Welcome

Aleksander Popovich, SVP, Financial Distribution Services, IATA
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Gold, Silver & Bronze Sponsors
Aviation Data Symposium 2019

Thriving in the age of Data & Digital Transformation

ATHENS, GREECE  25 – 27 JUNE 2019
Industry Agenda

IATA Board mandated and actioned:

- Data Analytics Solutions
- Data Standards
- Data Advocacy
Driving ADS’ Agenda

- Data & AI driven Offers, Orders, Hyper Personalization & Customer Experience
- ATM, Connected Aircraft, Maintenance, Intelligent Health Monitoring
- Blockchain, FinTech, Mining, Payment Data, Fraud, PSD2, GDPR
- Build & Leverage AI, & Data Science capabilities, Enterprise Analytics
- Digitizing Air Cargo, E-Commerce, End-to-end visibility, One Record
- Data Sharing, A-CDM, Intelligent Irregular Operations
- Data Governance, API Ecosystem & Industry Data Model

June 2019
IATA AVIATION DATA SYMPOSIUM

ATHENS, GREECE  25 – 27 JUNE 2019
Opening Address

Dimitris Gerogiannis, CEO, Aegean Airlines
Aegean in brief

- **61** aircraft
  - 49 Jets
  - 12 turboprops
- **14 mil** passengers
- **109.825** flights
- **17.2 mil. ASKs**
- **€1,18 bil.** revenues
- **83.9%** load factor

- **151** destinations
  - 120 Int.
  - 31 Dom.
- **+89%** ASKs growth 2012-2018

- **Skytrax**
  - Award winning

- **Athens** hub
- +6 other A/C bases
Data Analytics, Advanced Analytics, Data science, ...

Athens
June 25, 2019
Technology hype I

TECHNOLOGY in itself IS NOT INNOVATION

TECHNOLOGY in itself DOES NOT CREATE COMPETITIVE ADVANTAGE

The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency.

The second is that automation applied to an inefficient operation will magnify the inefficiency.

- Bill Gates-
Technology hype II

Technological hype, buzzwords, futurology

.... high expectations, (s)low delivery
Technology: from buzzwords to reality

- Start with the problem/goal to solve/achieve and use technology as lever to:
  - improve customer experience at every step of the journey
  - assist & empower front-liners in their day-to-day decision making:
    pricing vs competition, customer service, etc
  - “identify” parameters affecting performance (ops, call center, etc)

- Many coherent “small” improvements vs. few quantum jumps
- Measure customer acceptance & commercial/operational/financial relevance
- Culture focused on the customer and process & technology skills
NEW BUZZWORD!!!!!! Data Analytics, Advanced Analytics, ....

"Tectonic paradigm shift"

NEW organisational structures, NEW processes,

NEW roles, NEW ..., NEW...

Data Scientists to do X, Data Engineers to do Y, Enlightened Manager to do Z, Business owners to manage ABCD interfaces, etc ..
DATA ANALYTICS!!! : let's not rediscover the wheel

....the major forums for research started in 1995 when the First International Conference on Data Mining and Knowledge Discovery (KDD-95) was started in Montreal under AAAI sponsorship...

The manual extraction of patterns from data has occurred for centuries. Early methods include Bayes' theorem (1700s) and regression analysis (1800s). As data sets have grown in size and complexity, automated data processing, aided by other discoveries in computer science, such as neural networks, cluster analysis, genetic algorithms (1950s), decision trees and decision rules (1960s), and support vector machines (1990s). Data mining is the process of applying these methods with the intention of uncovering hidden patterns[15] in large data sets. It bridges the gap from applied statistics and artificial intelligence to database management by exploiting the way data is stored and indexed in databases to execute the actual learning and discovery algorithms more efficiently.
DATA ANALYTICS!!! : Aegean's approach

Rely on natural intelligence of young talents to exploit the potential of data analytics / artificial intelligence / other buzzword’s methods

Break the vertical silo: data analysts must become business owners and understand themselves the purpose and the results of the data analysis

Break the horizontal silos: expose data analysts to different parts of the business to foster "holistic" view of the problem & the associated data

Remain focused on the problem at hand and customer needs
People will still deliver service in the foreseeable future
OR WILL BE BEHIND THE SERVICE DESIGN
So remain Customer Centered... with small things... a friendly Smile
in a Commoditized, LCC Driven European Short Haul Market
Thank you!
Thriving in the Age of Data & Digital Transformation

