# Innovation JAM SESSION

Aviation Data Symposium
Berlin 20th June 2018

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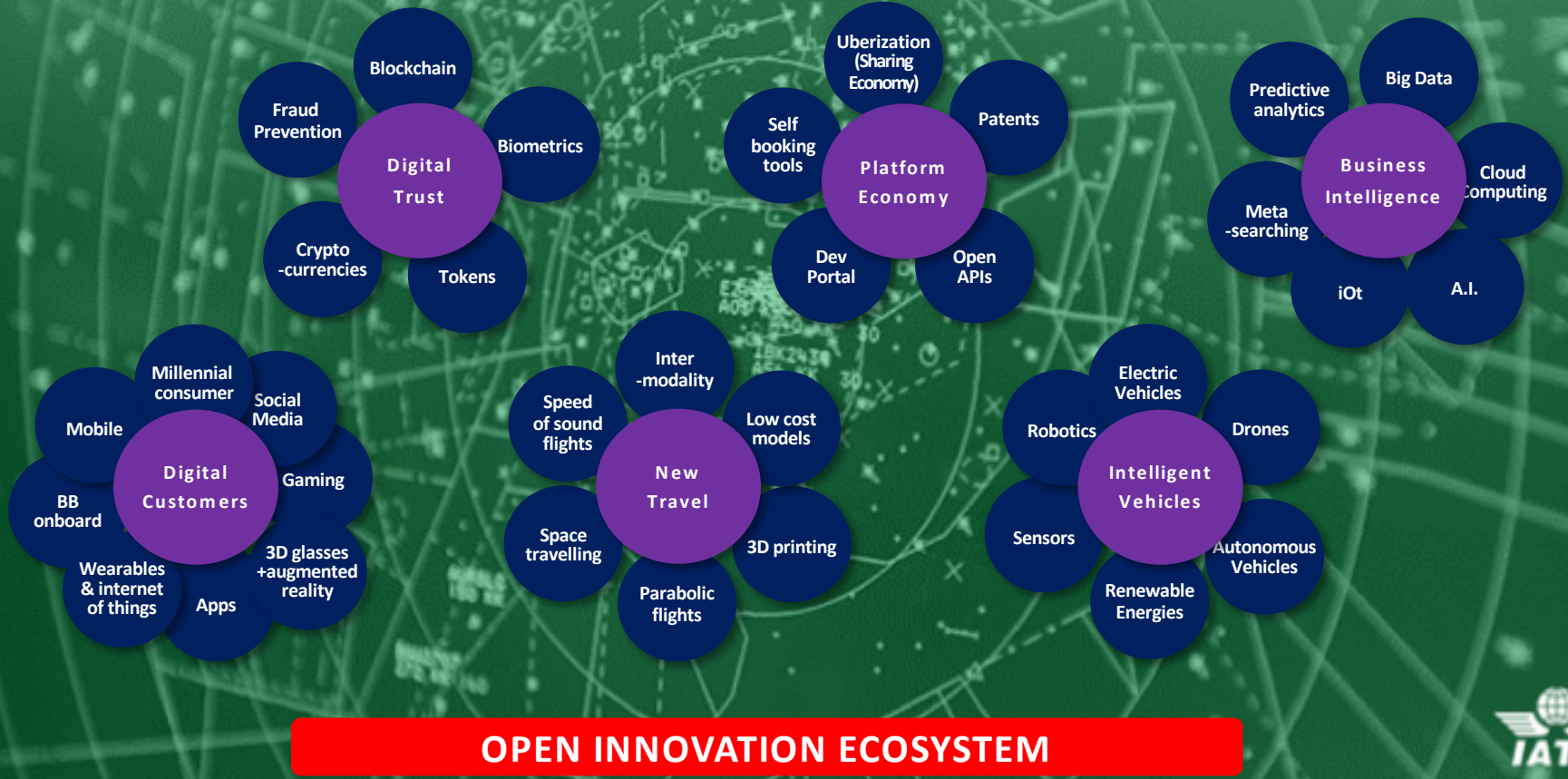
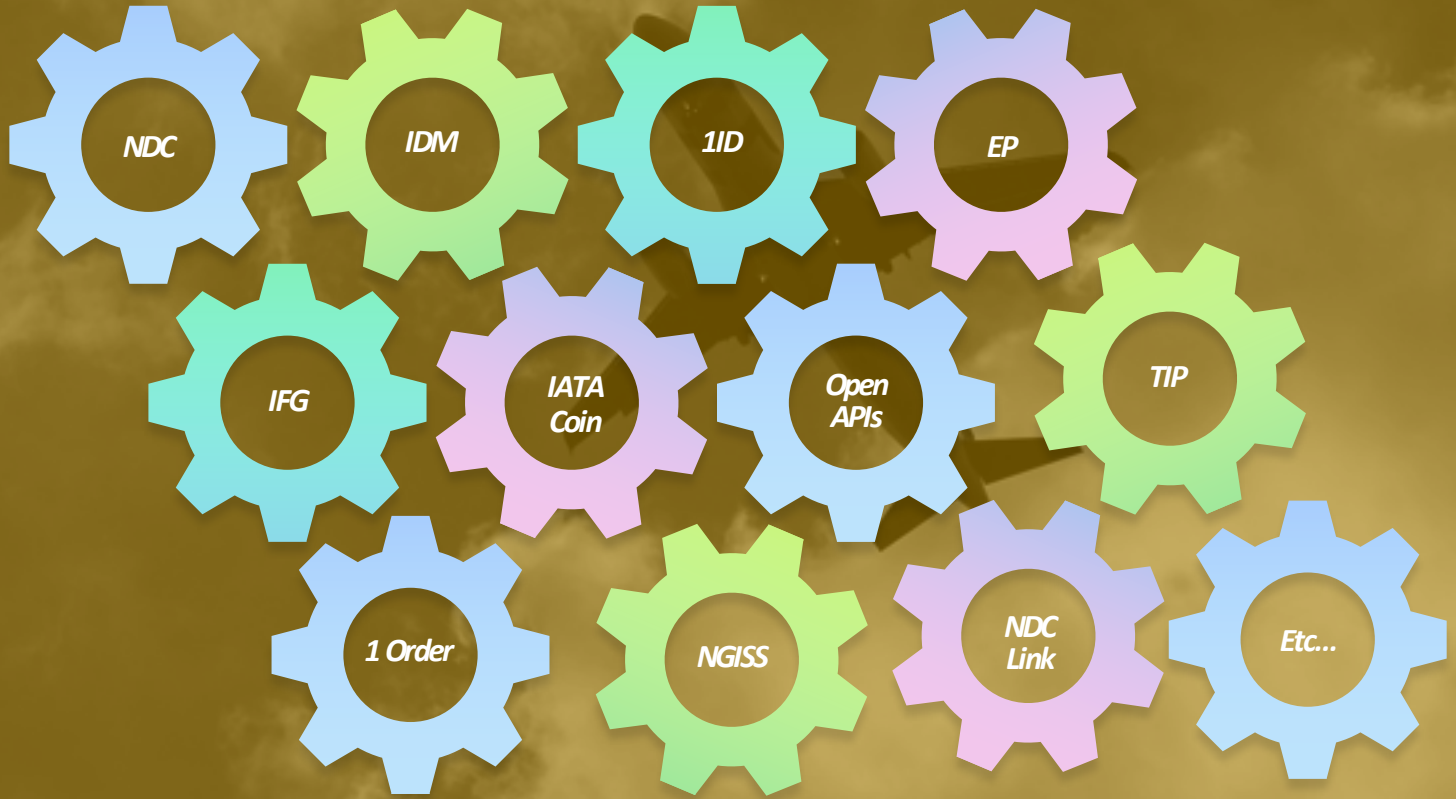
# Things to look at



# Ongoing projects



# Things we do around data

Aviation Data Model

Promoting acceptance

Open APIs

Governance & Control

# THANK YOU!

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Lufthansa
Innovation Hub

# LUfthansa Innovation Hub

June 19th 2018

# Overview

→ **GmbH since January 2015**

→ **Team:**

End of 2014: 8 employees

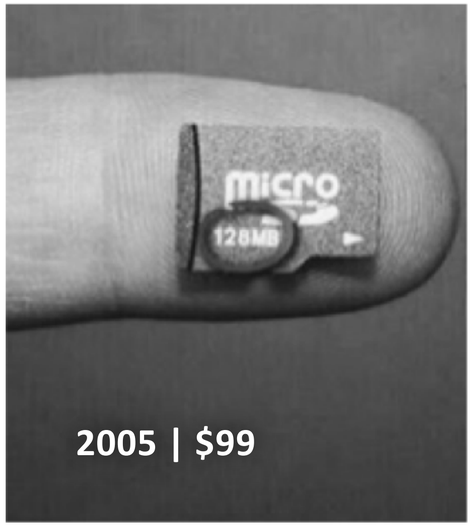
Today: 21 employees

→ **Mix of externals and internals:**

Combination of entrepreneurial know-how with years of Lufthansa experience and airline expertise

# WhAt’s hAppening in trAveL & MobILITY tech And why is it reLevAnt TO LuFthAnsa?

# Technological progress is changing daily life




2005 | $99

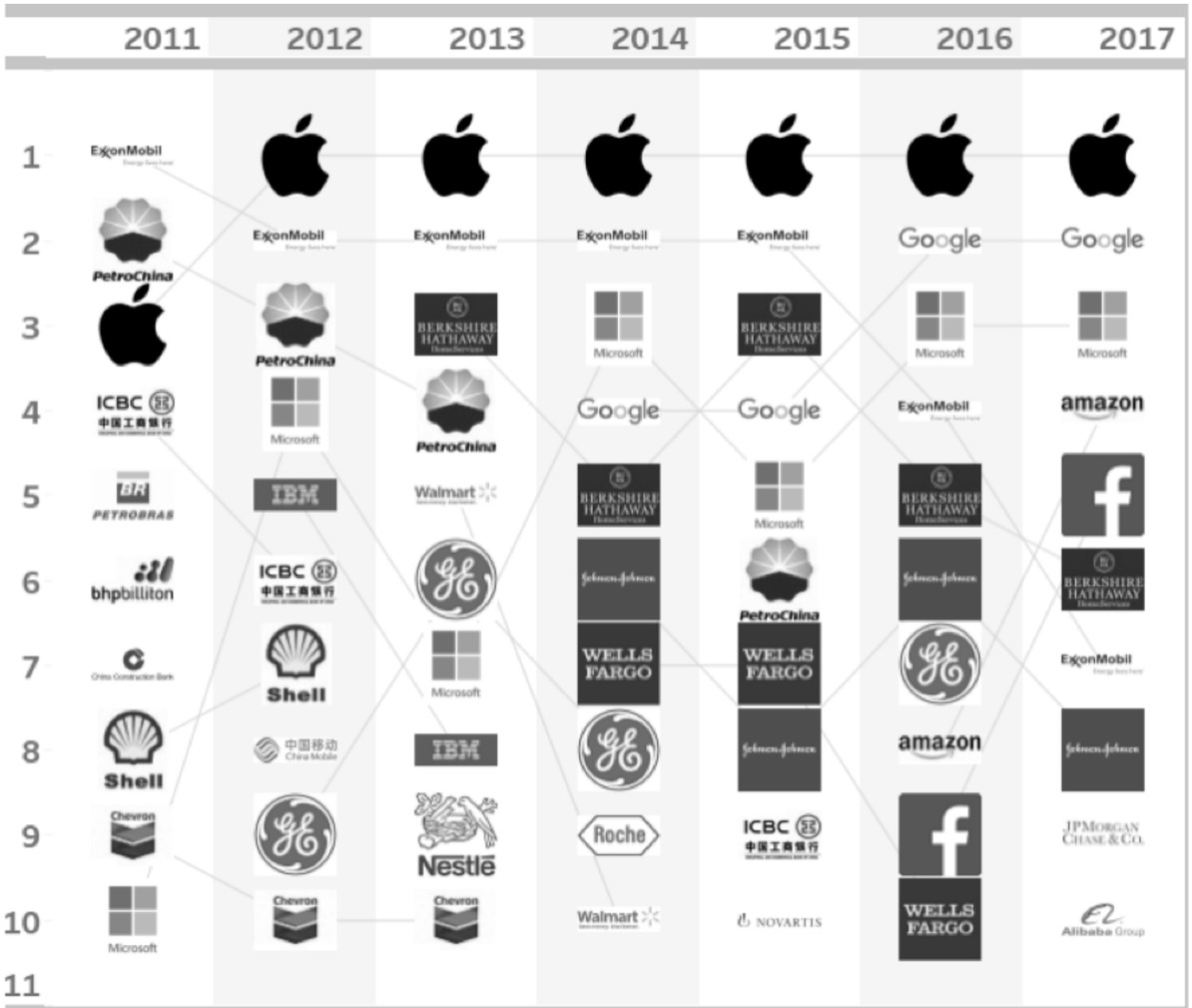
Conclave Pope Benedict XVI.

