

Selecting a supplier in the green supply chain with a MULTIMORA approach

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Article	Abstract
Article history: Received: 10 th July 2021 Received in revised form: 15 th July 2021 Accepted: 17 th July 2021	Today, many organizations withdraw from the competition or are forced to implement various strategies to revive themselves due to incompatibility with the environment and non-response to the needs of customers and competing companies. Selecting a supplier in the green supply chain with a MULTIMORA approach can adapt to the environment by using the features and capabilities of
Keywords: Supplier Selection, Green Supply Chain, MULTIMORA Approach, AHP	the supplier. Therefore, in this study, using valid researches and the opinions of experts, they can keep a model in a competitive environment as a case study for the Caspian Metal Company using these factors. In this research, the MULTIMORA method has been produced to determine the structural relationships of variables. AHP method has been used to assess the degree of importance of each of these variables. The results show that the relationship based on trust with suppliers, compliance with quality standards to produce a new product, the interest of existing and new employees in training and learning has the most significant impact on the company's experts in the green supply chain.

1. Introduction

Supply chain management is a set of methods used to integrate suppliers effectively, manufacturers, warehouses and stores, produce the required products in a certain quantity and at a specific time and place, and be supplied to customers to cover the total costs. Minimize and also meet the needs of customers with a high level of service. Today, no company can give up supply chain management and expect survival [1-8].

On the other hand, the globalization of the economy and the development of information technology have caused the supply-oriented market to change to a demand-driven market. Organizations have realized the importance of satisfying customer needs to maintain their survival. Accordingly, supply chain management became important because satisfying customers' needs and interests is done not only by the last online entity, the final product but also by other upstream suppliers. In the traditional view, supply chain management involves guiding all supply chain members in an integrated and coordinated manner to improve performance to enhance productivity and greater profitability, and supply chain managers sought to deliver goods and services quickly, reduce costs, and increase quality. Improving environmental performance, the supply chain and the importance of social costs and environmental degradation were not considered. The concept of a green supply chain and its management emerged with the pressure of government regulations to adopt ecological standards on the one hand and the growing demand of customers for the supply of green products (without detrimental effect on the environment) [9].

Today, green supply chain managers in leading companies try to use green logistics and improve their environmental performance throughout the supply chain as a strategic weapon to gain a competitive advantage by creating environmental utility and satisfaction throughout the supply chain. They are based on three critical themes: green design (product), green production (process) and product recycling [10].

In recent years, environmental pollution has become a challenging issue for business organizations. Business operations such as sourcing and production are recognized as critical factors in this regard; these operations have increased the pressures and concerns of internal and external shareholders of the organization such as governments, workers and non-profit groups; therefore, this issue has led to an increase in the demand of customers and environmental communities for environmentally friendly products [11]. These challenges and pressures cause companies to pay serious attention to the product's environmental impact and the creation of green products while carrying out business-related activities. The concept of "green" is an embodiment of environmentally friendly products, processes, systems and technologies that affect business-related activities. In general, the role of organizations in society and their responsibility in minimizing their effects on the environment has become more important [12]. Supplier selection is a complex MULTIMORA decision-making issue, each of which has a different degree of importance depending on the supply chain strategy. In recent years, the relationship between supplier and consumer in manufacturing companies has received serious attention. When there is a long-term relationship between the two, the company's supply chain will be a serious and robust barrier to competitors [13]. Green supply chain management helps the organization achieve profit and market share by reducing risks and environmental impacts while increasing its ecological efficiency. In general, creating a green supply chain and paying attention to ecological issues reduces costs, improves environmental performance, and increases the company's reputation [14, 15].

2- Reviewing the research literature

The concept of supply chain management came into being when manufacturers experienced a strategic partnership with their direct suppliers. In addition to logistics specialists, support and transportation specialists also took the concept of material management one step further, incorporating distribution and transportation operations and eventually creating the idea of integrated support, also known as supply chain management [16].