Alexandre de Juniac, DG & CEO, IATA
Data, Aviation's Most Strategic Opportunity and Greatest Threat

Professor Liberty Vittert

Olin Business School & Harvard University Ambassador;
Royal Statistical Society Associate Editor of the Harvard Data Science Review;
Elected Member of the International Statistical Institute;
BBC Expert Woman and TEDX speaker
Data: Aviation’s Most Strategic Opportunity and Greatest Threat
Professor Liberty Vittert
Pascal’s Wager

<table>
<thead>
<tr>
<th>Believe in God</th>
<th>God Doesn’t Exist</th>
<th>God Exists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing Happens</td>
<td>Nothing Happens</td>
<td>Heaven</td>
</tr>
<tr>
<td>Wasted Life with False Belief but</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Don’t Believe in God | | Hell Fire |
|----------------------|------------------|
| Nothing Happens      | Didn’t Waste life with false belief but | |
| Didn’t Waste life with false belief but | | |
Defense Attorney Alan Dershowitz:

1/2500 chance OJ did it

Truth: 90% chance OJ did it

Who?

Living
US women victims of domestic abuse

Murdered
US women victims of domestic abuse

1/2500 chance of being murdered by their partner

9/10 chance of having been murdered by their partner
2 Gigabytes of Data / Second
= 60 feet stacked of Harry Potters
= 800 Harry Potters
### Abraham Wald

Who?

Section of Plane | Bullet holes per square foot
--- | ---
Wings | 1.80
Fuselage | 1.73
Fuselage System | 1.55
Engine | 1.11
The Undamaged Parts
Chocolate can stave off Alzheimer's: Cocoa boosts blood flow to the brain - new research

SNACKING daily on dark chocolate could stave off Alzheimer's disease, especially in the elderly, according to new research.

Published: 14:33, Fri, Jun 30, 2017 | Updated: 14:48, Fri, Jun 30, 2017

Science Daily
Your source for the latest research news

Science News from research organizations

Cocoa and chocolate are not just treats -- they are good for your cognition
Cocoa can be seen as a dietary supplement to protect human cognition and can counteract different types of cognitive decline.

Can this Maggie Beer chocolate cake recipe prevent Alzheimer's?
ABC News Breakfast
Updated 19 Oct 2017, 10:58pm
How much Chocolate would you have to eat to even ‘potentially’ have an effect on preventing Alzheimer’s?

300g of dark chocolate per day

1,590 calories

2 kg Milk Chocolate

Research
Annual Report Death Penalty Since 1976

- Is there an issue with Race and Death Penalty?

<table>
<thead>
<tr>
<th>Defendant’s race</th>
<th>Death Penalty</th>
<th>No Death Penalty</th>
<th>% Death Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>white</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>black</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Death Penalty

<table>
<thead>
<tr>
<th>Victim’s race</th>
<th>Defendant’s race</th>
<th>% Death Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>white</td>
<td>white</td>
<td>11.3%</td>
</tr>
<tr>
<td>black</td>
<td>black</td>
<td>2.8%</td>
</tr>
<tr>
<td>white</td>
<td>black</td>
<td>22.9%</td>
</tr>
<tr>
<td>black</td>
<td>white</td>
<td>0.2%</td>
</tr>
<tr>
<td>Dest.</td>
<td># of Arrivals</td>
<td>Arrivals on time</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>LA</td>
<td>559</td>
<td>497</td>
</tr>
<tr>
<td>Phoenix</td>
<td>223</td>
<td>221</td>
</tr>
<tr>
<td>San Diego</td>
<td>232</td>
<td>212</td>
</tr>
<tr>
<td>San Francisco</td>
<td>605</td>
<td>503</td>
</tr>
<tr>
<td>Seattle</td>
<td>2146</td>
<td>1841</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3775</td>
<td>3274</td>
</tr>
</tbody>
</table>

**Northern Northern Airline**

<table>
<thead>
<tr>
<th>Dest.</th>
<th># of Arrivals</th>
<th>Arrivals on time</th>
<th>% on Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA</td>
<td>811</td>
<td>694</td>
<td>85.6%</td>
</tr>
<tr>
<td>Phoenix</td>
<td>5255</td>
<td>4840</td>
<td>92.1%</td>
</tr>
<tr>
<td>San Diego</td>
<td>448</td>
<td>383</td>
<td>85.5%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>449</td>
<td>320</td>
<td>71.3%</td>
</tr>
<tr>
<td>Seattle</td>
<td>262</td>
<td>201</td>
<td>76.7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7225</td>
<td>6438</td>
<td>89.1%</td>
</tr>
</tbody>
</table>
How?