2013 | $99

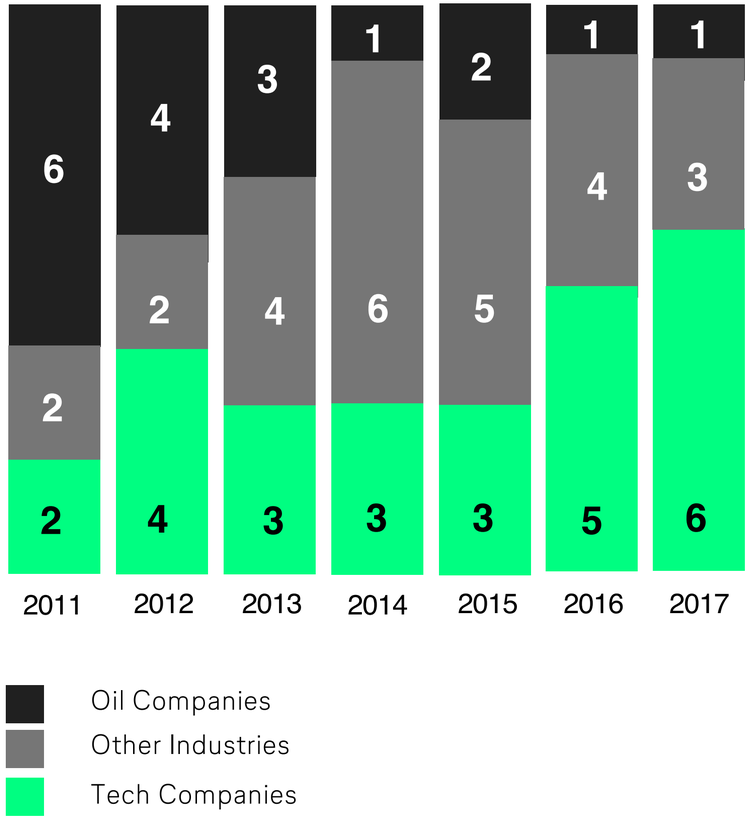
Conclave Pope Francis

# Today’s economy is tech-dominated!

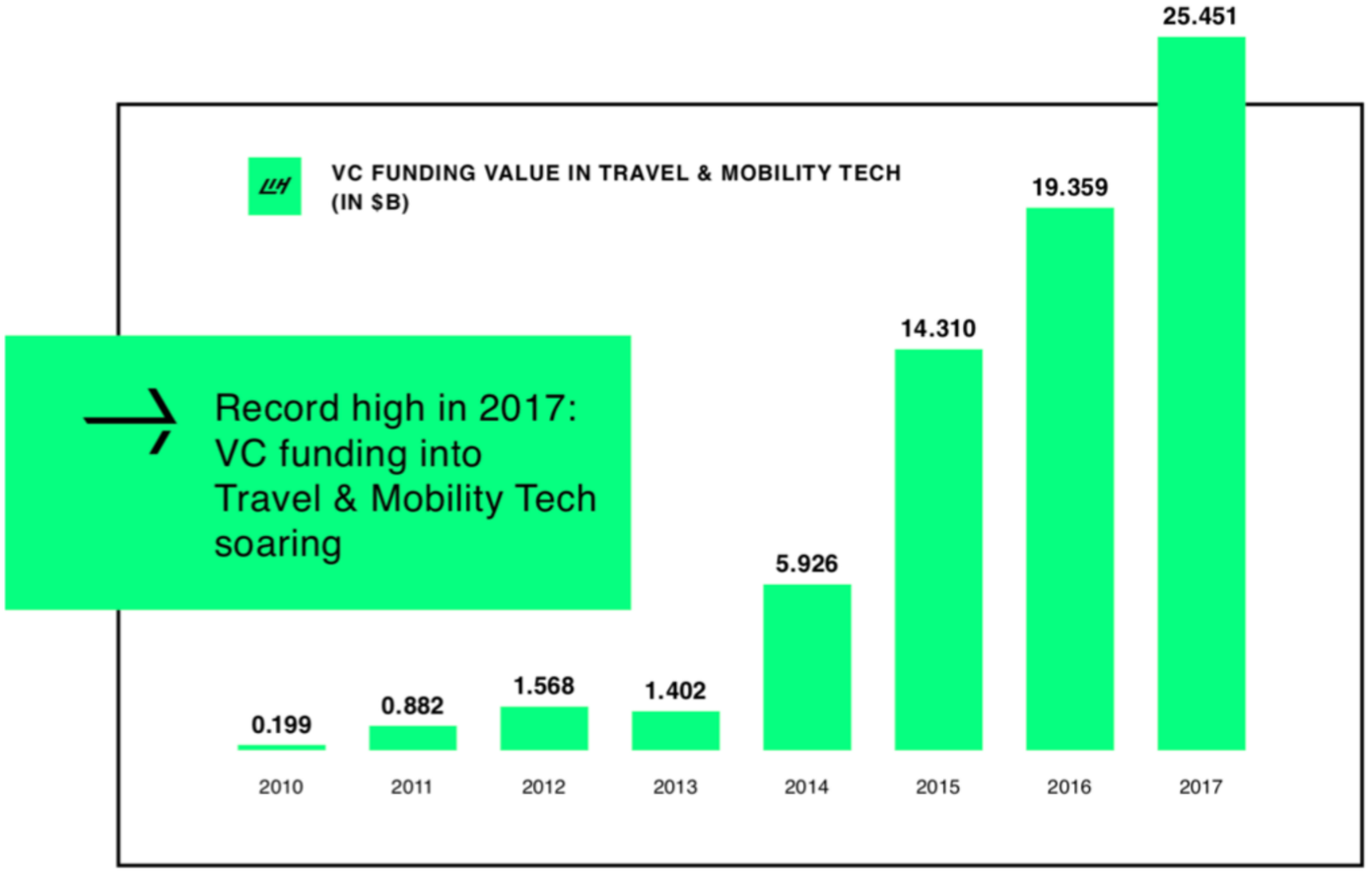
## 2011-2017: Largest Companies by Market Cap




## Top-10 largest companies by market cap grouped by industry affiliation



# The speed of innovation within Travel & Mobility Tech is skyrocketing




~2,500
Active Travel & Mobility Tech startups in 2018

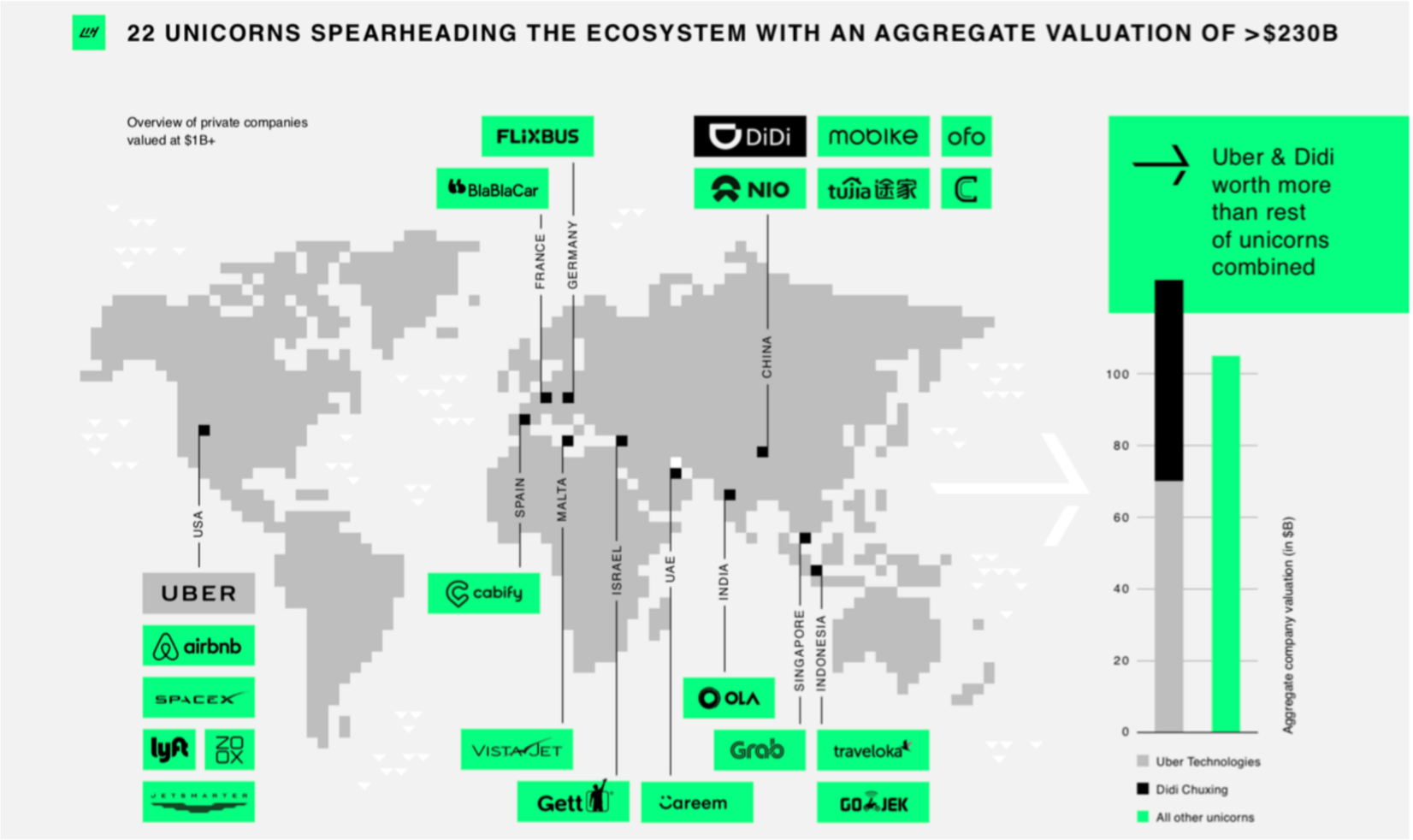
$25.45B
VC funding value received in 2017

+32%
Y-o-Y change in VC funding value

>15%
Travel & Mobility Tech share of overall global VC funding value

Note: 8-Year graph based on available data on disclosed funding rounds
Source: LIH analysis in cooperation with Pitchbook (as of Feb 15, 2018)

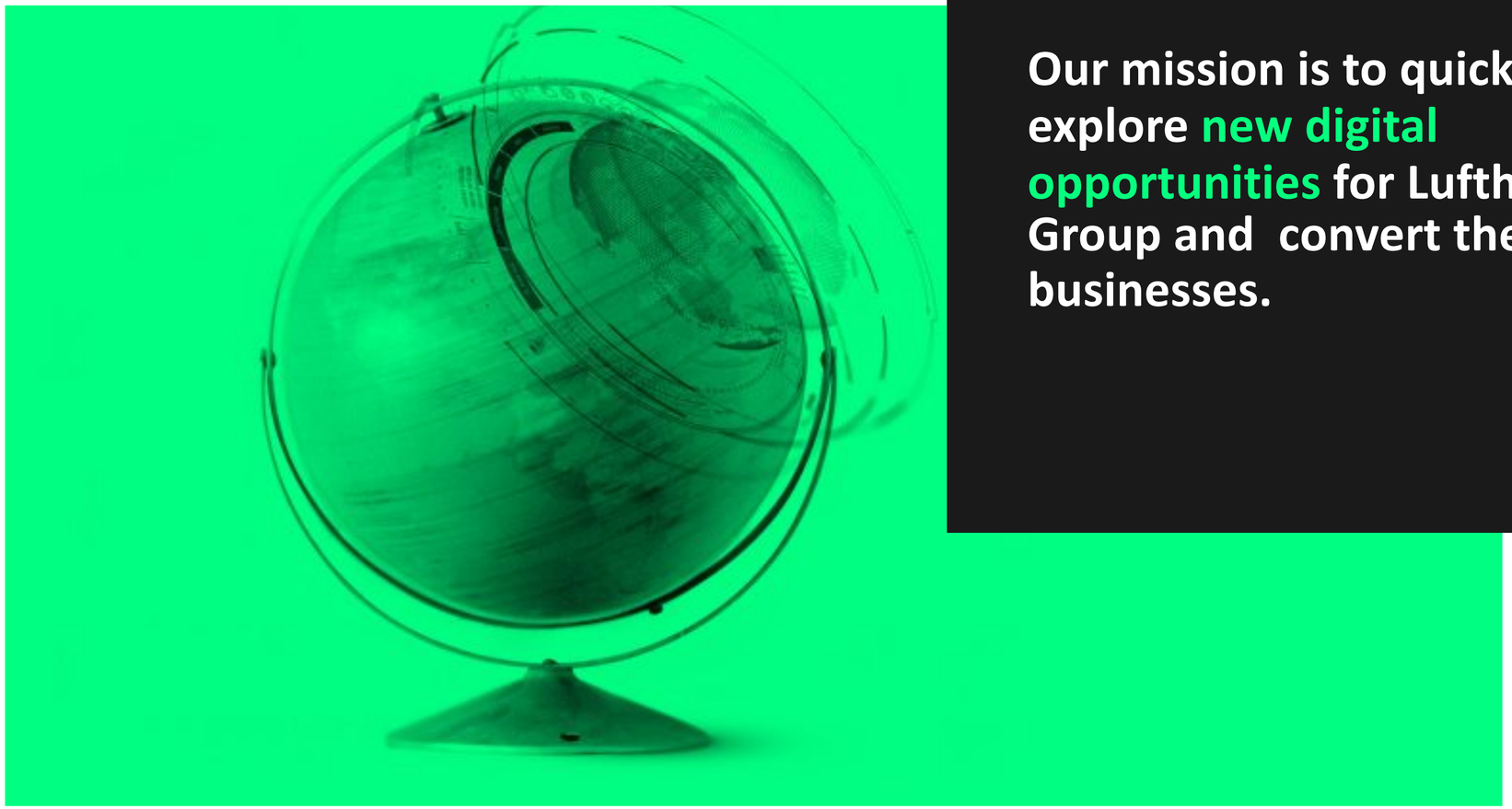
# Forming a few of today‘s most valuable private companies in the world




Source: LIH analysis in cooperation with Pitchbook (as of Feb 15, 2018)

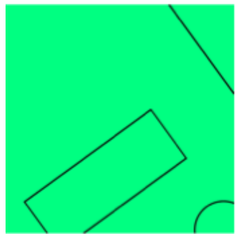
# WHAT’S THE ROLE OF THE LIH IN THIS CONTEXT?