Advantages of green supply chain management

When discussing the green supply chain, it may come to mind only to prevent the use of toxic and hazardous chemicals or to reduce the emission of pollutants or waste into the environment. Although these are important, the importance and benefits of green supply chain management are limited to reducing toxic consumption. And does not become hazardous or reduce harmful pollutants [17]. The principles of green supply chain management can be applied to all parts of an organization, and its effects can be extended to all tangible and intangible areas. The benefits of adapting to green supply chain management can be divided into three categories:

Material benefits: Green supply chain management helps to reduce the environmental burden on the environment, reduce the costs of suppliers, producers and customers and leads to reduced energy and resource consumption in society;

Intangible benefits: Green supply chain management can reduce supplier rejection, make it easier for producers to achieve and satisfy customers, and better meet social needs;

Emotional Benefits: Green supply chain management helps to motivate stakeholders and stakeholders towards the environment, provide a better image for suppliers and producers, make

consumers feel better and improve their quality of life, and force industries to take responsibility for society.

The importance of using green supply chain management as a competitive advantage

If the company uses green supply chain management and solving environmental problems, it will achieve a relative victory in competitive advantage. In addition, implementing green supply chain management can avoid green barriers to international trade; therefore, we must move quickly to implement green supply chain management to seize opportunities and meet challenges and victory [18].

Michael Porter cites three strategies of differentiation, focus, and cost reduction as the general strategy for achieving sustainable competitive advantage and states that companies that simultaneously use differentiation and cost reduction strategies are more successful in gaining competitive advantage. Supply chain strategies are divided into two categories: accountability and efficiency. Green supply chain by combining the two methods in addition to enjoying the benefits of saving resources, energy, warehouses, preventing unnecessary transportation, reducing pollution by using environmentally friendly raw materials, reducing waste and ... efficiency benefits, In other words, it benefits from a cost reduction strategy and on the one hand, by creating innovation in the design and production of green and recyclable products, in addition to reducing the costs of environmental degradation, uses a response strategy or, in other words, a differentiation strategy. The simultaneous combination of these two strategies will bring a competitive advantage to the company [19].

Comparison of traditional supply chain with green supply chain

The green supply chain and the conventional supply chain are different in some ways. First, traditional chains often focus on economic goals and values, while green chains have significant considerations for environmental reasons [20]. Compared to conventional supply chain, the green supply chain has the following characteristics and features:

Green chain, which means emphasizing the characteristic of minimum energy and resource consumption and minimum production of pollutants along the supply chain, is achieved by optimizing systems and improving the performance of all members of the supply chain.

There is a closed loop of material flow. Unlike the traditional supply chain, where the flow of materials does not have a closed-loop and starts from the raw materials and ends with the final product, the green supply chain has added the recycling sector to either the manufacturers or third-party recycling companies. With recycling processes, part or all of the products are reused, or energy and resources are recycled, leading to optimization of energy and resource consumption, reducing pollutants and waste, and finally reducing production costs.

There is more integration than the traditional supply chain because the strategic goal of the whole chain is defined as "environmental protection", and this requires the integration of information systems and the cooperation of all members of the supply chain and more coordination of its activities to achieve this goal.

The green supply chain includes raw material supply, production, logistics management, distribution and services, use and recycling. Also, due to the loop structure, closed supply chain management of green and coordination and control of chains and material flows, the proposed model is complicated [21].

The motivation of organizations towards accepting green supply chain management

Factors influencing organizations to adopt green supply chain management or compliance drivers are divided into three categories:

Government: Government legislation and bills, environmental protection organizations (such as the Environmental Protection Agency) and environmental standards such as ISO 14001, established in 1996 by the International Organization for Standardization (IEA), are critical drivers for acceptance.

Competitors Market: In today's global business, competition between organizations is fierce, and to influence customers, organizations need to position themselves ahead of competitors. Being environmentally friendly and adapting to environmental requirements is a way to differentiate yourself from other competitors.

