Courier Performance & Delivery Efficiency Analysis

1. Data Loading and Preparation

a. Import Dataset

Open Power BI Desktop.

Go to Home > Get Data > Select data source and import the dataset.

b. Data Cleaning

Review dataset for missing or inconsistent data.

Convert time formats for accurate calculations.

Ensure unique package IDs and courier assignments.

2. Data Transformation

a. Convert Time Variables

Convert accept_time, delivery_time, and first_movement_time to Date/Time format.

b. Create Calculated Columns

Average Delivery Time per Package

AvgDeliveryTime = SUM('DeliveryData'[delivery_time] - 'DeliveryData'[accept_time]) / COUNT('DeliveryData'[package_id])

On-Time Delivery Rate (%)

OnTimeDeliveryRate =

DIVIDE(COUNTROWS(FILTER('DeliveryData', 'DeliveryData'[delivery_time] <= 'DeliveryData'[target_time])), COUNTROWS('DeliveryData')) * 100

Courier Utilization Rate (%)

CourierUtilization =DIVIDE(COUNTROWS(DISTINCT('DeliveryData'[package_id])), COUNTROWS(DISTINCT('DeliveryData'[courier_id]))) * 100

First Attempt Delivery Success Rate (%)

FirstAttemptSuccessRate =

DIVIDE(COUNTROWS(FILTER('DeliveryData',
'DeliveryData'[first_attempt_success] = TRUE)),
COUNTROWS('DeliveryData')) * 100

Average Idle Time Between Deliveries (Minutes)

AvgIdleTime = SUM('DeliveryData'[accept_time] -
'DeliveryData'[previous_delivery_time]) /
COUNT('DeliveryData'[package_id])

Region-Wise Delivery Efficiency

RegionDeliveryEfficiency =

SUM('DeliveryData'[delivery_time] - 'DeliveryData'[accept_time]) /
COUNT('DeliveryData'[package_id])

Delivery Time Variation by Package Type

DeliveryTimeByType =

AVERAGE('DeliveryData'[delivery_time] - 'DeliveryData'[accept_time])

3. Dashboard Design

a. Courier Performance KPIs

Display KPIs: Avg. Delivery Time, On-Time Delivery Rate, Courier Utilization, First Attempt Success Rate, Failed Delivery Rate.

Use KPI Card visuals.

b. Delivery Time Distribution (Histogram)

X-Axis: Delivery Time (Minutes)

Y-Axis: Number of Deliveries

c. Region-Wise Performance (Heatmap)

Insight: Identify high-delay regions.

4. Filters & Slicers

Filters: Date Range, City, Region, Courier ID, Package Type, Delivery Status.

Slicers: Time of Day, Courier Experience Level, Delivery Attempt Count, Traffic Conditions.

5. Conclusion & Action Plan

Optimize courier dispatching to reduce idle time.

Improve first-attempt delivery success via better customer communication.

Refine ETA models based on real-world performance data.

This structured approach ensures a data-driven method to enhance courier performance and delivery efficiency.