

**IATA**

**AVIATION**

**DATA**

**SYMPOSIUM**

**ATHENS, GREECE 25 – 27 JUNE 2019**



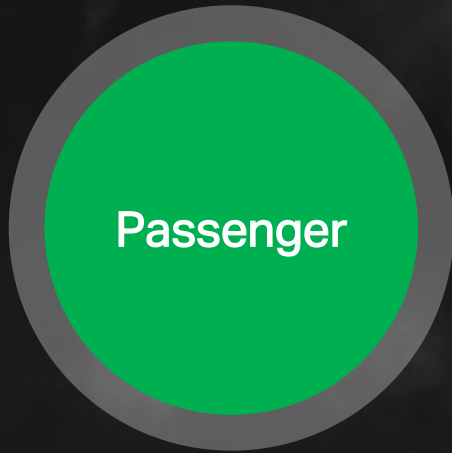


# Recapping ADS Tracks & Innovation Jams Session Opening

Charles de Gheldere, Director, Travel Intelligence, IATA



# 5 Specialized Tracks





# Becoming a Data-Driven Organization. Enabling Digital Transformation

**Ido Biger, Chief Data Officer, EL AL Israel Airlines**







# Data Driven Organization



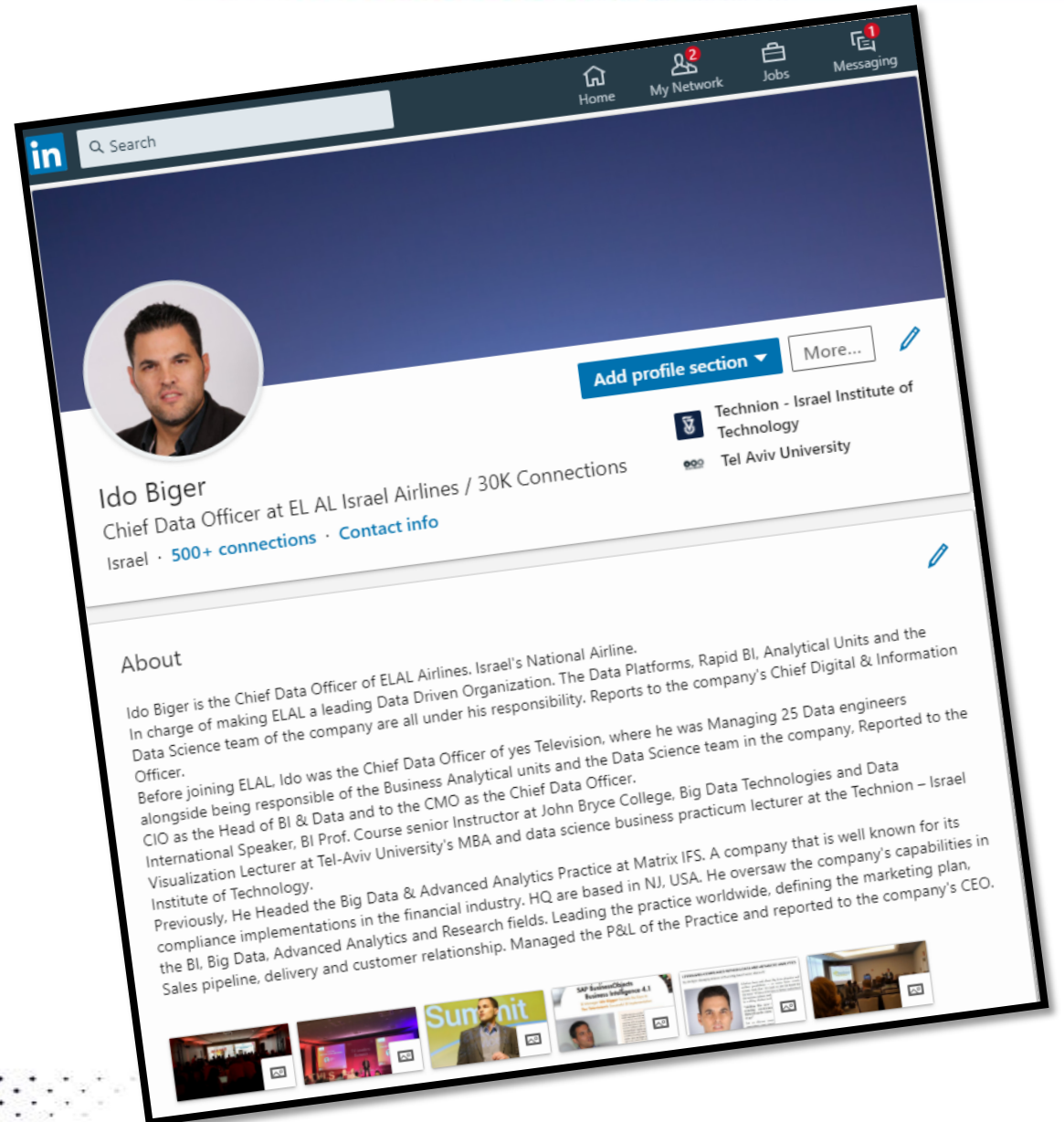
Ido Biger

Chief Data Officer

idobi@elal.co.il

<https://www.linkedin.com/in/idobiger/>

# The Speaker





# EL AL Israel Airlines



**\$2.1B**  
ANNUAL INCOME



About **6,000**  
Employees



**\*43**  
Owned and leased aircraft

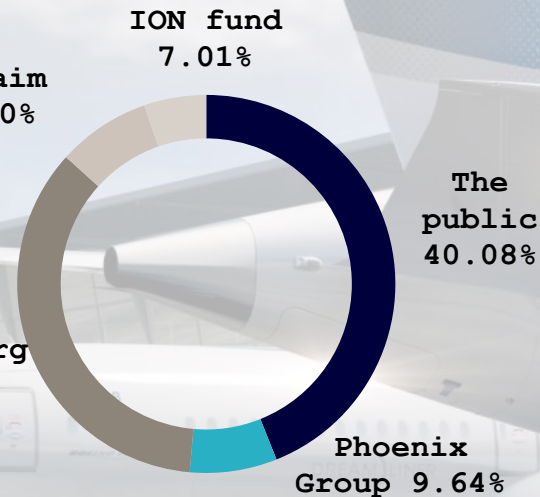


**39**  
Direct Lines  
Without Sun Dor

Israel's National Airline



Main Shareholders  
Knafaim Group (approx. 35.3%)



\* As of the publication date of the report

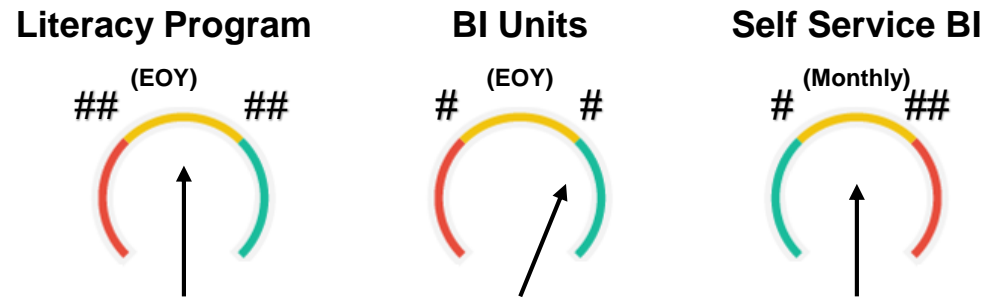


- **Data as an Asset**
  - Chief Data Officer's Dashboard
  - Data Maturity Level
  - Technologies
- **BI & Data Factory**
  - Data & Analytics Organization Chart
  - Data Units
  - Data Literacy
- **Turning Data into Money**
  - Data Projects
  - Data Science & CDS Methodology
  - Data Projects Life Cycle





# Chief Data Officer's Dashboard

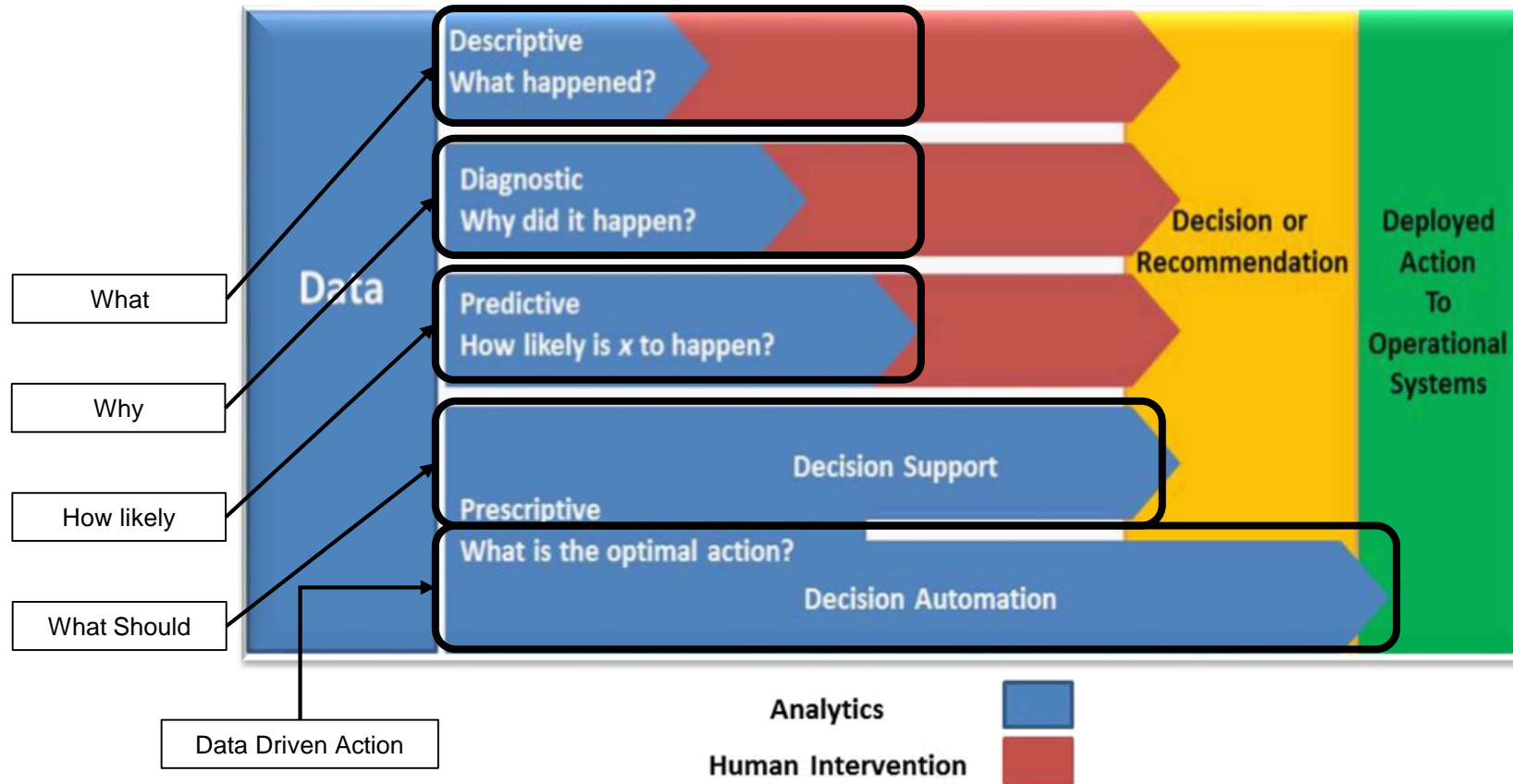


## Data as an Asset





# Data Maturity Level

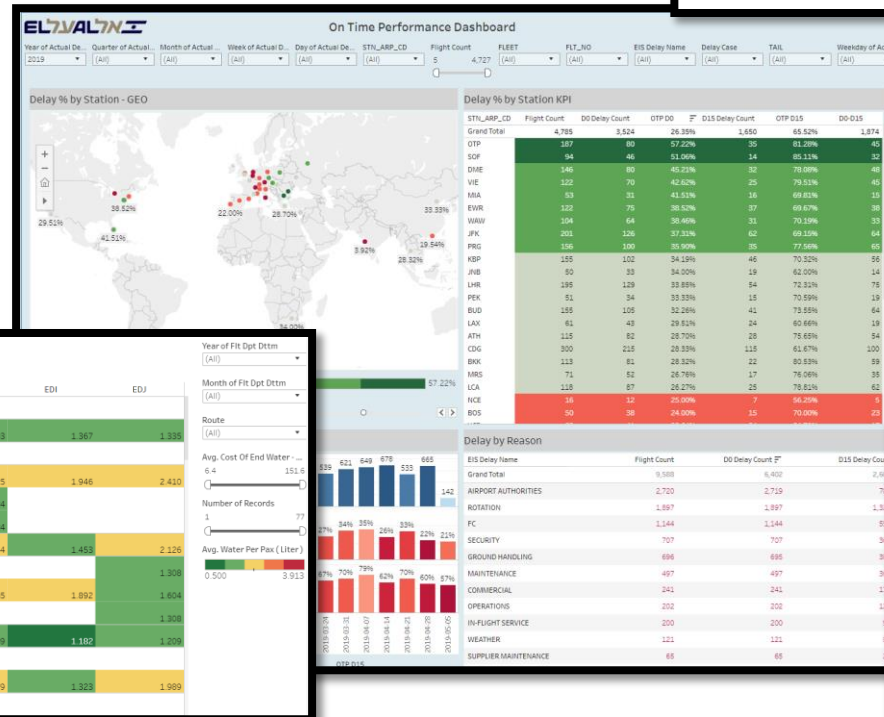
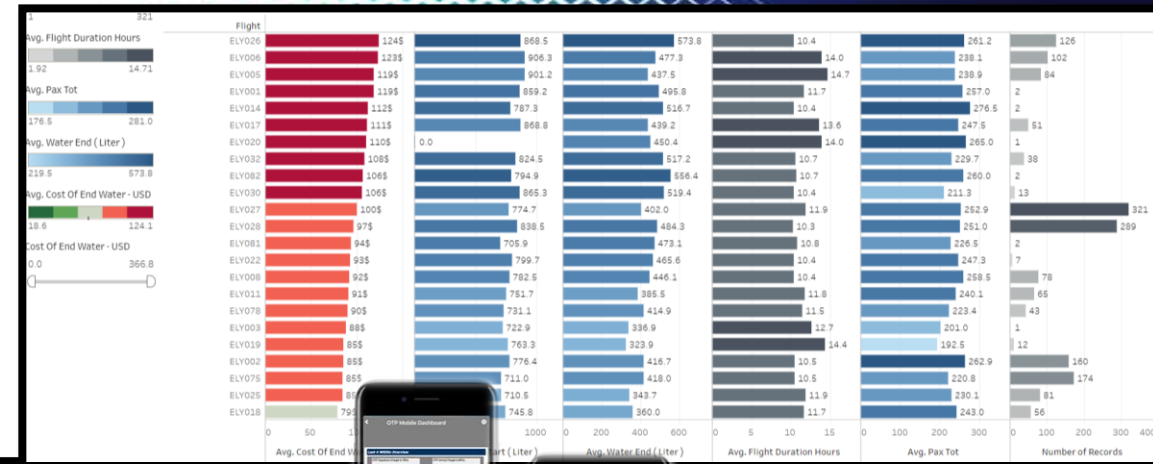


## Data as an Asset

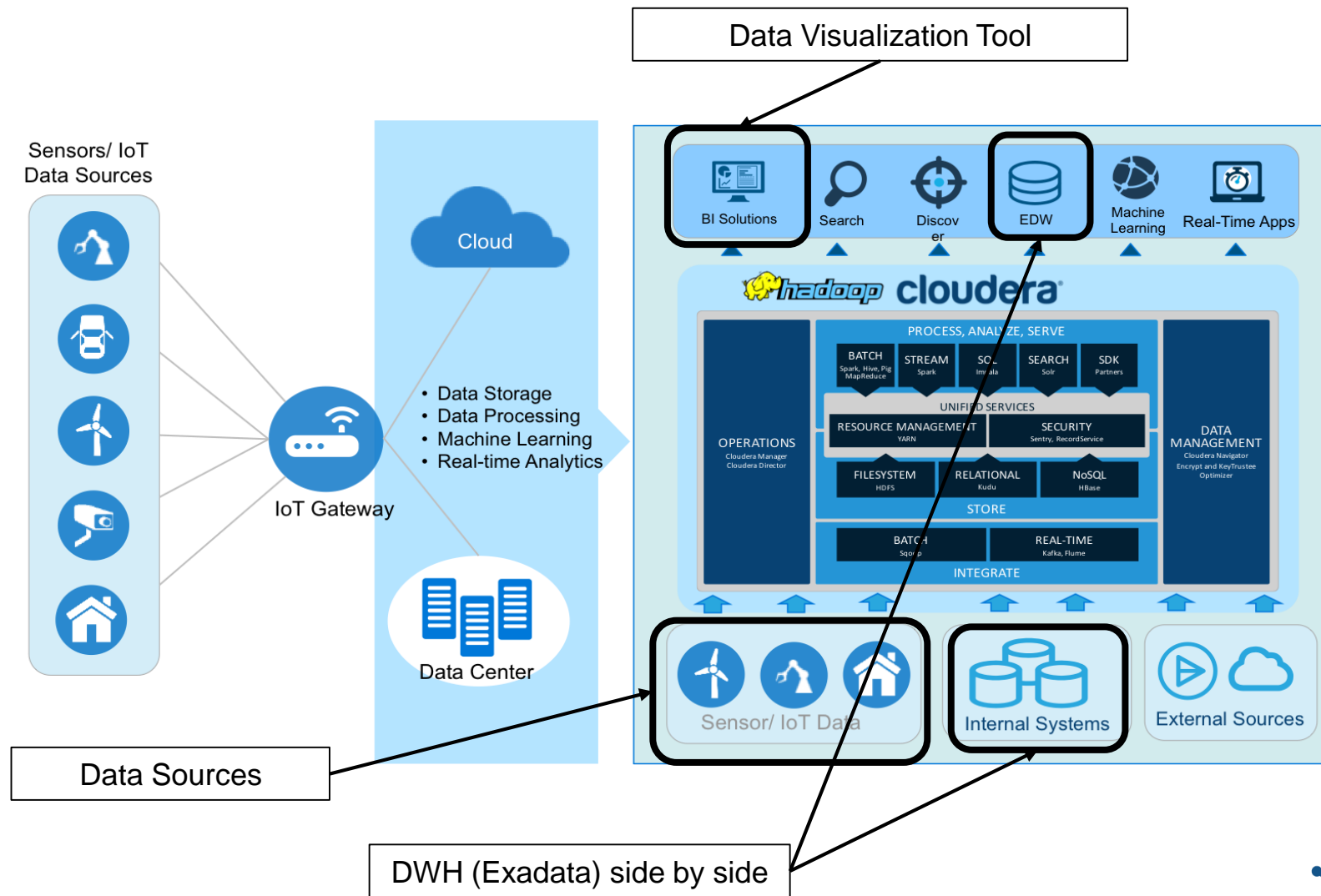


# Data Technologies

- The Right Data
- The Right Time
- The Right Place (way)

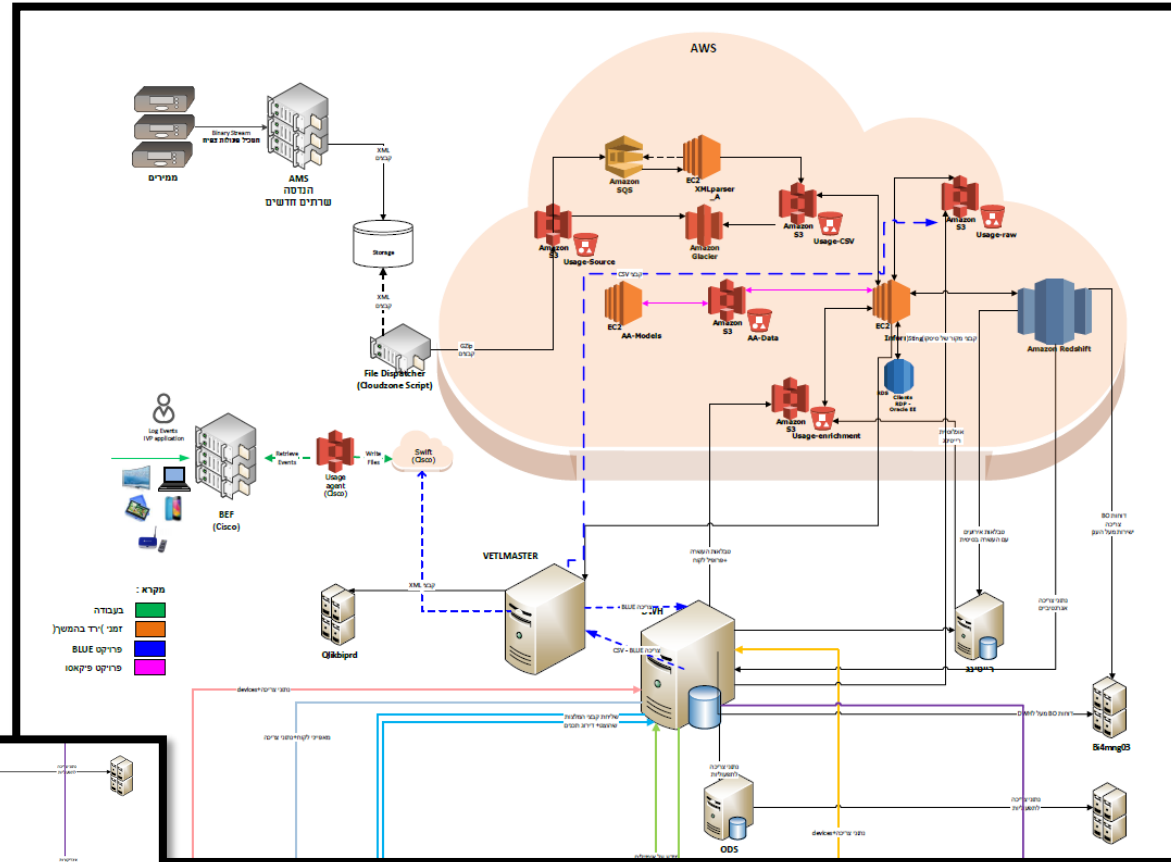
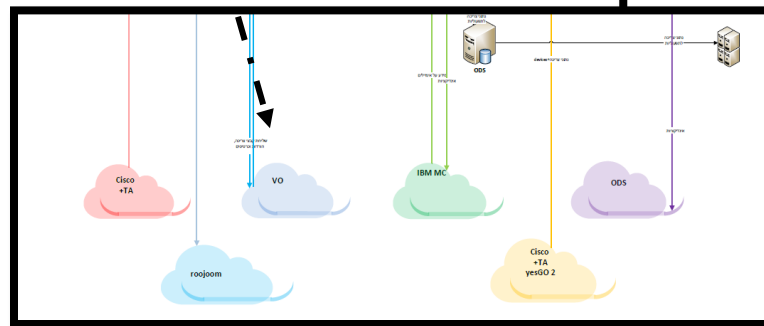
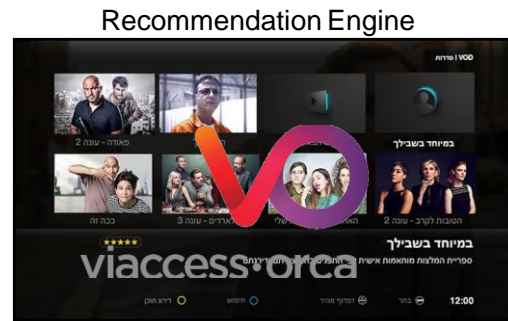


