DETERMINING THE IMPORTANCE OF PERFORMANCE INDICATORS FOR THE ANALYSIS OF PRODUCTION SECTOR EFFICIENCY USING DATA ENVELOPMENT ANALYSIS (DEA): A CASE STUDY OF THE COMPANY VENDOM

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ABSTRACT

The efficiency of the production sector largely relates to the effectiveness of management practices in optimizing company performance while minimizing resources and costs, and it represents a key factor in determining productivity and the overall success of a company. Inefficient production and overall operations do not merely result in the loss of valuable time, but also significantly affect a company's market positioning, profitability, customer satisfaction, and overall business image. This paper analyzes the efficiency of the production sector of the company Vendom, which operates within the metal industry, using Data Envelopment Analysis (DEA). DEA is considered one of the most successful and widely used non-parametric methods for performance measurement and efficiency analysis. It is a data-driven method designed to assess the efficiency of complex entities that utilize diverse inputs to generate diverse outputs. Given the availability of data, typical indicators were selected as input and output variables: material costs, service costs, the number of service operations, and similar indicators (as inputs), and the commercial price (as the output). Prior to the selection of input and output units, data preprocessing was conducted, and inputs and outputs were constructed as derived indicators by aggregating the relevant basic cost or revenue indicators. The obtained correlation coefficients indicated a high degree of interdependence among the selected variables, thereby confirming the justification for applying DEA in efficiency analysis. Results of this paper indicate opportunities for improving the efficiency of the production sector for certain decision-making units.

Keywords: production, DEA method, decision-making units, correlation coefficient, relative efficiency.