrics theory and modern analysis technology to analyze the enterprise management process, summarize the current situation of the expected future of a science, logistics performance evaluation content includes two aspects: efficiency and effect. There are many definitions of logistics network, many scholars have been carried out from different perspectives in the relevant monographs and literature. In the modern logistics management, it points out that the relationship between the line and the nodes, the configuration of each other, the structure, the composition, the way of contact, forms the different logistics network.

From the three aspects of logistics organization, logistics infrastructure and logistics information, the logistics network is defined as the requirement of the network economy and network information technology, which is based on the logistics organization network, logistics infrastructure network and logistics information network, which is formed by the combination of the three[10]. The composition of enterprise logistics network can be understood from different angles, the flow of goods from the enterprise to the final demand of customers is a dynamic process, which is composed of a series of movement process and the process of the pause. This movement, pause the process describes the whole process of flow of goods, movement in the process of transportation, along the line of pause sites is all levels of the storage point distribution center, warehouse and other pause is relative, because at the point of storage but also the goods for packaging, packing, moving transport, loading and unloading, sorting and other functions[11]. This process is connected with the line and the storage point, and through which the logistics information is connected.

3. Model Design

3.1. DEA Model

The C²R model is the first model of DEA, with the n decision making units as DMU_j, the input and output vectors of DMU_j as:

$$x_j = (x_{1j}, x_{2j}, \dots, x_{mj})^T$$

$$y_j = (y_{1j}, y_{2j}, \dots, y_{sj})^T$$

That every decision element has m type “input” and “output”, X_{ij} is the input of the j input, Y_{ij} is the input of the j input. The input vector is the vector which is composed of the value i, and the output vector is the index of ANP evaluation. Data can be obtained through the survey, that is, the actual observed data. DMU can be a business year in the four quarter or a few of the vertical comparison; it can be a horizontal comparison between different enterprises. Since the position and function of various inputs and outputs are different in the process of enterprise operations, the DMU is evaluated, and the input and output are integrated, which is the operation process of the input and output. But due to the electronic commerce enterprise input and output index between mutual effects is complex, in order to avoid the influence of the subjective will of analysts, making the evaluation more objective. DEA evaluation methods focus on efficiency evaluation, it could be defined as:

$$h_j = (U^T y_j)(V^T x_j)^{-1} = \left(\sum_{k=1}^s u_k y_{kj} \right) \cdot \left(\sum_{i=1}^m v_i x_{ij} \right)^{-1}$$

In this definition, the total can be properly selected u and v, then make $h_j \leq 1$; and when h_j is large enough that means DMU is able to use relatively few input and get relatively more output. Therefore, if we want to understand the DMU is not optimal, it can be investigated when U and V as much as possible, the maximum value of h_j is how much. So, if you want to evaluate the DMU, you can construct the so-called C²R model.

$$(\bar{p}) = \left\{ \begin{array}{l} \max \frac{\sum_{k=1}^s u_k y_{kj}}{\sum_{i=1}^m v_i x_{ij}} = v \\ s.t. \frac{\sum_{k=1}^s u_k y_{kj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1 (j = 1, \dots, n) \\ u_k \geq 0 (k = 1, \dots, m) \\ v_i \geq 0 (i = 1, \dots, m) \end{array} \right.$$

The upper type is a fractional programming problem, and the use of Charnes-Cooper varies as a linear programming model:

$$\begin{cases} t = \frac{1}{V^T X_0} \\ \omega = tV \\ \mu = tU \end{cases}$$

There could be:

$$(p) = \begin{cases} \max \mu^T y_0 = v_p \\ s.t. \omega^T x_j - \mu^T y_j \geq 0 (j = 1, \dots, n) \\ \omega^T x_0 = 1 \\ \omega \geq 0, \mu \geq 0 \end{cases}$$

The dual transformation of C²R model is easier to be analyzed in theory and economic sense. The dual programming of the linear programming as:

$$(\bar{D}) = \begin{cases} \min \theta \\ s.t. \sum_{j=1}^n \lambda_j x_j \leq \theta \cdot x_0 \\ \sum_{j=1}^n \lambda_j y_j \geq y_0 \\ \lambda_j \geq 0, j = 1, 2, \dots, n \end{cases}$$

To facilitate discussion and application further introduce slack variables s and the remaining variables s o, the above inequality constraints into equality constraints, the variable as:

$$(D) = \begin{cases} \min \theta \\ s.t. \sum_{j=1}^n \lambda_j x_j + s^+ = \theta \cdot x_0 \\ \sum_{j=1}^n \lambda_j y_j - s^- = y_0 \\ \lambda_j \geq 0, j = 1, 2, \dots, n \end{cases}$$

By the introduction of the concept of non Archimedes infinitesimal, the model (D) can be used as a linear programming model in the practical evaluation.