# Data Technologies



## Data as an Asset



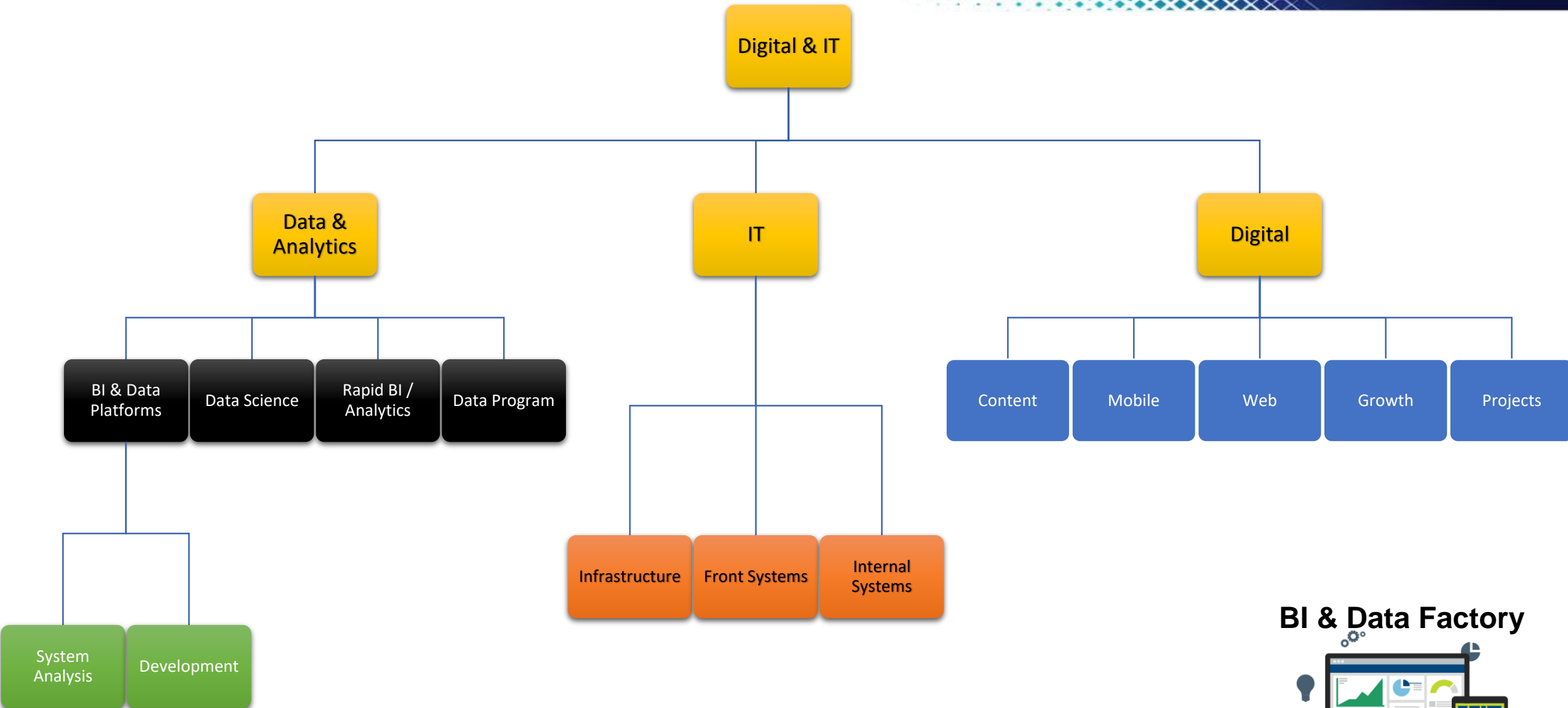


## Data as an Asset





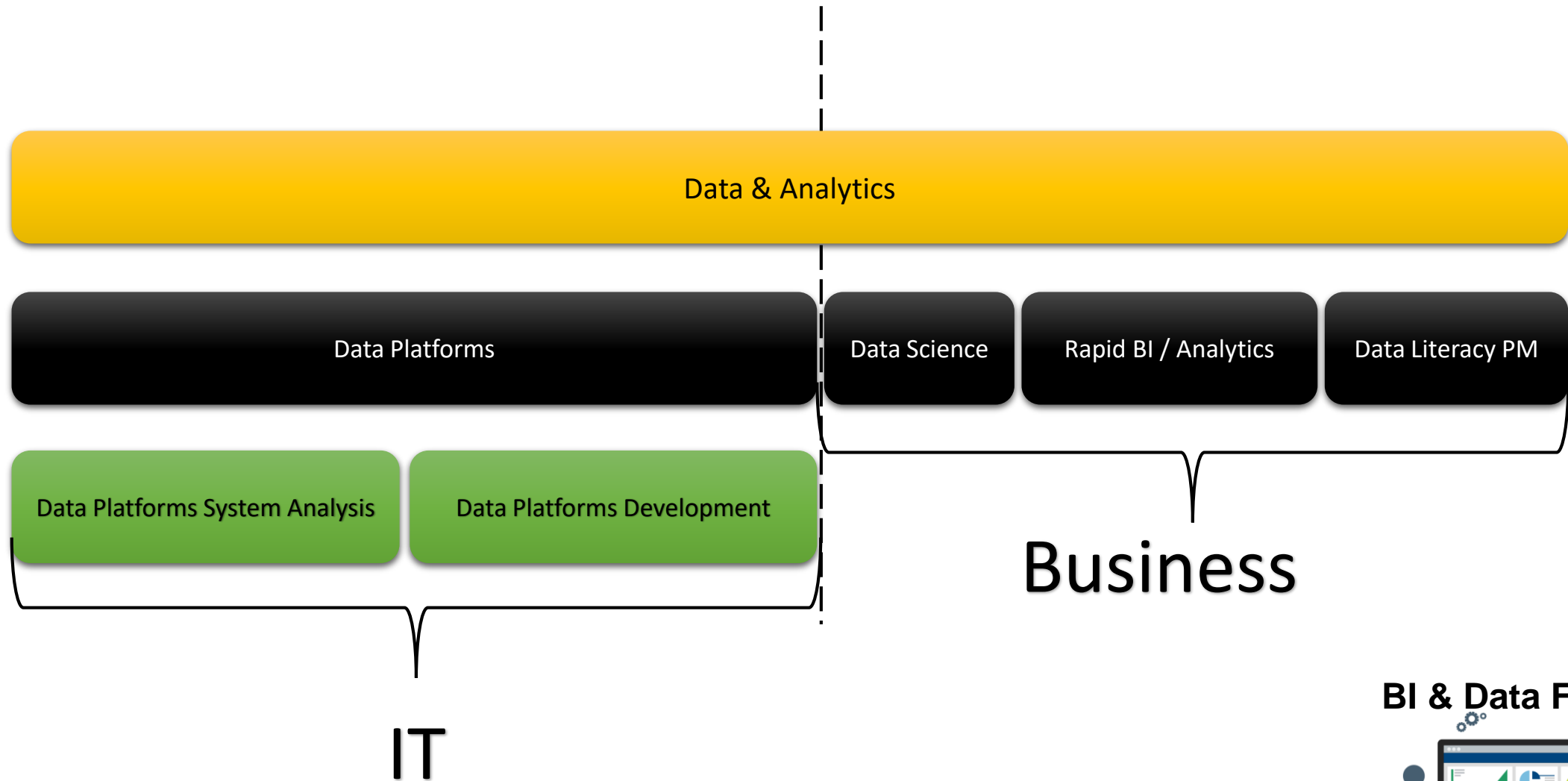
# Data & Analytics Organization Chart



## BI & Data Factory



# Data & Analytics Organization Chart

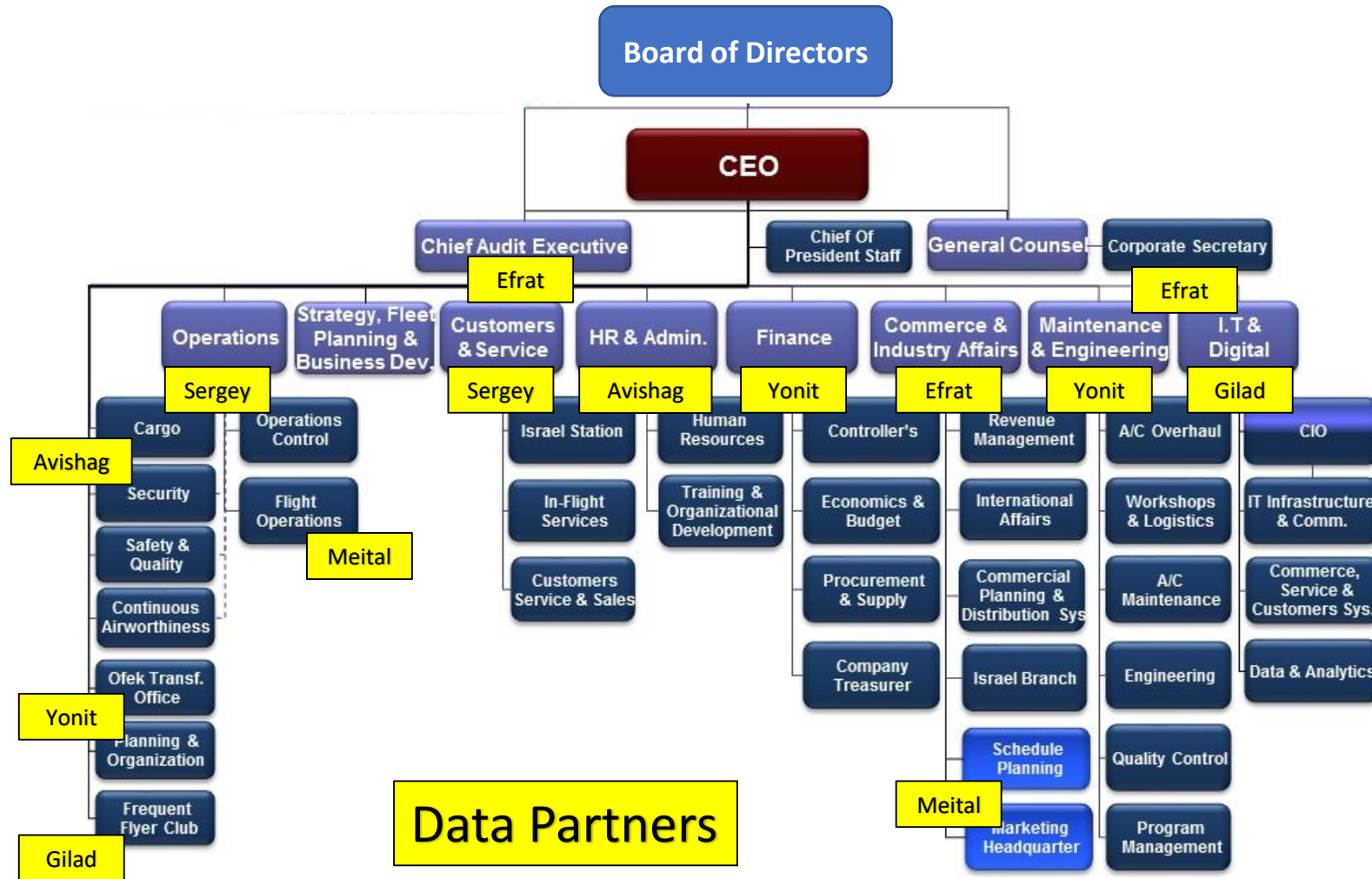


**BI & Data Factory**





# Business Partners



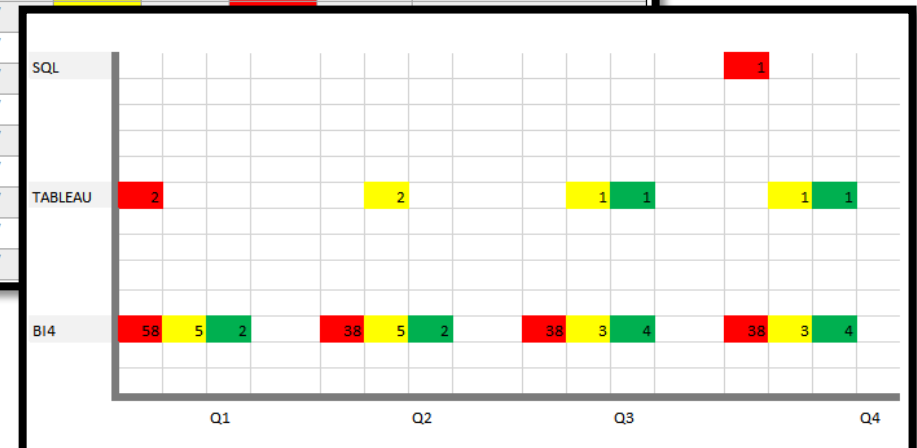
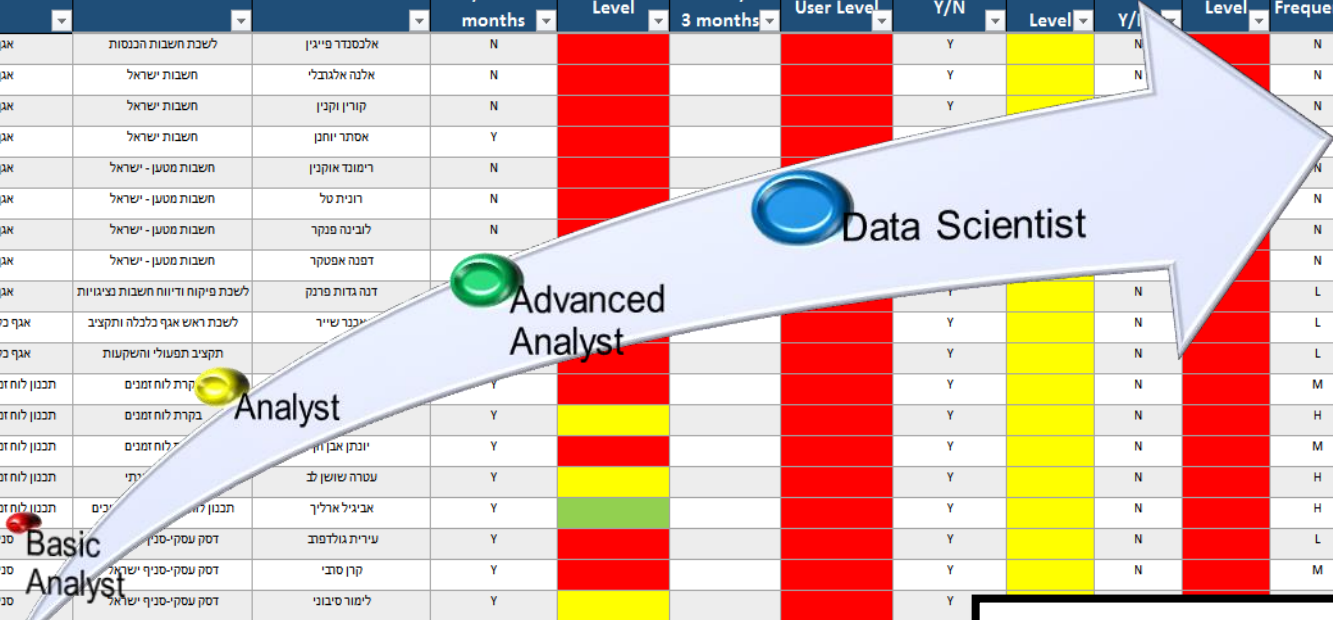
**Data Partners**

**BI & Data Factory**

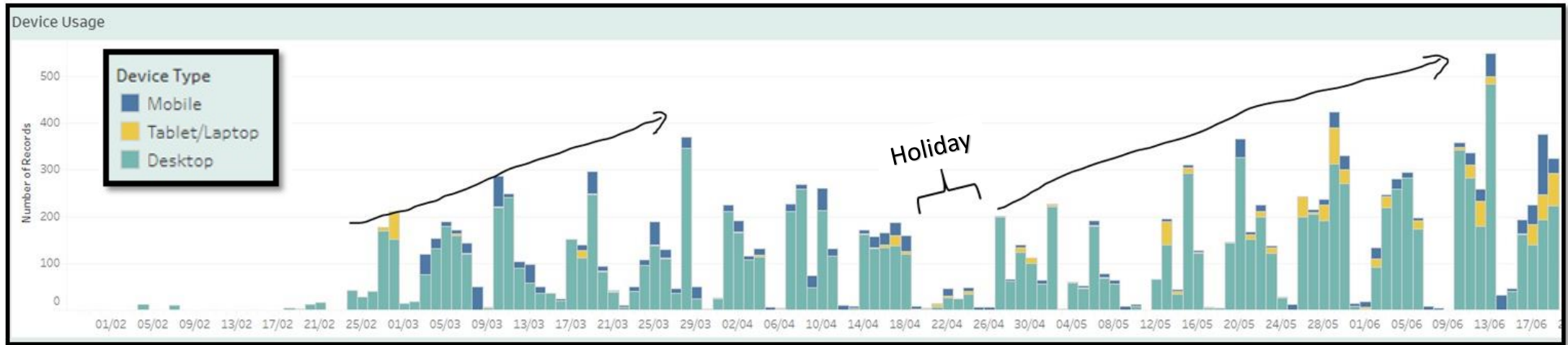


**EIAI BI Analysts**

סמנכלות	אגף	תחום	שם העובד	BI4 Active Y/N - 3 months	BI4 User Level	Tableau Active Y/N - 3 months	Tableau User Level	Excel Active Y/N	Excel User Level	SQL Active Y/N	SQL User Level	Use Frequency	Remark
נספים	אגף חשבות	לשכת חשבות הנסות	אלכסנדר פיגין	N				Y		N		N	
נספים	אגף חשבות	חשבות ישראל	אלנה אלגבלי	N				Y		N		N	
נספים	אגף חשבות	חשבות ישראל	קורין וקנין	N				Y		N		N	
נספים	אגף חשבות	חשבות ישראל	אסתר יוחנן	Y									
נספים	אגף חשבות	חשבות מטען - ישראל	רימנד אוקינין	N								N	
נספים	אגף חשבות	חשבות מטען - ישראל	רונית טל	N								N	
נספים	אגף חשבות	חשבות מטען - ישראל	לובינה פנקר	N								N	
נספים	אגף חשבות	חשבות מטען - ישראל	דפנה אפסטר	N								N	
נספים	אגף חשבות	לשכת פיקוח ודיווח חשבות נציגויות	דנה גדות פרנק	Y				Y		N		L	עברה הדרנה בסיסית של BI4
נספים	אגף כלכלה ותקציב	לשכת ראש אגף כלכלה ותקציב	יעיבנ שייר	Y				Y		N		L	עבר הדרנה בסיסית של BI4
נספים	אגף כלכלה ותקציב	תקציב תפעולי וחשבויות		Y				Y		N		L	עבר הדרנה בסיסית של BI4
מסחר וקשרים תופתיים	תכנון לוח זמנים ורשת נתיבים	קרת לוח זמנים		Y				Y		N		M	
מסחר וקשרים תופתיים	תכנון לוח זמנים ורשת נתיבים	בקרת לוח זמנים		Y				Y		N		H	Graduated BI Analyst Training
מסחר וקשרים תופתיים	תכנון לוח זמנים ורשת נתיבים	לוח זמנים	יונתן אבן ון	Y				Y		N		M	
מסחר וקשרים תופתיים	תכנון לוח זמנים ורשת נתיבים	רשת	עסרה שושן לב	Y				Y		N		H	Graduated BI Analyst Training
מסחר וקשרים תופתיים	תכנון לוח זמנים ורשת נתיבים	תכנון לוח זמנים	אביגיל ארליך	Y				Y		N		H	ראש תחום
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף	עירית גולדפרב	Y				Y		N		L	
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף ישראל	קרו סודי	Y				Y		N		M	
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף ישראל	לימור סיבני	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף ישראל	קרו לנגי	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף ישראל	יעל שני	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	דסק עסקי-סניף ישראל	שירן מוגבי	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	לשכת הסניף	איילה בנימין	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	לשכת הסניף	עידן אוח	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	לשכת הסניף	רונית שמעוני	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	לשכת הסניף	מיכל עליזה גוסלו	Y				Y		N			
מסחר וקשרים תופתיים	סניף ישראל	מכירת לטוכנים	שלמי זמרני	Y				Y		N			



## Measuring the Usage of the Data Products



BI & Data Factory





- Increase Revenue
- Reduce Cost
- Reduce Risk
- Innovation



**Turning Data into Money**



# Data Project Management

**Data Projects**

Sector	Create Dt	Owner	Assig...	Size	Wrk D...	Timeline	Status	Business...	Task Description	Team
#DataPro...	Oct 18, 2018	[Avatar]	[Avatar]	L	100	Oct 15 - Nov 27	In Process	דגיסל ומחשוב	שדרוג מערכת הדוחות הארגונית לגרסת...	[Avatar]
#BRKT	Oct 18, 2018	[Avatar]	[Avatar]	S	4	-	In Process	דגיסל ומחשוב	תהליך בחינת מערכת אינטגרציה נתונים...	[Avatar]
#DataPro...	Oct 22, 2018	[Avatar]	[Avatar]	S	2	Oct 22 - Dec 9	In Process	דגיסל ומחשוב	בשלב אישור ספקים	[Avatar]
#DataPro...	Oct 22, 2018	[Avatar]	[Avatar]	L	2	Nov 11 - Dec 16	In Process	דגיסל ומחשוב	תכנון ובנין - קומת ביניים - בנין מנכל	[Avatar]
#AUDIT	Nov 5, 2018	[Avatar]	[Avatar]	L	50	Sep 30 - Dec 30	GATING	כלל תברה	משימות מבקר החברה	[Avatar]
#DataPro...	Nov 5, 2018	[Avatar]	[Avatar]	M		Nov 5 - Dec 16	In Process	כלל תברה	התקבל אישור רכש להתקשרות נוצר ח'...	[Avatar]
#AUDIT	Nov 12, 2018	[Avatar]	[Avatar]	L		Nov 12 - 27	GATING	כלל תברה	שנתית במסגרתה יעבד...	[Avatar]
	Nov 20, 2018	[Avatar]	[Avatar]			-	GATING	שירות	מסופקים שלא רכשו כב...	[Avatar]
					158	sum				

**Data Platforms - System Analysis**

Sector	Create Dt	Owner	Assig...	Size	Wrk D...	Timeline	Status	Business...	Task Description	Team
#RBA	Oct 25, 2018	[Avatar]	[Avatar]	L	90	Sep 26 - Apr 30	DESIGN	מעדן	RBA Scope & Design Documentation	[Avatar]
#AUDIT	Oct 21, 2018	[Avatar]	[Avatar]	L	20	Oct 1 - Nov 29	INNER TEST	מבקר החברה	App & DB user pass	[Avatar]
#MLM	Oct 25, 2018	[Avatar]	[Avatar]	L		Oct 1 - Dec 31	DESIGN	משאבי אנוש	HR MLM Design Document	[Avatar]
#BRKT	Oct 18, 2018	[Avatar]	[Avatar]	M	7	Oct 29 - Nov 29	DESIGN	מסחר	MRK Report for 3xxx, 5xxx, 8xxx Flights	[Avatar]
#BRKT	Oct 31, 2018	[Avatar]	[Avatar]	S	4	Oct 31 - Nov 20	DESIGN	מסחר	Re Design Sales & Uplift Wrapper	[Avatar]
#RBA	Nov 6, 2018	[Avatar]	[Avatar]	M	10	Nov 1 - Apr 30	DESIGN	מעדן	RBA CA Test 2 DW Test Preparation	[Avatar]
#CARGO	Oct 21, 2018	[Avatar]	[Avatar]	S	4	Nov 1 - 27	DESIGN	מעדן	Redesign CW Flight Len Loading method	[Avatar]

**Turning Data into Money**



# Data Project Management

**Data & Analytics Kanban**

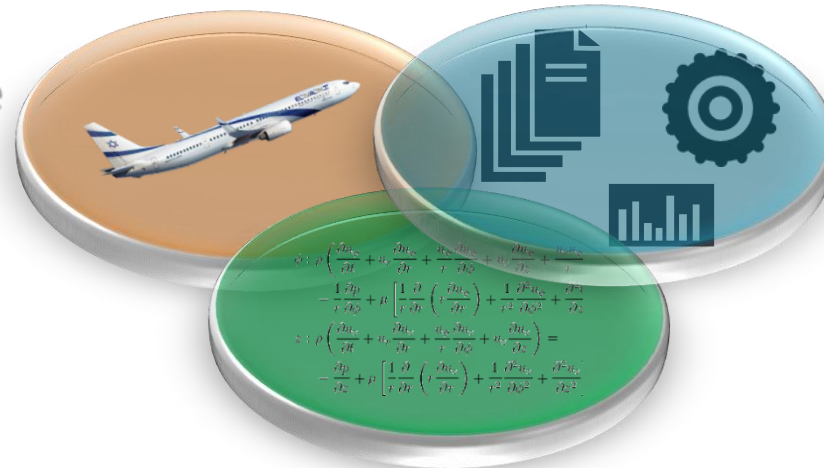
- סניף ישראל / 1**
  - MRK Report for 3xxx, 5xxx, 8xxx Flights
  - + Add pulse
- כספים / 10**
  - BTA Corporate Accounts Identification
  - HOT2XOR First PNR Mail
  - Multi Local Currencies in Exchange tickets Phase 2
  - ERR Log handling
  - Add EU Model Brand ID to SA & SLX
  - clim CMRTIV in XMRK
- שירות / 13**
  - Ancillary Report for FM (בקר׳ טיסות)
  - Add EU Model Brand ID to PSD
  - EU Model >>Customer's Seker Adj
  - DCS>> IL Stn >>Priority Boarding Follow up
  - Sherut Shalom >> HT From Mobile Seker
  - Ground Attendants >>HT Data
- מסחר / 20**
  - Re Design Sales & Uplift Wrapper
  - מודל אירופה-שיניים במימד המוצרים
  - Replace ETLift AS-400 source by PSD
  - Full load BSA DW 2 DWP
  - שלב ב Airm קליטת נתוני Look2Booked)
  - Redesign SLX Process
- כלל חברה / 11**
  - משימות מבקר - DWH
  - הסכם התקשרות נאיה - טאבלו
  - משימות מבקר - 262372 - הגדרת תוכנית רב שנתית - הדרכות BO
  - Sundor>> Airline CD 2U to LY
  - BDGT>>IT Invest Publish
  - BDGT>>Ops Bdgt
- דיגיטל ומחשוב / 12**
  - SAP BI 4 Upgrade
  - Data Integration System Benchmark
  - Data Engineer Course
  - בניו
  - Data Platforms - DWH 2
  - EDI FACT Introduction to ICONDUCT POC
- תחזוקה והנדסה / 2**
  - Maint>> Ground Equipment Data 2 DW
  - Maint >> Seats Defects Cost
  - + Add pulse