# Our Mission



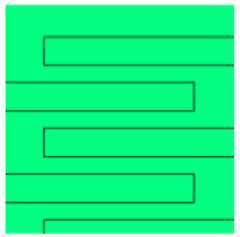
Our mission is to quickly explore new digital opportunities for Lufthansa Group and  convert them into businesses.

# Strategic fields of action



## Build

Develop and build our own digital products & services.



## Partner

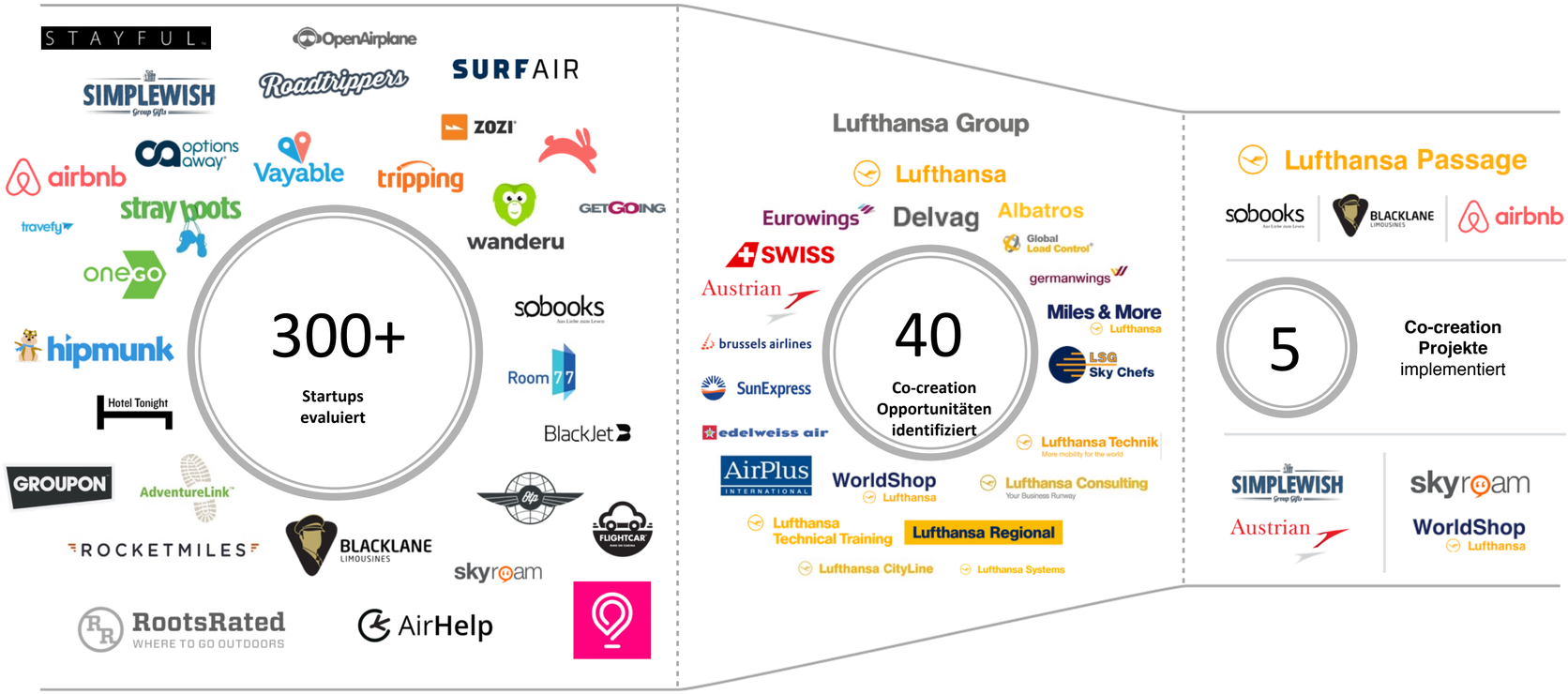
Foster selected partnerships between digital players and Lufthansa Group.

## Invest

Educate and support Lufthansa Group at strategic venture capital investments in startups.

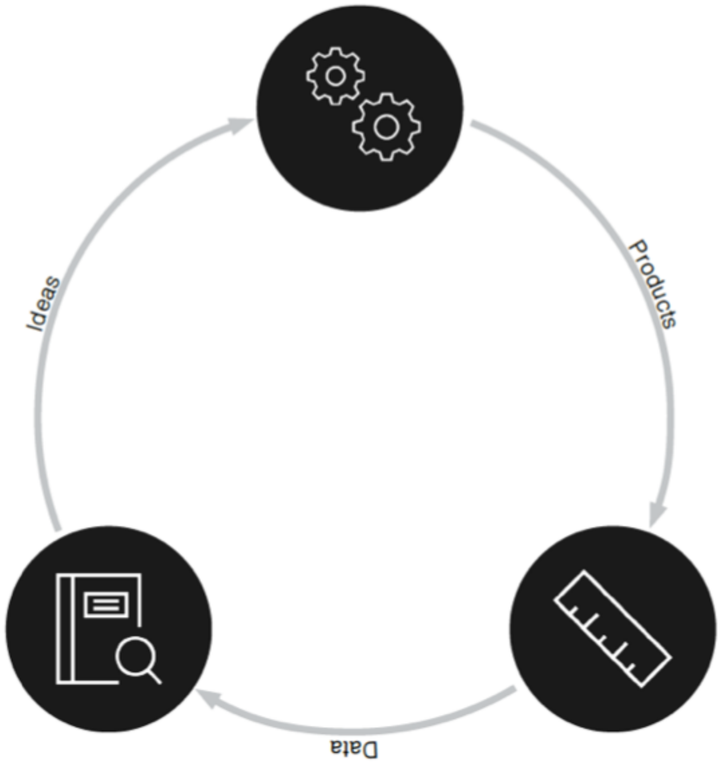
# Partner: LIH initiates collaborations with Travel & Mobility Tech startups

