The data ecosystem: APIs & Industry Data Model

Matthew Mckinley, Senior Manager, Technology Standards, IATA
Data Model to developer toolkits via APIs

Patrick Brosse, Senior Expert, API Design & Data model Governance, Amadeus
Data ecosystem: APIs & Industry Data Model

Data model to Developer toolkits via Open APIs

Patrick BROSSE
Senior Expert: API & Data Model Governance (Amadeus R&D)
Vice chairman: IATA Data model Change Mgt. Working group
Athens, GREECE - 26 JUNE 2019
Agenda

IATA AIDM: Airline Industry Data Model

Share

API

Deliver
Author: Patrick BROSSE
Company: **aMADEUS**
Deliver

/ travel-industry / new-concepts

/ iata / data-model

/ smart-api

/ consumer-first

/ developer / toolkits
Key takeaways

AIDM : Airline Industry Data Model (SAD -> ADS)
Key takeaways

AIDM: Airline Industry Data Model (SAD -> ADS)
Key takeaways

AIDM: Airline Industry Data Model (SAD -> ADS)
Aviation Data Symposium

Airline Industry Data Model -> Open API -> Developer toolkits
Thank you!
Fostering Innovation

Gianni Cataldo, Head of R&D, ATPCO
Open Data
Building Community through API

IATA
June 2019
What if I told you
Candidates Applied for membership: 120

In Process: 105

Graduates: 17
Data Incubation - Enablement

**Calculated Content**
- Total Price
- Carrier-Imposed Fees
- Baggage Fees
- Fare Rule Merge

**Metadata**
- Fare Rule Tags
- Historic Data

**Derived Data**
- Journey Engine
- Routings Engine
- Efficient Trips
- RBD Validation

**Sandbox**
- Full ATPCO Data Set – 1 week old
- No Private data
- Fare History for 18 months (growing)
- 24/7
Open Data Generating

- Innovation
- Time to Market
- Product Quality
- Engagement
Designed by the community through open data

Common Data Pattern ➔ What product was purchased

My business strategy

What I care about

Product Changes

Algorithm ML/AI

Fare Metadata

Historic Fares

Impacted Fares

Fares

Rules

Footnotes

Others

- Weekend fare
- July 4th fare
- Refundable
What success looks like

• Provide rebooking and re-accommodation solutions for airlines
• Machine learning algorithm needs to understand market price, from time of purchase versus today’s price
• Decipher Fare levels at current price points to ensure new bids do not cannibalize revenue

Using

• Total Price
• Total Price + History
• RBD Validation to equate to next price point
Bridge Labs Data Hub

- ARC
- routehappy

+ More

- 24/7
Ready for your travel idea to take off?

Let's innovate together

atpco.net/bridge-labs
IAG and the data ecosystem

Matthew Keiller, Senior Architect, IAG
IAG and the data ecosystem

Benefits of Open APIs and AIDM

26 June 2019
IAG API Vision

Business Innovation through APIs

• Ability to grow and fail iteratively

• Being prepared for the unknown

• Enable new channels, new revenue streams

• De-couple monolith architectures, give IT agility and flexibility

• Business strategy to become Digital first
Enable ‘plug & play’ model

IAG structure enables organic and inorganic growth.

• Digital Platform to grow revenue streams, enhance customer loyalty and drive cost-efficiencies
  • AIDM gives independent standard across the brands
  • Avoids being seen as dominance of one brand/culture
Focus on value creation

Domain models for microservices

- Use AIDM as base for shared, uncontroversial entities
  - Focus on extensions which give competitive advantage
  - Enables speed to market
Integration between Standards

Existing IATA standards developed in a siloed world

• Combining AIDX with SIDX

• Definition of a ‘passenger’

• That was fine until we needed to integrate data from various sources

• Can now bring those standards together, keep what works in it’s own domain, but know that underneath is a defined and governed understanding
Speed to market of compliant APIs

Ability to deliver APIs in an agile manner

- Compliant with IATA standards
- Deploy now, ratify later
- Enables early adopters
Reality check and future prospects

Marcus Wagner, API Manager, Lufthansa
IATA ADS 2019
Reality Check & Future Prospects