Turning Data into Money





Domain Expertise



Data Engineering

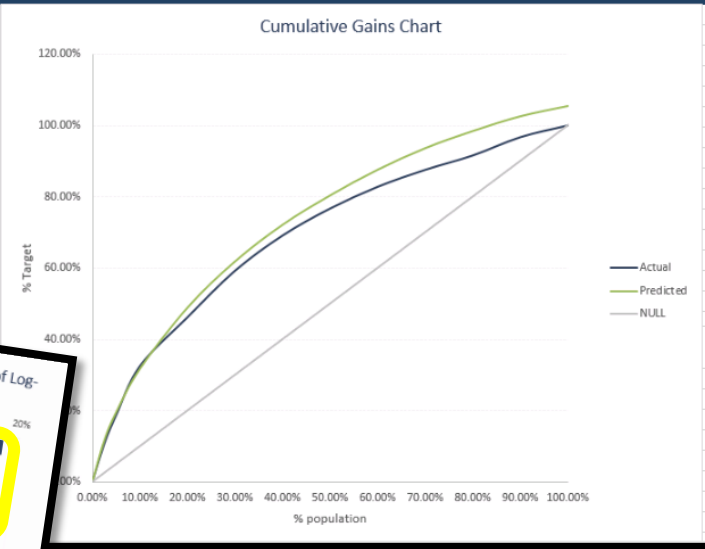
Statistics / Mathematics

Turning Data into Money



# Citizen Data Science Methodology

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
% population	# Prospects	Actual Response	% Total Res.	% Actual Response	Pred. Response	% Total Pred. Res.	% Pred. Response													
0.00%	0	0	0.00%	0.00%	0	0.00%	0.00%													
2.50%	953	87	10.62%	9.13%	94.83362	11.58%	9.95%													
5.00%	951	66	18.68%	6.94%	64.70433	19.48%	6.80%													
10.00%	1902	113	32.48%	5.94%	100.0082	31.69%	5.26%													
20.00%	3805	112	46.15%	2.94%	140.589	48.86%	3.69%													
30.00%	3804	107	59.22%	2.81%	106.1969	61.82%	2.79%													
40.00%	3805	81	69.11%	2.13%	84.24777	72.11%	2.21%													
50.00%	3804	62	76.68%	1.63%	67.58806	80.36%	1.78%													
60.00%	3805	50	82.78%	1.31%	58.98611	87.56%	1.55%													
70.00%	3805	39	87.55%	1.02%	49.50482	93.61%	1.30%													
80.00%	3804	33	91.58%	0.87%	39.43437	98.42%	1.04%													
90.00%	3805	42	96.70%	1.10%	33.85919	102.56%	0.89%													
100.00%	3804	27	100.00%	0.71%	23.67997	105.45%	0.62%													



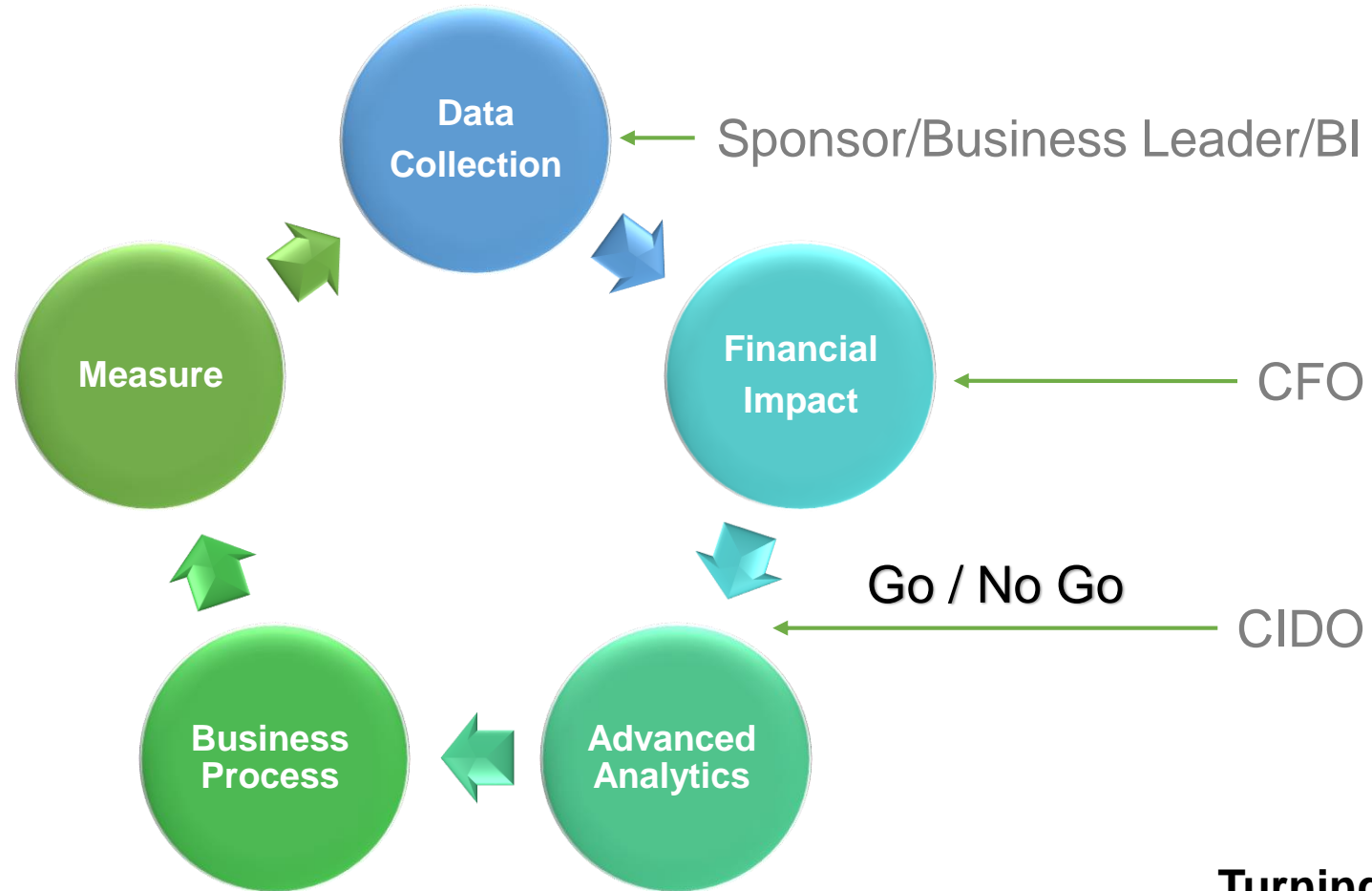
**Variable Contribution by % of Log-Likelihood**

- OPEN\_SP\_L1
- TECH\_L1
- FLAT\_NUMBER
- TECH\_ROLE\_DESCR
- TECH\_MAIN\_SKILL
- TECH\_DSP\_MAIN\_SKILL
- SAP\_SUB\_MANAGE\_AREA
- TECH\_SEN\_MONTHES
- TECH\_CURR\_SCHED\_DATE
- WO\_CURR\_REASON
- WO\_OPEN\_DATE
- START\_WINDOW
- TECH\_MAIN\_SKILL
- SAP\_SUB\_MANAGE\_AREA
- TECH\_DSP\_MAIN\_SKILL

**Turning Data into Money**



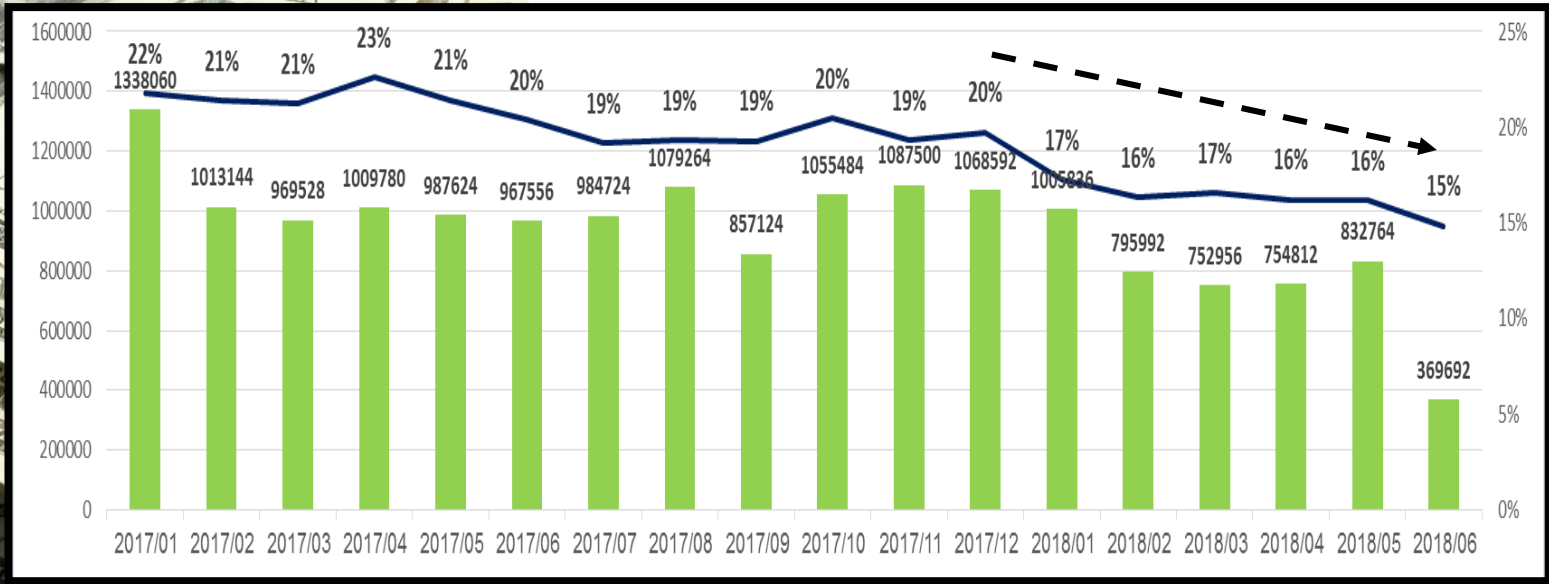
# Data Projects Life Cycle



**Turning Data into Money**



# Data Projects Life Cycle



**Turning Data into Money**





- **Data as an Asset**
  - Define your Chief Data Officer's Dashboard
  - Set the Data Maturity Level of your organization
- **BI & Data Factory**
  - Data Partners
  - Data Literacy
- **Turning Data into Money**
  - Choose Cleverly your Data Science Projects
  - Consider CDS Methodology
  - Track the Data Projects Life Cycle







Thank you

EL AL

Ido Biger

Chief Data Officer

[ido@elal.co.il](mailto:ido@elal.co.il)

<https://www.linkedin.com/in/idobiger/>

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**IATA**

**AVIATION**

**DATA**

**SYMPOSIUM**

**ATHENS, GREECE 25 – 27 JUNE 2019**



# Aviation Datathon 2019 Highlights & Winning Ideas



Moderator: **Houman Goudarzi**, Head of BI & Industry Engagement, IATA

**Juan Oliver**, Manager BI Projects, IATA

**Nevin Murad**, Associate Analysis Officer, ICAO

**Olena Vasylychenko**, Director Business Systems and Performance, IATA

**Sekhar Mllipeddi**, Worldwide Technical Leader Travel, AWS



**IATA**

**AVIATION**

**DATATHON**

**ATHENS, GREECE 24 JUNE 2019**

Athenaeum Intercontinental



# AVIATION DATATHON CHALLENGES



## 1. Social media Sentiment Analytics in Travel

More and more passengers express their feelings and opinions using on social media networks. Mining this data could provide a measure for passenger experience and satisfaction.

**With the provided data set, develop a social media sentiment analytics solution to mine social media engagement data of passengers, to track and rate passenger sentiment while traveling.**



## 2. Global Aviation incident report classification

STEADES is IATA's aviation safety incident data management and analysis program and one of the data sources of the Global Aviation Data Management (GADM).

**With the provided data set, propose an accurate incident classification system based on the data included in every incident report.**



## 3. Disruptions Prediction, Correlations & Management

Disruptions such as delays and cancellations have a significant negative impact on airlines but also on the passenger experience.

**With the provided data set, develop an analytics solutions, taking into account various external data sources for potential correlations, intended for airlines to prevent and mitigate disruptions.**



# AVIATION DATATHON AGENDA



<b>Pre-Datathon</b>	<b>Information webinar will be held before the Datathon.</b> <ul style="list-style-type: none"><li>Dates will be announced soon</li></ul>	<b>Online meeting Webinar</b>
<b>08:00 – 08:30</b>	<b>Registrations opens</b>	<b>Athenaeum Intercontinental Athens, Greece</b>
<b>08:30 – 09:00</b>	<b>Datathon Opening</b> <ul style="list-style-type: none"><li>Introduction</li><li>Recapping the challenges</li><li>Sponsors presentation</li></ul>	
<b>09:00 – 12:30</b>	<b>Datathon kicks off</b>	
<b>12:30 – 13:15</b>	<b>Lunch break</b>	
<b>13:15 – 14:45</b>	<b>Datathon continues</b>	
<b>14:45 – 16:30</b>	<b>Teams present solutions</b> <ul style="list-style-type: none"><li>Each team present for 5 minutes</li><li>2 minutes questions and answers</li></ul>	
<b>16:30 – 17:00</b>	<b>Jury deliberations</b>	
<b>17:00 – 18:00</b>	<b>Winners announced &amp; photo and video shoot</b>	



# AVIATION DATATHON WINNERS



1. Social media Sentiment Analytics in Travel

**Team Infare**  
Vadim Skritskii



2. Global Aviation incident report classification

**Team Air Canada**  
Reuben Pereira



3. Disruptions Prediction, Correlations & Management

**John Keells IT**  
Sohan Dharmaraja



# AVIATION DATATHON SPONSORS



**Cognizant®**

**Atos**



# AVIATION DATATHON JURY Panel



**Nevin Murad**

Associate Analysis Officer, ICAO

**Sekhar Mallipeddi**

Worldwide Technical Leader Travel, AWS

**Olena Vasylychenko**

Director Business Systems and Performance, IATA

**Juan Oliver**

Manager of Business Intelligence Projects, IATA



# Moving away from a product-centric flight-driven model to an audience-driven value proposition, establishing a holistic multichannel & data-driven marketing approach

Marco Corradino, CEO, Lastminute.com

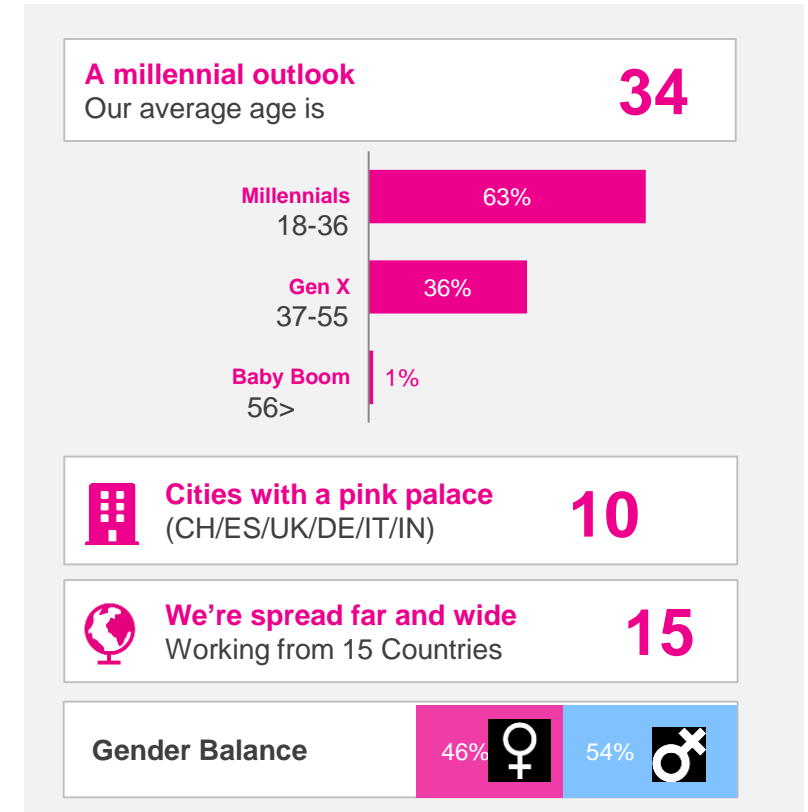
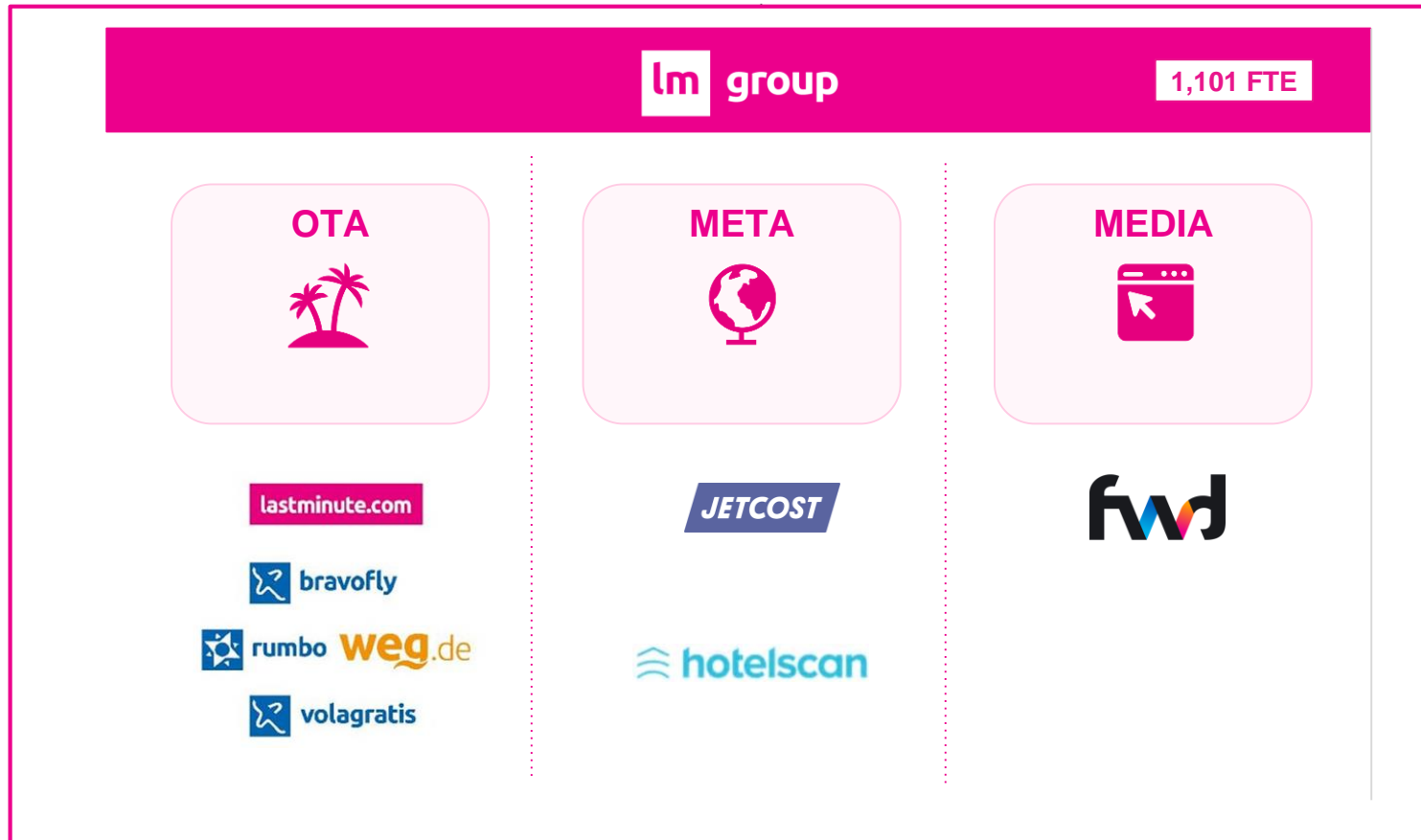




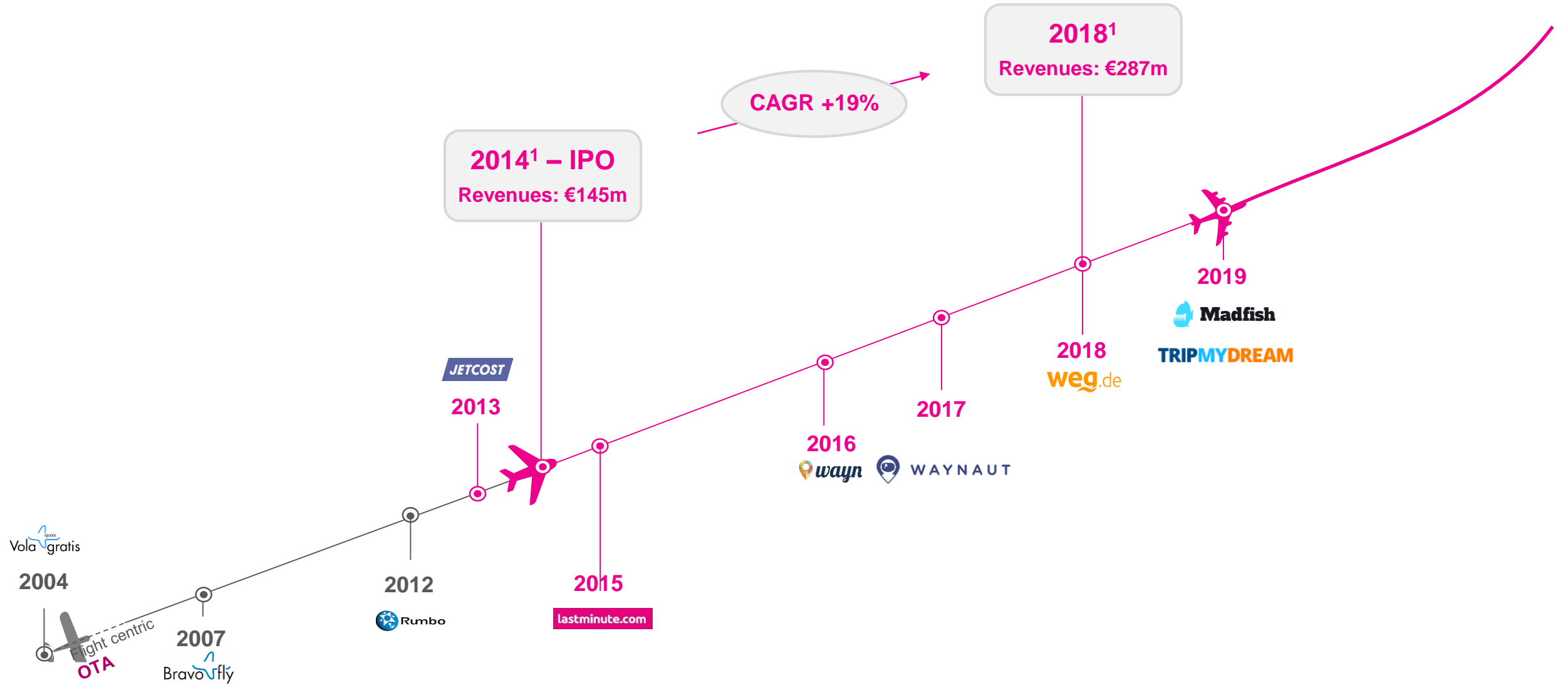
**Ready to head  
to the next  
frontier**



# lm holding consists of two distinct businesses lm group and lm venture



# An entrepreneurial journey of organic and M&A growth ...



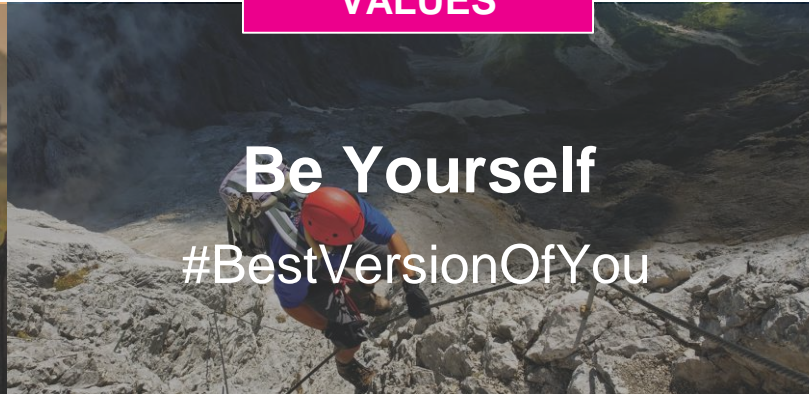
Note: 1. Financials for the entire group.