→ Strong focus in 2014/2015



# Build: LIH validates business model innovations

→ Strong focus since 2015



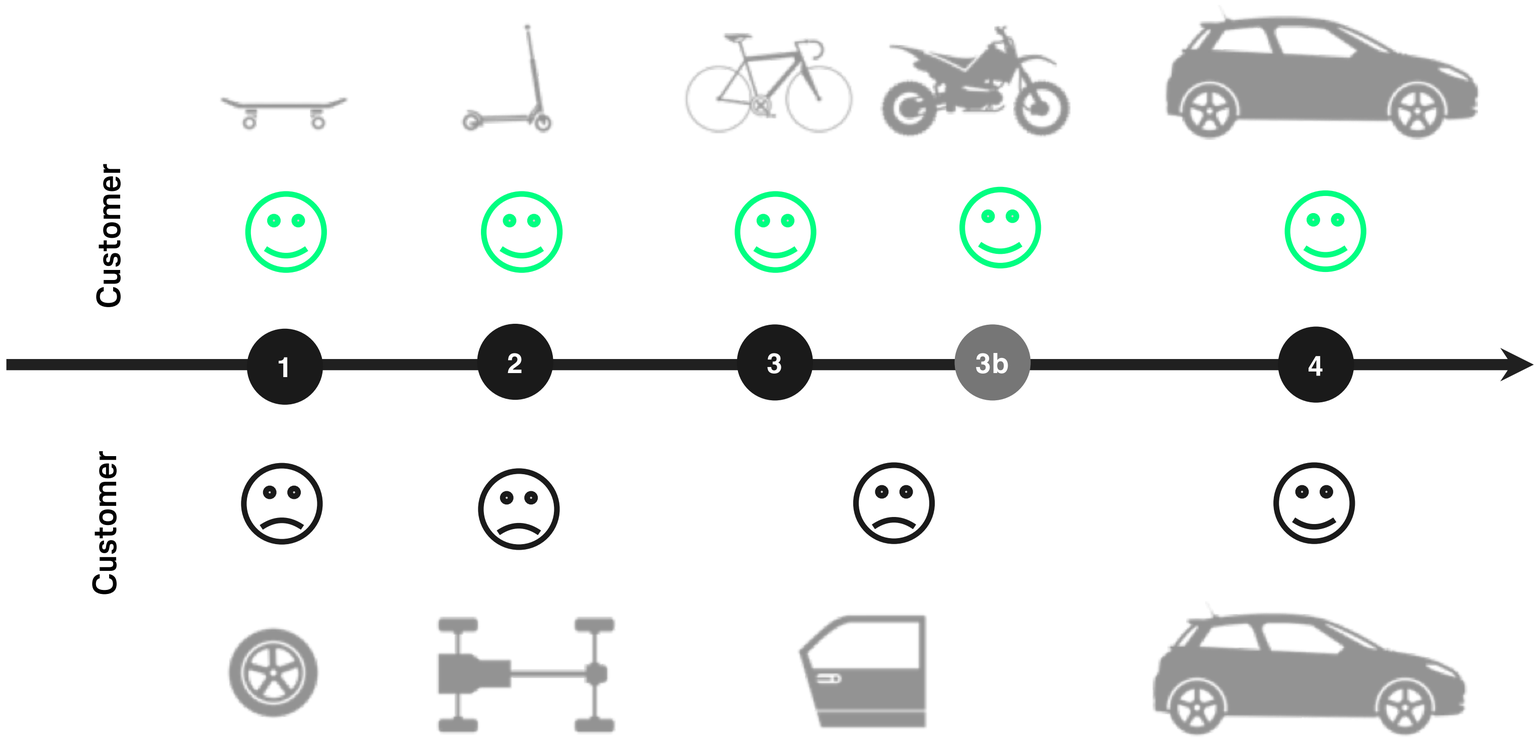

**We entirely focus on customer needs.**
(starting point = painpoints ot the traveler)

**We quickly act using prototypes**
(Fail fast)

**We use validated data to improve products**
(Data beats opinion)

→ Value hypothesis
→ Growth hypothesis

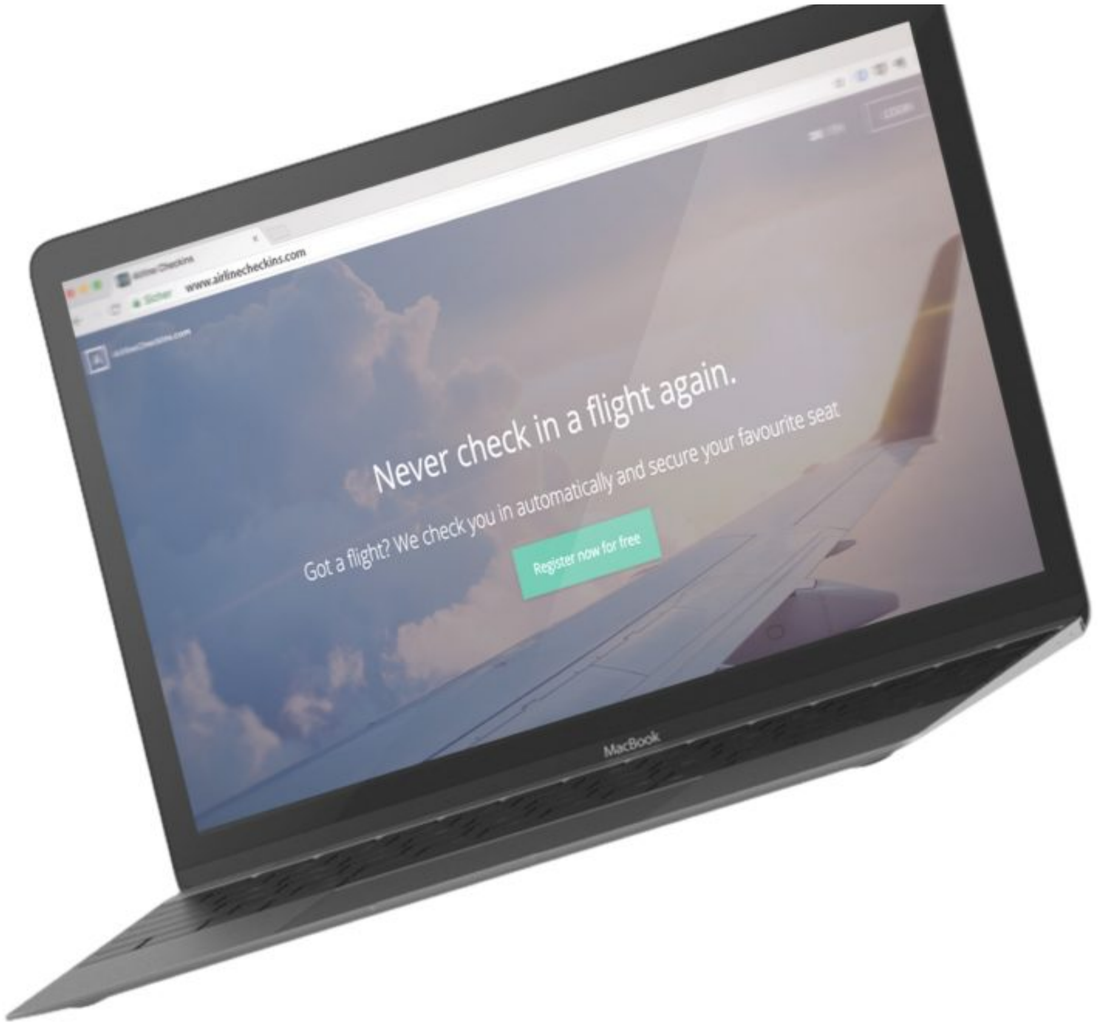
# Every product starts as a “Minimum Viable Product“



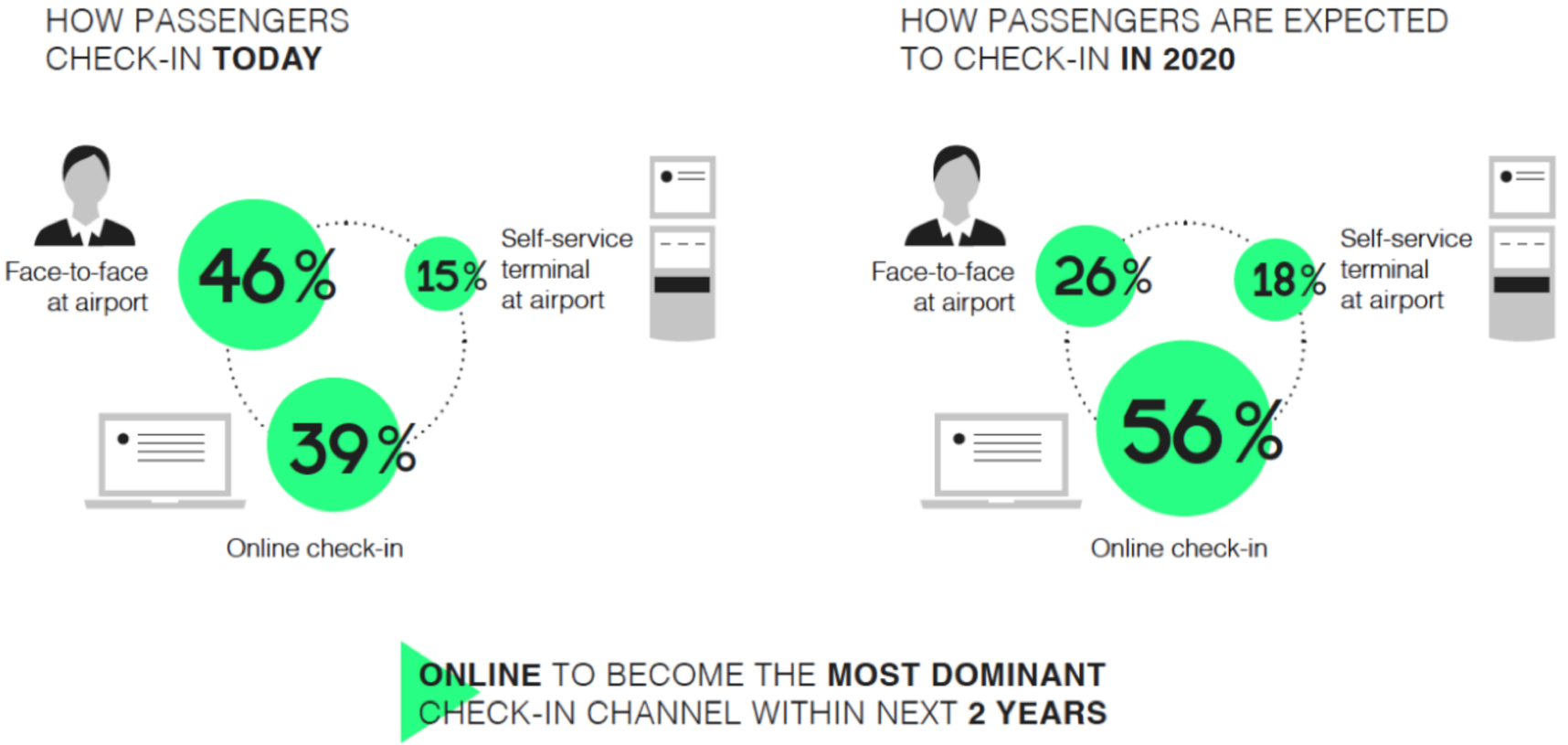
# PRODUCT EXAMPLES

# AirlineCheckins.com

Automatic check-in assistant for
more than 200 airlines worldwide



# The current state of airline online check-in

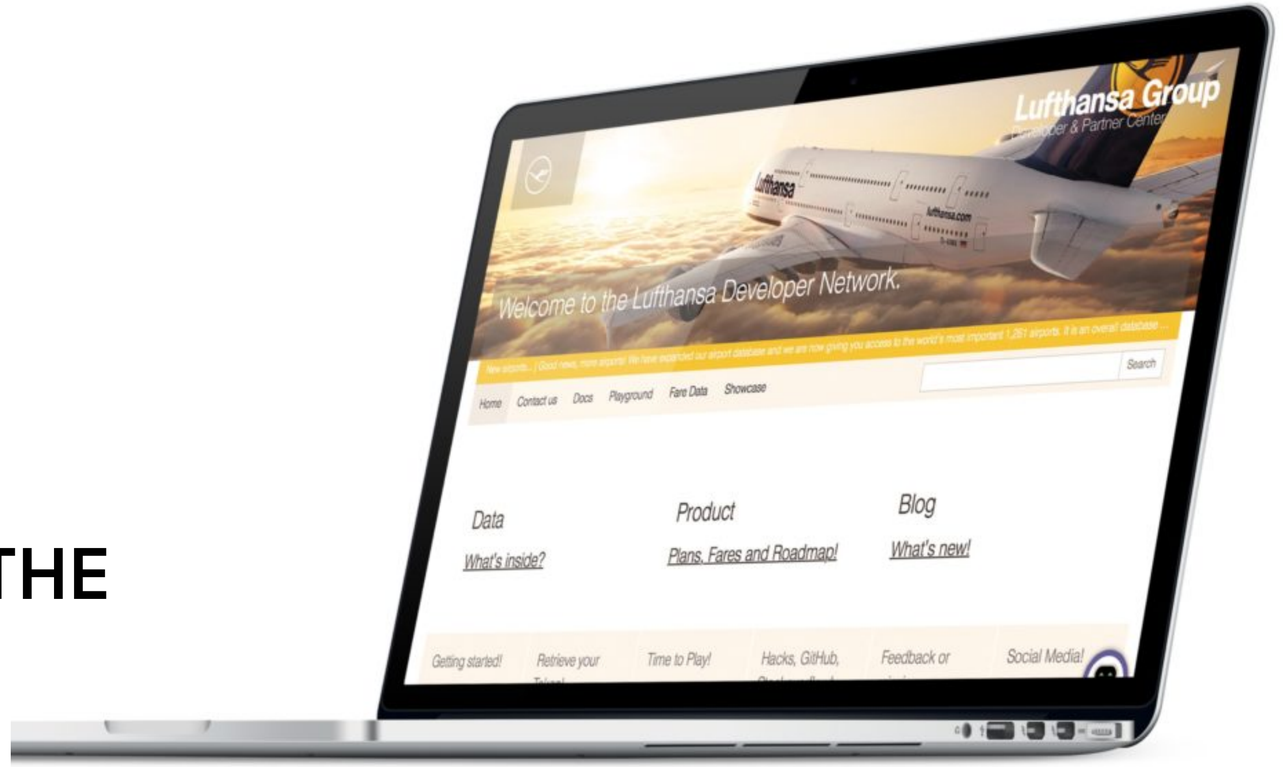



Share of online check-ins today vs. 2020

# Lufthansa Open API – developer.Lufthansa.com

Programming interface opening up
the Lufthansa data world to
external and internal developers

**LATEST NEWS BY TODAY**

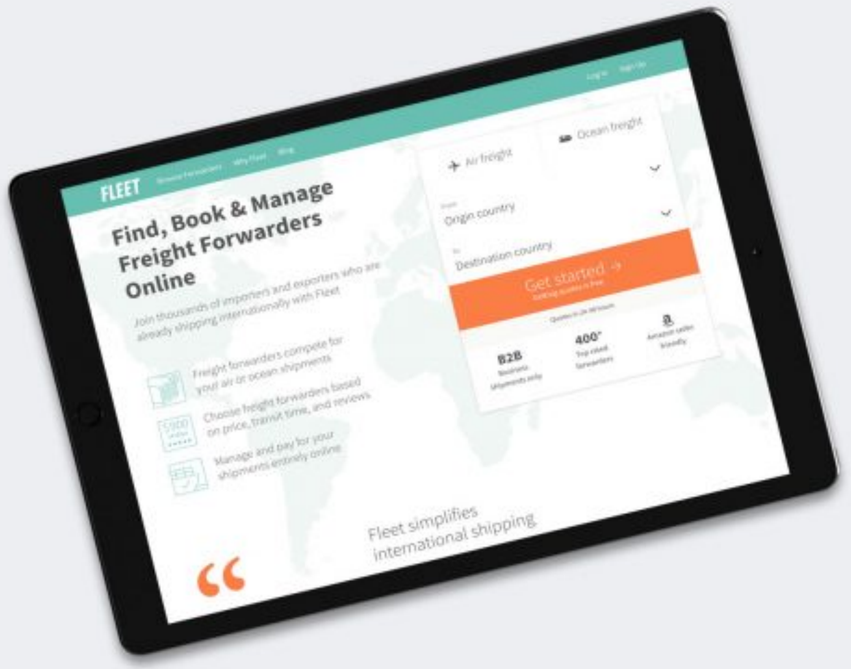



**BOOKING CAPABILITY VIA THE OPEN API AVAILABLE!**

# Investment Fleet Logistics

First ever startup investment by Lufthansa Cargo

The LIH supported throughout the whole process – from screening the Cargo Tech market to the closing of the investment



Lufthansa
Innovation Hub

# We design the happy journey of tomorrow

For more insight follow our Travel & Mobility Tech Radar

lh-innovationhub.de/radar/

# THANK YOU!

# Innovation Jam:

## IATA Hackathons - Innovation in Action


- **Ursula Silling,**
  CEO, XXL Solutions & India Hackathon Jury Member
- **Juan Oliver**
  Manager, FDS Business Intelligence Projects