June 2019, Athens
Marcus Wagner, API Manager
How did we get here and what is ahead of us

The airline industry has come a long way
Airline industry in its beginnings

Flights, passengers and ticket stock
The recent years

Changes throughout the decades
What are we doing now

Airlines in control and IT is part of the product
Airline’s IT goals

Support the business.
Create seamless customer experience
Open and accessible providing high quality data and distribution capabilities while retaining strong control
Airline’s IT Challenges - 2/4

Personal and aware *while* respecting customer’s privacy
Airline’s IT Challenges - 3/4

Integrate at scale *while* having trusted partnerships
Easy and fast processes *while* creating and following industry standards
Cutting the Gordian Knot

Use technology and an open mind
Establish API Management with best practices from IATA Open Air Group
Integrating at Scale and Trust in Partners

Identity Management – Trust Models, centralized and distributed within Technology and Architecture Groups
Put customers in control with API technologies such as OAuth2 and OpenIDConnect
Easy, fast Processes with Standards baked in

Support airlines’ development toolchains with open information, guidance and tooling
The way ahead

We create the foundation for the next iterations
The Takeaway

Technology helps, but people do solve problems

IATA Members are invited to look into and participate to challenge, cooperate and co-create

Architecture and Technology  IATA Open Air  IATA AIDM
Discussion on Open API framework

Moderator: **Matthew Mckinley**, Senior Manager, Technology Standards, IATA

**Matthew Keiller**, Senior Architect, IAG

**Gianni Cataldo**, Head of R&D, ATPCO

**Patrick Brosse**, Senior Expert, API Design & Data model Governance, Amadeus

**Marcus Wagner**, API Manager, Lufthansa
Networking Break
Turning Trip Friction into an Opportunity

Scott Gillespie, Head of Analytics, ARC
Trip Started

Traveler Friction

Trip Ended
What does traveler friction look like?

10% of All Travelers*

35 Trips

138 Time Zones Crossed

88 Nights Away (4 Work-Months)

267 Flight Hours, Nearly 7 Work-Weeks

88% of Flight Hours in Economy Class

62% of Flight Hours, or ~4 Work-Weeks, on Personal Time

*Averaged across 10,564 travelers who each were at or above the 75th percentile for each metric shown above as measured by the ARC 2015 Trip Friction® Benchmark Database, covering 110,000 travelers in 2015
The business case for Business Class
Must focus on road warriors

Road warriors are those who travel at least 35 nights a year.

- ~10% of all Business Travelers
- ~50% of all Travel Spend
- ~80% of all Travel Value-Add

Source: ARC Data, tClara analysis; value-add is Scott Gillespie’s estimate
Trip Success Rate

Share of trips taken in the last 12 months rated mostly or very worthwhile

Source: "Achieving Better Business Travel Results" 2018 by ARC, Delta, FlightGlobal, tClara
Estimated Road Warrior Attrition Rate*  

14%  

Share of 2016 road warriors who did not travel under the same ARC ID in 2017  
N = 1.2 million travelers who took at least eight trips in 2016  

* Includes travelers who are still employed but have stopped traveling. Source: ARC
Can we improve any of these outcomes?

Trip Success  Retention  Wellness
Do travel policies affect outcomes?

We compared results from 742 U.S.-based road warriors managed by different types of travel policies.
Want higher **trip success rates**? **Traveler-focused policies are better.**

<table>
<thead>
<tr>
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<th>Cost-Focused</th>
<th>Traveler-Focused</th>
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<tbody>
<tr>
<td>Share of trips rated as mostly or very worthwhile</td>
<td>57%</td>
<td>66%</td>
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Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
What is most important for

Trip Success?

Overall

Better Sleep

Business Class 6+ Hours

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
What is most important for Trip Success?

Airlines
On-Time Arrivals
Priority Boarding, Preferred Seat
Non-Stop Flights

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
What is most important for Trip Success?

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
Want lower **attrition risk**?

**Traveler-focused policies are better.**

33%  

17%  

Cost-Focused  

Traveler-Focused  

Average self-estimated probability of leaving within the next two years

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
What is most important for Business Class Retention?

