SETSCI Conference Indexing System,
Volume 2 (2018), 246-246

ISAS 2018
I[st] International Symposium on Innovative Approaches in Scientific Studies
April 11-13, 2018, Kemer-Antalya, Turkey

Applications of Data Envelopment Analysis in Textile Sector

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Presentation/Paper Type: Oral / Abstract

Abstract- Interest in Data Envelopment Analysis (DEA) has grown in recent years. This is not surprising since DEA can be used to explore efficiency in organizations whose outputs and inputs cannot be reduce to monetary terms. In a relatively short period of time Data Envelopment Analysis (DEA) has grown into a powerful quantitative, analytical tool for measuring and evaluating performance. DEA has been successfully applied to a host of different types of entities engaged in a wide variety of activities in many contexts worldwide.

Data Envelopment Analysis (DEA) is a method for measuring efficiency of decision-making units (DMUs) using linear programming techniques to envelop observed input–output vectors as tightly as possible. DEA allows multiple inputs–outputs to be considered at the same time without any assumption on data distribution. In each case, efficiency is measured in terms of a proportional change in inputs or outputs. A DEA model can be subdivided into an input-oriented model, which minimizes inputs while satisfying at least the given output levels, and an output-oriented model, which maximizes outputs without requiring more of any observed input values.

For this reason, the textile and garment sector should operate efficiently and increase its productivity. DEA also has different applications in the textile sector. In this study, DEA usage examples and details are given in textile and garment sector. DEA was introduced first, and then the commonly used models and steps of applying these models were explained. Finally, the scope of applications in textile and apparel sector will be examined in detail.

Keywords- Data Envelopment Analysis, Decision-Making Unit, Textile, Ready-Wear, Efficiency