If competitors benefit from green supply chain management, the company will be under more pressure to establish green supply chain management. On the other hand, customers also play an essential role in establishing a green supply chain management system. Some research has shown that there is a relationship between customer satisfaction or satisfaction of their needs with the use of green supply chain management and improving the environmental performance of the company [22];

Organization: The above two factors are external factors, while sometimes the driving factor is the organization itself. Studies have shown that establishing green supply chain management can reduce costs [23].

Also, green supply chain management can increase efficiency, eliminate or reduce pollutants and waste, business reputation and human resource management, and encourage more employees from green programs [24].

Daber Smith also outlines ten reasons why companies should adopt a green approach and adhere to green supply chain management:

Resource stability, cost reduction; Increase Productivity; Gaining a competitive advantage; Compliance with laws; Risk reduction; Gaining brand reputation; Return on investment; Staff encouragement; And ethical requirements [25].

Management of green suppliers

Green supply chain management seeks to change the traditional linear chain model from suppliers to the user and integrate recycling economics into supply chain management. By doing this, we can have a closed loop with a cyclic chain state [26].

In supply chain management, selecting a supplier is one of the critical issues raised by purchasing and operations managers to help maintain the competitive position of organizations. Globalization, outsourcing, and offshoring have added to this competitive pressure, where supplier selection has become a vital issue. Supplier relationships based on price and product consumption may not be attractive to critical suppliers in the long run, especially suppliers who also emphasize environmental and social performance. Due to strategic sourcing decisions, organizations need to consider tangible and intangible criteria in any analysis related to identifying and selecting companies using more advanced techniques [27].

3- Research method and research model

The present study is applied research in terms of purpose because it helps apply the knowledge created in practice. For this purpose, MULTIMORA has been used to determine the structural relationships of production variables. Descriptive information is collected through a questionnaire, interview or observation. In this research, sending a questionnaire to experts, managers, and experts has been used to receive information.

MULTIMORA decision technique

The Mora technique starts from the decision matrix x, where x_{ij} means the solution i of the target j (i = 1,2,..., m and j = 1,2,..., n).

The Mora technique consists of two parts: the ratio system and the reference point method. MULTIMORA technique involves internal normalization and solving all-important goals. In principle, all decision-makers can consider one goal more important than the other goals.

Step 1: Calculate the ratio system. After the formation of the decision matrix, a normalized decision is made using the sub-matrix relation.

$$x_{ij}^* = \frac{x_{ij}}{\sqrt{\sum_{i=1}^m x_{ij}^2}}$$

Usually, the numbers x_ij (the solution I of the target j) belong to the interval [0 1]. These indicators indicate redundancy (if the nature of the index is positive) and diminution (if the nature of the index is negative). Therefore, the relative index for each option is calculated using the following equation:

$$y_i^* = \sum_{j=1}^{g} x_{ij}^* - \sum_{j=g+1}^{n} x_{ij}^*$$

j=1,2,..., g are indicators of positive nature and j=g+1,..., n are indicators of negative nature. Options are ranked based on the maximum value of $y_i ^*$.

Step 2: Reference point method. The reference point method is based on the ratio system. The maximum target at the reference point can be found based on the ratios using the normalized matrix. First, r_j is obtained according to the following equation.

$$r_j = \begin{cases} \max_i x_{ij}^*, & j = 1, 2, \dots, g\\ \min_i x_{ij}^*, & j = g + 1, \dots, n \end{cases}$$

The difference between the value of the standard value $x_{ij} \wedge *$ and the reference point r_j as $| r_j \cdot x_{ij} \wedge * |$ The value of option I ome is defined below the reference point as follows:

$$z_i = \max_i |r_j - x_{ij}^*|$$

Less z_i indicates a better option.