## MISSION

To be the **relevant** and **inspiring** travel company  
**enriching** the lives of travellers

## VALUES



## COMPETENCIES



Strive for Success



Problem Solving



Empathy



Collaboration

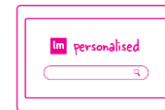


Influence Others



Motivate &  
Inspire People

## STRATEGIC GOALS



Evolve OTA  
& META



Diversify  
MEDIA



Lovemark Brand



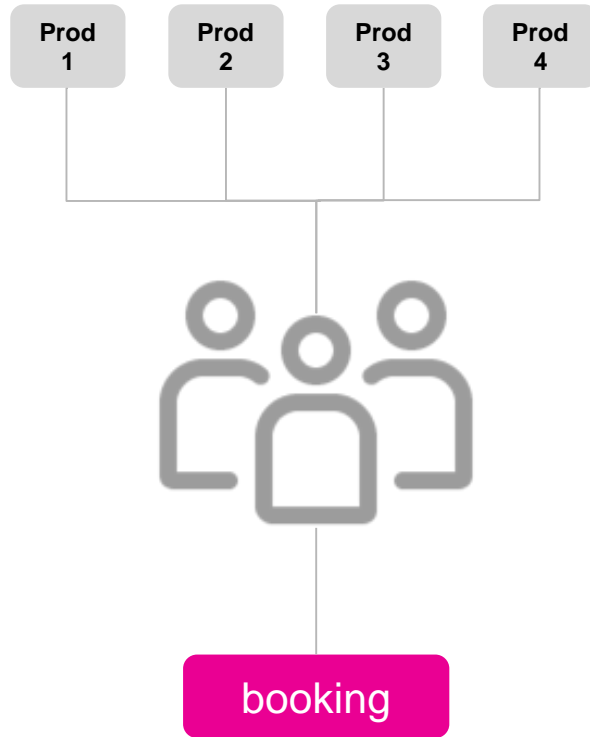
Be Excellent



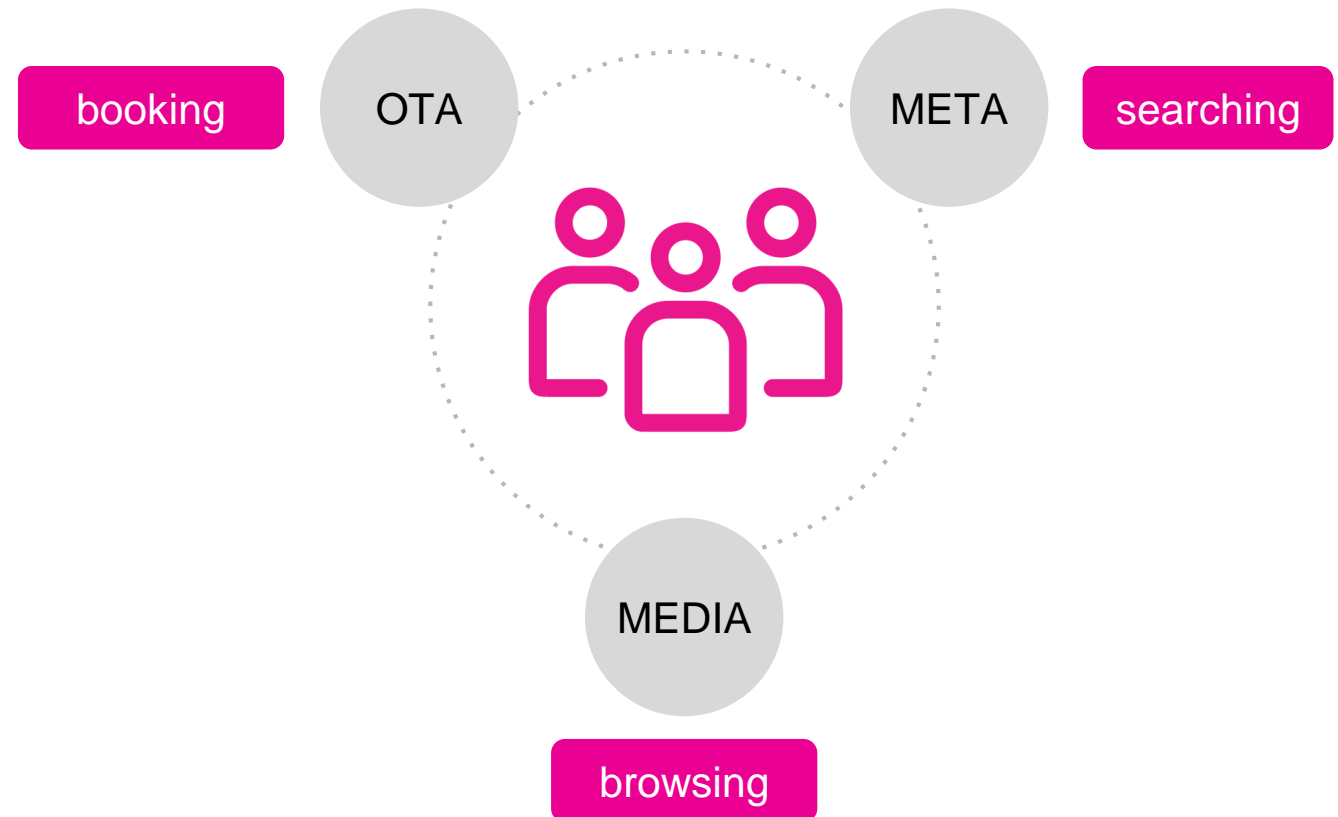


We have built a comprehensive and distinctive business model where “booking” is only one part of a more engaging journey

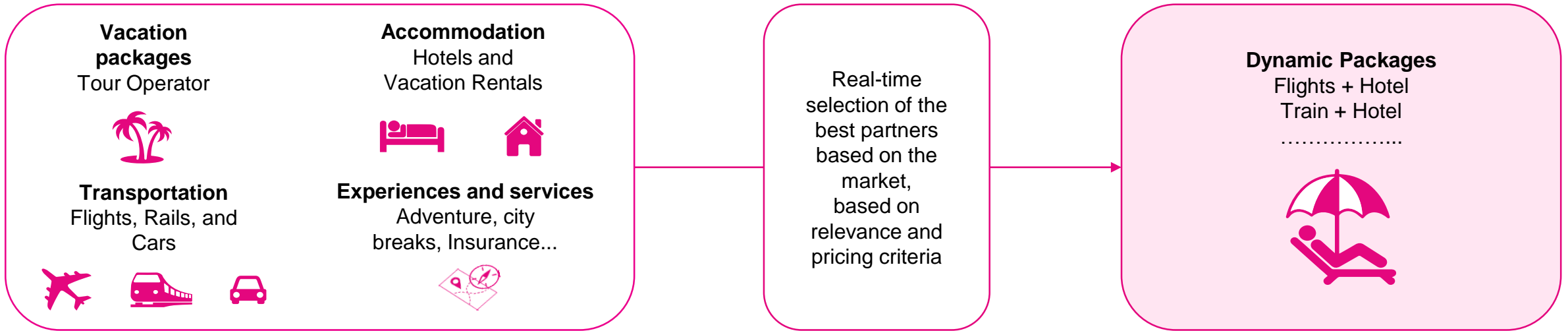
From transactional  
“product centric” focus



To holistic  
“audience centric” focus



## Fully licensed and bonded to sell a wide variety of relevant travel solutions in every step of the customer journey



### RESERVATION WE MADE



**4,519,375**

### TRAVELLERS WE HAVE MOVED



**8,500,000**



**23,300**  
Passengers per day  
**37** Airbus A380

Every **38 minutes**  
we fill and take off  
a **615 seats Airbus A380**

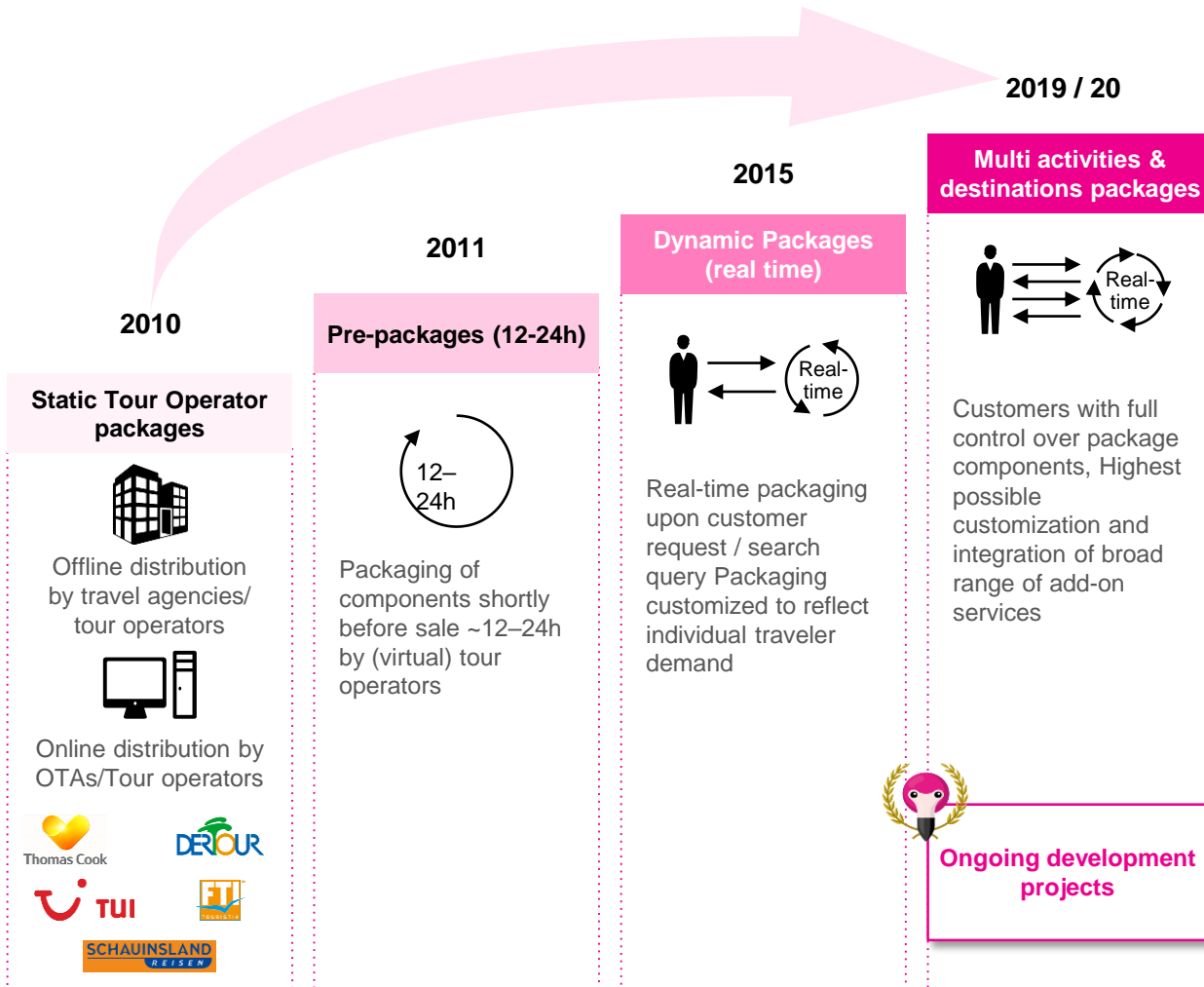


Notes: 1. As per 2018A.



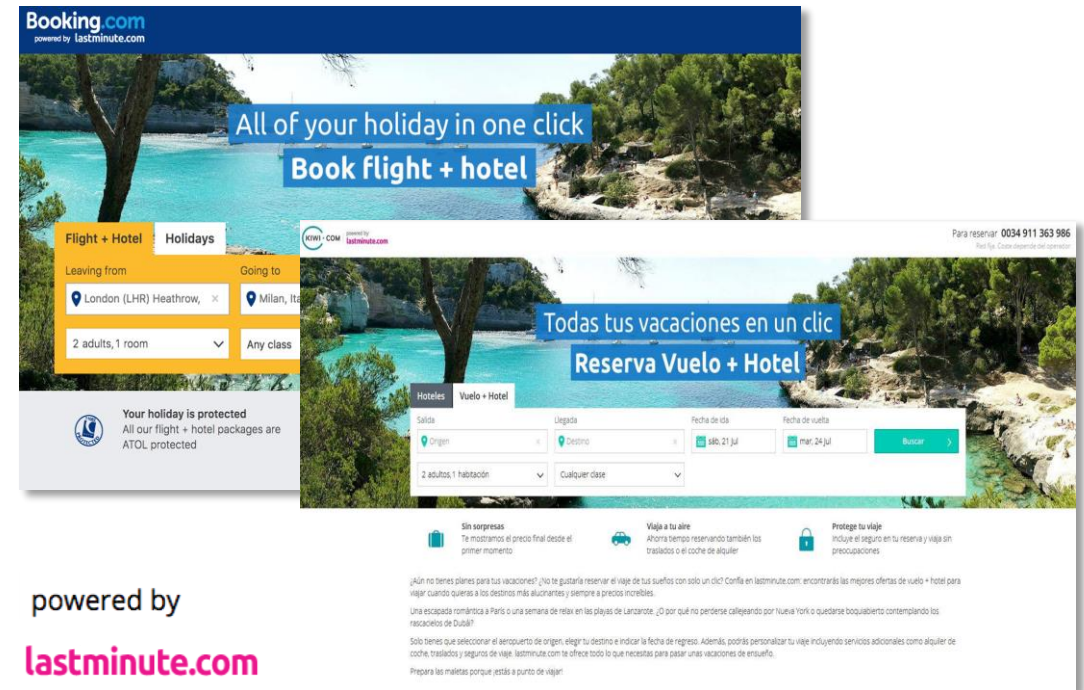
# We have a unique, early mover, market leading Dynamic Packaging platform

## Evolution to multi activities and destination packaging



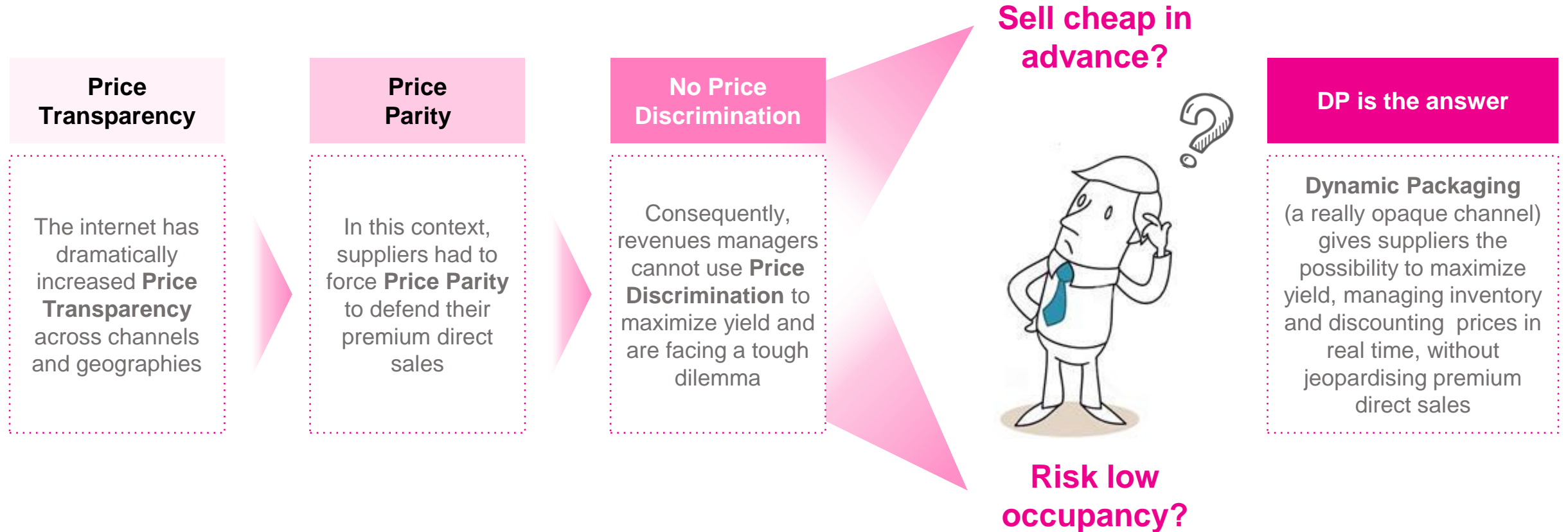
Note: Im group launched dynamic packaging in 2011.

## Our leadership in Dynamic Packaging is recognised by key travel players





# Dynamic Packaging is key in solving the price parity dilemma






## A pure marketing technology company with global reach, growing steadily in a highly profitable way


Unlimited inventory

Global reach


Unrivalled technology capabilities

Unmatched performance


 **501**  
Airlines  
 **149**  
OTAs and Car rental providers  


 **2.9m**  
Hotels and accommodation  



 **38**  
Countries  
 **220m**  
Yearly Visitors

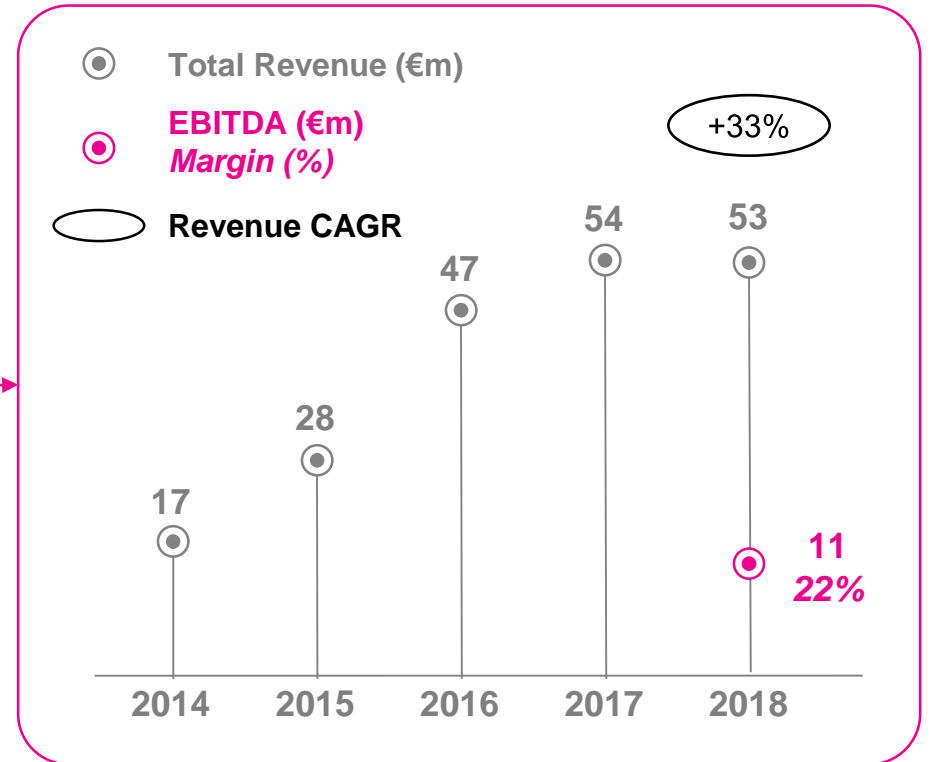
**Dynamic yield management**   


---

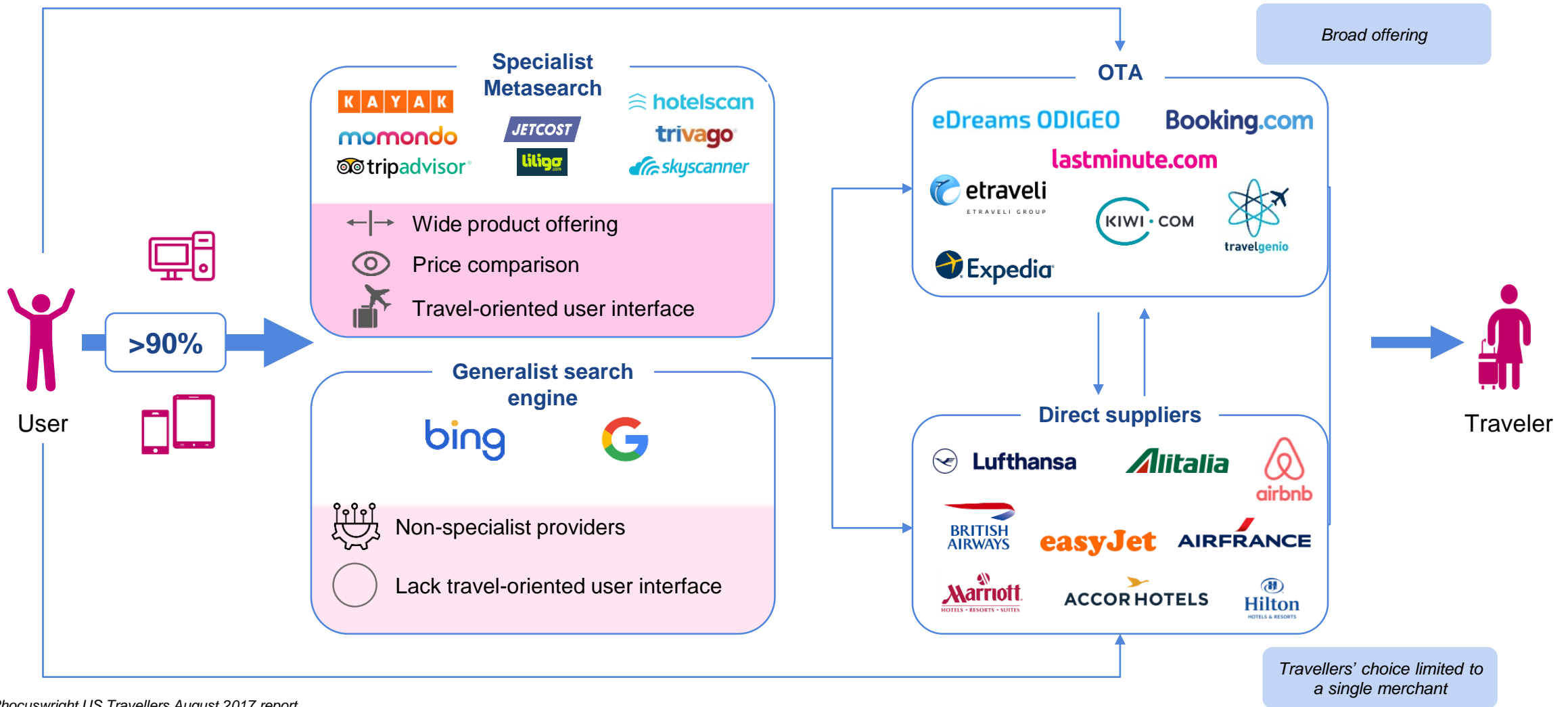
**Ability to source and provide relevant content**   


---

**Highly adaptive monetisation strategy** 



# >90% of travellers begin their search without a travel brand in mind, increasing the relevance of specialist metasearch in influencing traveller behaviour



Note: Phocuswright US Travellers August 2017 report.

# MEDIA

A next generation media company organised in 4 business units capable to fuel lm group growth through innovative revenues streams



The media company of

lastminute.com

travelpeople

fwdtrading

Madfish

playbook

**Travel marketing**

Gives Brands access to **35M european monthly travellers** on our OTA sites through media placements.

Accelerating tourism

2016

**Media Trading**

**Expands reach** into all programmatically traded media placements on the web, social and video.

Audience, activated

2018

**Content**

**Creative and video content agency** that develops award winning concepts and campaigns applied to social channels

Insane video strategy

2019

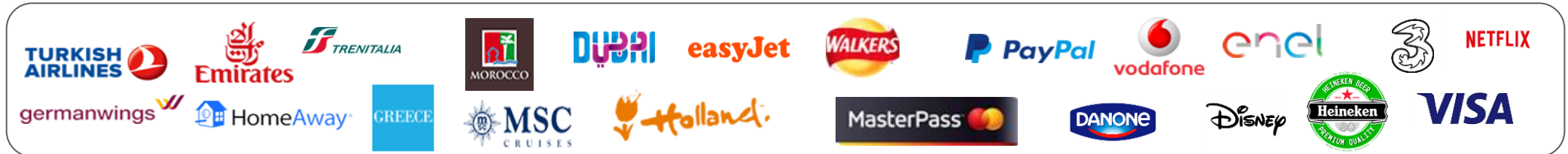
**Consultancy**

**Digital change consultancy.** Helps clients advance their digital marketing capabilities - like we have done for lastminute.com

Bring it in.

2019

900+ portfolio clients. 30%+ non travel.

