

AI-Driven Data Analytics Curriculum – Version 8

Module Number: 2

Module Name: Power BI

Module End Assignment Title: *AI-Powered Fleet Performance
& Delivery Efficiency Dashboard*

Project: Power BI Module End Project

Case Study Title: Fleet Performance & Delivery Efficiency Dashboard

Scenario:

A logistics company wants to analyze its fleet performance in terms of on-time deliveries, fuel efficiency, and cost per mile.

Dataset:

Dataset Fields:  logistics_project_dataset.xlsx

- **Trip_data:** Trip ID, Vehicle ID, Driver ID, Origin, Destination, Distance (km), Fuel Consumed (liters), Delivery Status (On-Time/Late), Delivery Date.
- **Vehicle Master:** Vehicle ID, Vehicle Type, Capacity, Maintenance Cost.

Tasks:

1. Data Cleaning & Modeling:

- Fix missing fuel consumption values (use mean imputation).
- Create a relationship using Vehicle_ID between Trip_Data and the Vehicle Master table.

2. DAX Measures:

- **Fuel Efficiency = Distance / Fuel Consumed**
- **On-Time Delivery % = On-Time Trips / Total Trips:**

To do this, calculate the number of "On-Time" entries in the table and the total entries in the Trip_Data table, and then divide both results.

- **Cost per km = (fuel cost + Maintenance Cost) / Distance**

Note fuel cost =100

3. Visualization:

- **Bar chart:** On-Time Delivery % by Destination.
- **Line chart:** Fuel efficiency trend by delivery date.
- **Cards visualization:**
 - Avg. Delivery Time
 - Average cost per km
- **Pie chart:** vehicle type vs Average maintenance cost

4. AI-Powered Visuals

- ❖ **Q&A Visual:**
 - Add Q&A visual → Prompt: “Average Cost per km by vehicle type?”
- ❖ **Key Influencers Visual:**
 - Add **Delivery Status** in the Analyze and explain by -distance in km, vehicle_type, Driver_ID
- ❖ **Decomposition Tree (AI Visual):**
 - Analyze **Cost per km** → explained by Vehicle Type, Maintenance_cost, and Distance_km.

Expected Output: A transport operations dashboard to optimize routes and fleet usage.