Welcome Address

Aleks Popovich
SVP, Financial and Distribution Services
IATA
Aviation Data Symposium
15–16 November 2017
Miami, USA
Thank you to our Sponsors

jetBlue, FINNAIR, accelya, amadeus, Deloitte
THE BIG QUESTION IS....................
HOW TO UNLOCK THE VALUE OF BIG DATA?
UNLOCKING THE VALUE OF BIG DATA

SAFE

SECURE

PROFITABLE
Host Airport Remarks – Aviation Data, the Opportunities and Challenges

Emilio T. Gonzalez
Director & CEO
Miami International Airport
IATA Aviation Data Symposium

Emilio T. González
MIA Airport Director

November 15-16, 2017

Miami-Dade Aviation Department
Organizational Identity: Vision, Mission, Values
Economic Powerhouse ∙ Industry Leader ∙ International Brand

**Where we are going**

**MDAD VISION**

“MIA will grow from a recognized hemispheric hub to a global airport of choice that offers customers a world-class experience and an expanded route network with direct passenger and cargo access to all world regions.”

**How we will get there**

**MDAD MISSION**

“MDAD provides a modern, safe, and efficient world-class international gateway that delivers best in class customer service, significant economic benefits to our community and rewarding professional development opportunities to our employees.”

**Our guiding principles that dictate our behavior and action**

**MDAD Core Values**

- Professionalism
- Innovation
- Integrity
- Customer Service
- Respect
- Teamwork
1 MIA’s ranking among U.S. airports for int’l freight
1 MIA’s ranking among U.S airports in total carriers - only U.S. airport to offer passenger and cargo service on 106 different carriers
3 MIA’s ranking among U.S. airports for int’l passengers
31.5 MIA’s economic impact measured in billions of dollars
37.5 Number of direct jobs at MIA measured in thousands
40 Percentage of Florida’s total international trade value handled through MIA
57.3 Value of MIA’s imports and exports in billions of dollars
44.6 MIA’s passenger total measured in millions – 7th consecutive record year
65 Percentage of int’l visitors to FL who travel through MIA
96 Percentage of Miami visitors who arrive by air
271 Number of direct and indirect jobs supported by MIA measured in thousands
GLOBAL ROUTE NETWORK
Economic Powerhouse ∙ Industry Leader ∙ International Brand

169 Passenger Destinations
107 Freight Destinations
MIA 2017 – NEW AIRLINES & ROUTES
Economic Powerhouse • Industry Leader • International Brand

Qatar Airways Cargo - South America / Europe / Middle East  
February, 2017

Volaris - Mexico DF / Guadalajara  
February, 2017

First Air - Mount Hope, Ontario Canada  
February, 2017

WOW Air - Reykjavik, Iceland  
April, 2017

Avianca Brazil - Sao Paulo, Brazil  
June, 2017

American Airlines - Omaha, Nebraska  
July 2017

TACA Peru (New All-Cargo service) - South America  
August 2017

Aer Lingus - Dublin, Ireland  
September, 2017

SAS - Stockholm, Sweden  
October 2017

Frontier - Buffalo, New York  
Fourth Quarter 2017
Islip, New York
Milwaukee, Minnesota
Providence, Rhode Island
Trenton, New Jersey

Amazon Prime Air  
October 2017

EL AL - Tel Aviv, Israel  
November, 2017
MIA – TECHNOLOGY: (Passenger Experience)
Economic Powerhouse · Industry Leader · International Brand

- Global Entry
- Automated Passport Control Kiosks:
  - Mobile Passport Control
  - MIA Mobile APP
- Beacons
- One-Stop Immigration / Customs
- E-FIS
**Freighters World Awards** - Best Freighter Hub 2017

**2017 Future Travel Experience (FTE)** - Best Immigration Initiative

**J.D. Power 2017 N.A. Airport Satisfaction Survey** – Best Food, Beverage & Retail Airport in North America

**ACI-NA** - Airports Council International-North America Inclusion Champion

**AAAE** - American Association of Airport Executives’ Airport Innovation Award

**USA Today 10 Best Readers’ Choice Awards**
Best Airport for Shopping

**American City Business Journals** – Top 10 best-run airport in America

**ACI-NA** – Environmental Achievement Award for Sustainability Project
**Value of Data and the Internet of Things**

**All things that can be connected will be connected**

### DATA & CLOUD

**EXISTING DATA**
- Wi-Fi
- AODB
- Sentiment
- Flight Delay
- RTS Log-In
- Weather
- Image Capture
- Ticket Scan
- Marketing
- BLE Sensing