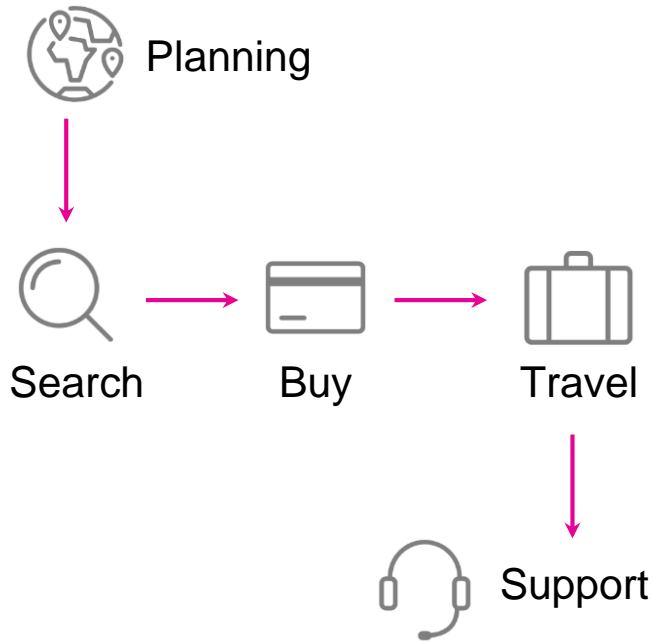




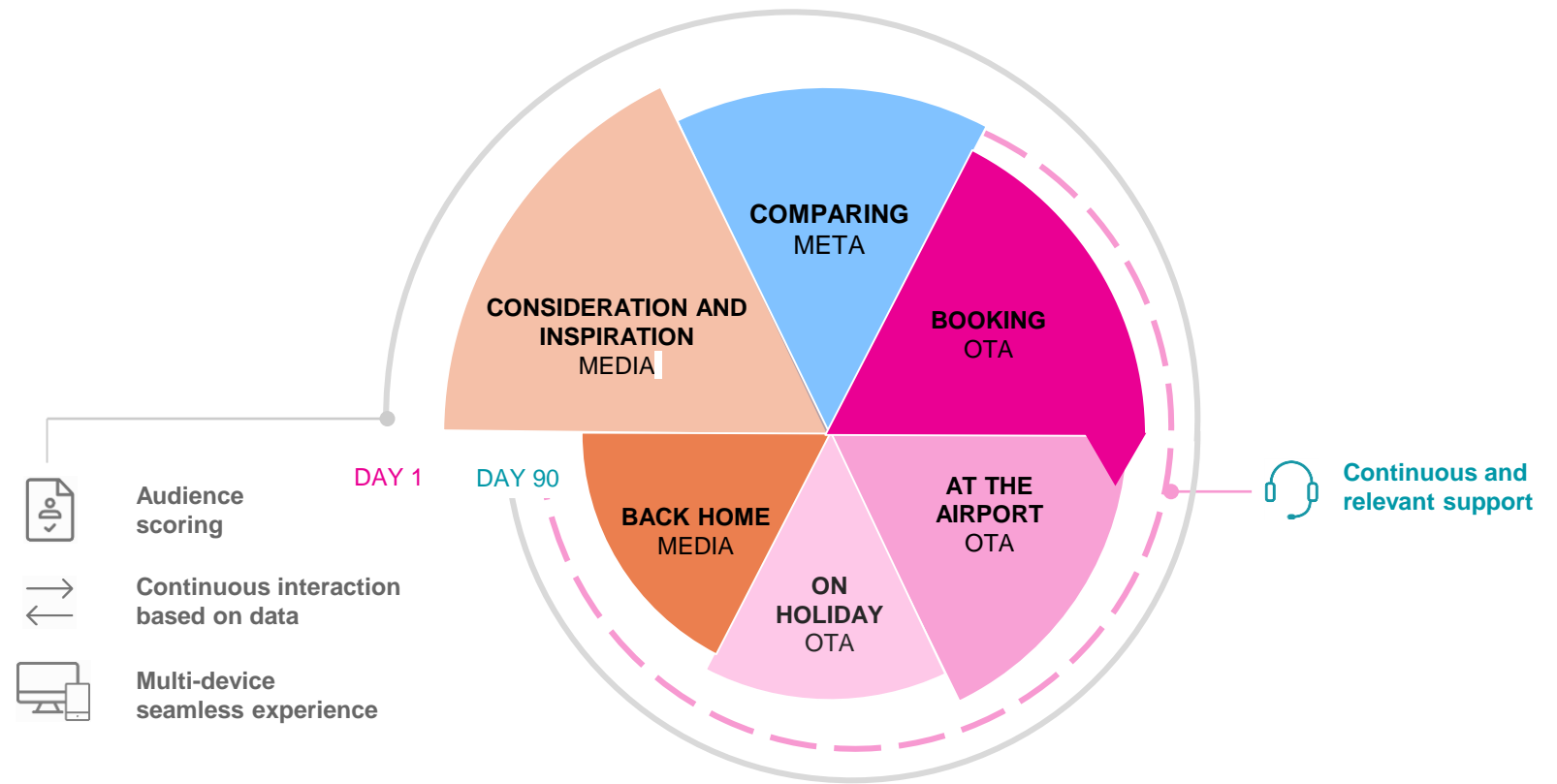


# We leverage our digital DNA to create value along the entire user journey in a highly profitable way

From **standardized offering** driven by inventory availability



To bespoke solutions generated by data intelligence



**Multidevice  
seamless  
experience**

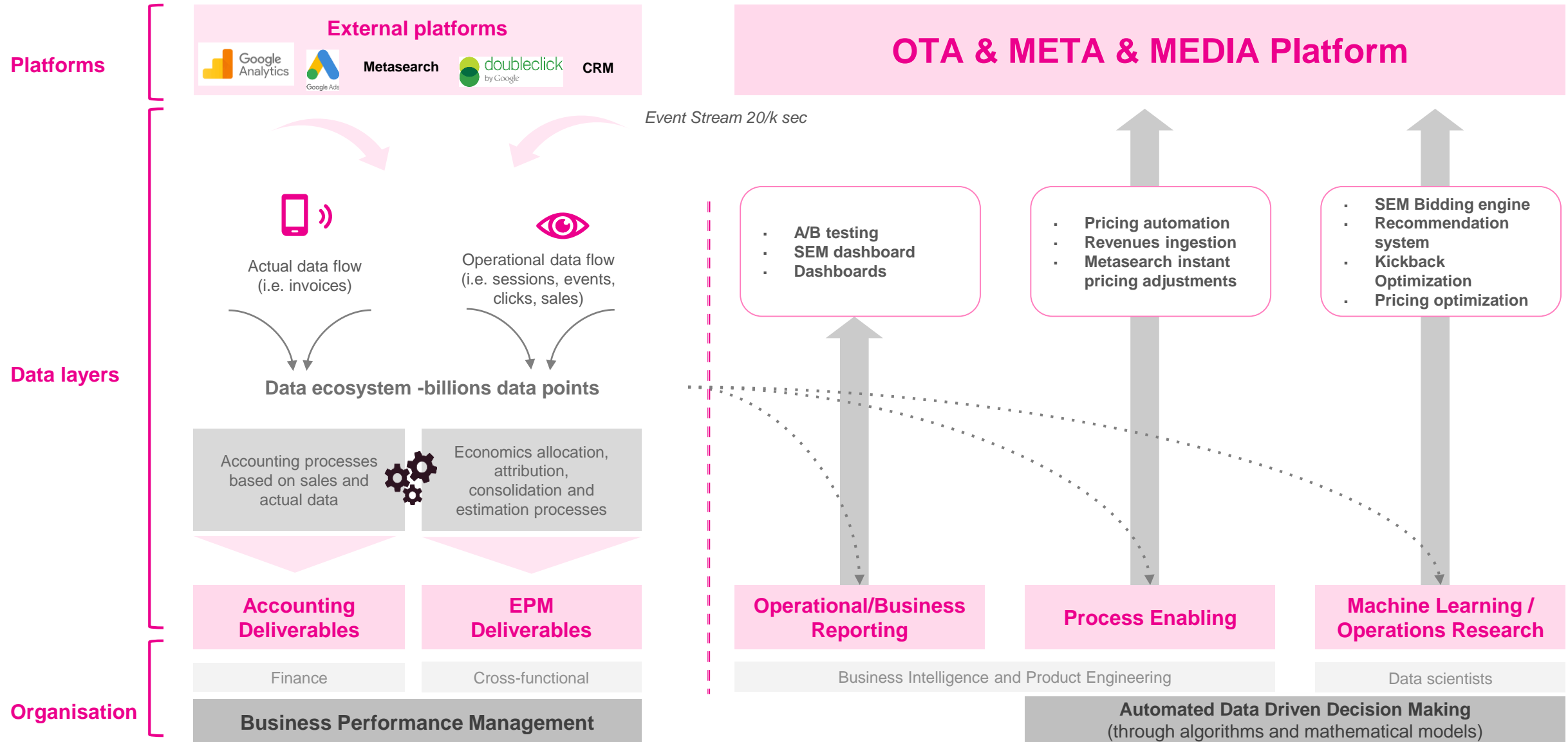
**Continuous  
interaction  
based on  
data**



**Single view  
of the  
customer**

**OUR CORE BUSINESS IS MANAGING AND EXPLOITING USER  
DATA AROUND THE FUNNEL JOURNEY**

# A data fuelled technology platform capable to efficiently manage our audience to maximize engagement and profitability





# A clear, differentiated, cross channel and holistic marketing strategy to continuously fuel the growth of our brands

## Get Busy Living

Our mission is to inspire and empower people to live better



**volagratis.com**

Stravoglia di partire? Volagratis!



**lastminute.com**

whatever makes you pink



**weg.de**

weg sein muss sein



**rumbo.es**

Saca el rumbero que hay en ti







thanks

# Dragons' Den Live Contest: Aviation start-up entrepreneurs competing on stage with solutions leveraging Data Science and AI

Moderator: **Houman Goudarzi**, Head of BI & Industry Engagement, IATA

**Jordan Bray**, Head of Corporate Partnerships, Plug and Play

**Dominique Perron**, Partner, PwC

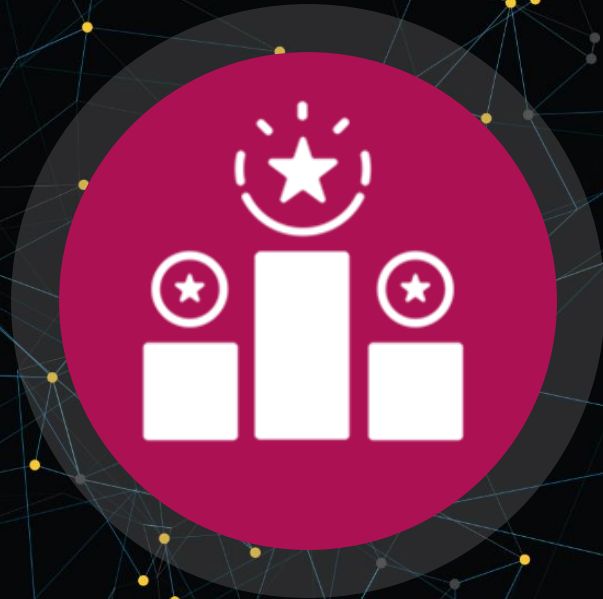
**Stephane Cheikh**, AI Program Director, SITA





**IATA**  
**AVIATION**  
**DATA**  
**SYMPOSIUM**

ATHENS, GREECE 25 – 27 JUNE 2019



# Dragons' Den Live Contest



# 4 Start-up Finalists



- ✦ Each Start-up pitches for 5 minutes
- ✦ Dragons give feedback
- ✦ You vote on Slido
- ✦ Winner ceremony

# What is at Stake



- ✦ Aviation Data Start-up of the Year Award
- ✦ Fame and Glory, and Trophy
- ✦ Sponsored entry to the Plug and Play 90-day Travel & Hospitality Accelerator Program



# Our Dragons



✈️ **Dominique Perron**

Partner, PwC

✈️ **Jordan Bray**

Head of Corporate Partnerships, Plug and Play

✈️ **Stephane Cheikh**

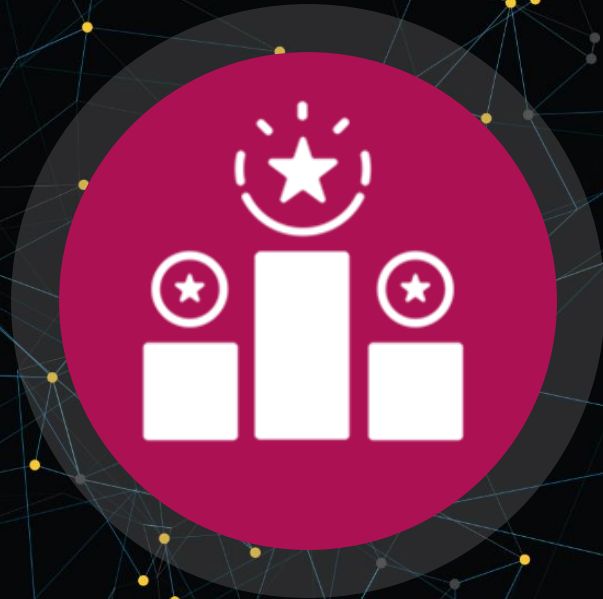
AI Program Director, SITA





**IATA**  
**AVIATION**  
**DATA**  
**SYMPOSIUM**

ATHENS, GREECE 25 – 27 JUNE 2019



# Aviation Data Start-up of the Year



AEROFICIAL  
INTELLIGENCE



# Delays and congestions are rising

**19.1**

2017

**9.3**

2018

€

**14.2bn**

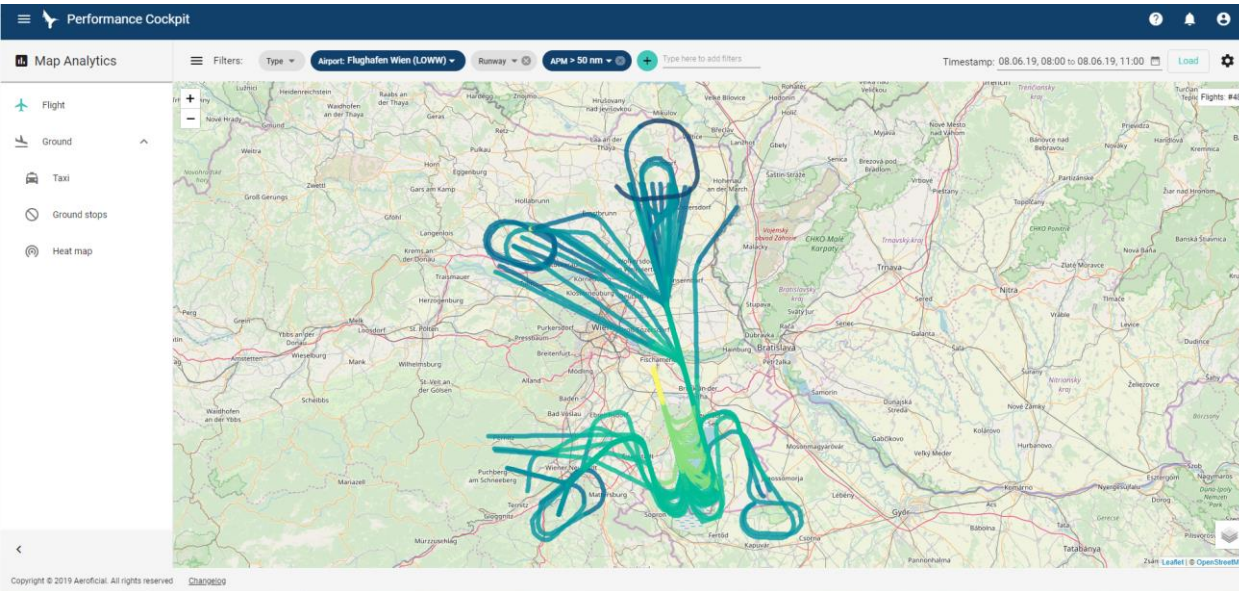
of costs for delayed flights



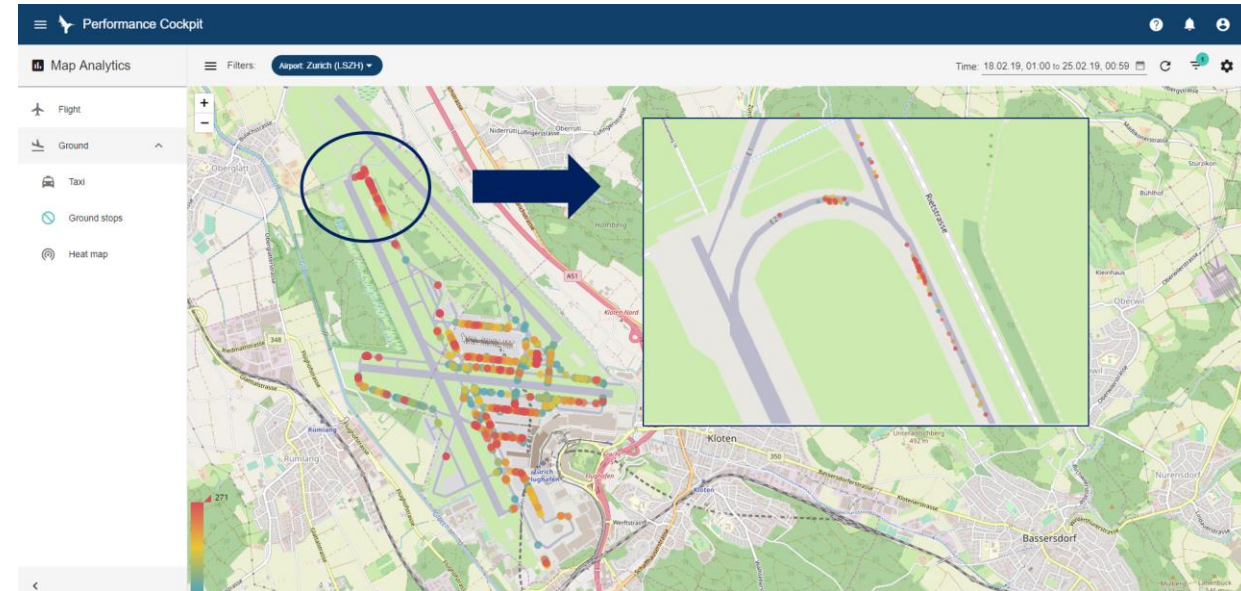




# Performance Cockpit – The Solution



Detour Monitoring



Ground Congestions

Basis for the in-house Aeroficial Intelligence to predict upcoming flight events, delays and congestions



