

Title: Logistics & Transportation- Fleet Performance & Delivery Efficiency

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Topic Name: Logistics & Transportation- Fleet Performance & Delivery Efficiency

PROJECT STEPS:

1) Data Cleaning & Modeling:

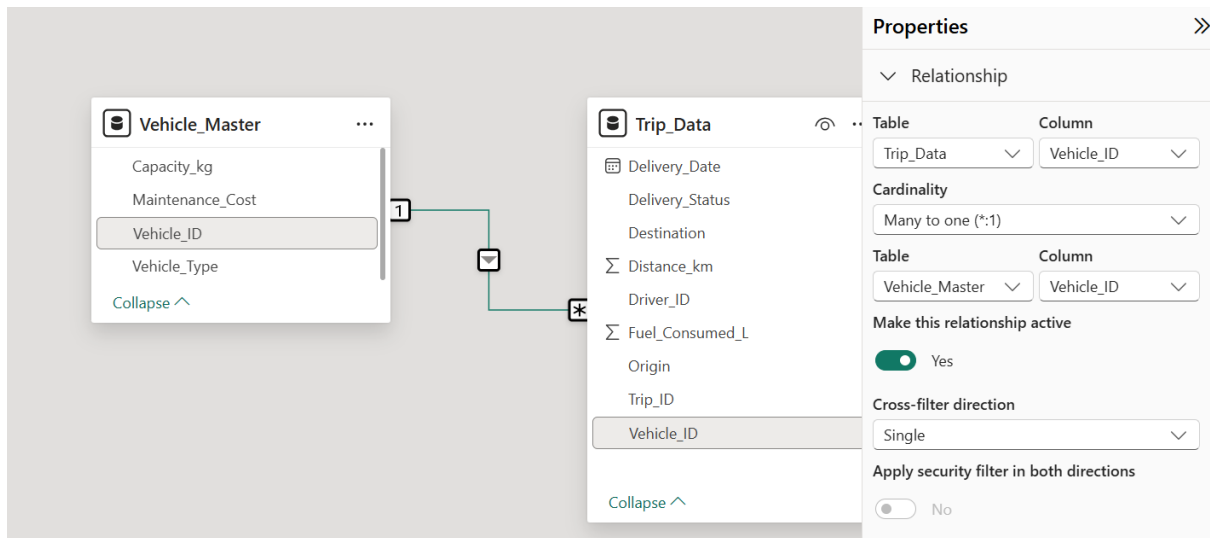
i) Fix missing fuel consumption values:

The screenshot shows the Power BI Desktop interface. At the top, the formula bar displays the DAX formula: `= List.Average(#"Replaced Value"[Fuel_Consumed_L])`. Below the formula bar, the value `83.2209090909091` is shown. In the foreground, the 'Replace Values' dialog box is open. It has a title bar 'Replace Values' and a close button. The text inside says 'Replace one value with another in the selected columns.' There are two input fields: 'Value To Find' with 'null' entered, and 'Replace With' with '83.2209090909091' entered. There are 'OK' and 'Cancel' buttons at the bottom right. In the background, a table is visible with columns: Destination, Distance_km, Fuel_Consumed_L, Delivery_Status, and Delivery_Date. The table has two rows of data: Mumbai (1685, 119.01, Late) and Delhi (1233, null, On-Time). On the right side, the 'PROPERTIES' pane shows 'Trip_Data' as the source. The 'APPLIED STEPS' pane shows a list of steps: Source, Navigation, Promoted Headers, Changed Type, Kept First 50 Rows, Changed Delivery Date data T..., and Filtered Rows.

Null value filled in the fuel consumed column with average value by Vehicle ID through filtering the vehicle Id which holding null value→selecting the fuel consumed column after filtering→Transform Tab→Number Column Group→Statistics Option→Average. Average value will reflect, Copy the value and Replace in Null values. Click on the null value cell→Transform Tab→Any Column Group→Replace Values.

