

## Optimasi rute dan jadwal distribusi vehicle routing problem with time windows (VRPTW) = Optimization of distribution route and schedule with Vehicle Routing Problem with Time Windows (VRPTW)

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### Abstrak

Persaingan dunia industri yang semakin ketat, membuat para perusahaan berlomba-lomba untuk menghemat biaya perusahaan, termasuk logistik. Salah satu biaya yang menyumbang angka terbesar ialah biaya distribusi. Fakta bahwa indeks performa logistik Indonesia cenderung menurun dari tahun ke tahun membuktikan bahwa kondisi logistik di Indonesia masih belum optimal, terutama di daerah perkotaan yang volume permintaannya terpusat dan cukup besar. Oleh sebab itu, perancangan rute dan jadwal distribusi barang menjadi sebuah hal yang penting untuk dilakukan. Penelitian ini berfokus kepada perancangan Vehicle Routing Problem with Time Windows VRPTW, yaitu pencarian rute distribusi dengan jarak tempuh minimal yang tetap memenuhi permintaan seluruh pelanggan dan mempertimbangkan batasan kapasitas kendaraan serta waktu respons pelanggan. Dengan menggunakan metode heuristik yaitu algoritma local search dan Lin Kernighan Helsgaun, dihasilkan hasil rute dan jadwal distribusi paling optimal sebagai bahan pertimbangan dalam mengambil keputusan.

*High competitiveness in industrial practice has encouraged companies to do cost saving, including logistic. One of the aspects that contribute the biggest amount is physical distribution cost. Besides, the fact that Indonesia's logistic performance index keep decreasing year by year has proven that Indonesia's logistic is not optimal yet, especially in urban areas which customer demand is centred and high. Hence, a better planning of distribution route and schedule become an important thing to execute. This research will be focused on planning Vehicle Routing Problem With Time Windows VRPTW, which is finding the most optimum distribution route with lowest total distance yet still manage to fulfill all demand and considering the constraints of vehicle capacity and customers' time windows. By using heuristic methods which are local search and Lin Kernighan Helsgaun, the most optimum distribution route and schedule will be generated to be considered in company decision making.*