# USP



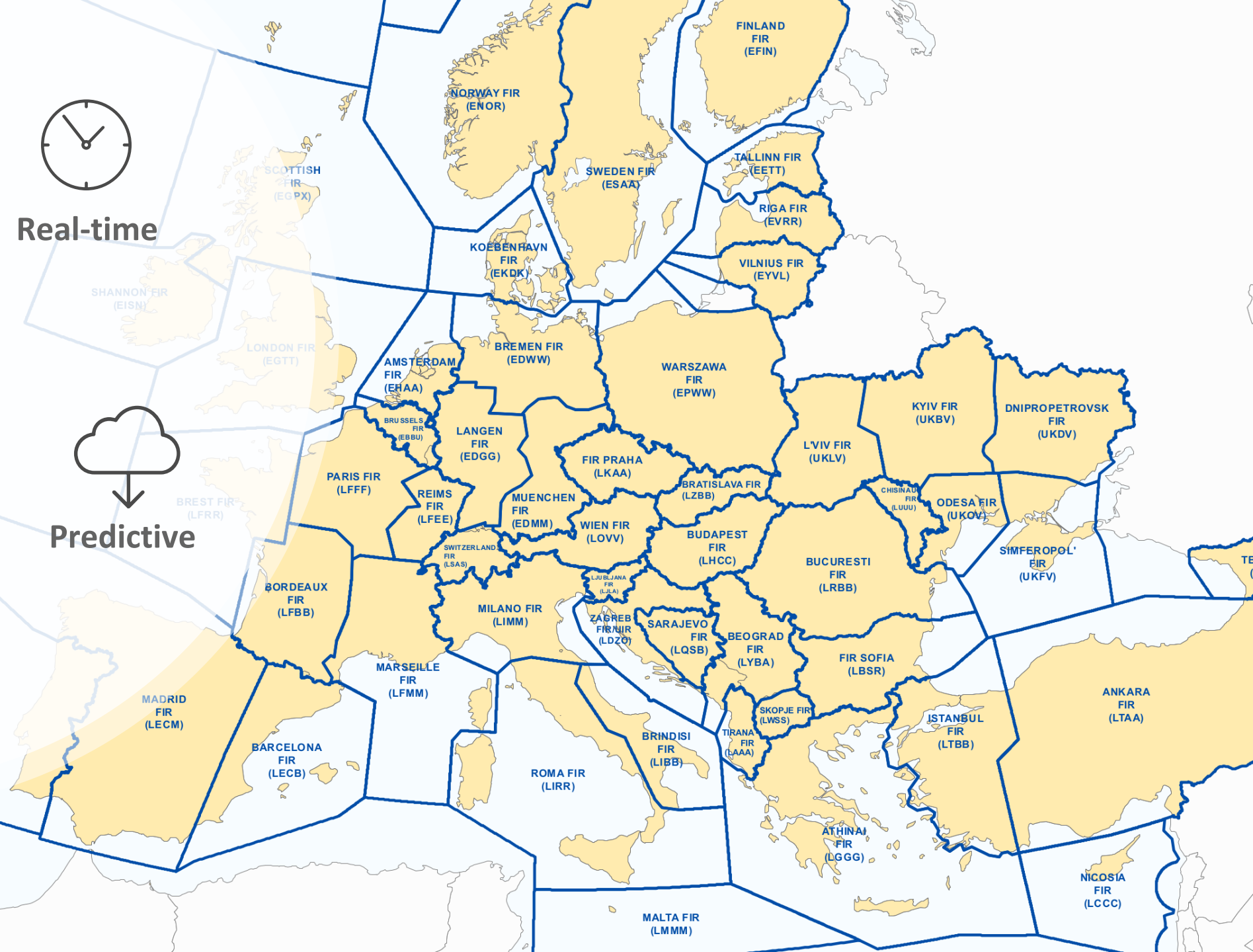
Real-time



Predictive

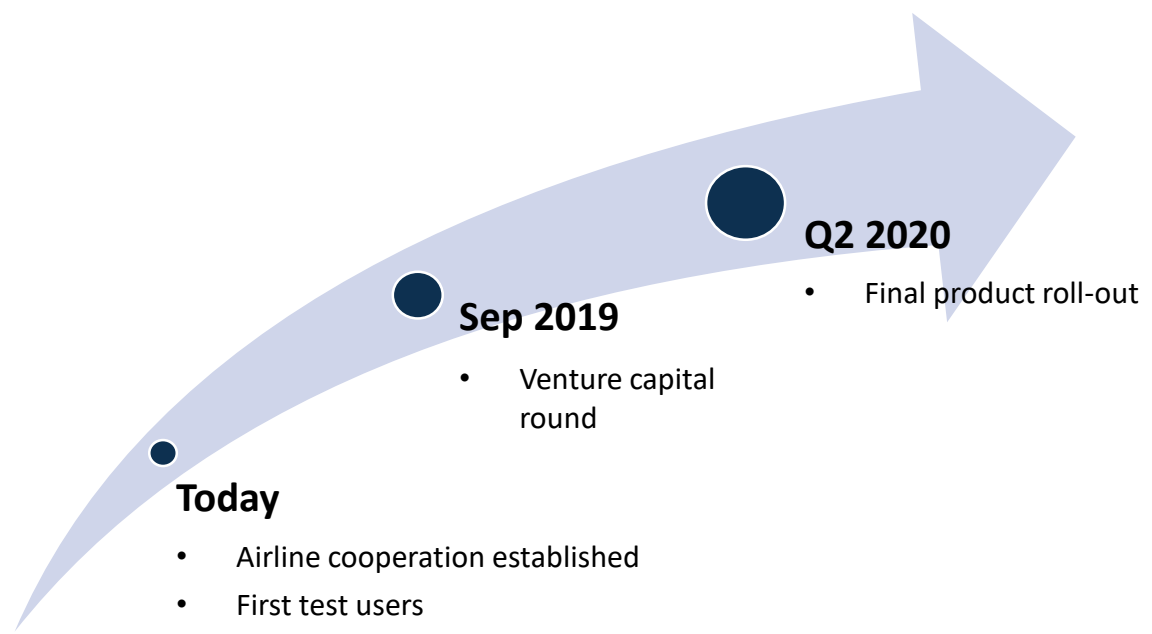


Competition monitoring





# Become part of the final solution



## Today

- Airline cooperation established
- First test users



## Q2 2020

- Final product roll-out

**...become a pilot!**



**...invest in us!**





AEROFICIAL  
INTELLIGENCE





**IATA**

**AVIATION**

**DATA**

**SYMPOSIUM**

**ATHENS, GREECE 25 – 27 JUNE 2019**

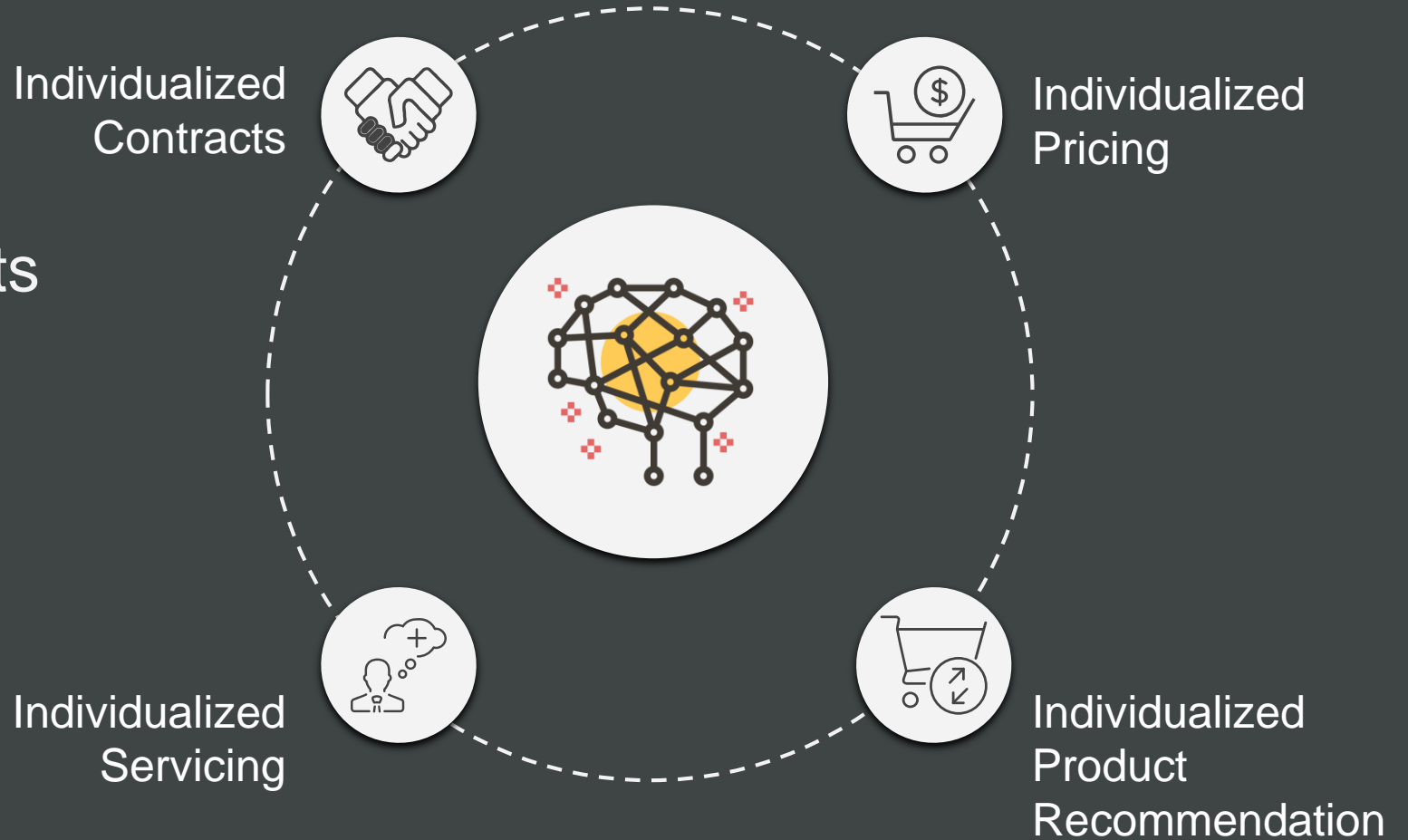


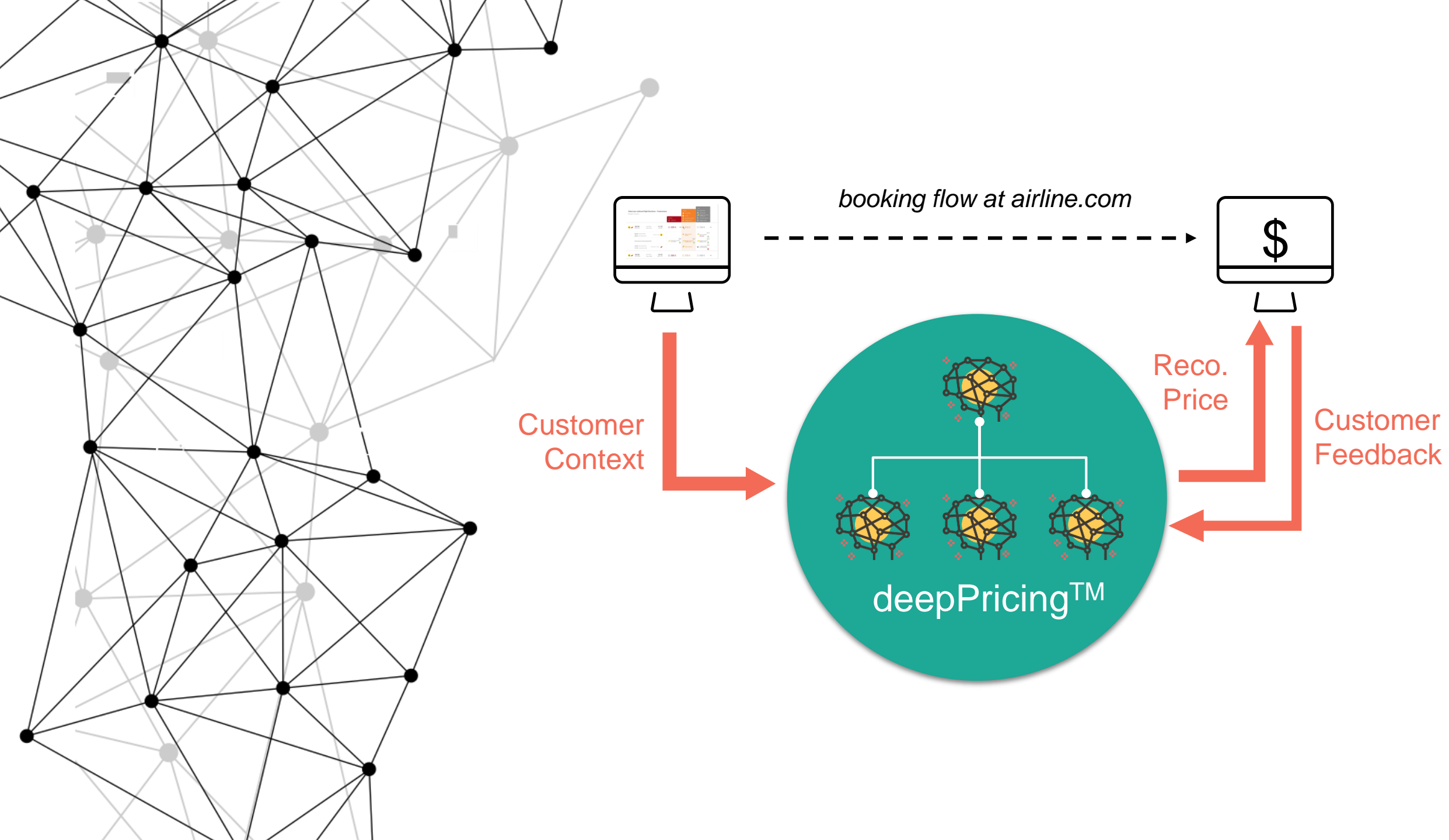
Delight travelers at scale by moving

FROM **AVERAGE** TO **INDIVIDUAL** DECISIONS



# Four Deep Learning Agents Working in Harmony To Individualize Experience







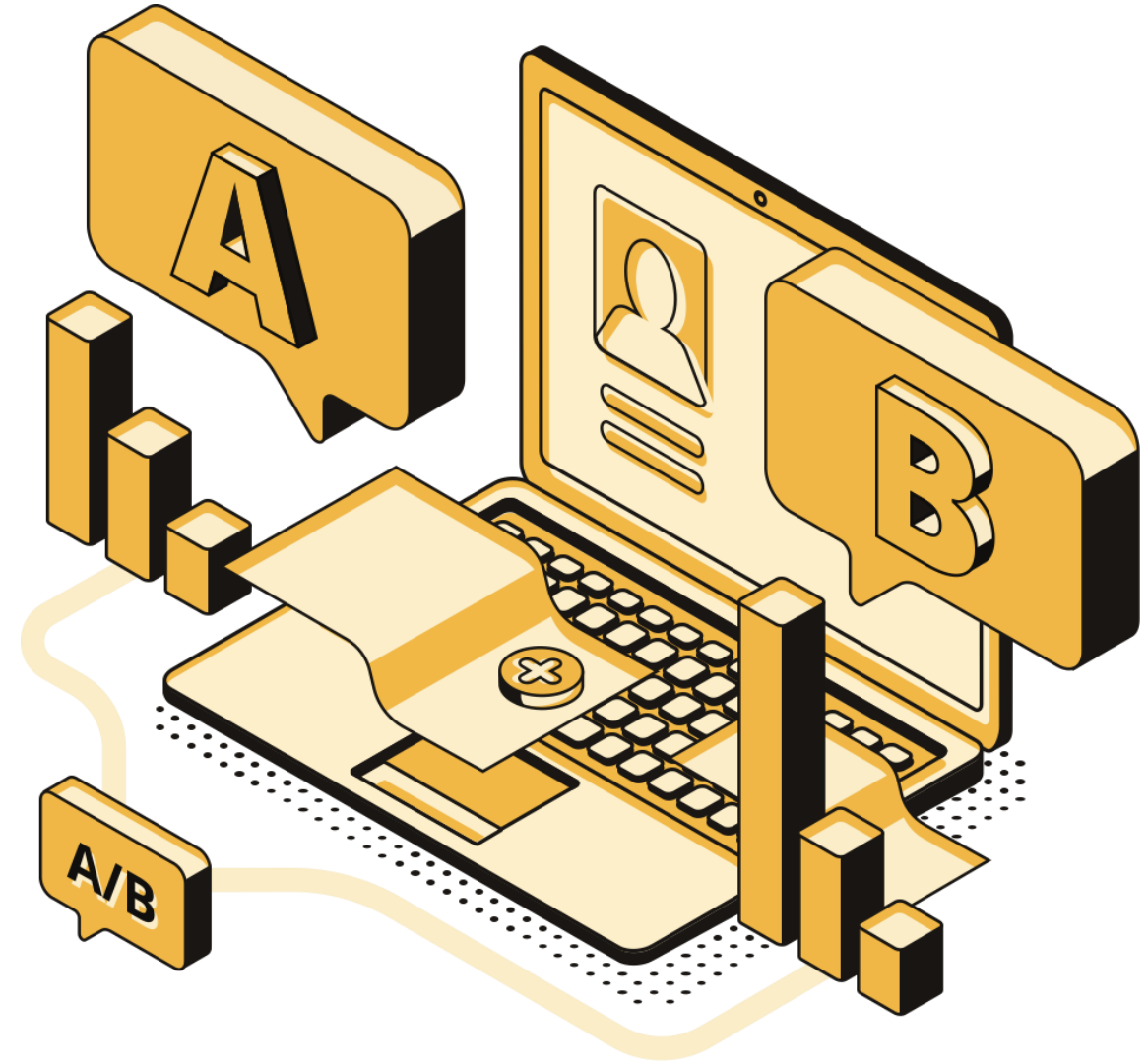
# Results from Production Operations

17%

Higher  
Conversions

25%

Higher  
Revenue



## Core Network



**Kolbeinn Arinbjarnarson**  
Co-Founder and CEO



**Arinbjorn Kolbeinsson**  
PhD, AI Guru



**George Souliotis,**  
Scalability Guru



**Kartik Yellepeddi**  
Co-Founder and Product



**Naman Shukla,**  
ML Engineer



**Algorithm Selection,**  
AI Agent

## Extended Network



**Prof. Lavanya Marla,**  
@UIUC



**Jayaram Bobba,**  
PhD, AI Architect



**Ken Otwell,**  
Neural Net Consultant



**Akhil Gupta,**  
ML Intern



# From Average to Individual: Airline Ancillary Pricing Use Case

**AGIFORS RM SG | 2019**

AIRLINE GROUP OF THE INTERNATIONAL FEDERATION OF  
OPERATIONS RESEARCH SOCIETIES

---



Won The Best  
Presentation Award  
at AGIFORS 2019

# Adaptive Model Selection Framework: An Application to Airline Pricing

**ICML | 2019**

36TH INTERNATIONAL CONFERENCE ON MACHINE LEARNING

---

# Dynamic Pricing for Airline Ancillaries with Customer Context

**KDD | 2019**

5TH CONFERENCE ON KNOWLEDGE DISCOVERY AND DATA  
MINING

Deep Learning is here.  
Own what happens next.

deepair  
solutions

kolbeinn@deepair.io  
www.deepair.io





**IATA**

**AVIATION**

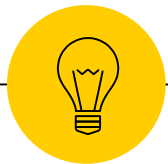
**DATA**

**SYMPOSIUM**

**ATHENS, GREECE 25 – 27 JUNE 2019**



# Demand Forecasting For Travel



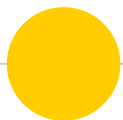


# Hey!

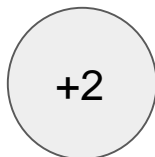
***Abheer Kolhatkar***

CEO @ Migacore Technologies

[abheer@migacore.com](mailto:abheer@migacore.com)