Uber Ban London

The number of cab drivers charged with violent or sexual offences in London is at a five-year high.
TRUTH: 154 allegations of rape or sexual assault had been made where the suspect was alleged to be a taxi driver. 32 of these stated they were by an Uber driver.

LTDA Black Cab

Taxis = Black Cab + Minicab (Uber included)
Do you up your risk?

How?

Last year there were 32 allegations of rape or sexual assault made against Uber drivers. I just wanted to go home. Why up your risk with a minicab?
# THE (VERY) SIMPLE NUMBERS

<table>
<thead>
<tr>
<th>How many Assaults?</th>
<th>How many Journeys?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proportion of Sexual Assault by Uber Drivers:</strong></td>
<td><strong>Number of Journeys per Week in all of London in any kind of Taxi including Uber</strong></td>
</tr>
</tbody>
</table>
| \[\frac{32}{154} = 20\% = \frac{1}{5}\] | **Number of these Journeys by Uber:** 
| **Proportion of Journeys by Uber Drivers:** | **1 million** |
| \[\frac{1\text{mil}}{3\text{mil}} = \frac{1}{3}\] | **3 years before Uber started** |

**INDEPENDENT**

The number of cab drivers charged with violent or sexual offences in London is at a five-year high.

**2015:** 136 reports of rape or sexual assaults by taxi

**2009:** 136 reports of rape or sexual assaults by taxi drivers

**UBER is SAFER!!!!**
What will Uber and London stand to lose?

3.5 million customers

40,000 jobs lost
Most Uber drivers contract hire their cars

Uber London ~$250 million

Airport transfer fares

<table>
<thead>
<tr>
<th>Airport</th>
<th>Uber</th>
<th>Black cab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatwick</td>
<td>£62</td>
<td>£158</td>
</tr>
<tr>
<td>Stansted</td>
<td>£55</td>
<td>£133</td>
</tr>
<tr>
<td>Luton</td>
<td>£32</td>
<td>£106</td>
</tr>
<tr>
<td>Heathrow</td>
<td>£40</td>
<td>£78</td>
</tr>
<tr>
<td>City</td>
<td>£42</td>
<td>£59</td>
</tr>
</tbody>
</table>

Sources: taxifarefinder.com, uber.com

On average, black cab airport quotes were double the estimated Uber price for the same journey – PA
Mexico for Spring Holidays? Or Death

American tourists risk death to vacation in Mexico
By Isabelle Vincent  December 15, 2018 | 9:56pm | Updated

Mexico is more dangerous than ever
By Associated Press  January 22, 2018 | 4:14pm

Trendy News

Tomi Lahren Sits Down With Family of US Tourist Murdered in Mexico

Doctors reportedly performed C-section on crash victim who wasn’t pregnant

Teen survivor never knew family massacre coming: police chief

WHILE LEANER

Leukemia apologizes for using official word to describe predominantly black...

Teen survivor never knew family massacre coming: police chief
Since 2002, The US State Department has listed how many Americans have died in unnatural deaths while abroad.

In 2017:

250 Deaths in Mexico

822 Total Deaths Abroad

= 30.4%
THE (VERY) SIMPLE NUMBERS

Proportion of Deaths in Mexico?

250 Deaths in Mexico

822 Total Deaths Abroad

≈ 30%

Proportion of Travellers in Mexico?

35 million US travellers Mexico

88 million US travellers

≈ 40%

How?

Homicide Rate in NYC is 4x more
Finnish Baby Boxes

Why Finnish babies sleep in cardboard boxes

By Helena Lee
BBC News

4 June 2013
Finland Infant Mortality Rate: 2 in 1000

World Infant Mortality Rate: 32 in 1000

Source: Statistics Finland
Baby Box | Original Bundle Baby Box | Finnbin

The Finnbin Original Bundle Baby Box is like a baby registry
The (very simple) Numbers

1938: Finland Infant Mortality higher than other Nordic Neighbors

1944: 31% of mothers received pre-natal education

1945: 86% of mothers received pre-natal education

Actual Causes:
1) Education
2) General Progress:
   Europe: 1900 15%
   Present 0.4%
In 2017:

Alabama: 60,000 baby boxes $15 million
New Jersey: 105,000 baby boxes $26 million
Ohio: 140,000 baby boxes $35 million
### Why?

