EURO AIR TRANSPORT IT SUMMIT
27-28 SEPTEMBER 2018, BUDAPEST

AVIATION 5.0
ARE YOU READY?

FUTURE
START

SITA
Predictive Disruption

The Desire for Certainty

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Disruption: Our Industry Issue

1 in 4 flights delayed more than 15 minutes

+ 

Average flight delay time is >50 minutes

= 

>$25Bn global cost of delay

As an industry, we’re getting better at recovering from disruption after it hits … but what if we can better predict what might happen?
Why predictability?

• Whether passengers or operational staff, as humans we all strive for predictability, certainty and control

• Anything airlines and airports can do to predict and mitigate irregular events will reduce costs and benefit all stakeholders, including the passenger

• The increasing volumes of ATI data available – combined with new AI technologies – will allow us to look ahead and make smarter decisions, earlier
“It’s 06:00 and we have some bad weather forecast to pass through the airport. What do my arrivals look like later in the morning so I can re-plan my stand allocations and keep my turnarounds running smoothly?”
Providing more certainty to airline users

“An IT outage has caused delays this morning at one of our regional hubs. What does the network look like later in the day so I’m ready to re-accommodate any affected passengers who might risk missing their connection?”
300 passengers stranded as snow and ice hits travel

When it's too hot to fly - and more weather that makes air travel dangerous

Air travel disrupted by fresh volcano threats in Iceland and Papua New Guinea

Air traffic control strike disrupts European flights

Storm Ali brings flight cancellations

Edinburgh Airport to carry out essential runway works in April and May
MOUSE SPOTTED ON PLANE COSTS BRITISH AIRWAYS QUARTER OF A MILLION POUNDS
Tackling disruption before it hits

How can we use technology to provide more certainty about a disruption happening while there are still options available to mitigate it?
What’s possible… with the benefit of foresight?

Delay Causes by Year in the US (2013 to 2017)

- Security Delay (<0.2%)
- Extreme Weather
- National Aviation System (NAS) Delay
- Air Carrier (Airline) Delay
- Late Arrival of Previous Flight

Source: US Bureau of Transportation Statistics
Applying AI to predict potential flight disruptions

1. Understand the factors that cause flight disruption
2. Create a clean data set for machine learning
3. Build the models to make accurate predictions in real time

- Flight Movement
- Weather
- ATC (NOTAM)

Feature Extraction

Historical & Real-Time ATI Data

Machine Learning Algorithm

Predictive Model

Flight Delay Predictions

Training Data

Real-Time Data
Data is the new oil … … and oil isn’t clean
Is the industry ready?

Source: SITA Report “The Future is Predictable”, Feb 2017
How does it fit together?

Disruption Prediction

Awareness & Impact

What does it mean?
- Visualise and understand disruption predictions in context
- Operational / business impact to aircraft, passengers, crew and cargo

What might happen?
- Tools to predict flight deviations from schedule
- Late / early / on-time
- Airport and airlines

What should I do?
- Mitigation and recovery actions
- Economic and risk optimal decision support
SITA FlightPredictor

Long look-ahead predictions of flight schedule deviations for airline and airport users

- Seven proprietary Machine Learning models
- Integrating real-time and historical ATI data from multiple sources
- 24 hour and beyond look-ahead windows to confidentially plan assets and resources to serve flights
- Cloud hosted
- Web GUI or API for easy integration with existing systems and tools
SITA FlightAssist

Real-time, event driven situational awareness allowing airline users to visualize and interact with their data in new ways, supporting more effective and proactive decision making

- Sits at a level above existing airline systems
- Enables total awareness of the network operation in real time and looking ahead
- Impact to aircraft, passengers, cargo and crew
- New levels of information sharing and collaboration
- “Solver” provides optimized solutions to disruption problems
- Cloud hosted, Windows / iOS / Android compatible
Thank You

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