Use Less Personal Time
Better Hotels

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
Want fewer negative health impacts? Traveler-focused policies are better.

35% Traveler-Focused

17% Cost-Focused

Share of travelers who say travel has negatively impacted their health

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
What is most important for Better Sleep
Healthier Meals
More Time to Exercise or Relax

Wellness?

Source: “Achieving Better Business Travel Results” 2018 by ARC, Delta, FlightGlobal, tClara
Leading companies are re-designing their travel programs

Trip Success
Retention
Wellness
To get a positive business impact!
New KPIs will show strategic value.

- Trip Success Rate Up **22%**
- Average Trip Price Up **16%**
- Attrition Rate Down **15%**
- Trip Friction Index Better by **20%**
Thank You

Scott Gillespie  
ARC  
sgillespie@arccorp.com

Always glad to connect on LinkedIn
Intelligent Irregular Operations
Data & New Processing Capabilities

Uschi Schulte-Sasse, SVP Aviation, Inform
Intelligent Irregular Operations
New Data & New Processing Capabilities

Uschi Schulte-Sasse
SVP Aviation
ADS2019, Athens, June 26th, 2019
New Data and new Processing Capabilities

Data is the new oil

and IT companies are the refineries
Regular Challenges

Can a disruption be resolved without taking a delay?

Will passenger/baggage/cargo connections be disrupted?

When will the transfer passengers board?

Should a flight be delayed to wait for connections?

To which flight should passengers be rebooked?

Who and where are the high-value passengers?

Will there be terminal congestions?

Which connections are regularly disrupted?

Who is responsible for an irregularity of a turnaround?

How to stay on top of operations in case of flight disruptions?
Benefits of existing Solutions, like GroundStar Connect

- Detect disconnected passengers and bags proactively
- Decision support for disruption handling
- Reduce number of passengers at the transfer desks
- Focus on most critical/high-priority flights
- Cost-based decision of delay vs. rebooking
- Improve passenger satisfaction by avoiding unnecessary disruptions
- Provide passengers with information and assistance for short/missed connections
- Increasing staff productivity (management by exception)
- Reduce knock-on effects
Transfer Disruption Handling - Challenges & new Approaches

Connection monitoring crucial for successful airlines

- High transfer passenger numbers in hub airports
  - 36% (LHR) to ~80% (DXB)
- Growing passenger numbers and tighter schedules
  - 5% passenger growth (rpk) (IATA 2019)
  - 4.58 billion passengers flying in 2019 to 8.2 billion in 2037 (IATA 2018/2019)

Still we aim to

- Improve **passenger experience** while
- reducing work load
- and **increasing revenue**
Transfer Disruption Handling – Decision Support Network-wide

Overall Optimization
- Network-wide decisions
- Decide to delay flights
- Aircraft changes
- Rerouting rebooking options

Cost based
- Fuel cost
- Crew rotation cost
- Knock-on effects
Network-wide Resource Optimization

- Network-wide transparency
- Delay propagation
- Proactive network balancing
- Multiple MRO stations
- Network-wide cost model
Optimizing Passenger Experience can be tricky…

Example: Improving the speed of train travel

Engineers: Build new high-speed rail line
- Reduces 30 min off an 80-minute trip
- Would cost over $30bn

Behavioral economics: Install free Wi-Fi
- Trip is perceived more comfortable
- Would cost only a fraction
Transfer Disruption Handling - Passenger Experience? Social Rebooking!

Keep in touch
- Push new tickets/vouchers to mobile devices
- Track passengers

Get Feedback
- Define Experience KPIs
- Arrival Time, Travel Agony

Get Passenger preferences
- Some may not care about punctuality
- Let passengers trade flights, Vote/bid for decisions
- Sell favored rebooking rights
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Intelligent irregular operations
how do we get there?

Moderator: **Henry Coles**, Head of Airline Distribution Standards, IATA

**David Kershaw**, Portfolio Director Airport Passenger Processing, SITA

**Uschi Schulte-Sasse**, SVP, Aviation Division, Inform GmnH

**Uschi Schulte-Sasse**, SVP Aviation, Inform

**Al Tredinnick**, Head of Business Development, 15below
Networking Lunch

IBM