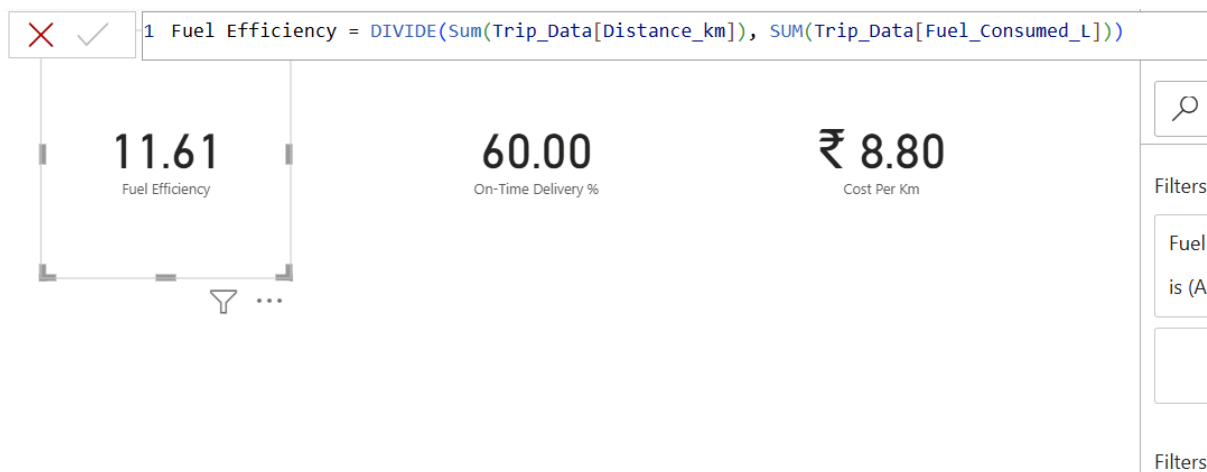
ii) Relate Trips with Vehicle Master:

Data Modeling has been done for both Trip_Data Table and Vehicle master table by using Vehicle Id as Common Column. And Relationship is Active.



2) DAX Measures:

i) Fuel Efficiency:



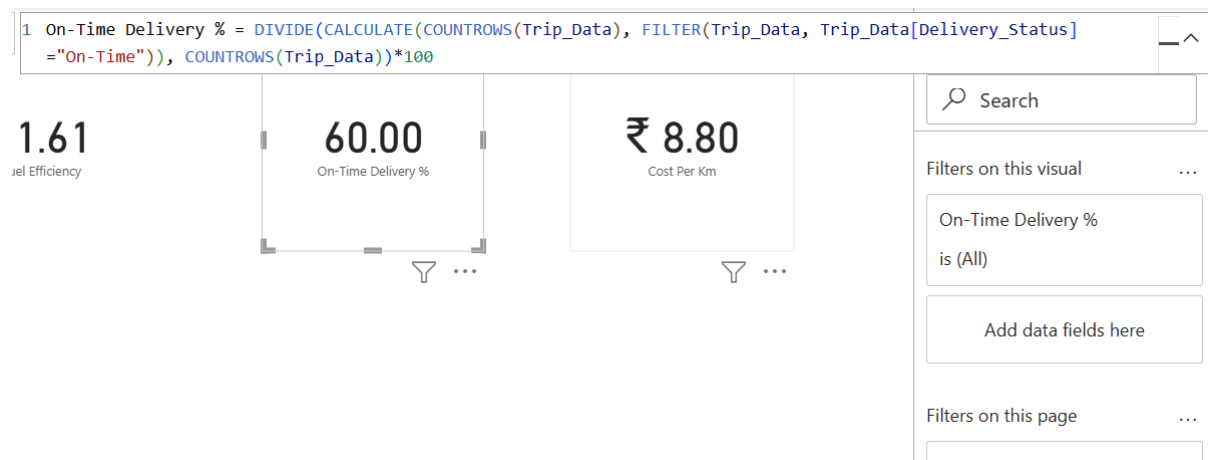
New Measure created to calculated fuel efficiency by using formula,