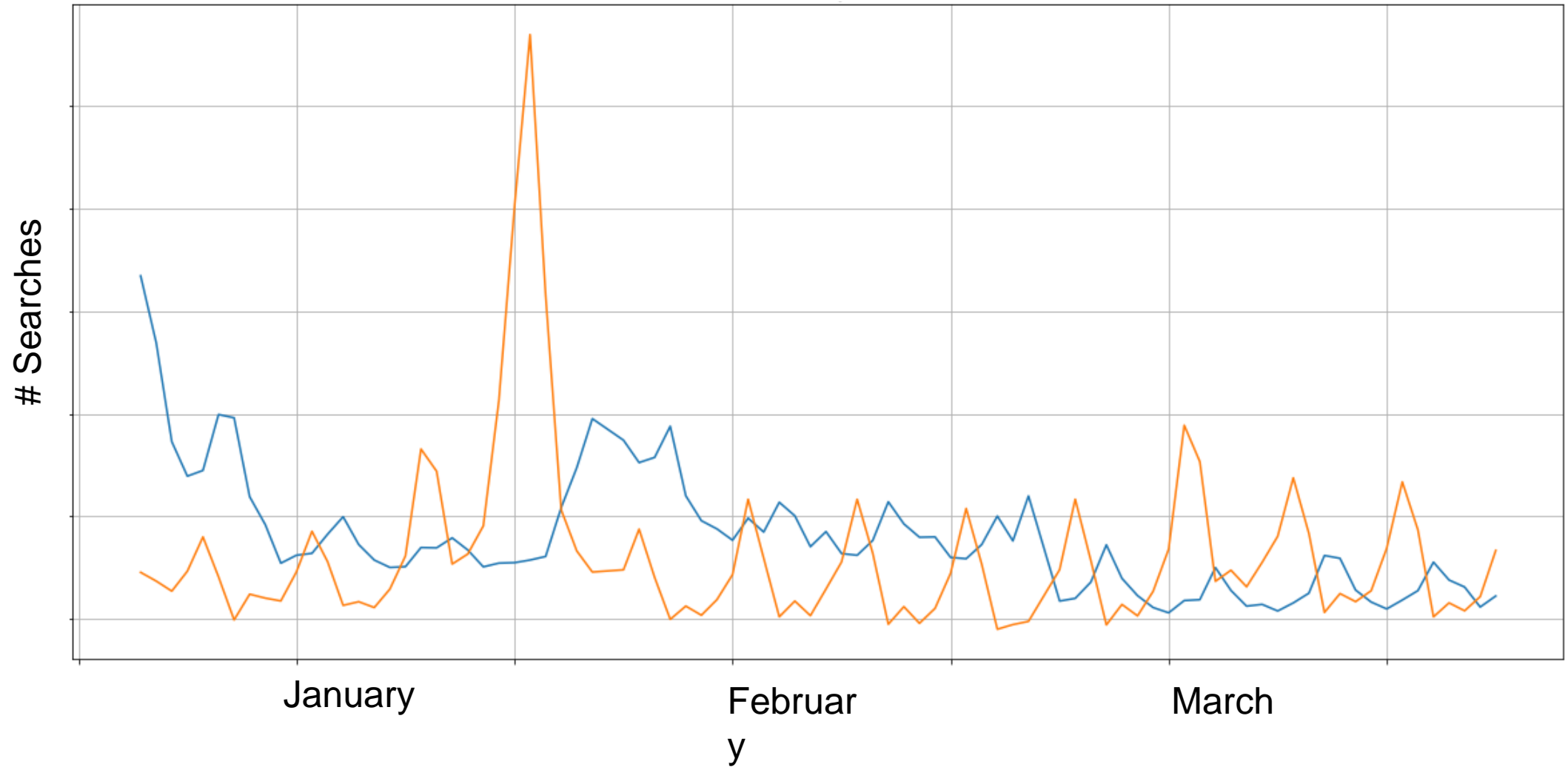


## Our Team

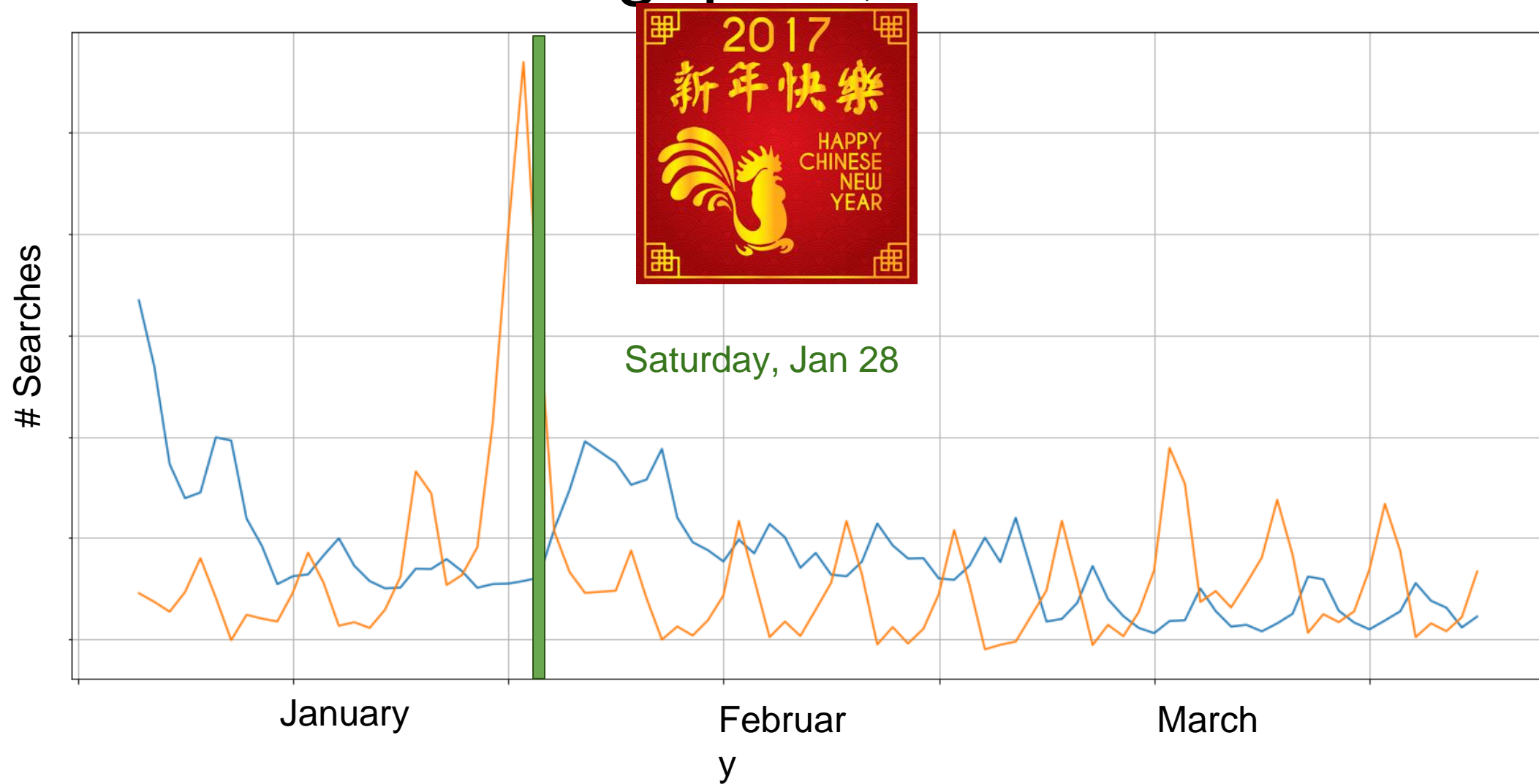




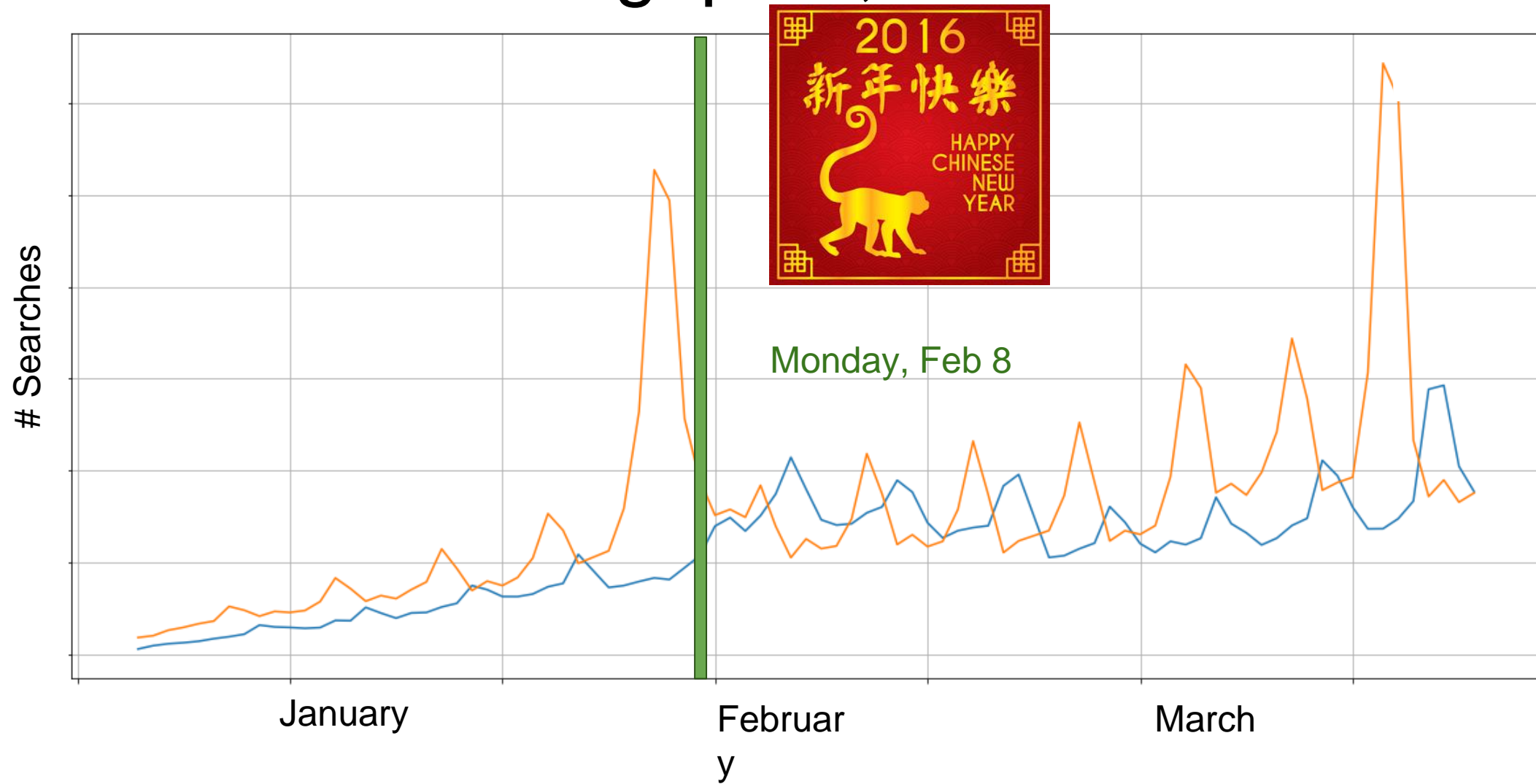
# Travel from Singapore, 2017

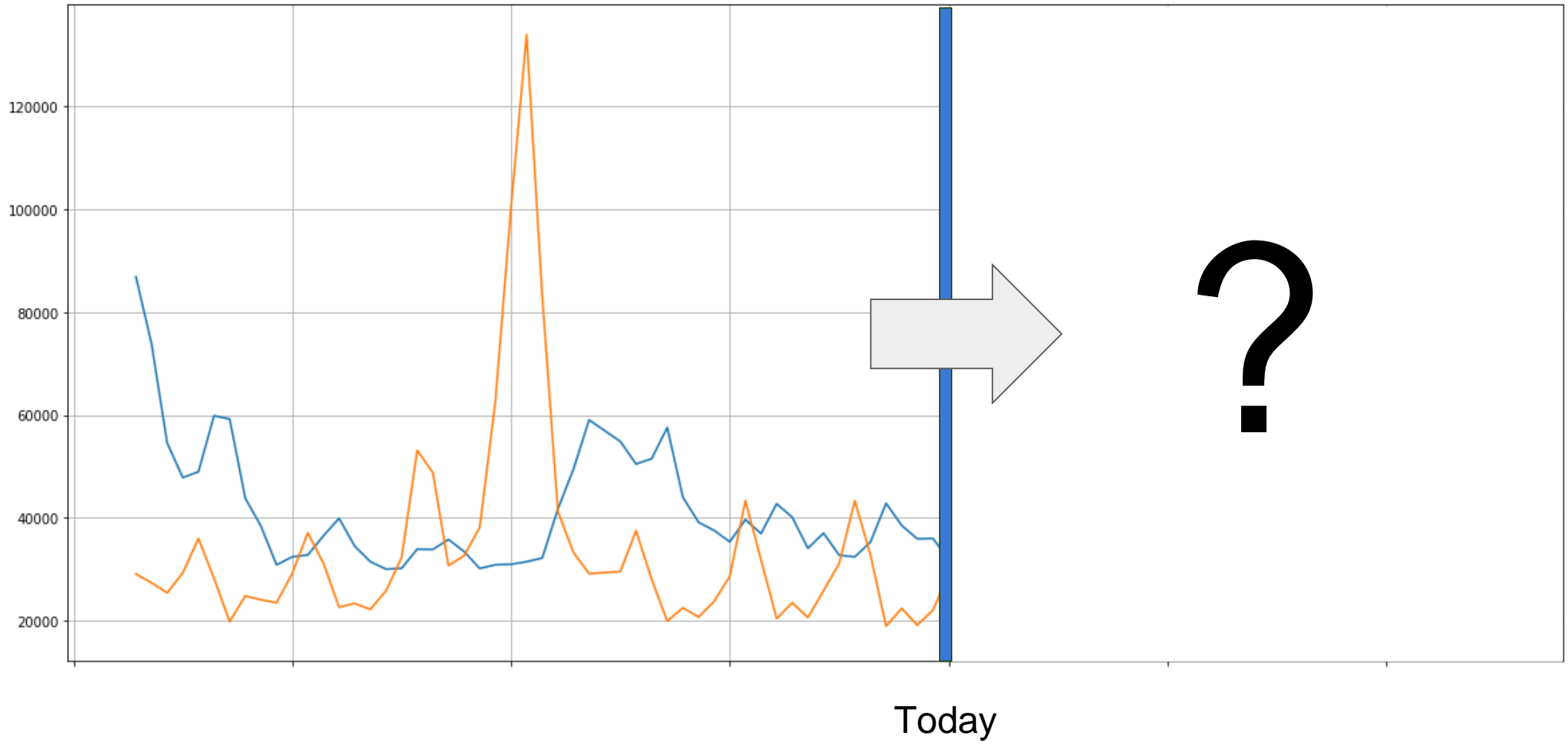


# Travel from Singapore, 2017



# Travel from Singapore, 2016

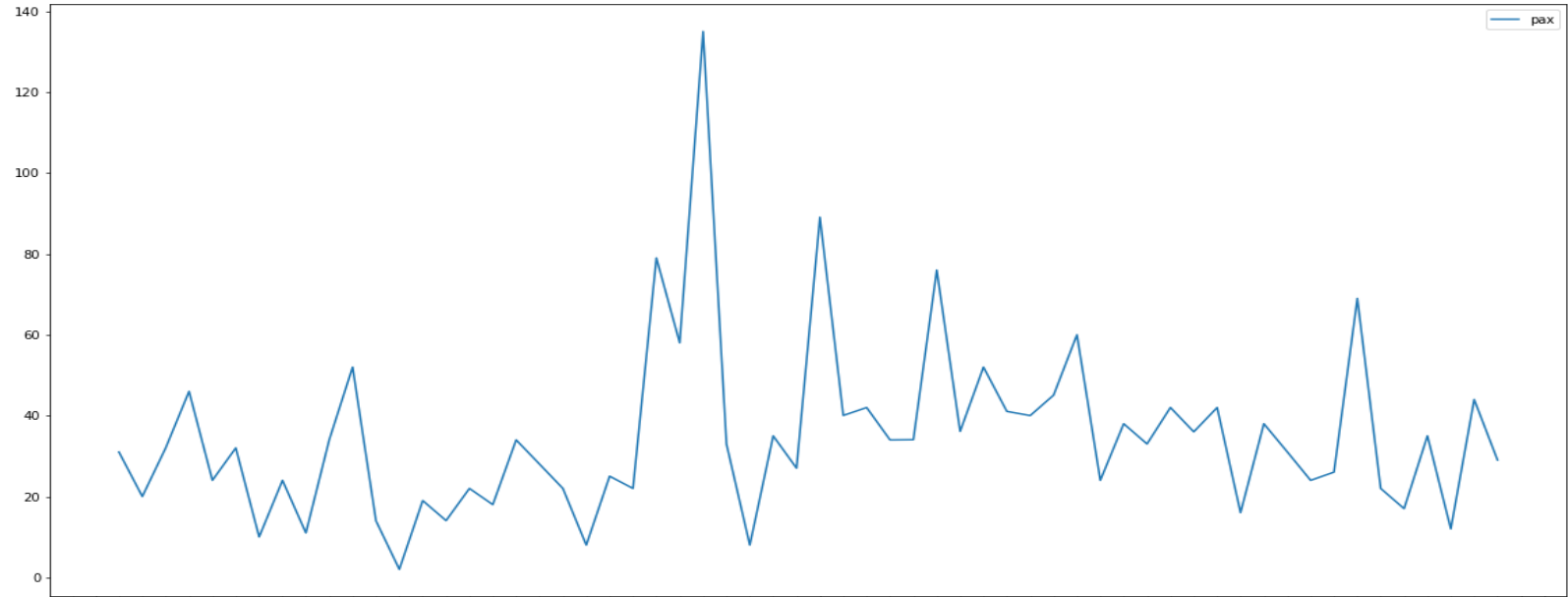




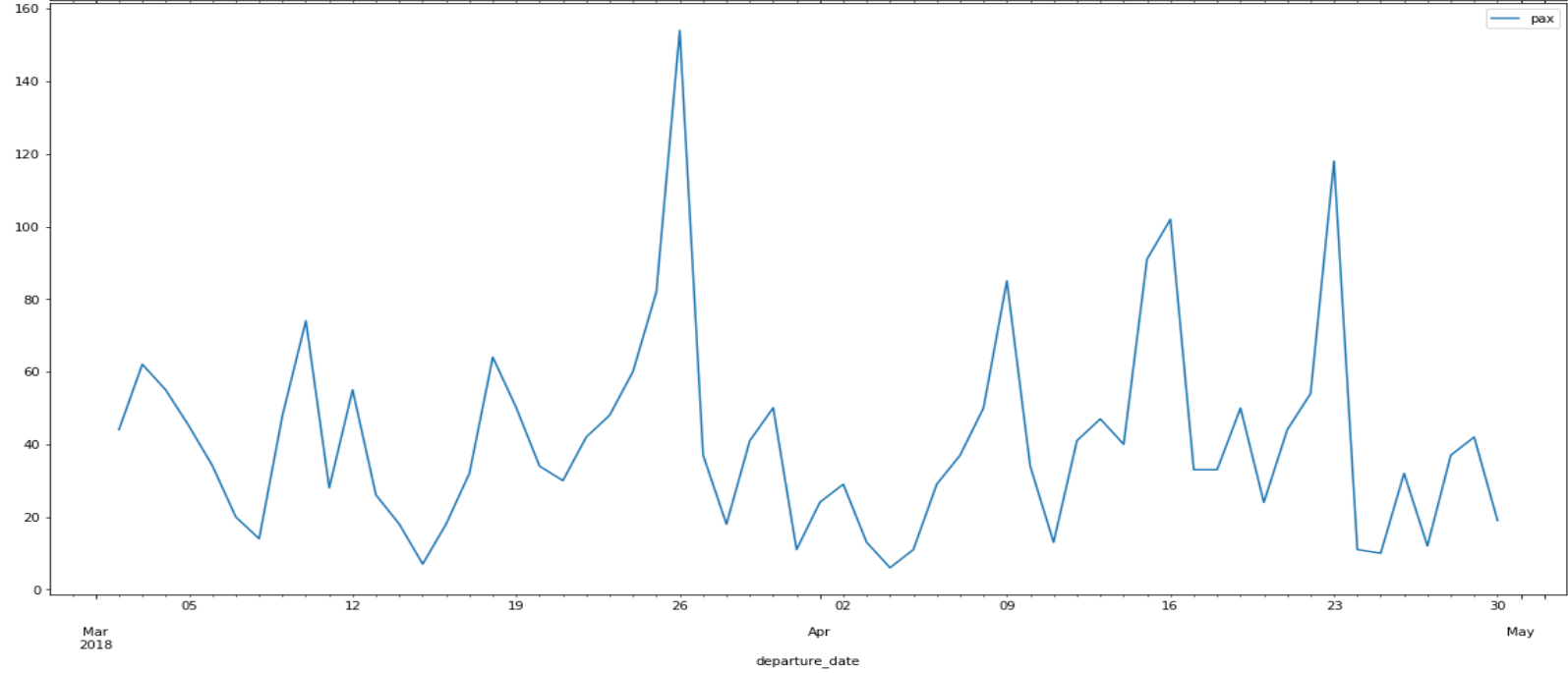


# Travel from Melbourne

2017



2018



# Travel from Melbourne

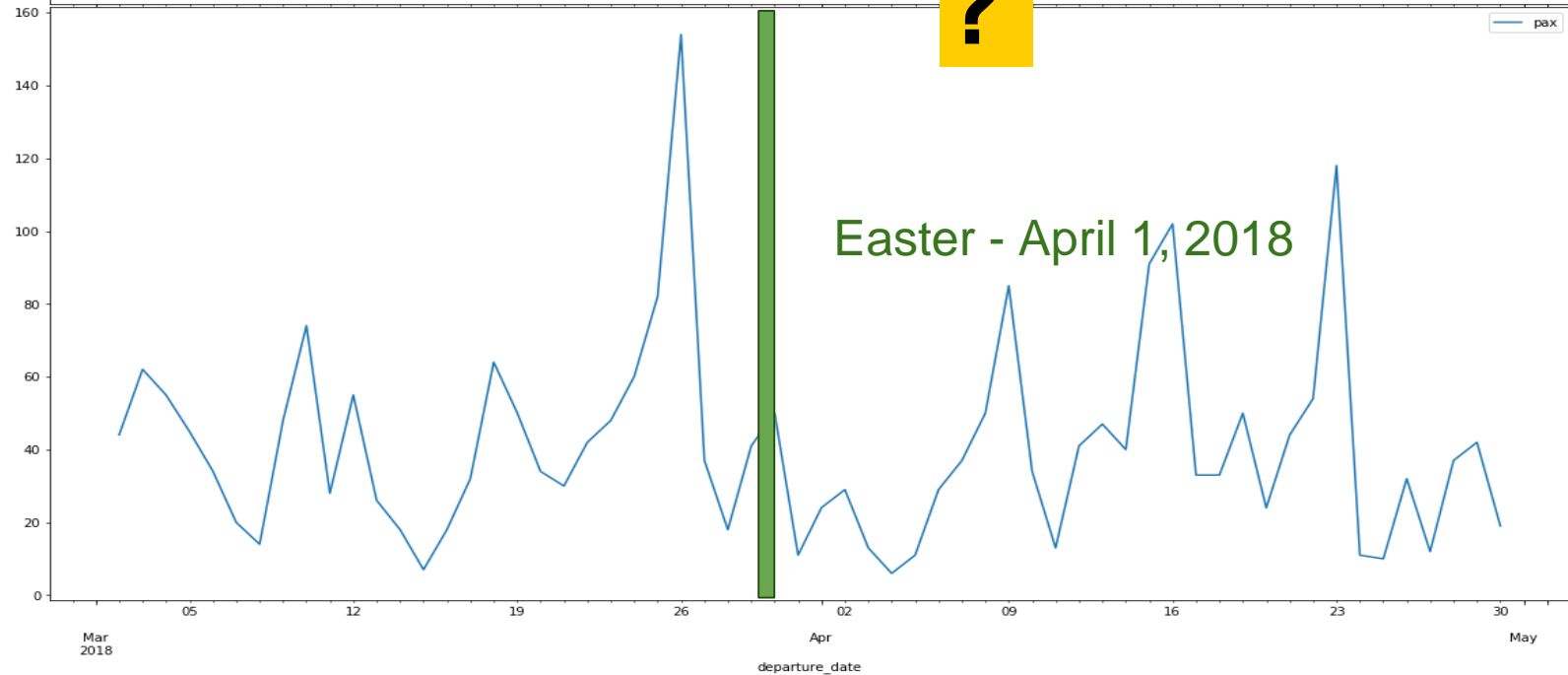
2017



Easter - April 16, 2017



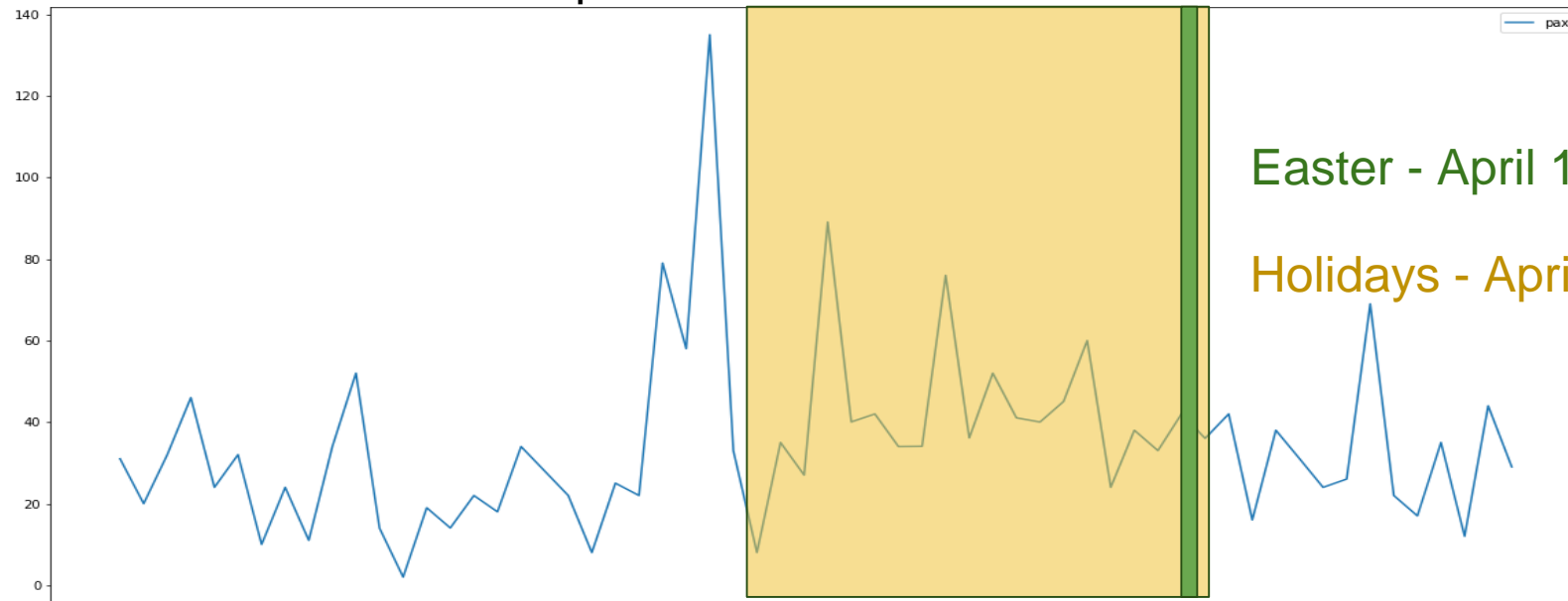
2018



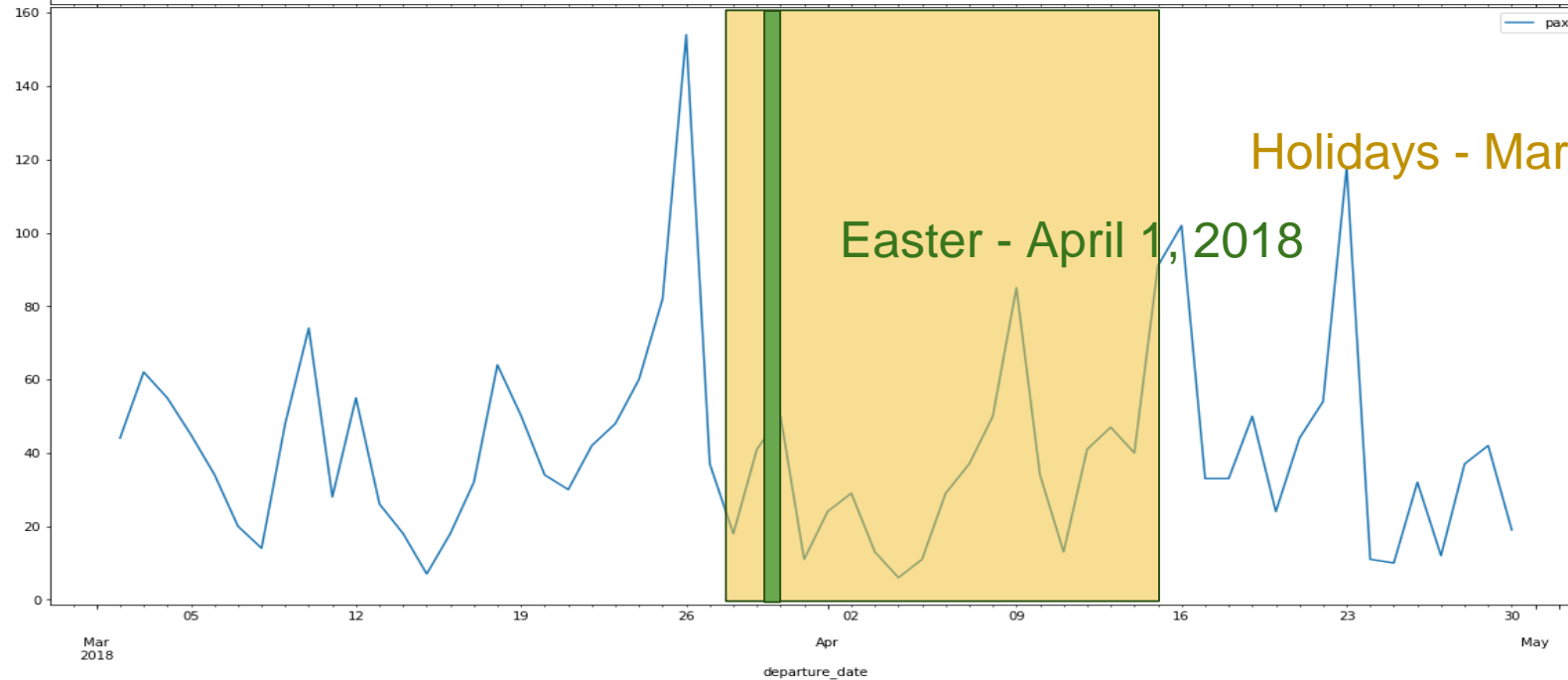
Easter - April 1, 2018

# Departures from Melbourne

2017



2018



1

# How will events impact **future travel** demand?

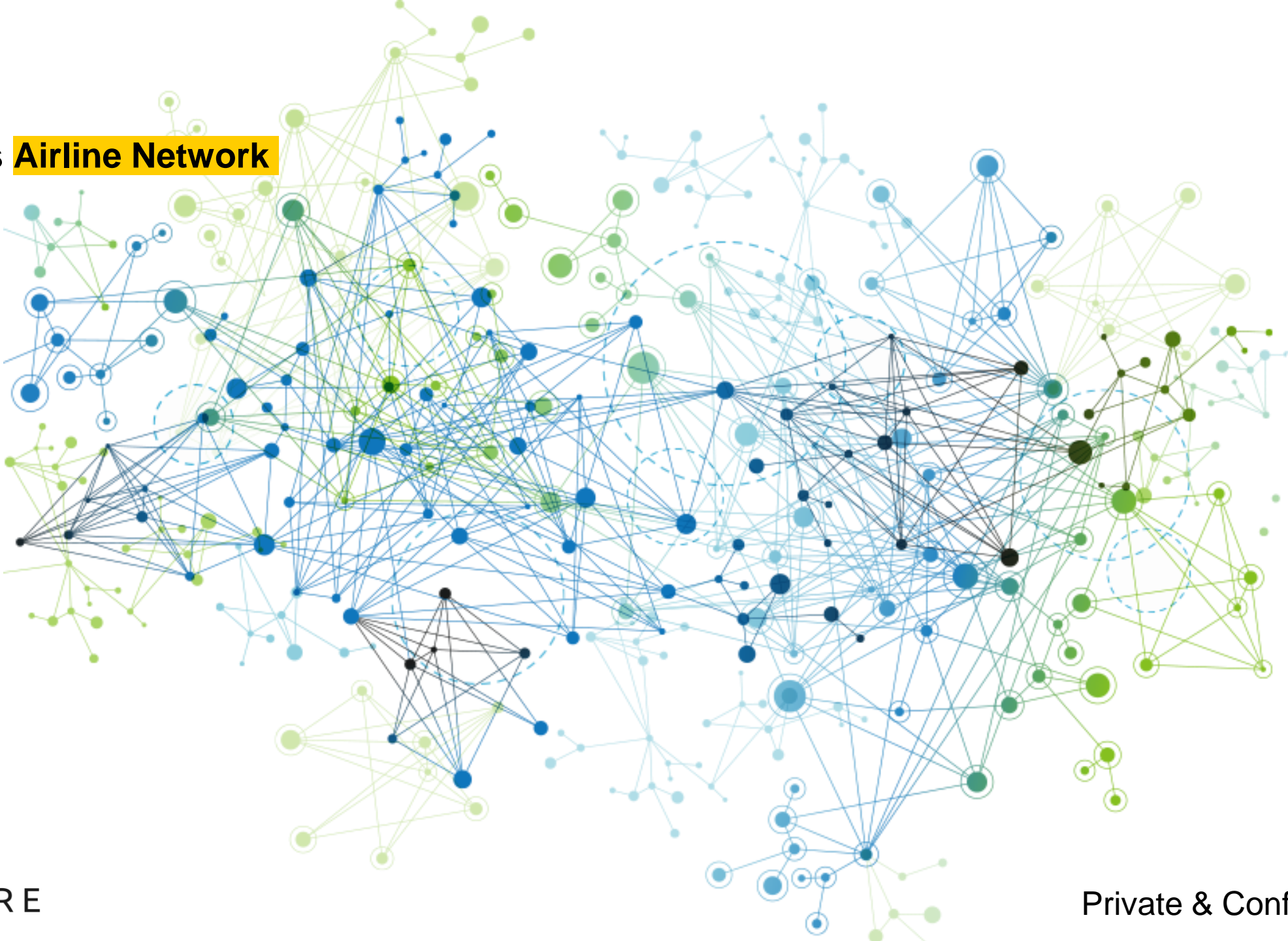
**Problem**





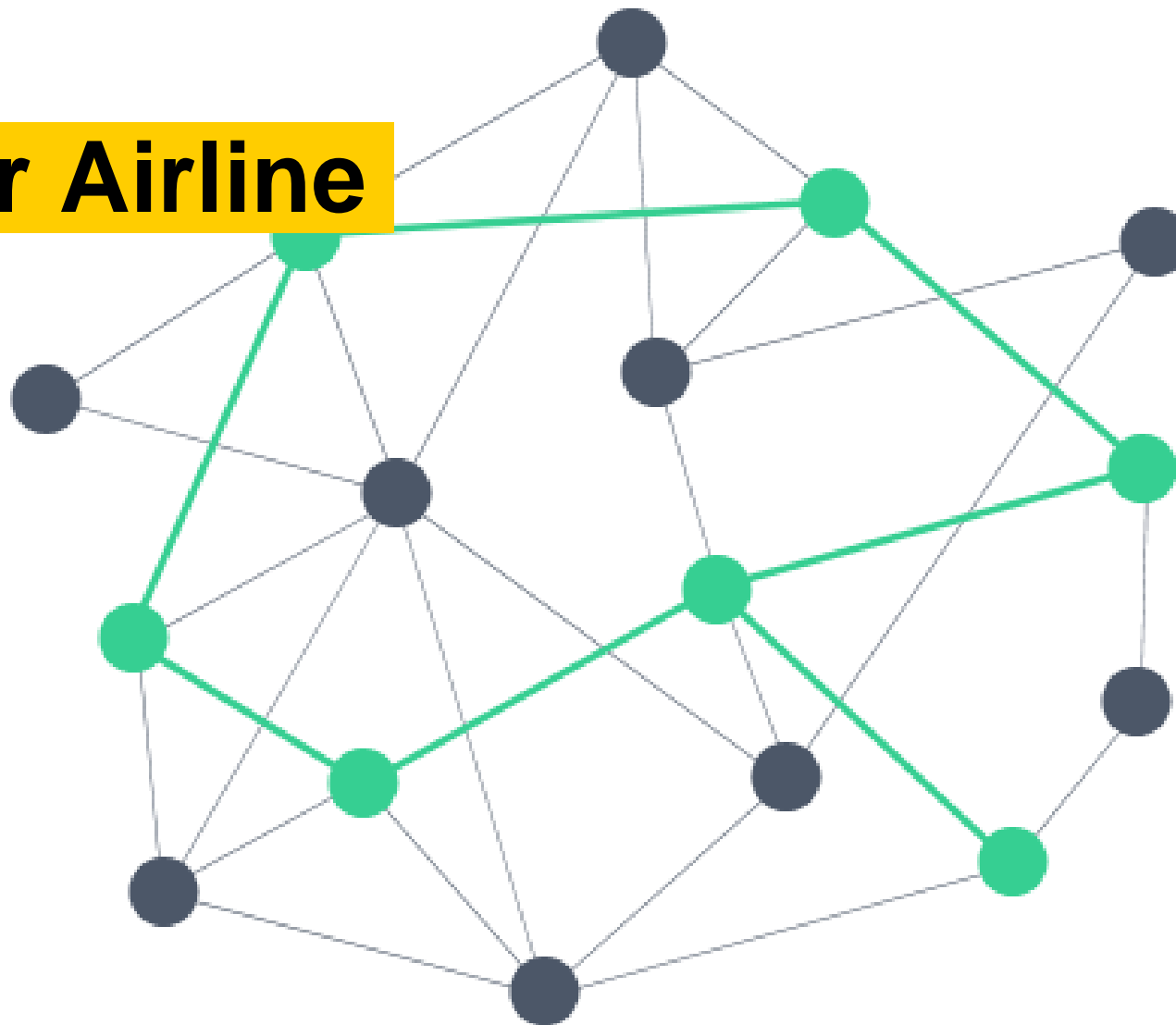
## Problem 2

Today's **Airline Network**



**Your Airline**

The Rest





**You're all using the same data.**



New Route?

