

Abstract

PT. Distriversa Buanamas is a pharmaceutical distribution company experiencing annual revenue growth. However, this increase has been accompanied by a significant rise in operational costs, which could potentially reduce profitability if not addressed with appropriate efficiency strategies. To tackle this issue, an approach is needed to optimize overall distribution costs. One alternative used in this study is the transportation method, aiming to identify the most efficient and cost-effective distribution solution. The study is based on distribution data from December 2024, focusing on three central warehouses located in East Jakarta, South Jakarta, and Tangerang and four distribution branches in Semarang, Solo, Surabaya, and Malang.

The research began by constructing a transportation table based on warehouse capacity and branch demand. Initial solutions were calculated using three methods: Vogel's Approximation Method (VAM), Russell Approximation Method (RAM), and Northwest Corner Method (NWC). The method yielding the lowest distribution cost was selected for further analysis using the Steppingstone and Modified Distribution Method (MODI) to verify the optimality of the solution.

The results show that the VAM method produces the lowest distribution cost of Rp23,426,407 compared to RAM and NWC. Further evaluation using Steppingstone and MODI found no negative opportunity costs, indicating that the VAM solution is optimal. The VAM distribution routes include: Jakarta 1 to Semarang (356 boxes, Rp3,944,836), Solo (723 boxes, Rp4,737,096), Surabaya (701 boxes, Rp935,835), and Malang (720 boxes, Rp7,590,240); Jakarta 2 to Surabaya (2,200 boxes, Rp2,952,400); and Tangerang to Surabaya (2,300 boxes, Rp3,266,000). This distribution is both efficient and aligned with warehouse capacities and branch demands.

Keywords: Drug Distribution Cost, VAM, RAM, NWC, Steppingstone, MODI