$$\begin{cases} \min \theta - \varepsilon(e^T s^- + e^T s^+) \\ s.t. \sum_{j=1}^n \lambda_j x_j + s^+ = \theta \cdot x_0 \\ \sum_{j=1}^n \lambda_j y_j - s^- = y_0 \\ \lambda_j \geq 0, j = 1, 2, \dots, n \end{cases}$$

If the linear programming optimal value $h_j^* = \theta = 1$, that called the DMU is weakly efficient, if the linear programming optimal value $h_j^* = \theta = 1$, and for each λ, S^+, S^- are all equals 0, that is called effective DMU. The economic significance of DEA is as follows:

- 1) $\theta=1$, for each λ, S^+, S^- all equals 0, decision-making unit j_0 production activities at the same time as the technology efficiency and scale efficiency.
- 2) $\theta=1$, but at least one input or output variables is greater than zero. At this time, the decision unit J_0 is weakly effective. Decision making unit J_0 is not the same technology effective and efficient. At this time, the economic activity is not the same technical efficiency and scale efficiency of the best.
- 3) $\theta < 1$, and decision-making unit j_0 is not DEA effective. Decision making unit J_0 production activity is not the best technical efficiency, nor is it the best of scale.

3.2 Advantages of DEA evaluation

DEA is especially suitable for the performance evaluation of enterprise logistics network with multi input and multi output, which is mainly reflected in the following points: E-commerce enterprise logistics network is a complex system with multiple links and multiple levels. There is a complex relationship between the input and output. The evaluation is a multi input and multi output efficiency comprehensive evaluation problem. In the actual performance evaluation, the input index and output index have different dimension, but the final efficiency of the unit is independent of the dimension of the input index and output index value. That is, because the DEA method does not directly to the index data, so it is not necessary to set up the model of the data before the non dimensional treatment, which provides a convenient evaluation.

The most prominent advantage of DEA is that every input and output weight is not determined by the subjective decision of the evaluation, but the optimal weight is obtained by the actual data. Therefore, the method has eliminated many subjective factors, and has very strong objectivity. DEA method can improve the value of the non effective index by analyzing and adjusting, and providing the decision-making basis for the logistics network management in the future.

4. Empirical Analysis

4.1. Data Source

We take an e-commerce business model of e-commerce logistics network as an example, the company accounted for 33% of China's online retail market share, to take self logistics mode; at least 70% of the business volume is achieved through self built logistics. Transportation and distribution, the company has been in Tianjin, Suzhou, Hangzhou, Nanjing, Shenzhen, Ningbo, Wuxi, Ji'nan, Wuhan, Xiamen and other cities to establish a city distribution station, to provide users with logistics and distribution, home and other services. In warehousing, the company distributed in North China, East China, Southern China, southwest of the four major logistics warehousing center covers the major cities in the country, and in Wuhan, Shenyang, Xi'an and other six cities set up two warehouses, warehousing total area of 210 thousand square meters, 10 thousand square meters of single warehouse. The enterprise is now self built logistics process further speed, according to strategic planning, the enterprise distribution network will gradually cover 200 cities in the country, the information level, the enterprise information system construction continued to invest huge funds, more than 200 technical team to support information system development, maintenance, looks like a simple shopping process has a strong support information system. The enterprise most important information system is one of the warehouse management system, the customer in the enterprise shopping page order, first determine the warehouse where the goods, whether to need to internal transfer, then the corresponding to the order into the corresponding warehouse management system, the system will do the shelf location.

At the same time, the information is sent to the warehouse staff to carry on, the staff receive information to appropriate shelf pick up the goods into the turnover box in the corresponding position of the bomb. If an order has a few goods, then the turnover box will be in accordance with the order of the corresponding position in the corresponding position of these goods, warehouse staff just to put into the corresponding product, the whole process is the information system in control. After the review, inspection, print invoices and shopping list, package, and finally to the delivery group, the entire process information system will be recorded. In addition, inventory is identified e-commerce enterprises is an important problem, inventory of supply chain system in the enterprise of the prediction system can through the full analysis, forecasting commodity sales in the next period of time, so as to help the mining and marketing personnel, decided the replenishment situation of the user clicks on the website, browse footprint. From the use of the user experience, the user in the online order, you can always pay attention to their order status. In order to not only have the enterprise storage and distribution of information, and even the main third party logistics enterprise information system has achieved seamless, which is the user's psychological needs of a human and innovative design. Transport processes, such as labor, and other technologies, so that the transport routes more reasonable, transport by not visible to visible.

