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| TCOM 600 - BUSINESS TECHNOLOGY COMMUNICATIONS  Assignment 3 Apr 6, 2022 |
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**Assignment in Dashboard using Excel**

**Introduction to Dashboard:**

This Dashboard is based on a dataset from the US Department of Transportation's Transportation Bureau, which includes commercial aircraft data from major US cities in 2010 year.

This can be utilized by transportation companies to cut down on downtime and inconvenience for passengers due to delays. We'll use the results to determine which airline can be trusted for travel. This can be improved further to identify seasonal performance for various airports.

**Data sets:**

Airline Dataset from Kaggle.

Observed that this dataset only had transactions. So, created a Calendar Look up Table and extracted Airline Look up Table.

Number of Transactions Tables Used: 1

Number of Master Tables Used: 2

**Airline KPIs as per Industry Standards:**

There are just a few industry defined KPI measures for evaluating an airline's performance. This dashboard calculates and uses the metrics listed below.

Departure On-Time:

The percentage of scheduled flights that depart on-time or ahead of schedule. The most stringent test of an airline's ability to depart at the scheduled time. Created calculated column “DepartedOnTimeFlag” indicating if the flight departed on time or not. Then created measure “Departed On Time” and used in this dashboard.

DepartedOnTimeFlag = IF('2010'[DEP\_DELAY]<=0,1,0)

Departed On Time = SUM('2010'[DepartedOnTimeFlag])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Completion Factor (CF%):

The percentage of scheduled flights that were completed without being cancelled. The “Comp Factor” measure is used to display the CF percent on the dashboard.

Comp Factor = (COUNT('2010'[OP\_CARRIER\_FL\_NUM])-SUM('2010'[CANCELLED])) / COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Arrival within 15 Minutes:

The percentage of flights that arrive within 15 minutes of their scheduled arrival time. This is the industry standard for on-time arrival, and it allows for a 15-minute buffer to accommodate for delays caused by factors outside the airline's control, such as air traffic and airport congestion, or weather. Created calculated column “Delayed” indicating if the flight arrived late more than 15 minutes from scheduled time. Then created measure “Delayed Over Total” and used in this dashboard to calculate arrivals that are more than 15 minutes late.

Delayed = IF('2010'[ARR\_DELAY]>15,1,0)

DelayedOverTotal = SUM('2010'[Delayed])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Total Flights:

Total number of flights that are scheduled to fly.

Total Flights = COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Total Cancelled Flights:

Total number of flights that are cancelled due to some reasons.

Total Cancelled Flights = SUM('2010'[CANCELLED])

Total Delayed Flights:

Total number of flights arrived beyond 15 minutes from scheduled time.

Total Delayed Flights = SUM('2010'[Delayed])

Types of Delays:

Carrier Delay:

Aircraft cleaning, aircraft damage, awaiting the arrival of connecting passengers or crew, baggage, bird strike, cargo loading, catering, computer, outage-carrier equipment, crew legality (pilot or attendant rest), damage by hazardous goods, and engineering are all examples of events that can cause a carrier delay. “Avg Carrier Delay” measure is calculated and utilized in this dashboard under measure.

Avg Carrier Delay = SUM('2010'[CARRIER\_DELAY])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Late Arrival Delay:

Arrival delay at an airport caused by a prior airport's late arrival of the same aircraft. Delay propagation is the term used to describe the effect of an earlier delay at downstream airports. “Avg Late Arrival Delay” measure is calculated and utilized in this dashboard under measure.

Avg Carrier Delay = SUM('2010'[CARRIER\_DELAY])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Weather Delay

Extreme or hazardous weather conditions that are expected or present themselves at the point of departure, en-route, or at the point of arrival create weather delays. “Avg Weather Delay” measure is calculated and utilized in this dashboard under measure.

Avg Weather Delay = SUM('2010'[WEATHER\_DELAY])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

Security Delay

Evacuation of a terminal or concourse, re-boarding of aircraft due to a security breach, inoperative screening equipment, and/or long lineups of more than 29 minutes at screening locations are all examples of security delays. “Avg Security Delay” measure is calculated and utilized in this dashboard under measure.

Avg Security Delay = SUM('2010'[SECURITY\_DELAY])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

NAS Delay

Non-extreme weather conditions, airport operations, heavy traffic volume, air traffic control, and other delays that are under the jurisdiction of the National Airspace System (NAS) may cause delays. Delays following Actual Gate Out are typically attributed to the NAS. “Avg NAS Delay” measure is calculated and utilized in this dashboard under measure.

Avg Weather Delay = SUM('2010'[WEATHER\_DELAY])/COUNT('2010'[OP\_CARRIER\_FL\_NUM])

**Further Enhancement Plans**

There's more to consider than just the cost of flights when arranging business travel. Customer service, on-time performance, and airport locations should all be considered when booking a business trip. Users can also choose their home airport and the optimal times to fly in and out.

**Dashboard Link**

<AirlinePerformanceTracker.rar>

**Conclusion**

Travel decisions are usually based on a limited number of factors, but none is more crucial than delivering passengers to their destinations on time and without severe delays. This airline tracker allows users to see each major airline in the United States, compare on-time and delay information, and choose a better reliable airline to fly aboard.