### “THINGS”

**SENSOR HARDWARE**
- Base Stations
- BLE Sensors
- Wi-Fi Sensors
- Re-Chargeable
- Camera & Infrared Cameras
- Mobile Devices

**PASSIVE DETECTION**

### VALUE

**BI & PAX-FACING**
Leveraging the Internet of Things

• **Improve** customer service
• **Grow** revenues
• **Streamline** operational efficiency
Data Driven Challenges

- Customer Expectations
- Technology
- Lack of Holistic Approach
- Legal and Regulatory Compliance
- Fear of Cyber Attack
Data Sharing Benefits All Stakeholders

- Gain a 360-degree view of the customer experience
- Correlate customer value to experience
- Create journeys designed to drive value growth
ECONOMIC POWERHOUSE • INDUSTRY LEADER • INTERNATIONAL BRAND

THANK YOU!
Host Airline Remarks

Ramki Ramaswamy
VP IT, Technology & Integrations
JetBlue Airways
The Age of Data: Becoming a Data Driven Business

Angelo Impoco
VP, Global Merchant Services & Loyalty Risk Management, American Express

Oguz Ozsahin
VP & Chief Risk Officer, Global Merchant Services and Head of Airline Center of Excellence, American Express

slido.com #ADS
The Age of Data:
Becoming a Data Driven Business
Enterprise Big Data Transformation – Lessons Learned

Centralize Data

Demonstrate Value

Modular Design

Align & Train Organization
Building And Deploying A Big Data Ecosystem

Machine Learning Capabilities

Big Data Technology

Use Cases and Features have grown exponentially

2012
2017
2018 and beyond
Platform Design Should Be Modular

Modular Platform Design

- Basic Users
- Advanced Users
- Use Cases
- Channels

- Modeling and Execution
- Data Lake and Warehouse
- Data Ingestion
Demonstrate Business Value With Big Data Capabilities

360° Customer View

Machine Learning

Real-Time Decisioning

Prioritize revenue generation and customer experience
Train Talent And Align Use Across Enterprise

Platforms and Data

Training

Use

Decentralized
Data Needs To Be Centralized And Easily Accessible

How We Solved For It?

- Centralize Data
- Democratize Access
- Optimize Platforms

Business Outcomes

- Acceleration in Revenue Growth
- Industry leading Credit & Fraud loss control
- Customer Experience and Servicing
Enterprise Big Data Transformation

- Centralize Data
- Demonstrate Value
- Modular Design
- Align & Train Organization
Other Organizations’ Data Perspective

What others see?

Issuers see the customer
- Customer Data (Name, Address)
- Transaction Amounts
- × Granular Merchant Data

Networks see how the customer spends
× Customer Data (Name, Address)
- Transaction Amounts
- × Granular Merchant Data

Acquirers see where the customer spends
× Customer Data (Name, Address)
- Transaction Amounts
- × Granular Merchant Data
American Express’ Unique Big Data Position

We See The Whole Picture

- ✔ Customer Data (Name, Address)
- ✔ Transaction Amounts
- ✔ Granular Merchant Data
Unique Intelligence on Routes & Customers

Insights on segments & routes

Customer-level behavior

Identify growth opportunities
American Express Leverages Big Data For Airline Partners

Actionable Insights for **All** Customers

**Predictive insights**

*American Express Card Members*

*Airline Customers*

*Broader Populations*
Enhanced Authorization (EA) leverages additional transaction details to improve authorization decision.
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The Distribution of Big Data

Nawal Taneja
Airline Business Strategist,
Published Airline Business Author
The Ohio State University
The Big Data Challenge: Balancing Innovation with Regulations

Éric Vallières
Partner
McMillan
The Future is Now: Understanding the Trends that are Revolutionizing the Industry

David F. Hoppin
SVP, DIIO
Flightglobal
Why is FlightGlobal talking about data?