Step 3: Complete the multiplicative form. Bryers and Zavadescas (2010) developed Mora by the complete multiplicative form to maximize and minimize the multiplicative utility function. The following equation indicates this desirability, and the 1st solution is defined as follows:

$$U_i = \frac{A_i}{B_i}$$

 $A_i = \prod_{j=1}^g x_{ij}$, i = 1, 2, ..., mindicates the maximum achievement of the goals of the option I so that g = 1, 2, ..., n (number of indicators with Is positive in nature. $B_i = \prod_{j=g+1}^n x_{ij}$ Indicates the depreciation of the targets from option I, where n-g represents the number of indicators of a negative nature. Options must be ranked in terms of maximum U_i values.

In the final stage of the MULTIMORA method and using the three rankings obtained from the system of ratio, reference point and complete multiplication form and mastery method, the final ranking can be achieved. However, because the purpose of this study is not ranking, for ranking the options in different values y_i ^ *, z_i and U_i, evaluation was done, and the final score of each supplier was calculated.

Questionnaire analysis was performed using two techniques AHP and MULTIMORA; Figure 1 shows the steps.

First, by distributing the questionnaire among the suppliers in their opinion, we have taken action on the status of the central and sub-factors in the direction of the research variable, which you can see in Table 1, the results related to their opinion.

	Economic	Environmental	Social welfare
Economic	1	0.167	0.112
Environmental	6	1	0.25
Social welfare	9	4	1
Total	16	5.167	1.362

Table 1 Suppliers' views on the main factors

Then, according to their opinions, the upper triangle of the matrix is formed, which is the inverse of the relevant results that you see. In the next step, we will determine the weight of these factors called the weight matrix, which you can see in the relevant weighted table 2.

	Economic	Environmental	Social welfare	W
Economic	0.0625	0.0323205	0.082232	0.0590175
Environmental	0.375	0.1935359	0.1835536	0.2506965

0.7741436

0.7342144 0.690286

Table 2 Weight matrix of the main factors

At this stage, according to the sub-branches of each of the main economic, social and ecological welfare factors, the opinion of suppliers and their weighting has been assessed. This section will first describe the sub-branches related to each of the components and then analyze them. As you can see, in the weighted state, the weight associated with the social welfare factor has the highest rank, then the environmental item, and finally the economic element.

Social welfare

0.5625

Environmental factors: environmental costs, green design, environmental competencies, green research and development, pollution control (pollution prevention), green and safe product, use of clean technology, use of environmentally friendly materials or materials Renewable.

Social Welfare Factor: Social Responsibility, Occupational Safety and Manpower Health, Employee and Customer Satisfaction.

Economic	Cost	Quality (product and service quality)	Flexibility
Cost	1	0.167	0.125
Quality (product and service quality)	6	1	0.112
Flexibility	8	9	1
Total	15	10.167	1.237

Table 3 Paralle	matrix of	economic	factor
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Table 4 Weighted matrix of economic factor

Economic	Cost	Quality (product and service quality)	Flexibility	W
Cost	0.066667	0.0164257	0.1010509	0.0613811
Quality (product and service quality)	0.4	0.0983574	0.0905416	0.1962997
Flexibility	0.533333	0.8852169	0.8084074	0.7423192

Table 5 Environmental factor pair matrix

Environmental	ental costs	design	nmental stencies	n control prevention)	safe product	ntal image	ı technology	ronmentally materials renewable erials
	Environm	Green	Enviro compe	Pollutio (pollution	Green and	Green me	Use of clear	Use of envi friendly (green) or mat
Environmental costs	1	0.143	0.125	0.112	0.125	0.112	0.112	0.112
Green design	7	1	0.112	0.143	0.167	0.125	0.125	0.167
Environmental competencies	8	9	1	0.2	0.125	0.167	0.167	0.125
Pollution control (pollution prevention)	9	7	5	1	0.125	0.125	0.143	0.167
Green and safe product	8	6	8	8	1	0.112	0.2	0.167
Green mental image	9	8	6	8	9	1	1.7	1.7
Use of clean technology	9	8	6	7	5	7	1	0.2
Use of environmentally friendly materials (green) or renewable materials	9	6	8	6	6	7	5	1
Total	60	45.143	34.237	30.455	21.542	15.641	8.447	3.638