<table>
<thead>
<tr>
<th>State</th>
<th>Baby Boxes</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>60,000</td>
<td>$15 million</td>
</tr>
<tr>
<td>New Jersey</td>
<td>105,000</td>
<td>$26 million</td>
</tr>
<tr>
<td>Ohio</td>
<td>140,000</td>
<td>$35 million</td>
</tr>
</tbody>
</table>

**In 2017:**

- **Alabama:** diapers for a year for 30,000 babies
- **New Jersey:** baby food for a year for 40,000 babies
- **Ohio:** year salary for 800 child social care workers
The Present:

Dataism vs Humanism
The Future:

Dataism + Humanism

Who was Asked?

What was Asked?

How was it Interpreted?

Why do we Care?
IATA Legal Brief

Julie Vandenbussche, Senior Legal Counsel, IATA

Marie Claude Simard, Assistant General Counsel, IATA
Bird's-eye view on how data is shaping the future of travel

Moderator: **Tanya Beckett**, Presenter, BBC News

**Caroline Gorski**, Group Director, R2 Data Labs, Rolls-Royce Plc

**Jan Stövesand**, Sr. Director Analytics & Data Solutions, Lufthansa Technik AG

**Vince Chirico**, SVP Global Network & Tech. Partners, CWT

**Soumit Nandi**, MD, Customer Technology Platforms, United Airlines
Networking Break
How can airlines monetize their most valuable asset, their customer data?

Dr. John Carney, Chief Data Scientist, OpenJaw
How can airlines monetise their most valuable asset, their customer data?
Post-tax net profits in 2018

$30 Billion

AIRLINE INDUSTRY

Post-tax net profits for 2019 (Forecasted by IATA)

$28 Billion
Airline profit per passenger: $6.12

Big Mac in Switzerland: $6.62

Source: IATA Economics - Economic Performance of the Airline Industry, Mid-Year 2019
Load Factor

ECONOMY

Yield €49.99

ECONOMY

Yield €79.99

ECONOMY

Yield €130
Become a travel retailer and ‘10x’ your yield
To ‘10x’ your yield you need to know what your customer wants...
How do you know what the customer wants?

Customer Data Sources:
- Transactions
- Loyalty/CRM
- Online Intent
- Psychographic

Customer Insights

Customer Data Platform (CDP)

Acquire
Warehouse
Predict
Distribute

Next Best Action
Customer Data Platform (CDP)

- Personalized Message
- Personalized Service
- Personalized Conversation

API

Banner Ad
- Personalized Email
- Personalized Offer
What is the ‘secret sauce’ of any great CDP?
Is she a loyal and frequent customer, or a marginal customer that could churn?

If we give her a discount now, are we likely to earn that back in the future?

Which type of hotel is she most likely to purchase right now?
If we embed a CDP into the airline tech ecosystem, what does it look like?
Real-time personalized offer management

What does the customer want?

How do I create the offer?

Where do I present the offer?
Dr John Carney
Chief Data Scientist
OpenJaw Technologies
John.Carney@openjawtech.com
Dr John Carney

Chief Data Scientist
OpenJaw Technologies

John.Carney@openjawtech.com
How to become a hyper Customer-centric Airline

Dee Waddell, Global MD, Travel & Transportation, IBM
Hyper Customer Centricity: Transforming in a world of Mobile, Data and AI
IATA Aviation Data Symposium – June 25-27, 2019

Dr. Dee K. Waddell
Global Managing Director,
Travel & Transportation Industries, IBM
@deekwaddell
Transformation is Happening
Technology Innovation is accelerating digital transformation…

C-suites think 4 new technologies will lead the near term future

<table>
<thead>
<tr>
<th>Technology</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile</td>
<td>64%</td>
</tr>
<tr>
<td>Cognitive/AI and RPA</td>
<td>53%</td>
</tr>
<tr>
<td>Internet of Things</td>
<td>52%</td>
</tr>
<tr>
<td>Cloud</td>
<td>48%</td>
</tr>
<tr>
<td>Virtual Reality</td>
<td>19%</td>
</tr>
<tr>
<td>Augmented Reality</td>
<td>16%</td>
</tr>
<tr>
<td>Robots</td>
<td>14%</td>
</tr>
<tr>
<td>3D Printing</td>
<td>13%</td>
</tr>
</tbody>
</table>

83% of CEOs are leveraging emerging technology to adopt new revenue models

The majority of CxOs see technology primarily as a means of adding value rather than subtracting costs