FlightGlobal is part of RELX Group

ScienceDirect
- World’s largest database of peer-reviewed primary scientific and medical research
- 12m monthly users
- 26,000 book titles
- 17% of global research
  - We publish 17% of the world’s scientific research in leading journals including Cell and The Lancet

LexisNexis
- Legal
  - 4bn connections within the LexisNexis Database are continually explored and updated to deliver the latest legal information via computer, tablet or smartphone
- 82% of US legal customers are now on Lexis Advance Platform
- More than 60% of the world’s primary laws published each year

LexisNexis
- Risk solutions
  - 8.4bn US names and their corresponding addresses served to customers worldwide
- 3.3bn US auto insurance records
- 307m US criminal records

HPCG systems
- An open source, big data processing platform that can handle
- 30m transactions per hour

FlightGlobal
- 800,000 unique visitors a month
  - It delivers the latest news and most reliable information on the aviation industry
- 94% of the world’s biggest banks use data and solutions from Accuity

eCrash
- Cuts the average time it takes to file a traffic accident report from 90 minutes to 19min
Aviation generates lots of data, much of it locked in silos.
Airlines face particular “Big Data” challenges

- Often highly siloed organizations
- Must conform to multiple and very different regulatory regimes (e.g., antitrust, flight operations, maintenance, privacy…)
- Legacy IT investments in many cases
- Wide geographic scope of operations

Data & analytics challenges are probably greater for an airline than most other companies of equal size
What is the value of Big Data?

- **Transactions**
  - Good: revenue
  - Bad: fraud, parts failures, etc.

- **Lead time to manage transactions**
  - Add lead time by monitoring behavior (whether customer clickstream data or engine EGT behavior)
  - Behavior data can be anywhere from 10x-1000x transaction data

It’s relatively easy and cheap to start collecting Big Data… and quite another to leverage it
Key trends are hiding in a fog of buzzwords

Some Personal Favorites…

- AI
- Machine Learning
- Deep Learning
- Etc.
- Blockchain
- E-commerce
- Internet Of Things
- “Smart Airplane”
- “Smart Airport”
- Etc.
- Data Integration
- “Orthogonal Data”
- Data Privacy & Security (e.g., GDPR)
- Data Lakes
- Etc.
How did “BI” buzzword work out for airlines?

**Promise**
- Single version of truth accepted across the organization
- Capture data at the level of detail generated by the business (no aggregation)
- Make relevant data available to improve thousands of small decisions as well big ones

**Current reality**
- People still argue about the numbers and underlying allocations
- Increasingly done, but not leveraged
- Hard to break down internal barriers to data sharing
- “Data lakes” can turn into “data swamps” without careful governance
Most important trends change “real life”

How the possible becomes reality

• Technical Feasibility (“works in the lab”)
  • Proven but not yet commercially viable

• Financial Feasibility (“works in a spreadsheet”)
  • Commercially viable if market responds as hoped

• Human Feasibility (“works in real life”)
  • Regulators approve
  • Humans accept (and change behavior to use new technology!)
So what are the most important trends?

My picks for top 3 data/analytics trends driving change in next five years:

• Sensors everywhere
• Rise of data analytics
• True data integration / data fusion
Sensors everywhere

- Proliferation of sensors is unleashing a data flood – for example:
  - Near-real time tracking of bags, freight and passengers
  - In-flight reporting of aircraft and engine condition

- No lack of use cases, and much value still to be captured with better and faster answers to key questions
  - What’s going on right now?
  - What exactly caused an event/problem in the past?
  - What should we do?
Rise of data analytics

• Data analytics has been talked about for years, but it turns out to be much easier said than done

• Often hard to justify near-term expense for hard-to-quantify future benefit…

• …But now many businesses realize they can’t afford to ignore data analytics so investments are being made
  • Financial capital in systems and especially people with right skills
  • Political capital to break down internal barriers and drive change
True data integration / fusion

• The promise of integrating disparate datasets to create high-value insights is widely acknowledged

• Finally becoming a reality thanks to real investment in data analytics

• Example: FlightGlobal is meshing flight status data and fleet data to:
  • calculate exact seats by cabin
  • identify which “hard product” (seats/IFE/etc.)
  • track hours and cycles on engine types
  • estimate flight-specific cargo capacity
  • … and more
So what data should exist, but does not?

Selected Examples

**Existing**
- Booking & ticketing
- A2A cargo tons and revenue
- Historical flight delays and reasons

**Emerging**
- Personalized offers
- Tons and revenue by transport product (e.g., temp.-sensitive)
- Robust forecasts of flight-specific delays

**Dreaming**
- Firm link between shopping and buying
- True O&D data (shipper to consignee)
- Delay/cancel forecasts that can be used in schedule design
Market will not pay or wait for perfection

When dreaming about data that should exist, consider:

• Exactly which information would most improve the decision at hand?