4.2. ANP Comprehensive Evaluation

According to the established evaluation index system of data research, the electronic commerce enterprise in 2014, the relevant data, as shown in table 1. To the relevant experts to conduct research, determine the existence of mutual influence elements, according to expert knowledge and work experience to determine whether there is mutual influence between the indicators, if the vertical indicators have an impact on the horizontal, then marked "1", if effect is not labeled, the basis of the enterprise logistics network structure. Survey results are shown in table 2. Will determine the good indicators and their relationship to the ANP Decision Super solution to solve the following network structure, which is a circular arrow indicator of the impact of memory in each other indicators, the direct arrow indicates that the relationship between the indicators, can see the relationship between the indicators and the indicators have a mutual influence.

Table 1. Performance Evaluation Index System of Logistics Network

First level indicator	Secondary indicators	2014Q1	2014Q2	2014Q3	2014Q4
Transportation C1	Transportation cost C11	25.83	23.31	26.22	24.09
	Item damage rate C12	0.16	0.11	0.15	0.18
	Capacity utilization C13	71.76	77.22	70.40	85.26
	Punctuality rate of C14	93.52	95.72	92.15	95.97
Inventory C2	Inventory turnover days C21	15.15	13.11	16.28	15.22
	Warehouse utilization C22	76.21	74.56	78.08	85.26
	Item damage rate C23	0.14	0.13	0.12	0.12
	Order fulfillment rate C24	90.64	88.01	90.18	95.42
Information C3	Transmission error rate C31	1.71	1.47	1.60	1.50
	Coverage C32	95.38	99.74	93.23	97.16
	Registered users C33	81.82	88.62	92.49	82.83
competitiveness C4	Enterprise scale C41	56.89	58.15	53.24	55.63
	Profit growth of C42	45.26	30.59	34.21	40.16
	Satisfaction C43	84.01	88.15	90.56	84.37

Table 2. Relationship between Enterprise Logistics Network

Evaluation index	C1				C2				C3			C4		
	C11	C12	C13	C14	C21	C22	C23	C24	C31	C32	C33	C41	C42	C43
C1	C11		1											
	C12			1				1		1		1	1	1
	C13	1			1		1	1			1	1		1
	C14							1	1	1	1			
C2	C21			1		1			1		1			1
	C22			1			1	1			1			1
	C23						1		1		1			
	C24		1		1	1			1		1	1	1	
C3	C31			1	1			1	1			1		1
	C32				1	1		1						1
	C33				1			1	1			1		
C4	C41	1		1		1		1		1	1			
	C42		1					1			1			1
	C43	1		1	1				1			1	1	1

The weighted matrix is weighted and the weighted matrix is obtained. The establishment of the weighting matrix is similar to the previous judgment matrix. Then, the super matrix is weighted and the weighted matrix is obtained by Decision Super.

Table 3. Weighted Matrix

labels	Information	Inventory	competitiveness	Transportation
Information	0.0214	0.1415	0.4772	0.1687
Inventory	0.2163	0.1055	0.1590	0.6546
competitiveness	0.4509	0.0678	0.2045	0.0723
Transportation	0.3120	0.6854	0.1592	0.1046

The global weight and the non dimensional data weighting, the logistics network performance evaluation, table 4 for the non dimensional data and the overall performance of the quarter.

Table 4. Weighted Data

Secondary indicators	2014Q1	2014Q2	2014Q3	2014Q4	Weight
Transportation cost C11	0.21	0.42	0.64	1.00	0.00978
Item damage rate C12	1.00	0.50	0.50	1.00	0.00784
Capacity utilization C13	0.20	0.78	0.71	0.00	0.13434
Punctuality rate of C14	0.18	0.47	0.00	0.41	0.06243
Inventory turnover days C21	1.00	0.50	0.50	0.33	0.06113
Warehouse utilization rate C22	0.43	0.12	0.41	0.39	0.10432
Item damage rate C23	0.14	0.13	0.47	0.32	0.01017
Order fulfillment rate C24	0.53	0.27	0.53	0.76	0.06887
Transmission error rate C31	0.42	0.62	0.25	0.47	0.13124
Coverage C32	0.00	0.18	0.29	0.30	0.08804
Registered users C33	0.34	1.00	0.48	0.28	0.02919

Enterprise scale C41	0.25	0.49	0.50	0.54	0.08304
Profit growth of C42	0.00	0.63	0.05	0.18	0.07643
Satisfaction C43	0.42	0.23	0.18	0.56	0.10356
performance	0.27	0.49	0.38	0.56	/

