Freight Delay Performance Dashboard – Power BI Project

Overview

This Power BI dashboard was created to analyze freight delivery delays during June 2024. The project uses simulated data to model delivery patterns across various carriers, dispatchers, and terminal locations. It focuses on identifying delay trends, on-time performance, and workload distribution to uncover operational inefficiencies.

> **Note:** The dataset used in this project was manually created to simulate freight delivery data for training and demonstration purposes. All carrier names, dispatcher activity, and performance metrics were constructed to reflect realistic patterns for a June 2024 logistics scenario, but they do not represent real company performance.

Visuals & Insights

📊Average Delay by Carrier

- **Visual Type:** Horizontal Bar Chart
- **Insight:** Marten had the highest average delay (37.5 minutes), followed by Bison and Old Dominion. CH Robinson had the lowest average delay at 11.7 minutes.

📊Total Loads by Dispatcher

- **Visual Type:** Clustered Column Chart
- **Insight:** S. Lee handled the highest number of loads (35), while K. Brown had the fewest. Color formatting indicated relative delay levels.

📈Daily Average Delivery Delay

- **Visual Type:** Line Chart
- **Insight:** Significant spikes occurred on June 10 and June 28, with delays over 100 minutes. The remainder of the month showed moderate fluctuations.

🔬On-Time Delivery Breakdown

- **Visual Type:** Donut Chart
- **Insight:** Deliveries were fairly evenly split. Early (36.7%), On-Time (32.7%), and Late (30.7%) loads indicate a need for improvement in scheduling.

📋On-Time Delivery % (Card)

- **Visual Type:** KPI Card
- **Insight:** Only 32.7% of shipments were on-time, highlighting a potential service level issue.

🧹**Terminal Filter (Slicer)**

- **Visual Type:** Slicer (Terminal)
- **Function:** Allows filtering of all visuals by terminal (Des Moines, Fargo, Grand Forks, Minneapolis, Winnipeg).

Tools Used

- **BigQuery:** To write SQL queries and extract relevant summaries from the `freight_delays` dataset.
- **Power BI Desktop:** For building visuals and dashboard layout.

Supporting Files

- `carrier_delay_summary.csv`
- `dispatcher_delay_summary.csv`
- `daily_delay_trend.csv`
- `on_time_delivery_breakdown.csv`
- `freight_delay_data.csv` (for slicer/filter)
- Power BI `.pbix` file

Notes

- Power BI Pro was not used, so the dashboard is local-only.
- BigQuery sandbox was used, which does not support persistent saves—screenshots were taken to preserve query results.
- Visual formatting included color-coded bars for delay severity and a custom donut center label.

Final Thoughts

This project demonstrates the ability to: - Create a custom dataset that mimics a real business case - Use SQL to summarize operational metrics - Build an interactive Power BI dashboard from multiple sources - Communicate insights clearly through visual storytelling

Next Steps: - Add DAX calculations for advanced KPI logic - Explore forecasting with historical delay trends - Add R or Python scripting for statistical testing (if needed)