Table 6 Weighted matrix of environmental factor

Environmental	Environmental costs	Green design	Environmental competencies	Pollution control (pollution prevention)	Green and safe product	Green mental image	Use of clean technology	Use of environmentally friendly materials (green) or renewable	×
Environmental costs	0.016666 7	0.0 031 68	0.0036 51	0.00367 8	0.00580 3	0.00716 1	0.01325 9	0.030786	0.07 0172
Green design	0.116666 7	0.0 221 52	0.0032 71	0.00469 5	0.00775 2	0.00799 2	0.01479 8	0.045904	0.07 5997
Environmental competencies	0.133333 3	0.1 993 66	0.0292 08	0.00656 7	0.00580 3	0.01067 7	0.01977	0.03436	0.09 6059
Pollution control (pollution prevention)	0.15	0.1 550 63	0.1460 41	0.03283 5	0.00580 3	0.00799 2	0.01692 9	0.045904	0.10 6651
Green and safe product	0.133333 3	0.1 329 11	0.2336 65	0.26268 3	0.04642 1	0.00716 1	0.02367 7	0.045904	0.13 3257
Green mental image	0.15	0.1 772 15	0.1752 49	0.26268 3	0.41778 9	0.06393 5	0.20125 5	0.46729	0.16 4635
Use of clean technology	0.15	0.1 772 15	0.1752 49	0.22984 7	0.23210 5	0.44754 2	0.11838 5	0.054975	0.17 1445
Use of environmentally friendly materials (green) or renewable materials	0.15	0.1 329 11	0.2336 65	0.19701 2	0.27852 6	0.44754 2	0.59192 6	0.274876	0.21 4181

Table 7 Paired matrix of social welfare factor

Social welfare	Social responsibility	Occupational safety and health (and manpower security)	Employee and customer satisfaction
Social responsibility	1	0.112	0.112
Occupational safety and health (and manpower security)	9	1	0.125
Employee and customer satisfaction	9	8	1
Total	19	9.112	1.237

Social welfare	Social responsibility	Occupational safety and health (and manpower security)	Employee and customer satisfaction	W
Social responsibility	0.0526316	0.012291	0.090542	0.0518216
Occupational safety and health (and manpower security)	0.4736842	0.109745	0.101051	0.2281602
Employee and customer satisfaction	0.4736842	0.877963	0.808407	0.7200183

Based on the analysis performed for each factor, it was found that the highest weight for the economic factor is related to the flexibility item, and the lowest weight is associated with the product and service quality item. For the environmental aspect, the highest weight is related to environmentally friendly materials, and the lowest weight is related to environmental costs. Finally, the social welfare factor is the highest weight related to employee and customer satisfaction, and the lowest weight is related to social responsibilities. Has shown itself in these analyzes. In the following, with the help of the AHP technique's results and the respondents' opinion, we will evaluate and implement the MULTIMORA technique.

At this stage, according to the main item of the research, which is environmental, as well as the factors of the highest weights related to the other two elements, the suppliers were surveyed. Then, in their view, the relevant tables and matrices were formed. In Table 11, according to the ideas and scores are given by the suppliers, the condition of the sum of squares and the square of the squares has been determined, and then, according to the relevant results in Table 12, we have determined their weight; The reason for doing this is that each supplier provides feedback from their point of view, so to match the data and eliminate the biased thinking of people, this action is done, which you can see the weighted in Table 9.

	Cost	Quality (product and service quality)	Flexibility	Environmental costs	Green design	Environmental competencies	Pollution control (pollution prevention)	Green and safe product	Green mental image	Use of clean technology	Use of environmentally friendly materials (green) or renewable materials	Employee and customer satisfaction
Supplier 1	7	9	9	1	1	2	2	2	1	1	2	8
Supplier 2	5	8	5	1	1	2	2	2	1	1	2	6
Supplier 3	8	7	9	2	4	5	4	5	2	5	4	5
Supplier 4	6	8	5	3	2	6	3	6	3	4	5	6
Supplier 5	8	6	7	5	3	3	2	5	4	6	4	5
sum of squares	238	294	261	40	31	78	37	94	31	79	65	186
The square root of the squares	15.427 2	17.146 4	16.155 5	6.324 6	5.567 8	8.831 8	6.082 8	9.695 4	5.567 8	8.888 2	8.0623	13.638 2

Table 9 Suppliers' views on factors based on Mora technique

MOORA														
	Cost	Quality (product and	Flexibility	Environmental costs	Green design	Environmental competencies	Pollution control	Green and safe product	Green mental image	Use of clean technology	Use of environmentall	Employee and customer	Total	Ranking
Suppli	0.45	0.52	0.55	0.15	0.17	0.22	0.32	0.20	0.17	0.11	0.24	0.58	3.76	4
er 1	37	49	71	81	96	65	88	63	96	25	81	66	17	
Suppli	0.32	0.46	0.30	0.15	0.17	0.22	0.32	0.20	0.17	0.11	0.24	0.43	3.17	5
er 2	41	66	95	81	96	65	88	63	96	25	81	99	95	
Suppli	0.51	0.40	0.55	0.31	0.71	0.56	0.65	0.51	0.35	0.56	0.49	0.36	6.04	2
er 3	86	82	71	62	84	61	76	57	92	25	61	66	25	
Suppli	0.38	0.46	0.30	0.47	0.35	0.67	0.49	0.61	0.53	0.45	0.62	0.43	5.83	3
er 4	89	66	95	43	92	94	32	89	88		02	99	89	
Suppli	0.51	0.34	0.43	0.79	0.53	0.33	0.32	0.51	0.71	0.67	0.49	0.36	6.07	1
er 5	86	99	33	06	88	97	88	57	84	51	61	66	16	

Next, according to Table 11, the Ri value, which is the highest value for each item, is determined and then the necessary measurements are determined based on them, which is known as the reference point matrix. This case determines the maximum value and the lowest rank related to each component, which is analyzed in Table 12.

Reference Point															
ri	0.518	0.524	0.557	0.790	0.718	0.679	0.657	0.618	0.718	0.675	0.620	0.586			
	6	9	1	6	4	4	6	9	4	1	2	6			
	Cost	Quality (product and service quality)	Flexibility	Environmental costs	Green design	Environmental competencies	Pollution control (pollution prevention)	Green and safe product	Green mental image	Use of clean technology	Use of environmentally friendly materials (green) or renewahle materials	Employee and customer satisfaction	Total	Ranking	Rank min
Supplier	0.064	0	0	0.632	0.538	0.452	0.328	0.412	0.538	0.562	0.372	0	0.632	1	4
1	8			5	8	9	8	6	8	5	1		5		
Supplier	0.194	0.058	0.247	0.632	0.538	0.452	0.328	0.412	0.538	0.562	0.372	0.146	0.632	1	4
2	5	3	6	5	8	9	8	6	8	5	1	6	5		
Supplier	0	0.116	0	0.474	0	0.113	0	0.103	0.359	0.112	0.124	0.22	0.474	3	3
3		6		3		2		1	2	5			3		
Supplier	0.129	0.058	0.247	0.316	0.359	0	0.164	0	0.179	0.225	0	0.146	0.359	4	2
4	6	3	6	2	2		4		6			6	2		
Supplier 5	0	0.175	0.123 8	0	0.179 6	0.339 7	0.328 8	0.103 1	0	0	0.124	0.22	0.339 7	5	1

Table 11 Reference point matrix

According to Table 12, the highest value from the suppliers' perspective is related to the first and second suppliers, with a rate of 0.6325. It is in the following ranks of the third, fourth and fifth suppliers, and the lowest ranking is done from the bottom to top.

In Table 13, according to the acquired ranks of the suppliers, the amount of Ui and the value of absolute value are calculated, based on which the matrix of the complete evolution form is formed.