# AIR HACKATHON

## Airline Industry Retailing

NDC Hackathon

- Challenge: **Personalization**
- Winner Team: **RMS**

AIR HACKATHON
Airline Industry Retailing

- Challenge: **Ancillaries Cross-Sell**
- Incuation Phase

IATA

NDC Hackathon

# India

23-25 FEBRUARY 2018

IBS SOFTWARE OFFICES, KOCHI, INDIA

# After 28 hours on non-stop coding…

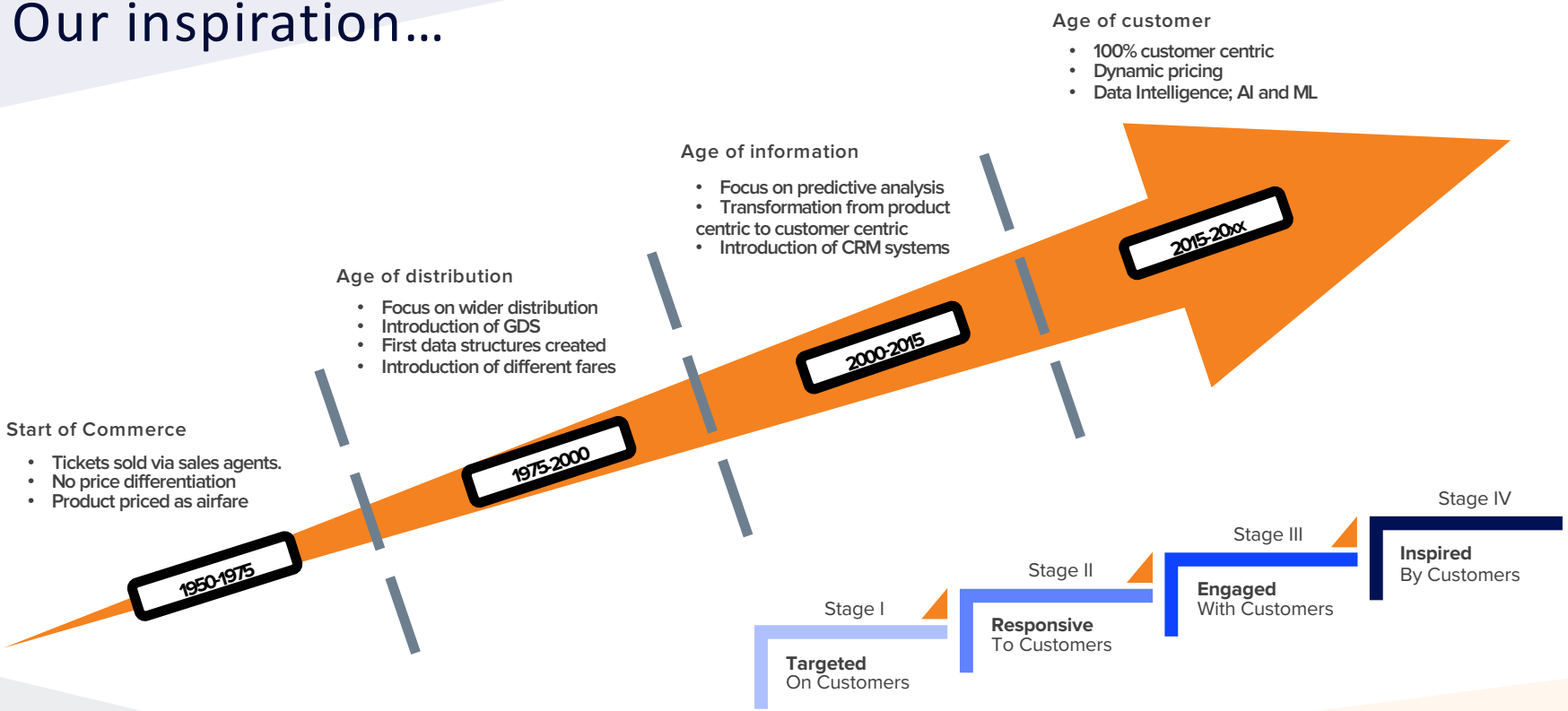
Winners of the IATA NDC Hackathon “DATA Corporate Prize” held in Kochi, India on February 2018:

## Revenue Management Systems

Travis Lewis
Fabian Widyadri
Michael Peters

revenue management systems
An Accelya Group Company

# Our inspiration…




revenue management systems
An Accelya Group Company

# Our inspiration…

revenue management systems
An Accelya Group Company

# The idea pitch

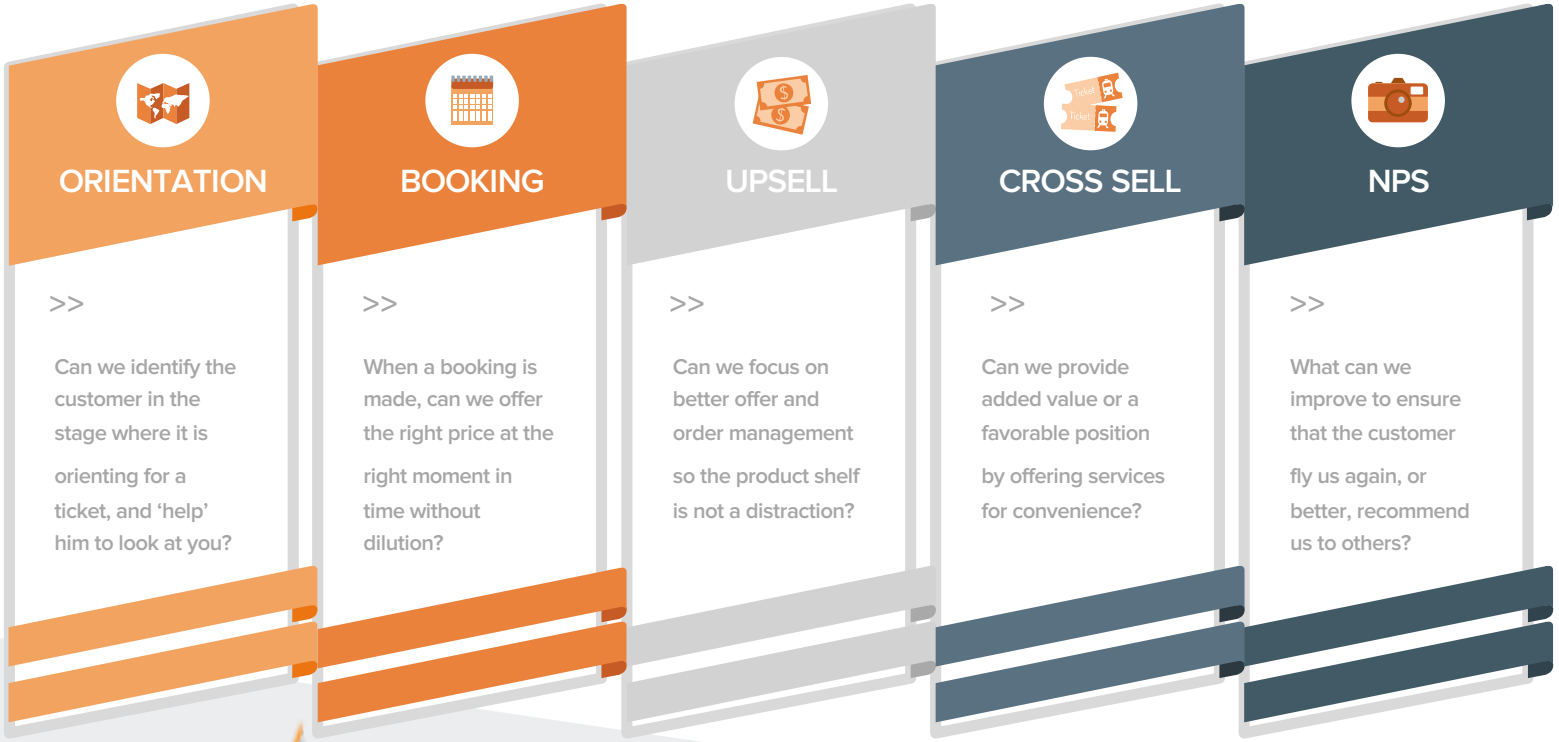
Airlines using NDC can improve their sales conversion by having a better process around customer profile recognition. Our challenge is to identify the customer profile, their willingness-to-pay and offer interests by help of micro-segmentation.

By help of AI we can identify the customer profile, optimize the product shelf by bundling the base offer, upsell offer and cross-sell offer in the most effective manner with the ultimate goal to improve the conversion of the customer throughout the sales funnel.

Our process will establish a active feedback port with the revenue management system which can recommend flight re-optimization by help of actual demand insights versus demand forecast (using only historical bookings).

revenue management systems
An Accelya Group Company

# Optimizing the airline commercial paradigm

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# Why join an IATA Hackathon?

## Knowledge Mining

The 'Next-Gen' of RM evolves around commerce. NDC will likely play an important role in that. We need to tiptoe the

knowledge pool and get exposure in the field

## Time Management

A sense of urgency created by time and competition creates an environment which steers for creativity impossible to

recreate in a true business environment

## Be innovative

A hackathon is all about innovation. Validate our ideas, compiling data to put decisions in the right context, determine

scalability, and so on

## Networking

Understand the 'state of the technology' and meet with the industry innovators which are involved with the marketing,

practices and concepts development of NDC

## Breaking routines

Sometimes, we can be a little full of ourselves that we forget to share with and learn from others. Hackathons is a place

where we can realize our strengths and weaknesses

## Having fun

Get a positive vibe from an environment where people are passionate to innovate, disrupt the status quo, pass

boundaries and are highly ambitious

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# Some impressions

revenue management systems
An Accelya Group Company

KRONOS AIRWAYS

## Corporate Executives

Frequent business and first class travelers

## Reluctant travelers

Do not enjoy travel and have it as convenient as possible

## Low Frequency

Bi-daily operation

## Quality vacationers

See travel as part of the holiday experience

## Mile Accumulators

Go out of their way to take flights that result in tier status

## Medium Frequency

Daily operation

## Corporate Troopers

Fit a corporate travel policy which defines travel behavior

## Tour Takers

Want everything arranged for them

## High Frequency

Multiple frequencies per day

## Schedule Optimizers

Must fit a specific time schedule without flexibility

## Frugal flyers

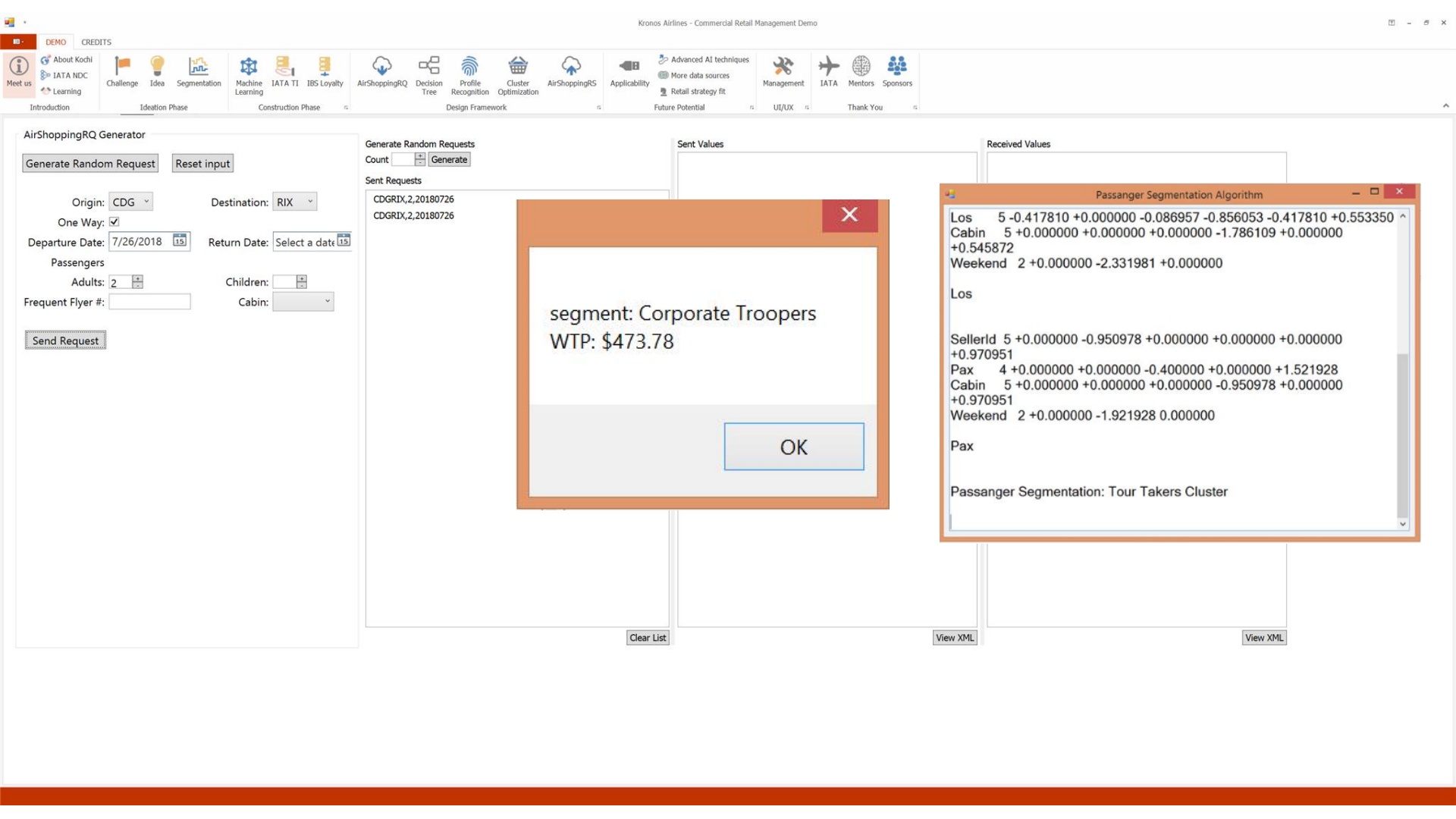
Seek out the best value for money experience