• What level of precision is required to make the right decision most of the time?

• How fast/timely does the information have to be?
What do we often overlook?

• Critical importance of “data cleaning”
  • Humans are still involved in much data collection which means much potential for error
  • Inconsistent data definitions impede meaningful analysis

• Human ability to cope with data flood
  • Despite excitement about AI/ML/DL, humans are still central to every significant decision
  • Available data can overwhelm human analysts – “can’t see forest for the trees” is not unusual

• Need for business translators as well as data scientists
  • Business translators combine data savvy with business and functional expertise
Real value is in joining together disparate data

Overview of Adaptris STRIKE Technology
Take-aways

• There is a lot of data

• Real value lies in joining up disparate datasets

• Don’t forget the poor humans who have to make sense of the data flood!
Networking Coffee Break
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Aviation Data Symposium
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Miami, USA
Legal Brief

Marie Claude Simard
Assistant General Counsel
IATA
If We Could TURN Back Time

Angela Marano
Senior Director, Corporate Strategy Data Science and Continuous Improvement
Southwest
IF WE COULD TURN BACK TIME

Angela Marano – Sr. Director, Data Science and Continuous Improvement
THE EARLY DAYS OF SOUTHWEST AIRLINES

3 AIRCRAFT
3 CITIES
200 EMPLOYEES
THE EARLY DAYS OF SOUTHWEST AIRLINES

3 AIRCRAFT
3 CITIES
200 EMPLOYEES
TODAY AT SOUTHWEST AIRLINES

687 AIRCRAFT

99 CITIES

55,000+ PEOPLE
DISSECTING THE TURN TO IDENTIFY DATA NEEDS
IF YOU DON’T HAVE THE DATA – CREATE DATA!

Video analytic capabilities have been developed to capture data currently not available to Southwest in real-time.

Currently, data is being generated to create insights and recommendations related to turn time.

Insights and recommendations will drive actions to optimize turn time and improve on-time performance for Southwest.
AN INSIDE LOOK AT VIDEO ANALYTICS

Video is captured → Video is converted to images → Images are pre-processed → Images are detected for humans and bag objects

Data on classified objects counts and pace captured → Images are tagged to train the model → Classified objects are tracked across a perimeter → Objects are classified into categories
FINDING THE BIGGEST AREAS OF OPPORTUNITY

ARRIVAL  TAXI-IN  DEPLANE  SERVICE  BOARD  CLOSE  TAXI-OUT  TAKE-OFF

AT GATE
How we execute crew changes is a critical part of the turn. Data told us we have opportunity to improve.

The process for closing a flight (last scan to door close) is highly variable. This variation impacts our On Time Performance.

Provisioning our aircraft is important to ensure Customers have what they want on each flight. We are working to eliminate transportation waste identified in this process.
ENSURE FRONT-LINE EMPLOYEES ARE INVOLVED

“It’s powerful having folks from different workgroups being able to talk in a neutral environment about the process.”

“After the kickoff I knew this project was a big deal!”

As a Flight Attendant, I never realized how detailed Ops’ responsibilities were in getting each flight pushed.
IN SUMMARY

- Leverage and integrate all data available to you
- Create data where you don’t have data
- Let the data be your guide for improvement
- Engage People to round out the story
Aviation Leaders on the Grill
The Aviation Industry Challenges in the Data Age: Where are we Now?

Moderator

- Tanya Beckett, Anchor, BBC World News

Panelists

- Dickie Oliver, VP & CIO, ARC
- Maurice Jenkins, CIO, Miami International Airport
- Nawal Taneja, Airline Business Strategist, Published Airline Business Author, The Ohio State University
- David F. Hoppin, SVP, DIIO at Flightglobal
- Bilal Munir Sheikh, CCO, Pakistan International Airlines

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Big Data is transforming our Industry

- New aircrafts are data centers
- Passengers are connected
- Artificial Intelligence is here
- Data-driven organizations will take this Industry to the next level – sky’s the limit
Passenger Distribution and Sales Data
Safety and Operations Data
Airfreight Data
Technology
2 Plenaries

4 Specialized Tracks

AND

Fantastic Networking Opportunities

HAVE FUN!
THANK YOU!
Networking Lunch
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