**Fuel Efficiency = DIVIDE(Sum(Trip_Data[Distance_km]),
SUM(Trip_Data[Fuel_Consumed_L]))**

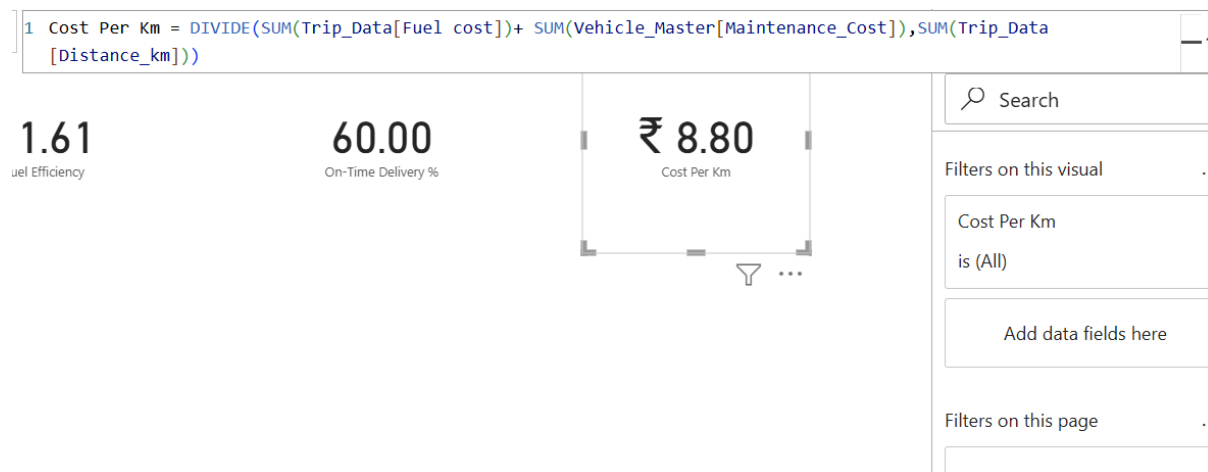
ii) On-Time Delivery %:

On-Time delivery % calculated by using new measure in Home tab with below mentioned formula.

**On-Time Delivery % = DIVIDE(CALCULATE(COUNTROWS(Trip_Data),
 FILTER(Trip_Data, Trip_Data[Delivery_Status]="On-Time")),
 COUNTROWS(Trip_Data))*100**



iii) Cost per km:



New measure created to calculate cost per km using formula,

**Cost Per Km = DIVIDE(SUM(Trip_Data[Fuel cost])+
 SUM(Vehicle_Master[Maintenance_Cost]),SUM(Trip_Data[Distance_km]))**

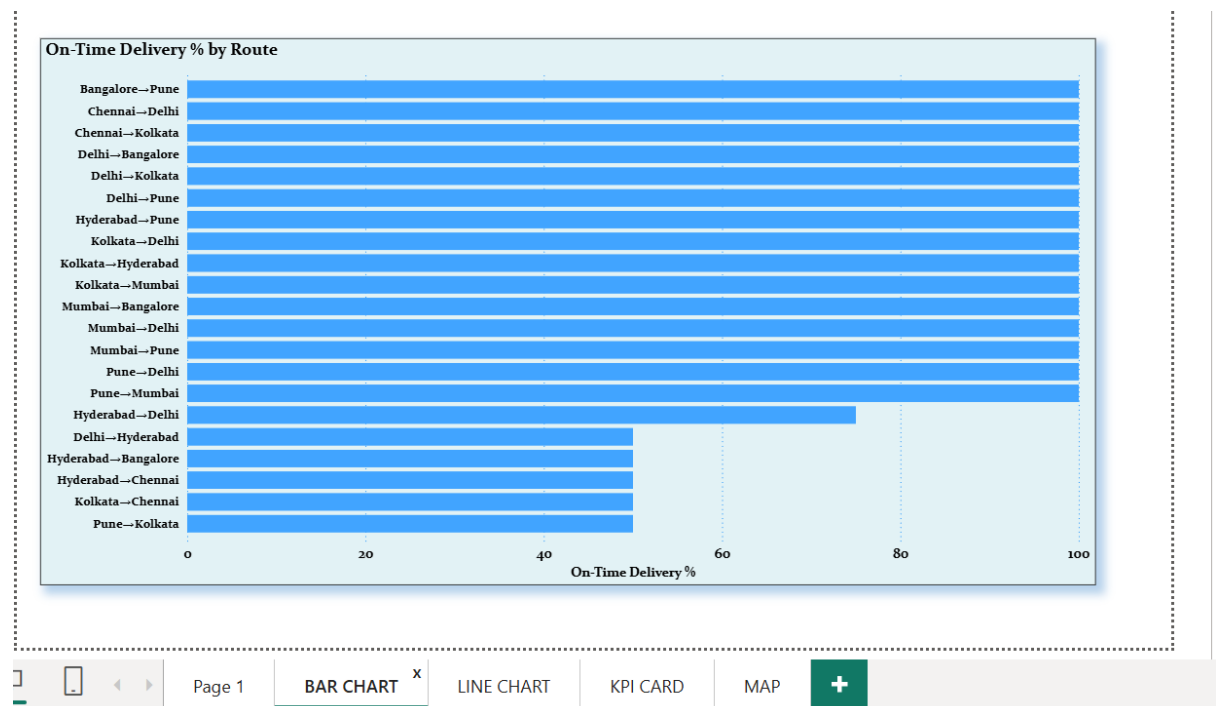
3) Visualization:

i) Bar chart: On-Time Delivery % by Route:

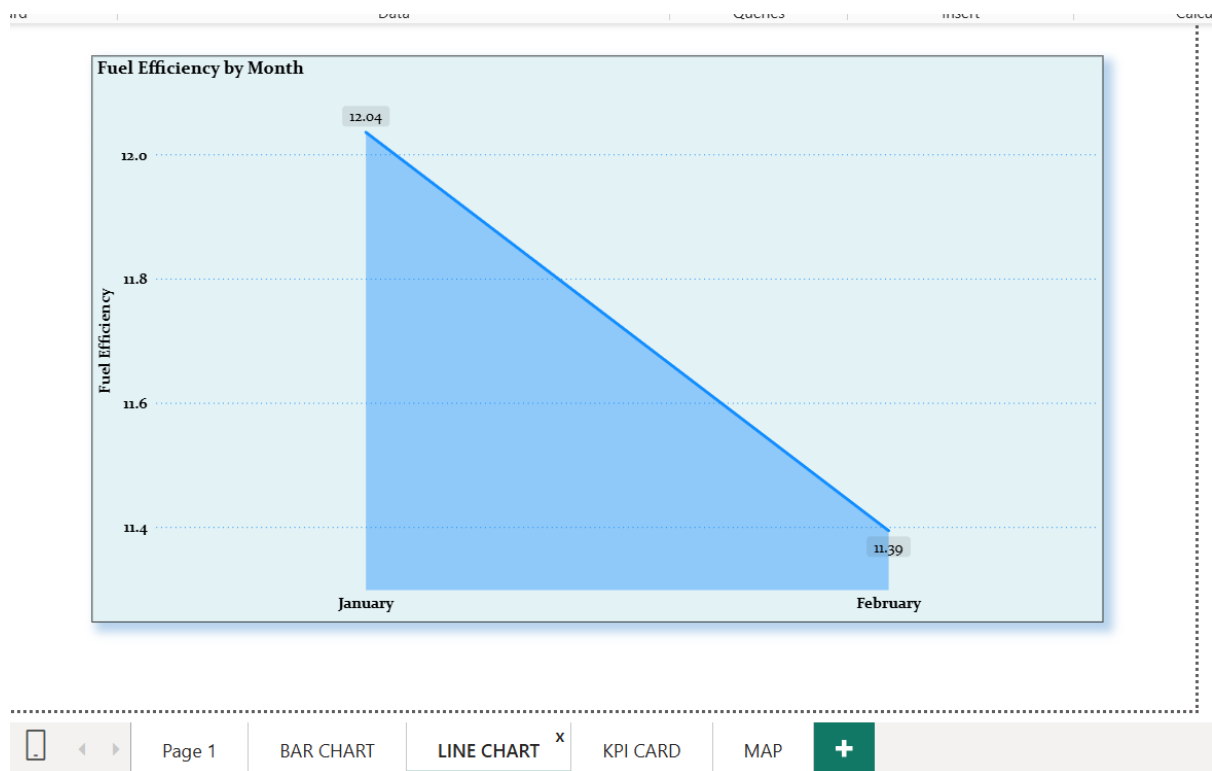
1 Route = Trip_Data[Origin] & "→" & Trip_Data[Destination]									Data
river_ID	Origin	Destination	Distance_km	Fuel_Consumed_L	Delivery_Status	Delivery_Date	Fuel cost	Route	Search
01	Delhi	Pune	1173	108.42	On-Time	27 January 2023	₹ 9,269.91	Delhi→Pune	▼ Trip_Data
08	Mumbai	Bangalore	1727	161.33	On-Time	21 February 2023	₹ 13,793.72	Mumbai→Bangalore	Cost Per Km
08	Mumbai	Pune	1459	154.70	On-Time	17 February 2023	₹ 13,226.85	Mumbai→Pune	> Delivery_Date
09	Hyderabad	Pune	382	26.60	On-Time	18 February 2023	₹ 2,274.30	Hyderabad→Pune	Delivery_Status
08	Pune	Mumbai	398	33.20	On-Time	15 February 2023	₹ 2,838.60	Pune→Mumbai	Destination
07	Chennai	Mumbai	1275	85.04	Late	25 February 2023	₹ 7,270.92	Chennai→Mumbai	Σ Distance_km
03	Chennai	Kolkata	752	58.08	On-Time	19 January 2023	₹ 4,965.84	Chennai→Kolkata	Driver_ID
10	Delhi	Pune	74	5.24	On-Time	01 January 2023	₹ 448.02	Delhi→Pune	Fuel cost
07	Delhi	Hyderabad	186	16.22	On-Time	23 February 2023	₹ 1,386.81	Delhi→Hyderabad	Fuel Efficiency
02	Bangalore	Hyderabad	1375	105.21	Late	02 February 2023	₹ 8,995.46	Bangalore→Hyderabad	Σ Fuel_Consumed_L
03	Kolkata	Hyderabad	419	31.17	On-Time	21 January 2023	₹ 2,665.04	Kolkata→Hyderabad	On-Time Delivery %
01	Kolkata	Delhi	751	51.77	On-Time	15 February 2023	₹ 4,426.34	Kolkata→Delhi	Origin
04	Kolkata	Chennai	1571	188.52	Late	02 February 2023	₹ 16,118.46	Kolkata→Chennai	Route
05	Hyderabad	Bangalore	1524	104.51	On-Time	16 February 2023	₹ 8,935.61	Hyderabad→Bangalore	Trip_ID
06	Kolkata	Mumbai	1956	179.88	On-Time	21 January 2023	₹ 15,379.74	Kolkata→Mumbai	Vehicle_ID
06	Bangalore	Mumbai	858	92.70	Late	18 January 2023	₹ 7,925.85	Bangalore→Mumbai	> Vehicle_Master
07	Pune	Kolkata	1269	102.91	On-Time	16 January 2023	₹ 8,798.81	Pune→Kolkata	
10	Pune	Delhi	1565	107.23	On-Time	12 February 2023	₹ 9,168.17	Pune→Delhi	
10	Hyderabad	Pune	1796	155.52	On-Time	28 February 2023	₹ 13,296.96	Hyderabad→Pune	
02	Mumbai	Bangalore	1640	148.87	On-Time	06 January 2023	₹ 12,728.39	Mumbai→Bangalore	

New column created first for Route to find on time delivery % by route using formula,

Route = Trip_Data[Origin] & "→" & Trip_Data[Destination]

