Predictive Airport Analytics

Combining data science, analytics, and weather to streamline airport operations

The Cost of Delays

Airport delays cost airlines millions of dollars every year. While these delays are foreseeable they appear to be unavoidable. Because most airlines consolidate their operations into just a few hub airports, delays can propagate throughout the system. A two hour delay at 8:00 AM can equate to eight hours of propagated delays throughout the day.

Forced into airing on the side of safety, dispatchers and schedulers all too often add buffer time and overestimate fuel requirements. Operating on intuition and personal knowledge, airlines are making the best decisions they can using the most and best data that they can assemble at the time. In today's era of technology and data, this approach is no longer good enough.

What if We Used All the Available Data?

There is a huge amount of data available that could improve decision-making. We know the number of flights, and their taxi times. We know the capacity of airports and their historic operational behavior. And, we have confidence in forecasting weather's impact on operations. The scale of this data has never been larger and more prolific. One of the biggest problems airlines face today is integrating big data into their operations for real-time decision making. With all major companies integrating big data into their operations, airlines can do better.

"An airline operating 200 flight per day from the 3 NYC area airports could expect $1.2 million in operational savings."

-Dr. Alex Huang

Meeting the Competition

Competition is fierce. It's important to use the information at your fingertips to create actionable knowledge for your operations. That means harnessing data from multiple channels in multiple formats: historical weather observations (METAR), weather forecasts (government TAF, WSI TAF, and WSI Proprietary Weather Forecast Platform), historical flight data (ASDI, ASDE-X, and EFD archive), real-time flight data (ASDI and ASDE-X), and historical airport operational data (FAA airport operations archive).

Data models and algorithms let airlines go far beyond best guesses. These technologies have been back-tested and provide levels of certainty for predictions. Using Airport Analytics will optimize the system. And, as more airlines adopt these tools, delays will be avoided and propagation will be reduced.

Key Benefits

- **Gain Situational Awareness at Major Hub Airports**
- **Better Understand Fuel Requirements**
- **Reduce Taxi Time & Fuel Waste**
- **Operate more efficiently to support efficient departures and arrivals**
- **Mitigate downstream propagation**

Learn more

The Weather Company
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A Lost Opportunity for Airlines

Failure to take advantage of the latest technology and data has created a disconnect in safety. Airports operate at over capacity more times than they'd like to admit. It's important to avoid holding patterns and extended taxi-times. There are ways to know if your planes will run out of fuel. When weather strikes, you can know how the airport will react to get your passengers to their intended destination safely. You don't have to guess any longer.

A Better Way

The solution is to combine historical airport operational data, flight data and weather forecasts into a single system that you can use to see and understand congestion patterns at major airports, and take appropriate actions. In other words, you can forecast airport operations conditions as you would the weather!

Features

Congestion Prediction

Forecast airport congestion 12-hours out

- View predicted airport capacity and future flight demand capacity imbalance
- Monitor airport congestion level with fresh data every 15 minutes

Runway Configuration Prediction

Foresee arrival and departure runways

- Display current and future runway configurations
- View timing of runway configuration changes over a twelve hour period

Taxi Time Prediction

Know how long it will take you to get from gate to runway

- Takes the guesswork out of fueling for taxi
- Leverages individual flight records against airport congestions and conditions
- Takes into account terminal and runway positions

The Weather Company Solution

WSI Airport Analytics delivers the above capabilities in an easy-to-use, powerful upgrade to WSI's Fusion Surface Movement Package. Offering the only solution to pair historical airport operational data with superior weather forecasting, it provides airlines with actionable operational predictions. WSI Surface Movement with Airport Analytics is the only solution to bring the power of big data to carriers' airport operations.

Learn more

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