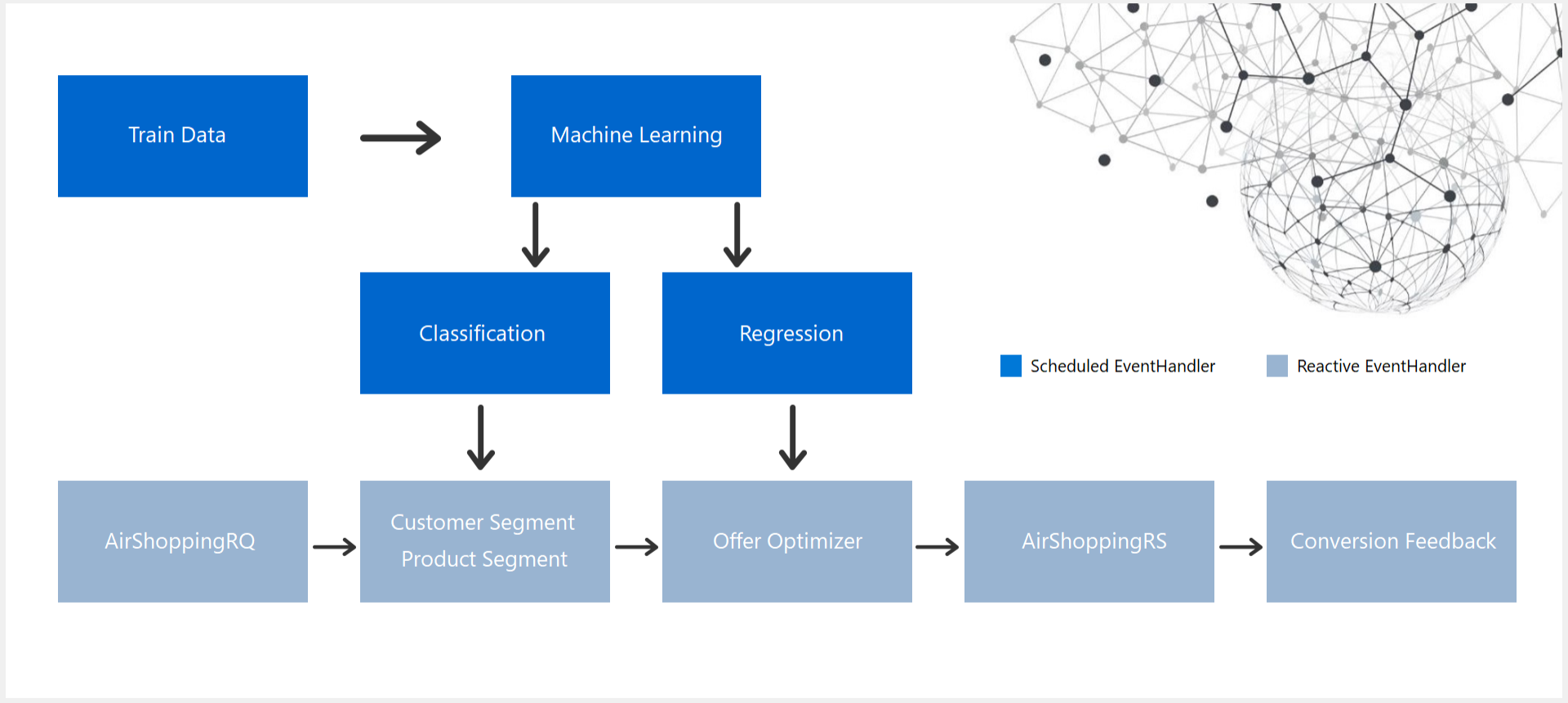
## Travel seekers

Love to travel and seek out new experiences

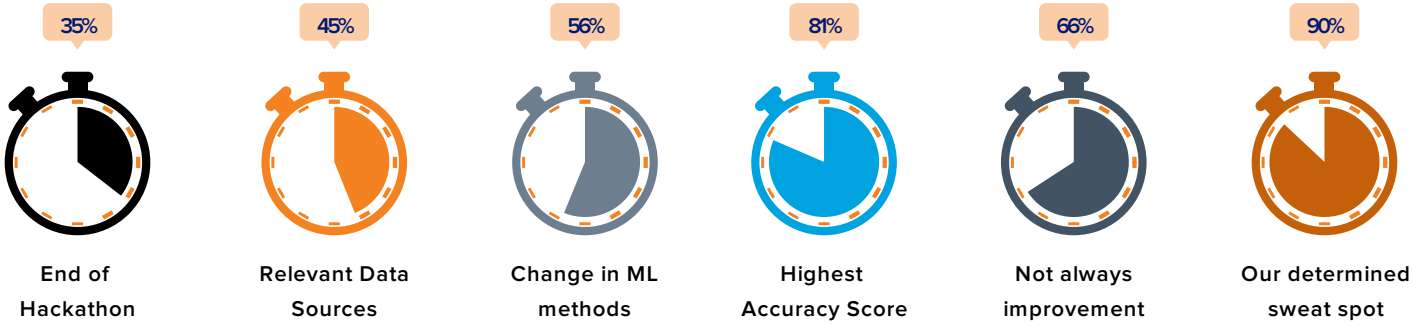
## AirShopperRQ API variables

Origin - Destination - Departure Date - Length of Stay - Advance Booking Date - Number of passenger - Cabin of Service (- Loyalty)


Kronos Airlines - Commercial Retail Management Demo
DEMO
CREDITS
About Kochi
IATA NDC
Learning
Meet us
Introduction
Challenge
Idea
Segmentation
Ideation Phase
Machine Learning
IATA TI
IBS Loyalty
Construction Phase
AirShoppingRQ
Decision Tree
Profile Recognition
Cluster Optimization
AirShoppingRS
Design Framework
Applicability
Advanced AI techniques
More data sources
Retail strategy fit
Future Potential
Management
UI/UX
IATA
Mentors
Sponsors
Thank You
AirShoppingRQ Generator
Generate Random Request
Reset input
Origin: CDG
Destination: RIX
One Way:
Departure Date: 7/26/2018
Return Date: Select a date
Passengers
Adults: 2
Children:
Frequent Flyer #:
Cabin:
Send Request
Generate Random Requests
Count
Generate
Sent Requests
CDGRIX,2,20180726
CDGRIX,2,20180726
Clear List
Sent Values
View XML
Received Values
View XML
segment: Corporate Troopers
WTP: $473.78
OK
Passanger Segmentation Algorithm
Los 5 -0.417810 +0.000000 -0.086957 -0.856053 -0.417810 +0.553350
Cabin 5 +0.000000 +0.000000 +0.000000 -1.786109 +0.000000
+0.545872
Weekend 2 +0.000000 -2.331981 +0.000000
Los
SellerId 5 +0.000000 -0.950978 +0.000000 +0.000000 +0.000000
+0.970951
Pax 4 +0.000000 +0.000000 -0.400000 +0.000000 +1.521928
Cabin 5 +0.000000 +0.000000 +0.000000 -0.950978 +0.000000
+0.970951
Weekend 2 +0.000000 -1.921928 0.000000
Pax
Passanger Segmentation: Tour Takers Cluster


Train Data
Machine Learning
Classification
Regression
Scheduled EventHandler
Reactive EventHandler
AirShoppingRQ
Customer Segment
Product Segment
Offer Optimizer
AirShoppingRS
Conversion Feedback

# Finding the right accuracy…




After the NDC Hackathon, the first challenge was to test the data on real airline data. In iterations of 2 weeks, we test over a dozen

of airlines and measure our classification accuracy. The regression accuracy is related to the success of our ability to match the correct classification profile on a Shopping Request. We are still in a experience of big data shifts.

# Thank You!

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OliverJ@iata.org

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# The Twelve Labors of mastering Big Data

## an Amadeus experience

Pascal Clément
Head of Airlines Data Unit
Amadeus

# *Where do we start?*

January, 2013

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# Data Silos

- Where the problems start

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# Data Access Governance

- Who? Where? How? Legal? GDPR?

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# Analytical vs. Transactional

Bringing analytics in a world mastering transactions

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# Cost & Investment

You quickly realize that storage and computation goes far beyond what you think

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# Speed & Agility

- Analytics and Big Data needs much more speed and agility than legacy

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# The Budget Problem

- How do you manage financing experimentation vs. plan?

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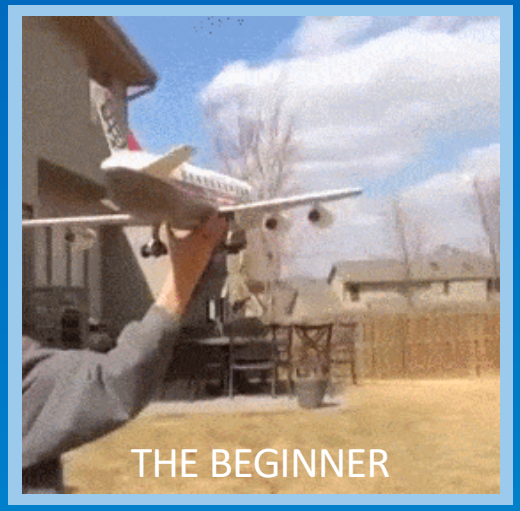
# Build Data Science Capabilities

- A Data Science capability needs much more than data scientists



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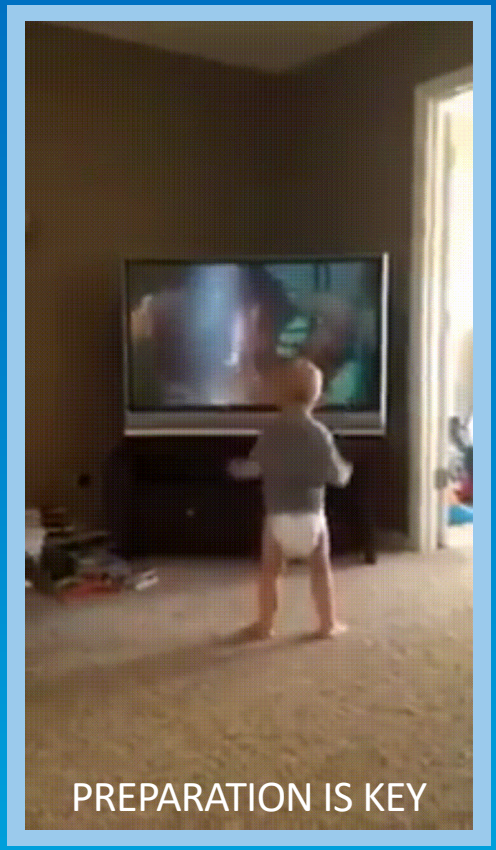
# Data preparation & Quality

- Data is NOT ready for analytics

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# Industrialization Operation. Security

- Needs to be built for thousands of users all over the world

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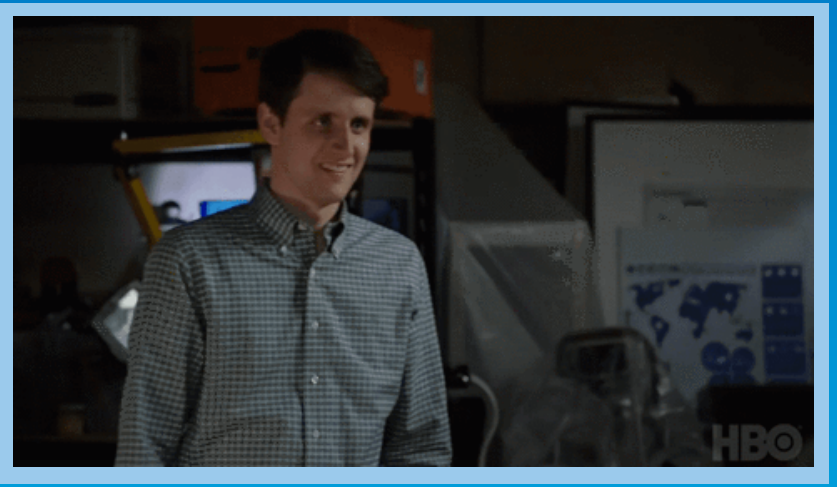
# Keeping Data Scientists Happy

