

## DEVELOPMENT OF A DECISION SUPPORT SYSTEM FOR SUPPLIER SELECTION USING AHP-TOPSIS INTEGRATED MODEL

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### **Abstract**

The selection of suppliers is a critical strategic decision in supply chain management that directly influences organizational efficiency and competitiveness. In recent years, multi-criteria decision-making (MCDM) methods have been extensively employed to support this complex decision-making process. This literature-based study aims to explore and conceptualize the development of a Decision Support System (DSS) for supplier selection by integrating the Analytic Hierarchy Process (AHP) and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). Through a systematic review of existing academic literature, this research identifies key criteria commonly used in supplier evaluation, assesses the methodological strengths of AHP and TOPSIS, and proposes a structured framework for their integration in a DSS environment. The findings suggest that the AHP-TOPSIS model offers a balanced combination of qualitative judgment and quantitative analysis, enhancing decision consistency and accuracy. This integrated approach is particularly suitable for dynamic procurement environments requiring robust, transparent, and scalable decision support mechanisms. The study contributes to the theoretical foundation of MCDM applications in supply chain management and provides guidance for practitioners in designing intelligent, criteria-sensitive DSS for supplier selection.

**Keywords:** Decision support system, supplier selection, ahp, topsis, multi-criteria decision making, supply chain management

### **INTRODUCTION**

In the modern business world, characterized by global competition, supply chain complexity, and ever-increasing customer expectations, supplier selection is one of the most crucial strategic decisions for companies.

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