# **TRANSPORTATION AND LOGISTICS ANALYSIS**

Welcome to the Transportation & Logistics Data Challenge! In today's fast-paced supply chain industry, optimizing shipment efficiency, reducing delivery times, and enhancing operational visibility are critical for success. This challenge invites data enthusiasts to explore and derive actionable insights from a real-world logistics tracking dataset, featuring shipment records, GPS tracking, vehicle information, and transportation distances.

* **Submission Date:** Wednesday 19th of March 2025
* **Challenge Link**:<https://fp20analytics.com/live-challenge/>

## Question**s**

1. **Top Routes**: What are the most common shipment routes and their average distances?

2. **Delivery Times**: Which routes have the longest delivery times?

3. **Peak Shipments:** When are the busiest booking and delivery dates?

4. **Delays Analysis:** What factors contribute to shipment delays?

5. **Supplier Trends:** Which suppliers handle the most shipments, and do some have higher delays?

6. **Customer Insights:** Which customers receive the most shipments, and do they experience delays?

7. **Material Movement:** What are the most frequently shipped materials, and do certain materials have longer delivery times?

8. **Bottlenecks:** Where are the most common shipment delays based on GPS data?

9. **Predicting Delays:** Can you build a model to predict shipment delays?

10. **Route Optimization:** What strategies can improve transportation efficiency?

## New Tables & their Columns

### Booking Tables

1. "booking\_id"
2. "shipment\_type"
3. "booking\_date"
4. "planned\_eta"
5. "actual\_eta"
6. "ontime"
7. "customer\_name"
8. "supplier\_name"
9. material\_shipped"
10. "origin\_location"
11. "origin\_location\_latitude"
12. "origin\_location\_longitude"

### 2. Trip Details Tables

1. booking\_id
2. "transportation\_distance\_(km)"
3. "trip\_start\_date"
4. "trip\_end\_date",
5. "destination\_location"
6. 'destination\_location\_latitude'
7. 'destination\_location\_longitude'

### 3. Vehicles Table

1. "booking\_id"
2. "vehicle\_registration",
3. "vehicle\_type"
4. "minimum\_kms\_to\_be\_covered\_in\_a\_day"
5. "driver\_name"
6. "driver\_mobile\_no"
7. "gps\_provider"
8. "current\_location"
9. "current\_location\_latitude"
10. "current\_location\_longitude"
11. "data\_ping\_time"

## Cleaning & Load the Data

* Break Down the Original table into multiple tables using python
* Load the tables into the BI (count the columns to ensure all columns are present)
* Found a outlier in the booking table (Not match with any table so prefer to delete)
* Create a new state columns for each table form the location column

## Issues I Suffer

1. During table creation time to make the tables one-to-many relation I Suffer difficulties

Then After I Read the

Resolve:

* [Many-to-many relationship guidance - Power BI | Microsoft Learn](https://learn.microsoft.com/en-us/power-bi/guidance/relationships-many-to-many)
* [Many-to-many relationships in Power BI Desktop - Power BI | Microsoft Learn](https://learn.microsoft.com/en-us/power-bi/transform-model/desktop-many-to-many-relationships)
* <https://youtu.be/1L66tcLaRQ0?si=6mBCvelQT3SmIuXi>
* Making Unique value one side other side duplicate forms one-to-many relationships.

Check out the Notion Page for more details ….