- They receive a job offer every day

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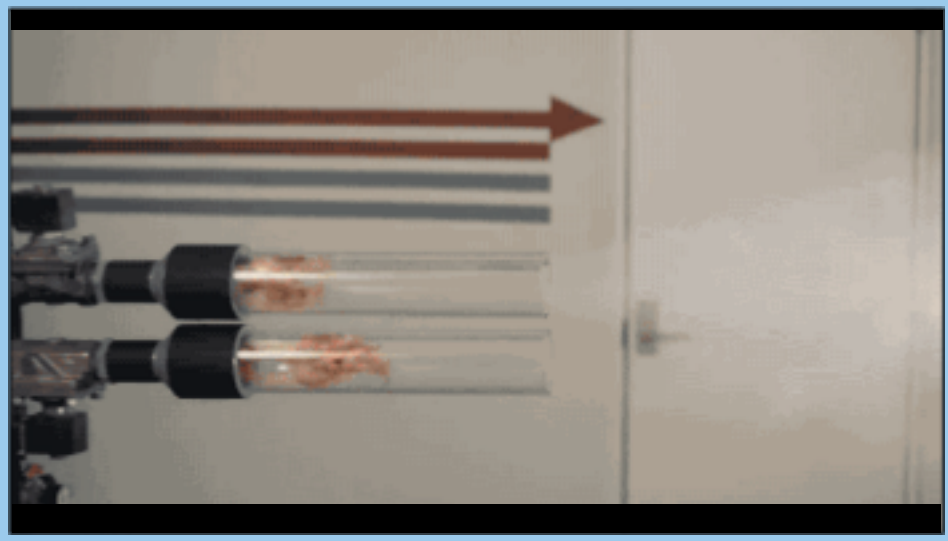
# Real time

- It’s becoming critical



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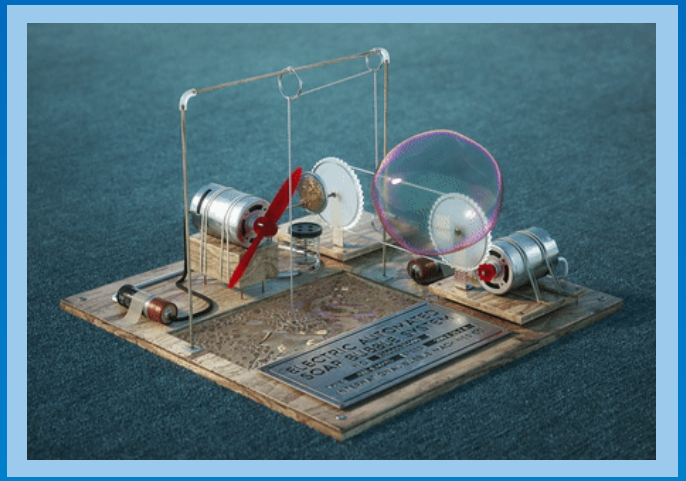
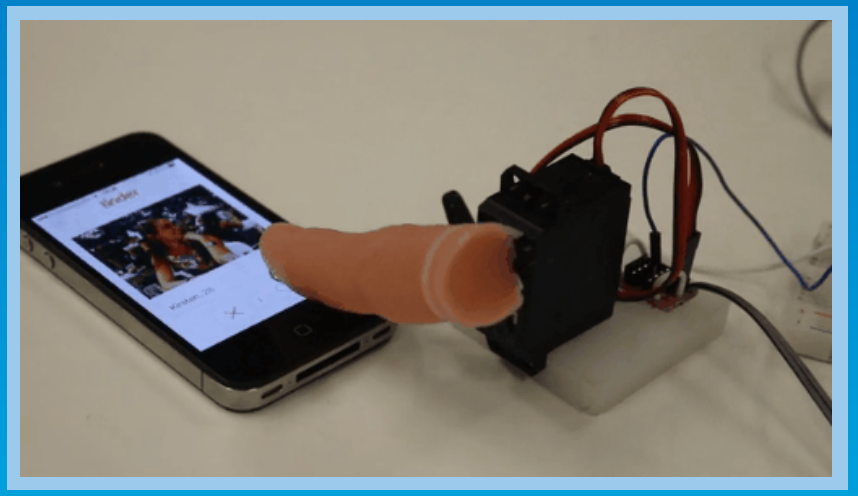
# Automation

- The ultimate Big Data Goal





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# Conclusion

5 years of real life experience

You can benefit from our experience through a 2 weeks assessment on *Big Data Maturity*

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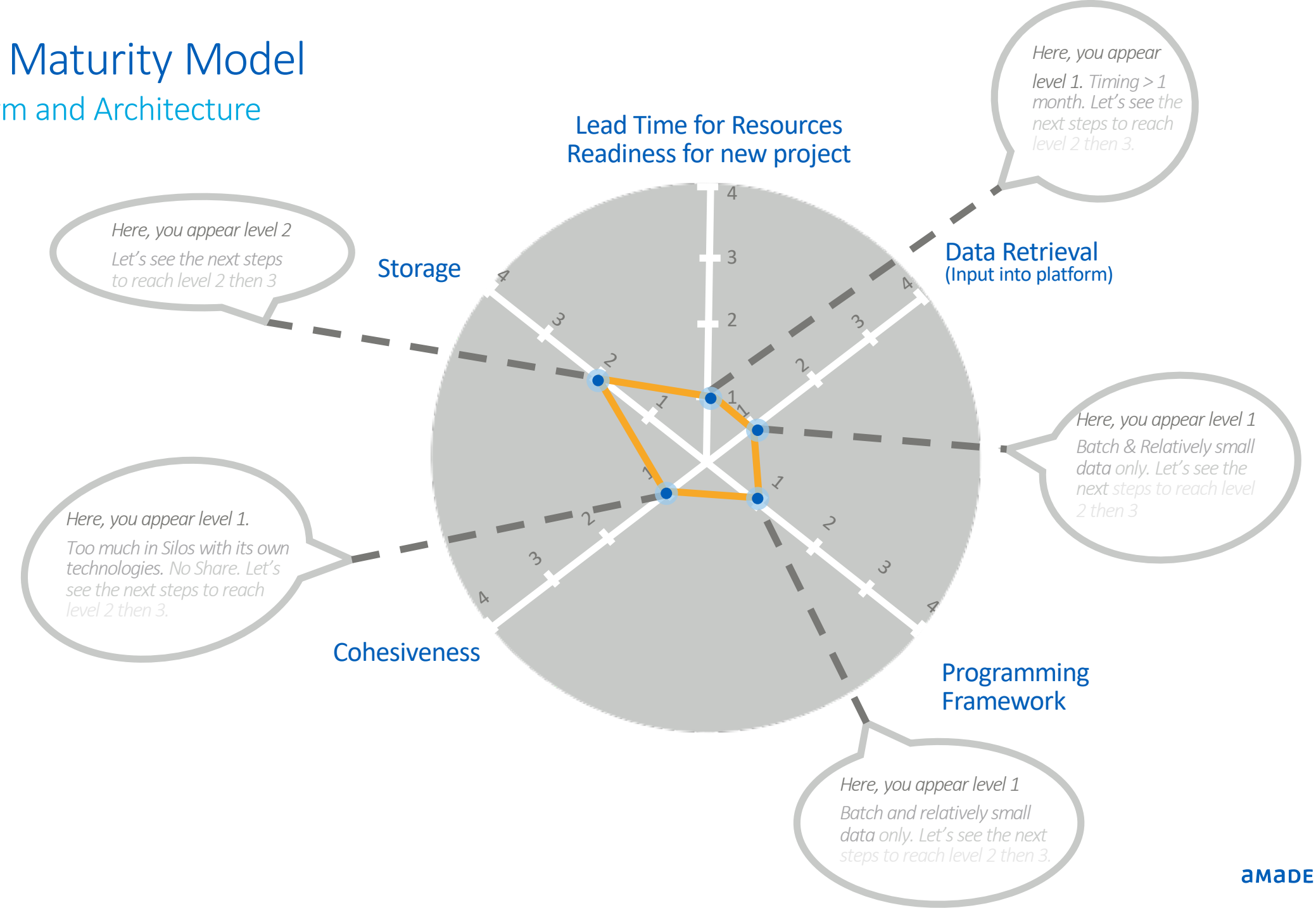
# Big Data Maturity Model

## Data Platform and Architecture

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Yeah baby!

# *Thank you!*

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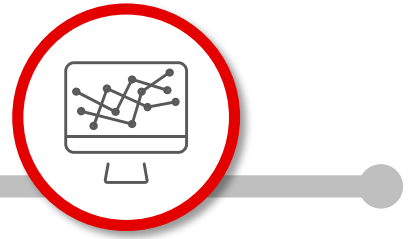
# How Airlines can harness and leverage data

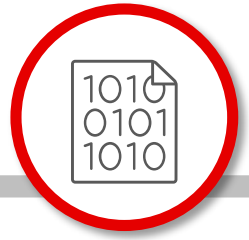
**Rodrigo Ramos**
Managing Director, Sabre Iceland
Product Head of Intelligence Exchange

20 June 2018

# Key challenges for airlines to leverage data



The PSS is not designed for custom business process and sense and respond actions




Complexity of bringing together disparate, data sets to achieve digital transformation

A customer-centric business requires non-core systems to have customer data

There is a huge need for airlines to leverage more data and a DWH is not enough

**12%** of enterprise data is typically utilized for analysis

**29%** of the IT budget is now generated by business unit investment rather than IT

Source: Gartner

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“IT application development time is highly correlated with IT’s impact on business performance…”

Forrester Research

“The speed… to convert mass amounts of customer data into insights, and insight into action is now a critical differentiator.”

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# Intelligence Exchange: the open airline enterprise agility platform

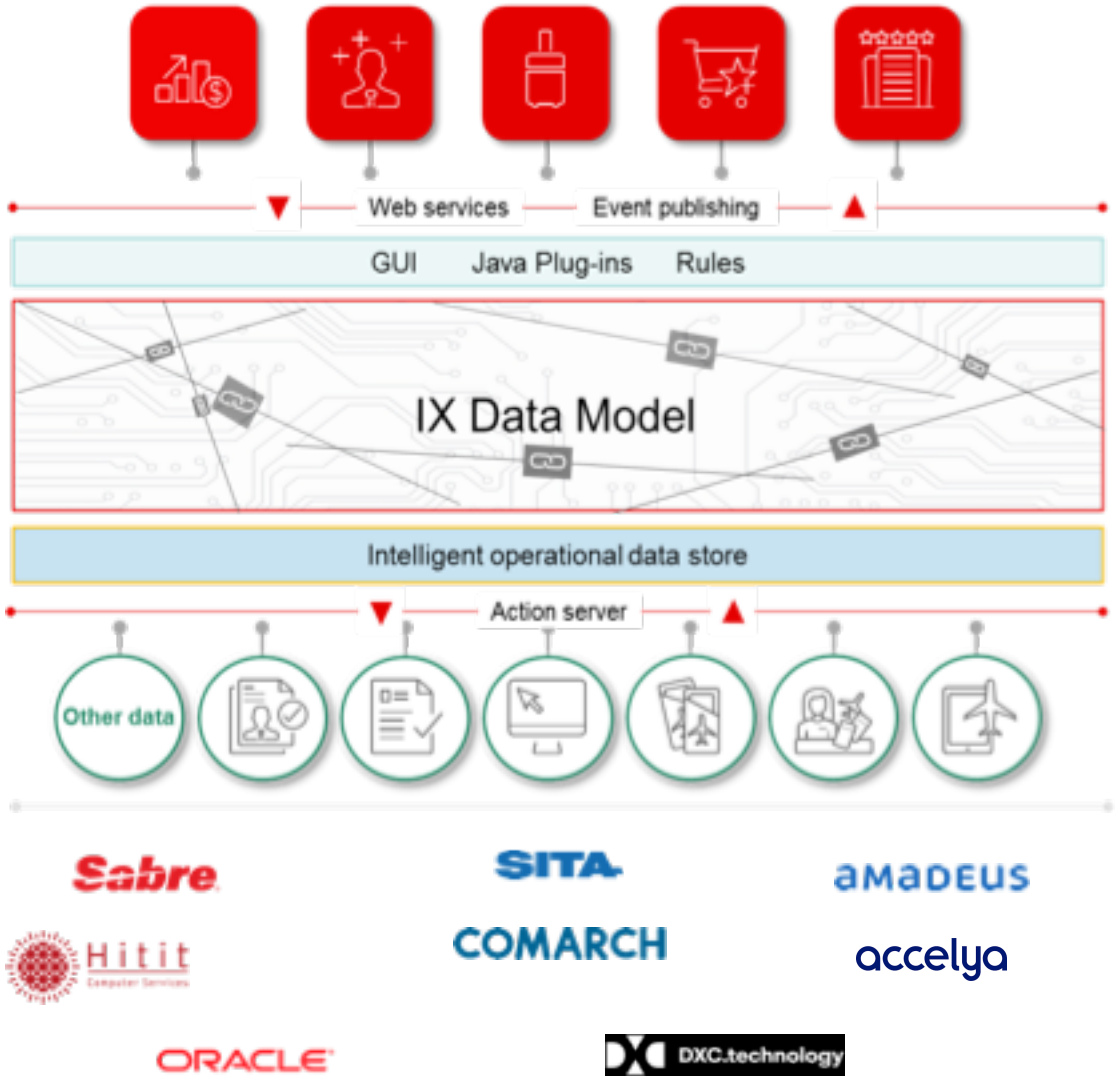
Apps and processes

Sense and respond

User experience

System of reference

System of record

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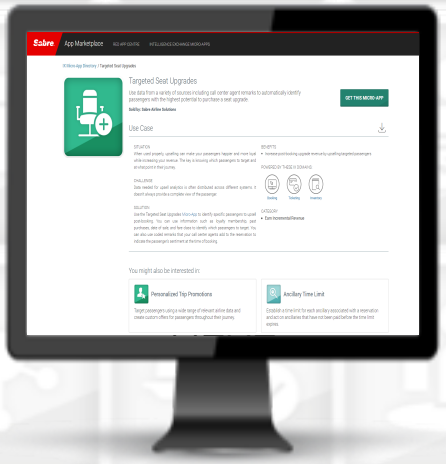
# Intelligence Exchange **MICRO-APPS**