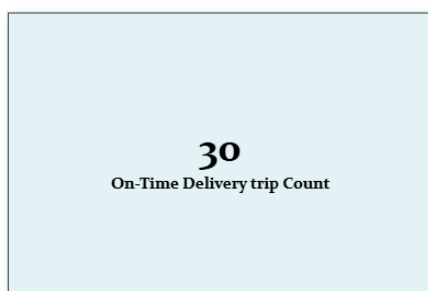


ii) Line chart: Fuel Efficiency trend by month:



Fuel Efficiency trend by month shown above, Fuel efficiency is low in February Month compared to month of January.

iii) Cards: Total number of Trips which has delivery status "On-time", Cost per Km:

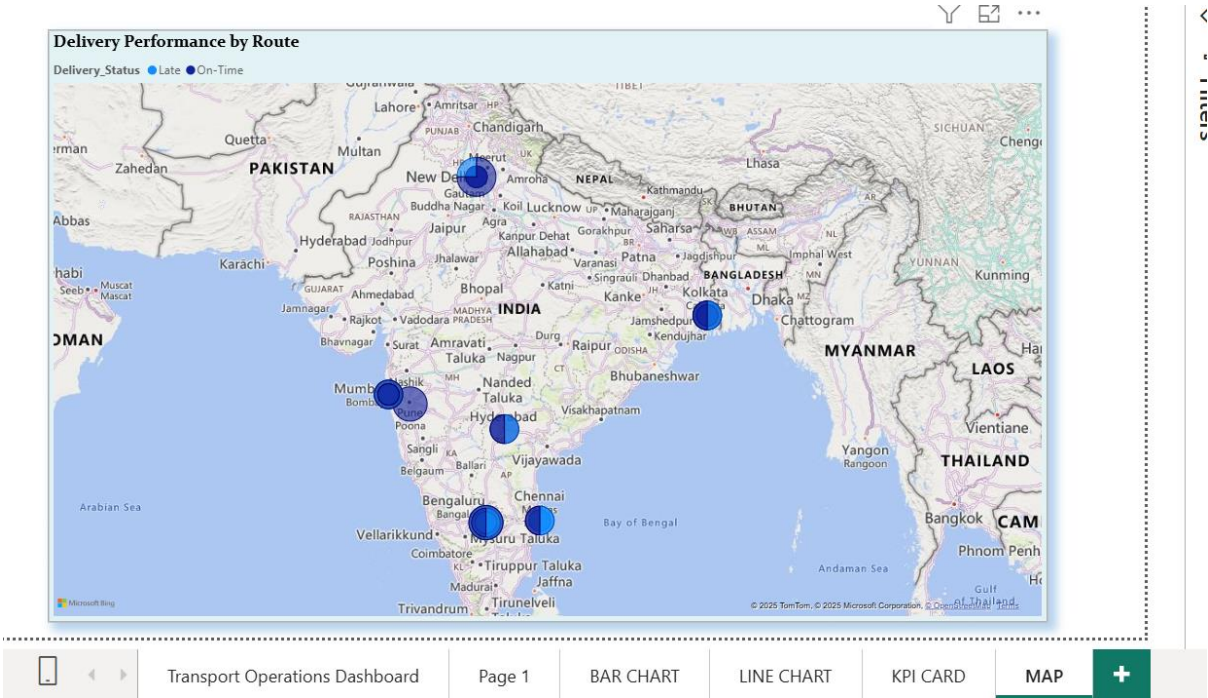


Two different cards created using formula,

**On-Time Delivery trip Count = CALCULATE(COUNTROWS(Trip_Data),
FILTER(Trip_Data, Trip_Data[Delivery_Status]="On-Time"))**

**Cost Per Km = DIVIDE(SUM(Trip_Data[Fuel cost])+
SUM(Vehicle_Master[Maintenance_Cost]),SUM(Trip_Data[Distance_km]))**

iv) Map visual: Delivery performance by route (Origin → Destination):



The above map is Delivery performance based on delivery status and count of trips by Route.

Expected Output:

