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ASSESSMENT OF SUSTAINABILITY CRITERIA WITH DEMATEL AND MOORA METHODS: A CASE STUDY IN TEXTILE SECTOR

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Abstract

Sustainability, which is one of the strategies developed and implemented in recent years due to resource constraints and environmental problems, makes itself felt in almost every field. It is observed that energy efficiency, waste management and environmental awareness come to the forefront in the researches made especially for the textile sector and these parameters should be emphasized in detail. Accordingly, the aim of this study is to determine the parameters required in the sustainable textile supply chain in order to increase the frequency of sustainability-based studies in the textile sector, and to compare the criteria that will lead to sustainable performance as a result of the analysis of the determined parameters. Considering the supply chain line in the textile sector, 16 parameters are determined by considering each stage in the adventure from cotton to fabric, and by providing literature gains. These determined criteria are first listed with the DEMATEL method and the interaction between each other is analyzed. According to the DEMATEL results; adopting a customer-oriented approach, just-in-time delivery understanding for the appropriate deadline, flow day time, optimum planning of the distribution network, sustainable resource use, information and material flow integration, sustainability R&D studies, accuracy of demand forecasting management criteria was determined as the affecting group; reduction of greenhouse gas emissions in production, storage and transportation, implementation of waste management studies, use of recyclable packaging, availability of environmental certificates, reduction of waste/error rate in production, ensuring meter compliance, employee motivation and continuous development, and corporate image was determined as the affected group. Then, the MOORA-Ratio and MOORA-Reference Point Approach methods, which are among the MOORA methods, are sorted and the results are compared and discussed. In the findings, it is observed that the criteria of corporate image, information and material flow integration, adopting a customer-oriented approach and sustainable resource use are in the top priority. In addition, MOORA-Ratio and MOORA-Reference Point Approach results are standardized with the help of the Z score and then they compared. It is seen that the order found as same. The addition of new criteria affecting sustainability in textile added originality to the study. Also, the study will contribute to the increase of sustainability studies in the textile sector and can answer where to start.

Key words: DEMATEL, MOORA, sustainability assessment, sustainability criteria, sustainable textile

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