An ecosystem of micro-apps built on the Intelligence Exchange Platform

https://vimeo.com/274572139/50f82f670e

# What is a Micro-App?




Business process templates

75% standard / 25% configurable

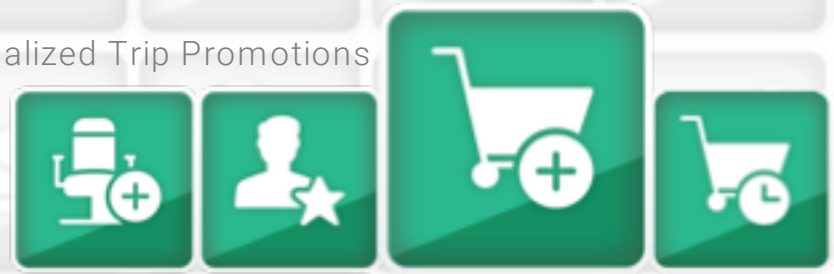
Take action across enterprise systems

Deploy fast to save time and money

marketplace.sabre.com/IX

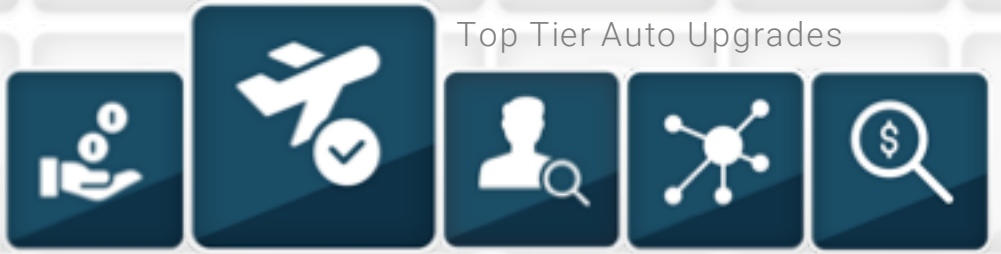
# Solve **PERVASIVE BUSINESS CHALLENGES** across the customer journey

Personalized Trip Promotions



Earn incremental revenue

Top Tier Auto Upgrades



Enable customer centricity

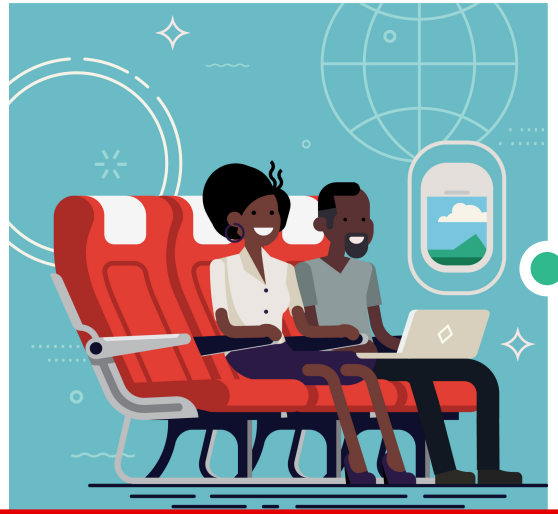
Fare Error Detector

Prevent revenue leakage

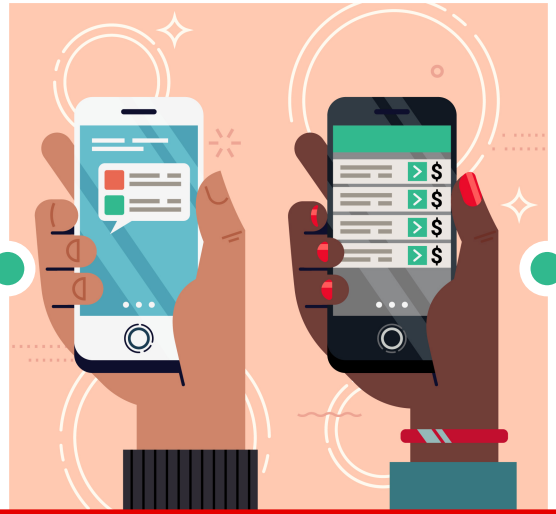
Real Time Flight Analysis

Streamline airline operations

# **Last Minute Upgrades** checks for upgrades and automatically notifies qualified customers based on tier or other criteria.



On the day of departure, WorldWide Air identifies that they have unsold seats in a particular cabin.



In order to fill that cabin, WWA decides to offer promotions to qualifying customers to encourage upgrades.

Based on rules in the Micro-App, promotions are sent to customers and front-line agents.

# Imagine if… you could automatically manage **seat swaps** in real-time based on customer data

**Tailored Opt-In Message**
- Customer can opt-in to receive a better seat on their existing flight

**Seat Swap Notification**
- If two or more customers are matching candidates, assign seat swap

**Successful Seat Swap**
- Customer is automatically notified of a successful seat swap

Booking made | Ticket issued | Check-In | Departure | Arrival | Reduced Agent Handling Cost | Improved Customer Experience

Use implicit and explicit customer data to determine optimal re-seating.

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# Imagine if… you could automatically manage **ancillary integrity** to increase incremental revenue

**Paid Seat is Reserved**
- A paid seat is reserved, but payment is not complete

**Check-in Notification Sent**
- A Guest is unable to check-in until AirExtra fee is paid

**Additional Abuse is Detected**
- To avoid additional inventory abuse, app continuously checks for the application of new waiver rules

Booking made | Ticket issued | Check-In | Departure | Arrival | Increase Revenue | Reduced Agent Servicing Cost

Should AirExtra fee be waived be based on customer data or airline rules?

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# Sabre Intelligence Exchange Customer Spotlight

> Sabre Intelligence Exchange will continue to support engagement with our customers and drive performance for our business.

Shane Tackett
Vice President, Revenue and Ecommerce

## Goal

- A seamless experience for their elites, where they can either be automatically upgraded to the existing first class product, or to the new premium class product
- Manage all the logic of upgrading elite members with flexible rules around multiple flight, value, and profile attributes
- Continuously evaluate new bookings across the same criteria

## Solution

- Implemented Sabre Intelligence Exchange in 2016
- Partnered with Sabre to develop Elite seat upgrade app
- App was completed at a low cost and on-time by leveraging the IX platform

## Results

- The most flexible and user-friendly elite upgrade process in North America
- Added optionality upgrade options based on tier status, date and time, and inventory
- Improved retention of premium tier customers

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# Differentiating the customer experience through seamless upgrades

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# How Intelligence Exchange Solves The Problem?

## Identify

Leverage IX Integrated Cross Domain Data

## Prioritize

Enrich and analyze data to create prioritization of Elite Members

## Execute

Business Rule Engine with actioning capabilities to execute upgrades

Clear expectations to Elite members on upgrade availability

Incremental Revenue • Customer Experience • IT Cost Savings

# POC - Fast time to market

1 Programmer
3 Days
200 Lines of Code

# Intelligence Exchange: A growing and thriving community

Sabre Intelligence Exchange community

**60+** airlines

Regular interactions, conferences and user workshops around the world

## Americas

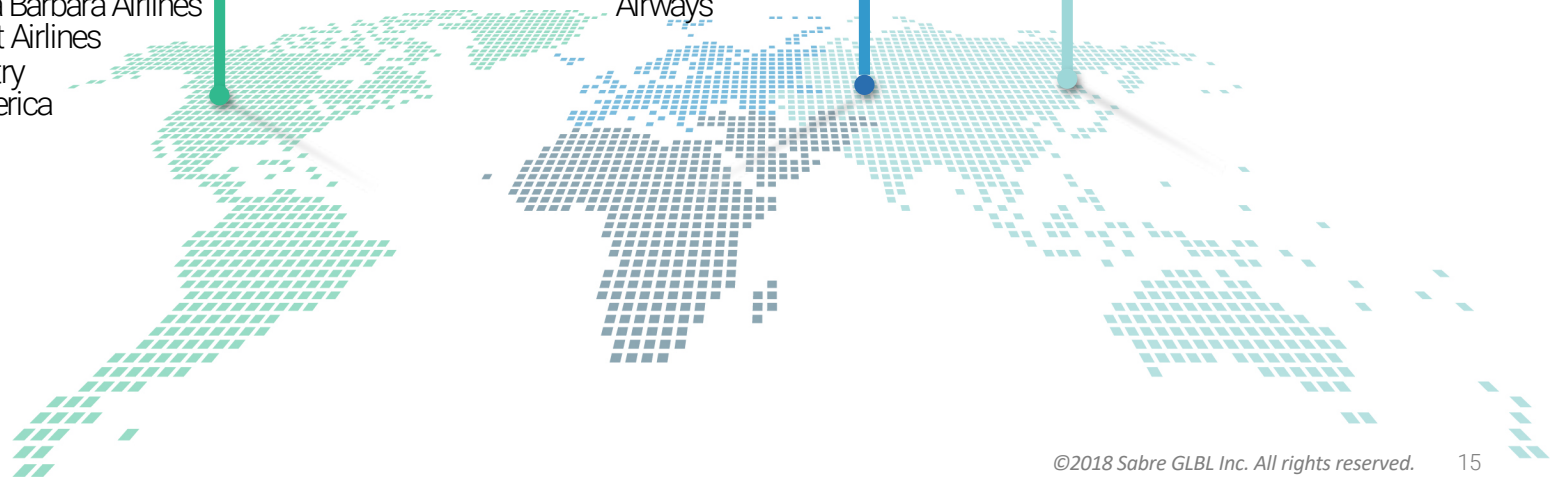
- Aerolineas Argentinas
- Aeromar
- Aeromexico
- Air Canada
- Alaska Airlines
- American Airlines
- Aserca
- Azul Linhas Aereas Brasileiras
- Bahamasair
- Canadian North
- Cayman Airways
- COPA
- Frontier
- Hawaiian Airlines
- JetBlue
- LATAM Chile
- Ravn Alaska
- SBA Santa Barbara Airlines
- Southwest Airlines
- Sun Country
- Virgin America
- Volaris
- WestJet

## EMEA

- Adria Airways
- Aegean Airlines
- Aeroflot
- Afriqiyah
- Air Berlin
- Air Serbia
- Air Seychelles
- Alitalia
- Atlantic Airways Faroe Islands
- Austrian Airlines
- Avior
- Belavia
- British Airways
- Comair/Kulula
- Croatia Airlines
- Emirates
- Ethiopian Airlines
- Etihad
- Etihad Regional
- Gulf Air
- Icelandair
- Jet Airways
- JetKonnect
- Kuwait Airways
- Norwegian Air Shuttle
- Oman Air
- Pakistan International
- Royal Jordanian
- Saudi Gulf
- Virgin Atlantic Airways

## APAC

- Air Niugini
- Air Tahiti Nui
- Angkor Air
- Bangkok Airways
- Cathay Pacific
- Dragon Air
- PAL Express
- Philippine Airlines
- Vietnam Airlines
- Virgin Australia



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# The power of the industry-only Intelligence Exchange platform

25% of global bookings

In production at more than 60 airlines

Over 60 micro apps in production

Integration with 5 reservation systems

Over 8 data domains

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# Q&A

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