Table 12 Matrix of complete evolution form

Comple	ete evolutionary for	m
	Ui	Rank
Supplier 1	0.0000002	4
Supplier 2	0	5
Supplier 3	0.0001891	1
Supplier 4	0.0001313	3
Supplier 5	0.0001702	2

Finally, based on the complete evolution form and Table 13, the status of MULTIMORA and the ranking of suppliers are determined; According to Table 13, I had the highest rank for the second supplier, followed by the first supplier, the fourth supplier, the third supplier, and finally the fifth supplier.

MULTIMORA								
	MOORA	Reference point	Complete evolutionary form	MULTIMORA				
Supplier 1	4	4	4	4				
Supplier 2	5	4	5	5				
Supplier 3	2	3	1	2				
Supplier 4	3	2	3	3				
Supplier 5	1	1	2	1				

Table 13 MULTIMORA Final Matrix

5- Conclusion

Based on the relevant techniques, the following steps have been summarized, which we will describe here. Based on the analysis performed for each factor, it was determined that the highest weight for the economic factor is related to the flexibility item, and the lowest weight is associated with the item. Quality is the product and service. For the environmental aspect, the highest weight is related to environmentally friendly materials, and the lowest weight is related to environmental costs. Finally, the social welfare factor is the highest weight related to employee and customer satisfaction, and the lowest weight is related to social responsibilities. Has shown itself in these analyzes. In the following, with the help of the AHP technique's results and the respondents' opinion, we will evaluate and implement the MULTIMORA technique.

At this stage, according to the main item of the research, which is environmental, as well as the factors of the highest weights related to the other two elements, the suppliers were surveyed. Then, in their opinion, the relevant tables and matrices were formed.

In Table 11, according to the opinions and scores are given by the suppliers, the condition of the sum of squares and the square of the squares has been determined, and then, according to the relevant results in Table 12, we have determined their weight; The reason for doing this is that each supplier provides feedback from their point of view, so to match the data and eliminate the biased thinking of people, this action is done, which you can see the weighted in Table 12.

Finally, based on the complete evolution form and Table 13, the status of MULTIMORA and the ranking of suppliers are determined; According to Table 15, I had the highest rank for the second supplier, followed by the first supplier, the fourth supplier, the third supplier, and finally the fifth supplier.

According to the analysis results, the obstacles of lack of active and voluntary approach of the organization and suppliers (in terms of knowledge and technical technology) to obtain the ISO 14000 standard have the most critical effect on non-implementation of green supply chain management methods. These results also indicate that in addition to the mentioned criteria, the organisation's lack of goals and the strategic environmental plan is the third obstacle in implementing methods in this area, according to experts and managers of the company's logistics department.

Therefore, focusing on these three obstacles has a positive effect on implementing green supply chain management practices in the company. After these three obstacles, the barriers of lack of support of senior and trusted managers of the organization, lack of appropriate ICT infrastructure to facilitate the implementation of the green supply chain, and the difficulty of organizing and coordinating units in the performance of the green supply chain are the following priorities, respectively. Take.

According to the results of this study related to the AHP sector, which is recognized as the highest factor of social welfare, to advance and optimize the work, it should be noted that according to the demands of suppliers, their needs in companies should be met. The suppliers have the highest rank, to remain and be strengthened, and also the other two factors, which are environmental and economic, should also be considered that to create a green and suitable environment, its various elements should be regarded as that can be With proper management and also obtaining the necessary ISOs, the company will continue to work with high efficiency and factors such as health and environment, and people will not prevent and reduce the activity of the organization; Although obtaining appropriate ISOs and observing environmental points is costly, these costs are consequently less than the obstacles and issues they point out. Finally, the main item that all companies consider is the economic factor that has shown the lowest pillar from the perspective of suppliers and shows that suppliers do not have a financial view and are more interested in the other two factors for them but Be; However, this item is also mixed in the social welfare factor.

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