Source: IBM C-Suite Study, 2016 (n=5,247)

© 2019 IBM Corporation
IBM Travel Platform
Retail - Operations - Maintenance

An open platform that works with your existing systems

Rooted in Design Thinking & User Experience

Made for Mobile
Cloud Based
Data Rich
Cognitive

© 2019 IBM Corporation
@deekwaddell
## Aviation MobileFirst Portfolio

<table>
<thead>
<tr>
<th>Role</th>
<th>Customer Service Agent</th>
<th>Flight Attendant</th>
<th>Pilot</th>
<th>Line Maintenance</th>
<th>Ground Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Passenger Care</td>
<td>Rapid Board</td>
<td>Manage Gates</td>
<td>Assign Tech</td>
<td>Turn Manager</td>
</tr>
<tr>
<td></td>
<td>Check in, IROPs handling, ancillary sale</td>
<td>Mobile boarding, doc check &amp; analytics</td>
<td>Turn management multiple gates</td>
<td>Engineer allocation &amp; turn status mgmt</td>
<td>Baggage loading and offloading</td>
</tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Passenger +</td>
<td>Ancillary Sales</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Day of flight info w/pax info &amp; reporting</td>
<td>Onboard sales w/pax analytics</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Plan Flight</td>
<td>FlyNOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discretionary fuel planning &amp; analytics</td>
<td>Day of flight info w/flight brief &amp; manuals</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>Assign Tech</td>
<td>Inspect &amp; Turn</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Engineer allocation &amp; turn status mgmt</td>
<td>Task &amp; work order info &amp; reporting</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Baggage loading and offloading</td>
<td></td>
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</tr>
</tbody>
</table>

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Personalized Pricing & Offers - AI/Cognitive Optimization

A. Learning Algorithms
Continuously assesses offers, orders and situational data to build knowledge base of factors that drive outcomes.

B. Forms Offer Hypotheses
Understands offer context and selects most promising options (e.g., lounge access, discounted upgrade, etc.)

C. Scores Hypotheses
Quantifies the effectiveness of each hypothesis via a “cognitive score”. Systematically manages exploitative and explorative offers.

D. Present Optimal Offer
Presents optimal offer or ranked options. Offer and response feed into learning...and the cycle continues, with the “rules base” continuously evolving.
Community Innovation can Accelerate
But, when people, technology and data work together in harmony, we can Change
IATA AVIATION DATA SYMPOSIUM
ATHENS, GREECE  25 – 27 JUNE 2019
Top strategic data and technology trends in aviation

Moderator: David McEWEN, Director, Industry Architecture, IATA

Dr. Dirk Jungnickel, Senior VP Enterprise Analytics | Digital & Innovation, Emirates Group

Massimo Morin, Head, Worldwide Business Development, Travel, AWS

Nicolas Forgues, CTO, Air France-KLM

Sjoerd Blüm, CIO, Amsterdam Airport Schiphol
IATA AVIATION DATA SYMPOSIUM
ATHENS, GREECE 25 – 27 JUNE 2019
Industry Data and ADS Highlights and 2019 White Paper: Data Science Hype or Ripe for Aviation?

Charles de Gheldere, Director, Travel Intelligence, IATA
Houman Goudarzi, Head of BI & Industry Engagement, IATA
ADS & AI Lab 2019

- 600+ Delegates
- 110+ Speakers
- 5 TRACKS
- 5 Industry Meetings
- 1st IATA Aviation Datathon
- 1st IATA Aviation Data White Paper
- Dragons’ Den, Live Contest
- 15+ social & networking events
5 Specialized Tracks

- Passenger
- Safety & Flight Operations
- Air Freight
- Payment & FinTech
- Data Science & Technology
AVIATION DATA

DATA SCIENCE HYPE OR RIPE FOR AVIATION?

Download at www.iata.org/data-white-paper
Aviation Data White Paper

- Offers, Orders, Hyper Personalization & Customer Experience
- ATM, Connected Aircraft, Maintenance, Intelligent Health Monitoring
- Payment Data, Fraud prevention & Compliance
- Enterprise Analytics
- Commercial Strategy, Tactics & Planning
- Operational Planning, Execution, Optimization & Disruption Management
- Customer, Competitor & Market Insights Analytics
- Common Industry Data Sharing Platforms
Networking Lunch

OpenJaw
Workshop

APP IN THE AIR
Your personal travel assistant