

Supplier Selection using Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) Method: A Case Study

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Abstract

Selecting suppliers of goods for procurement becomes very complex because often a large number of criteria need to be considered and some of the criteria cannot be properly assessed. Fluctuations in supplier performance and unknown information are always in decision making. Choosing the right supplier can reduce operating costs, increase profitability and product quality, increase competitiveness in the market, and serve customers quickly. This study aims to propose a method that can facilitate practitioners to select suppliers logically and when uncertainty and/or unavailability of assessment information arises. We applied the multi-criteria decision making (MCDM) method to determine the best alternative from several alternatives based on certain criteria. The Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) method is also used in several Multiple Attribute Decision Making (MADM) models because this method has several advantages, namely the concept is simple and easy to understand. This research was conducted at a raincoat manufacturing company, namely PT. Trijaya Plastik. The main ingredient in making raincoats is PVC (Polyvinyl Chloride). Due to the large number of suppliers who can provide goods, this study examines the selection of PVC suppliers for the company's main material. The result of normal TOPSIS calculations in supplying the main raw material or PVC is the second supplier, namely PT. Royal Lapastek by considering 4 criteria, namely price evaluation, condition of ordered goods, delivery time, and administrative evaluation.

Keywords

Procurement, TOPSIS, Supplier Selection

Biographies

Nida An Khofiyah is a student at the Master Program of Industrial Engineering Department, Universitas Sebelas Maret, Surakarta, Indonesia. She is also a research assistant in the Laboratory of Logistics System and Business. She received her Bachelor of Engineering degree from Universitas Sebelas Maret. Research interests are related to technoeconomics, logistics, commercialization technology, and drone technology. She has published research papers twice

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