10Alytics
data & strategy

# Logistics Optimization at DHP Logistics

## Data Science Project

## Company Overview

DHP Logistics, a renowned third-party logistics provider, has established a significant presence in the industry. Known for its robust delivery network and commitment to customer satisfaction, DHP Logistics specializes in offering tailored logistics solutions to businesses across various sectors. With a focus on innovation and operational efficiency, the company has been a frontrunner in adopting technological advancements to streamline its logistics processes.

# Business Challenge

DHP Logistics faces critical challenges in optimizing delivery times. The complex nature of logistics operations, fluctuating demand patterns, and varying geographical conditions make timely deliveries a formidable task. Key obstacles include:

- **Inefficient Route Planning:** Navigating through congested routes and adapting to unexpected delays.

- **Variable Delivery Load:** Managing the fluctuating volume of goods needing delivery.

- **Customer Expectation Management:** Balancing the growing demand for faster deliveries with operational capabilities.

- **Resource Allocation:** Optimizing the use of vehicles and workforce for maximum efficiency.

- **Data Integration:** Coordinating various data sources for real-time decision-making.

# Rationale for the Project

The rationale for focusing on a Logistics Optimization Project centred around delivery time is evident in the current industry landscape, where timely delivery is a key differentiator for logistics companies.

- **Enhanced Customer Satisfaction:** Timely deliveries directly impact customer loyalty.

- **Operational Efficiency:** Improved delivery times result in better resource utilization.

- **Competitive Advantage:** Sets DHP Logistics apart in a highly competitive market.

- **Cost Reduction:** Efficient operations reduce unnecessary expenses.

- **Adaptability:** Ability to quickly adapt to market changes and customer demands.

## Project Objectives

The objectives of the project are:

- Minimize Delivery Time: Achieving the shortest possible delivery times while maintaining service quality.

- Route Optimization: Implementing advanced algorithms for efficient route planning.

- Real-time Tracking: Ensuring real-time visibility of deliveries for better coordination.

- Data-Driven Decisions: Utilizing analytics for informed decision-making.

- Scalability: Creating a model that can scale with the growing business needs.

# Data Description

- DeliveryID: Unique identifier for each delivery.
- VehicleType: Type of vehicle (e.g., Van, Truck, Box Truck).
- OrderID: Unique identifier for each order.
- OrderWeight: Weight of the order.
- Order_Quantity: The quantity of items ordered (e.g., 40 units).
- Delivered_Quantity: The quantity of items actually delivered (e.g., 38 units).
- RouteLength: Total length of the delivery route
- PriorityLevel: Priority level of the delivery (e.g., Standard, High and Express).
- SpecialHandling: Indicates if the order requires special handling (e.g., Fragile, Temperature-controlled).
- Order_Date: Date when the order was placed (e.g., 2023-07-15).
- Actual_Delivery_Date: The actual date of delivery (e.g., 2023-07-19).
- Delivery_Location: The geographical location where the delivery was made (e.g., Location-12).
- Client: Name of the supplier (Amazon, Nike, Adidas, HP, Dell, Lenovo, GSK, P&G).
- PackageType: (Envelope, Small box, Medium Box, Large Box and Irregular)
- Weather condition: (Rainy, Cloudy, Windy, Clear and Foggy)

Create a detailed analysis and prepare for a 5 mins presentation using a presentation tool, like PowerPoint, etc.