4.3. DEA Comprehensive Evaluation

The classification of the evaluation index system, including the input indicators for the cost indexes, the input indexes for the benefit index, can determine the input indicators: the cost of transportation, goods damage rate, punctuality rate, inventory turnover days, goods damage rate, warehouse utilization rate, transmission error rate; output index for order fulfillment, the coverage rate, the amount of registered users, enterprise scale, profit growth, satisfaction. From the result we can see, the electronic commerce logistics network operation efficiency in the overall good, proper selection of the index weights of each evaluation unit efficiency index was 1, the first quarter of the logistics network is weak DEA effective, scale invariant at the same time, the logistics activity is not the best technical efficiency and scale benefits, DEA evaluation results are shown in Table 5, visible, improved index a larger proportion of the capacity utilization rate, network coverage rate, transmission error rate, goods damage, and order fulfillment, customer change completion rate did not change these two indicators. This can determine the first quarter of the logistics network efficiency is not high, order fulfillment rate and customer change rate of the two indicators are not the main reason, and the main reason is the low efficiency of capacity utilization, network coverage, damage rate, transmission error rate of these four aspects. The network coverage is a registered user amount; the enterprise can improve the efficiency of logistics network from the other three aspects, so as to improve the performance of the logistics network.

Table 5. DEA Evaluation Results

	DMU1	DMU2	DMU3	DMU4	DMU5
θ	1	1	1	1	1
λ^*	1	1	1	1	1
S^-	1.286	0	0	0	0
	0	0	0	0	0
	0.516	0	0	0	0
	0.027	0	0	0	0
	0.183	0	0	0	0
	0.062	0	0	0	0
S^+	0.369	0	0	0	0
	1.206	0	0	0	0
	0.821	0	0	0	0
	5.467	0	0	0	0
	0	0	0	0	0
	2.864	0	0	0	0

5. Conclusion

Based on the actual situation of China's e-commerce enterprises and the results of the case analysis, this paper believes that e-commerce enterprises can enhance the performance of the logistics network from the following five aspects. First, to strengthen the inventory management, reduce the damage rate of warehouse items. From the performance evaluation index system of e-commerce enterprise logistics network, we can

see that the index of stock index is the biggest, which also reflects the importance of inventory management in enterprise logistics network performance management. Among them, the high damage rate of warehouse items is the problem of the electronic commerce enterprise letter need to be solved. Cause damage to the main reasons for the improper display, commodity expired, forklift and other equipment unsafe operation, etc. Electronic business enterprise can through reasonable warehouse layout, strengthen equipment operation standardization methods reduce damage, can also use advanced warehouse management system to strengthen the inventory management, reduce the backlog and comply with advanced first out principle, to ensure the quality of goods, reducing the damage rate of the goods warehouse. Second, establish a good information processing and transmission system, to ensure the accuracy of information. Information error may be due to the data input of human error, but also may be a technical problem. For human error, we can improve the problem of the technology in the way of enhancing the consciousness of the people.

The electronic commerce enterprise should make full use of the high starting point of the construction of the information and ensure the accuracy of the data. Such as the use of effective customer response, warehouse management systems and other systems to help mining sales staff to determine the future of a commodity demand and inventory, and through the information system to generate and transmit data are often more accurate. Distribution internal information network construction, can provide the tracking information of the distribution of goods, so that more timely and accurate information transmission. It can also improve the quality of the information transmission technology to ensure the accuracy of the information; third, improve the utilization of capacity, control the distribution costs. Enterprise logistics distribution costs play an important role in the improvement of performance, electronic business enterprise is a significant advantage over the traditional enterprise is its low price, so the electronic commerce enterprises in order to their own profits need to implement economic distribution, that is, without increasing the burden of the customer premise to reduce distribution costs. Among them, there is a large capacity utilization of space, enterprises in the self logistics process to improve the equipment, technology research and development and innovation, we can consider the appropriate use of their own logistics network to assume the distribution business, so as to achieve scale effect, improve capacity utilization, reduce resources idle and waste, to achieve low cost, high efficiency service. Fourth, improve the quality of delivery service.

In addition, transport damage rate, timeliness, convenience, good buckwheat missing are also affect enterprise's logistics network performance. Therefore e-commerce enterprises subjective should strengthen their awareness of service, objectively improve level of logistics facilities, improve the degree of intensive logistics information network, raise commodity in the integrity of the way, strengthen the distribution management, make the actual node seamless docking, improve the delivery punctuality rate. Fifth, improve customer satisfaction, provide personalized value-added services. Customer satisfaction has direct influence on customer's consumer confidence; it is also a feedback on the performance of enterprise logistics network, so it is an important way to improve customer satisfaction. It can be considered to improve customer satisfaction by providing new value of the logistics service in the way of providing additional packaging, configuration cards and other value-added services. Therefore, the electronic commerce enterprise logistics network performance evaluation should start from the efficiency and the effect two angles. Efficiency evaluation is mainly aimed at the relationship between input and output, the main purpose of the evaluation is to minimize the cost of resource. At the same time, the logistics network also must make the activities to achieve the goal, that is, a certain effect; the main purpose of the evaluation is to ensure that the logistics network can achieve the goal of the enterprise, to provide enterprises and customers with satisfactory logistics services.

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