Add or Remove Capacity?

# Where's the opportunity?

Cancel a Route?

Change Schedules?



2

# How do we understand *your* customers changing travel intent?

Problem



---

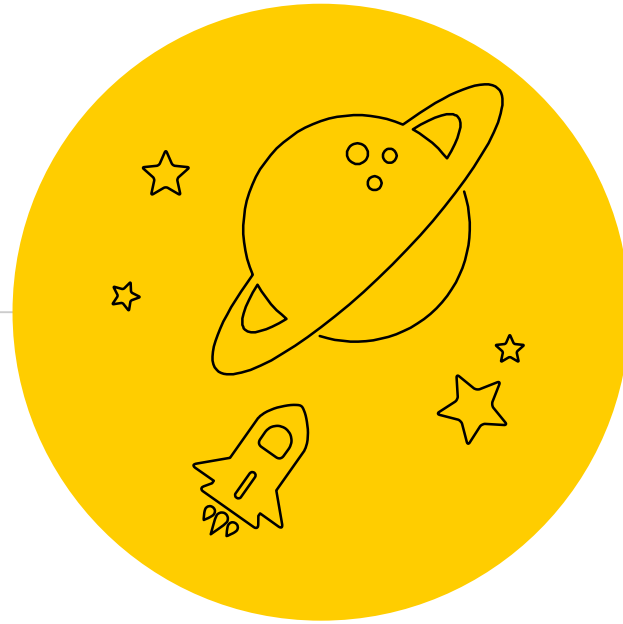
**Both these  
problems have a  
common glue.**

---



**Context!**





# Contextual Data

# Contextual Demand Forecasting For Travel





Context is...



MIGACORE



What we do best!



Private & Confidential<sup>102</sup>



## Our Solutions

### Revenue Management

- + 10% Prediction
- =
- + 1% Revenue

### Network Planning

- + Better Network Planning
- =
- + More Profit



## Revenue Management



News

Forums

Social

Interactions

Unstructured Web



OTA Data

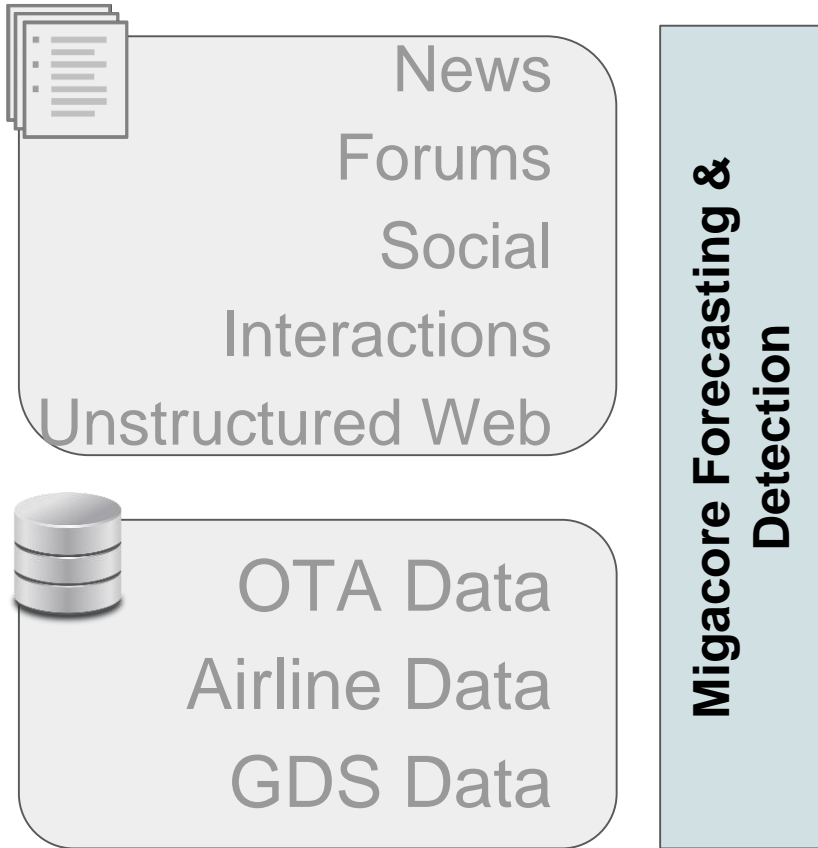
Airline Data

GDS Data



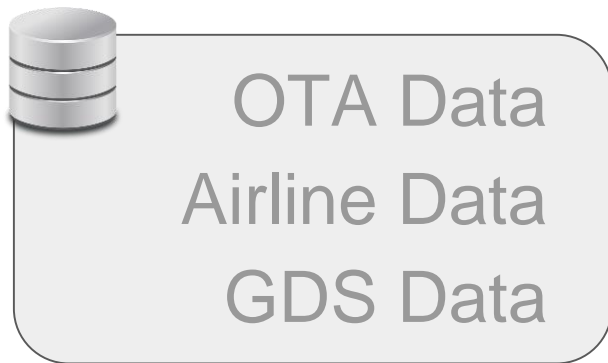


## Revenue Management

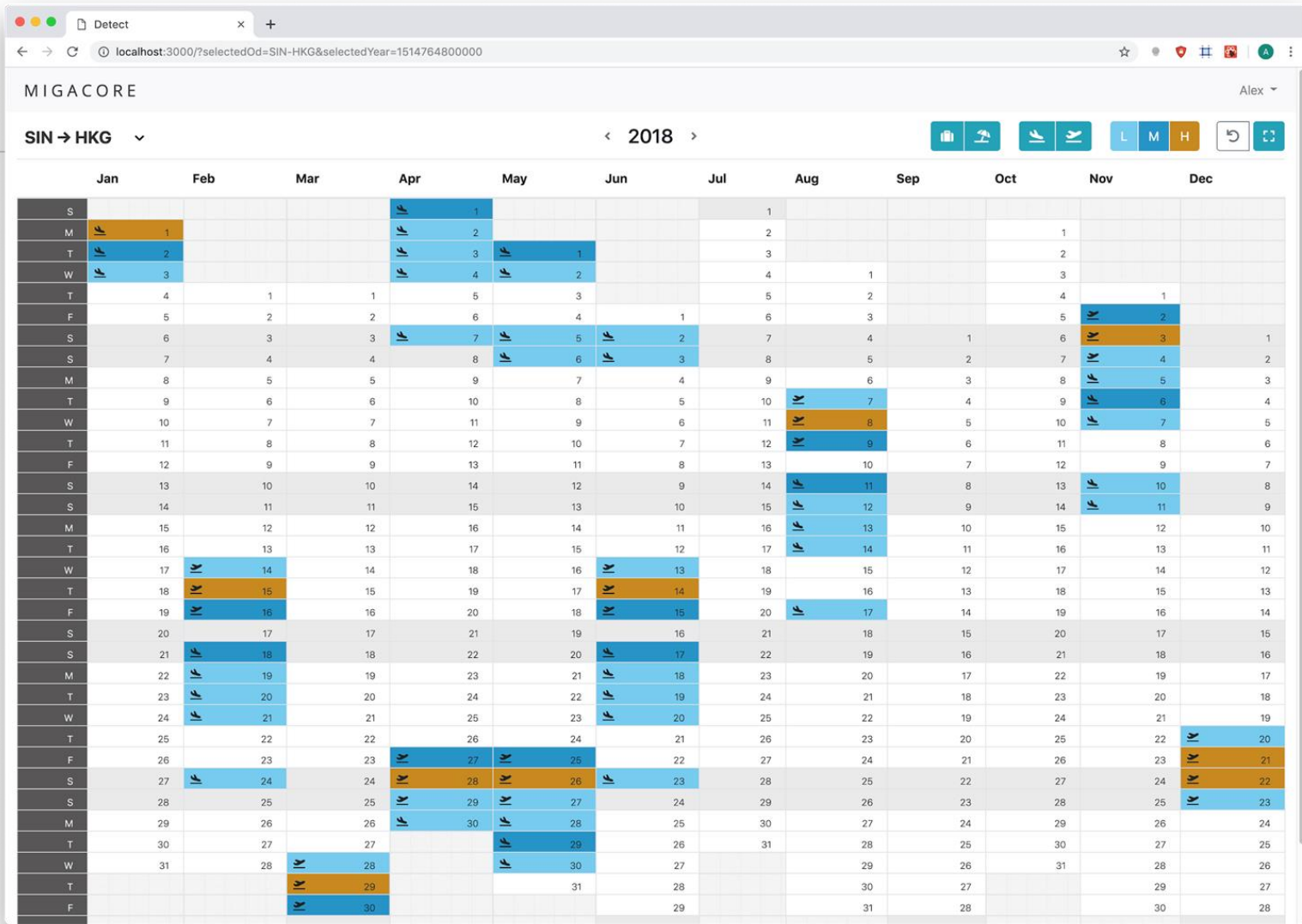




## Revenue Management



- 10,000+ Events detected per Destination.
- **Filtered and classified to a small actionable set of revenue opportunities.**
- Significantly improved forecasting at the right granularity.
- Real-time.



- Automated & real-time event detection
- Action guidance based on intelligent learning and prediction
- O&D based
- Filtered and tuned for your route network.



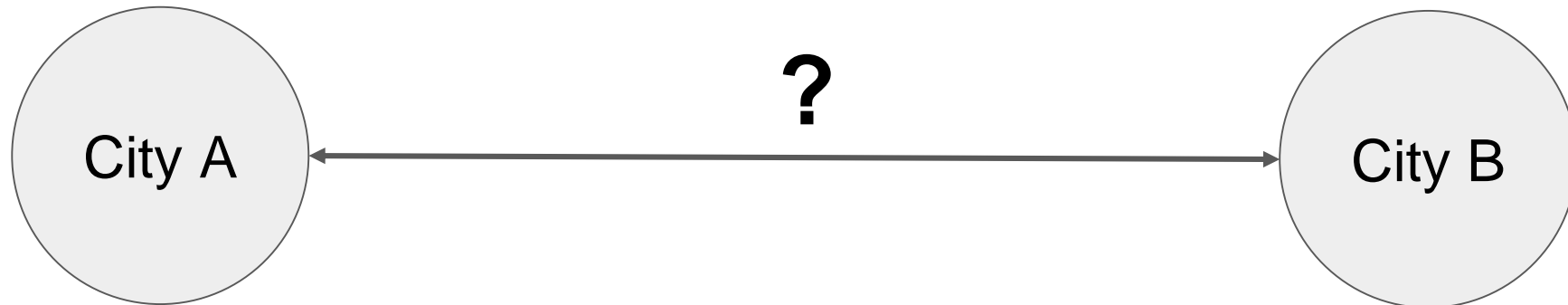
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# Join our Beta Program!



## Network Planning

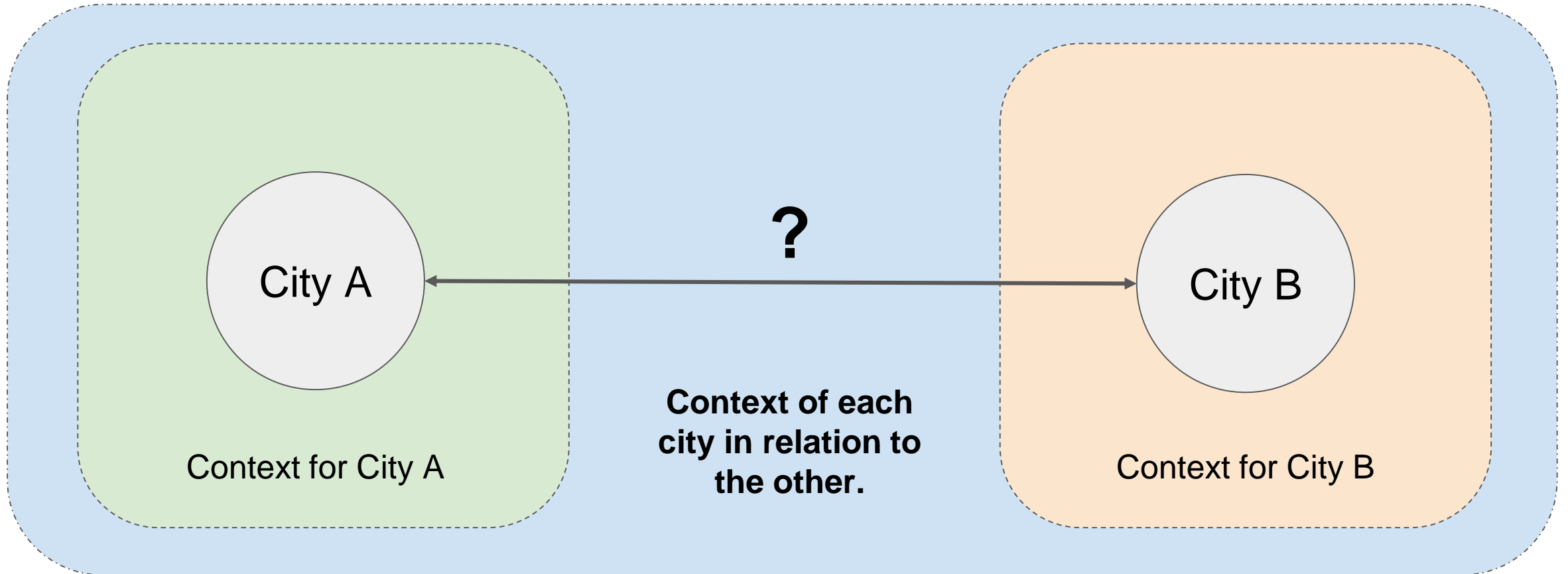
# Estimating Travel Intent Between Two Cities







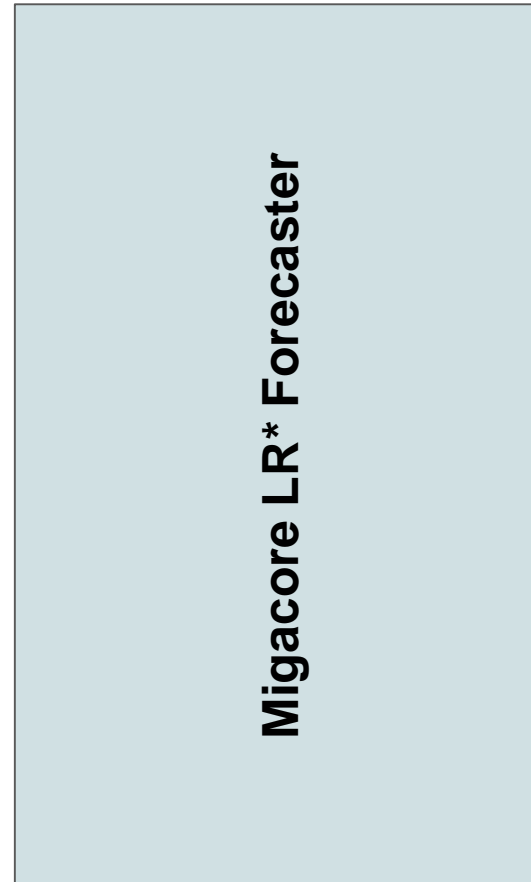
## Network Planning





## Network Planning

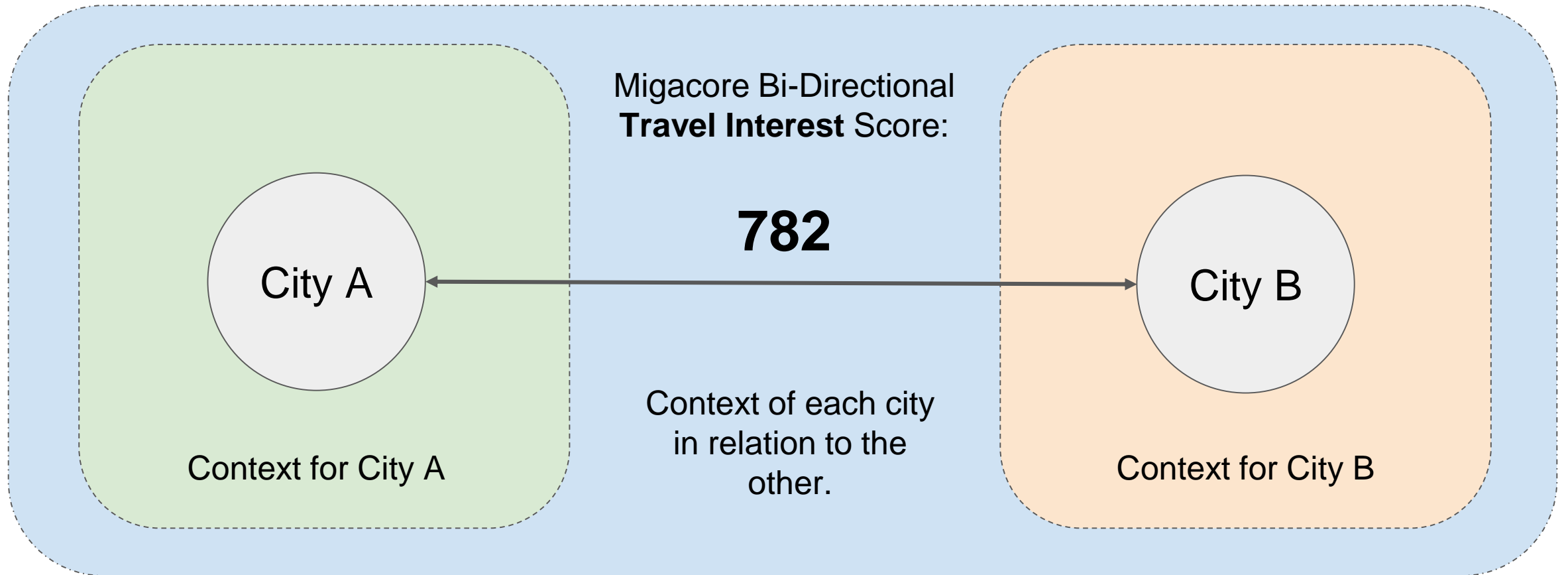
News  
Social Interactions  
Forums  
Unstructured Web  
  
OTA Data  
Airline Data  
GDS Data



- New Route: Travel Intent Predictions
- Existing Route: Passenger Travel Predictions



## Network Planning



New Routes

Existing Routes

Hub:  Spoke:



Run

Route	Avg. Local Travel Interest
FRA <-> LHR	5752
FRA <-> LHR	5469
MUC <-> NCE	1913
FRA <-> NCE	1000

New Routes

Existing Routes

Hub:  Spoke:



First Month:

Last Month:

Weekly Frequency:

Capacity per Month:

Run

**MUC <-> SVG**  
05/2018 to 12/2018  
20 Weekly Flights  
1800 Monthly Capacity

05/2018	06/2018	07/2018	08/2018	09/2018	10/2018	11/2018
1297	1295	1323	1318	1285	1285	1236

Queried On: 17th May 2019  
Results Generated: 17th May 2019

**MUC <-> SVG**  
05/2018 to 12/2018  
20 Weekly Flights  
18000 Monthly Capacity

05/2018	06/2018	07/2018	08/2018	09/2018	10/2018	11/2018
12466	12453	12713	12639	12337	12356	11539

Queried On: 17th May 2019  
Results Generated: 17th May 2019

**MUC <-> PNA**  
05/2018 to 12/2018  
20 Weekly Flights  
18000 Monthly Capacity

05/2018	06/2018	07/2018	08/2018	09/2018	10/2018	11/2018
12627	12628	12945	12900	12633	12655	11804

Queried On: 17th May 2019  
Results Generated: 17th May 2019

**MUC <-> TIV**  
05/2018 to 12/2018  
20 Weekly Flights  
18000 Monthly Capacity

05/2018	06/2018	07/2018	08/2018	09/2018	10/2018	11/2018
12627	12628	12945	12900	12633	12655	11804

Queried On: 17th May 2019  
Results Generated: 17th May 2019

→ Real-time processing of news, social and city to city interest.

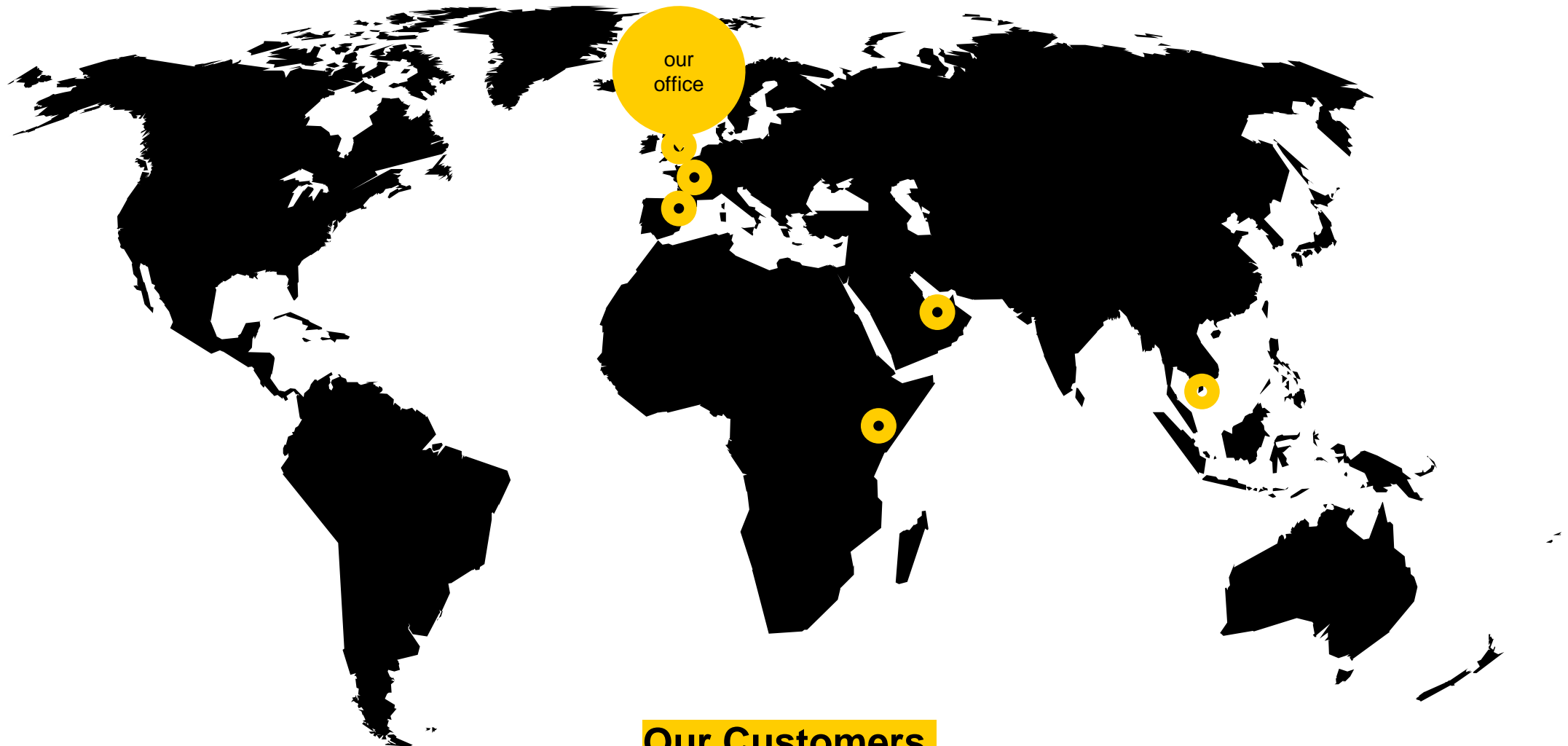
→ Incorporating airline network flows supporting Hub & Spoke and Point to Point movement.

→ Travel Intent trends between O's & D's including low yield alerting.



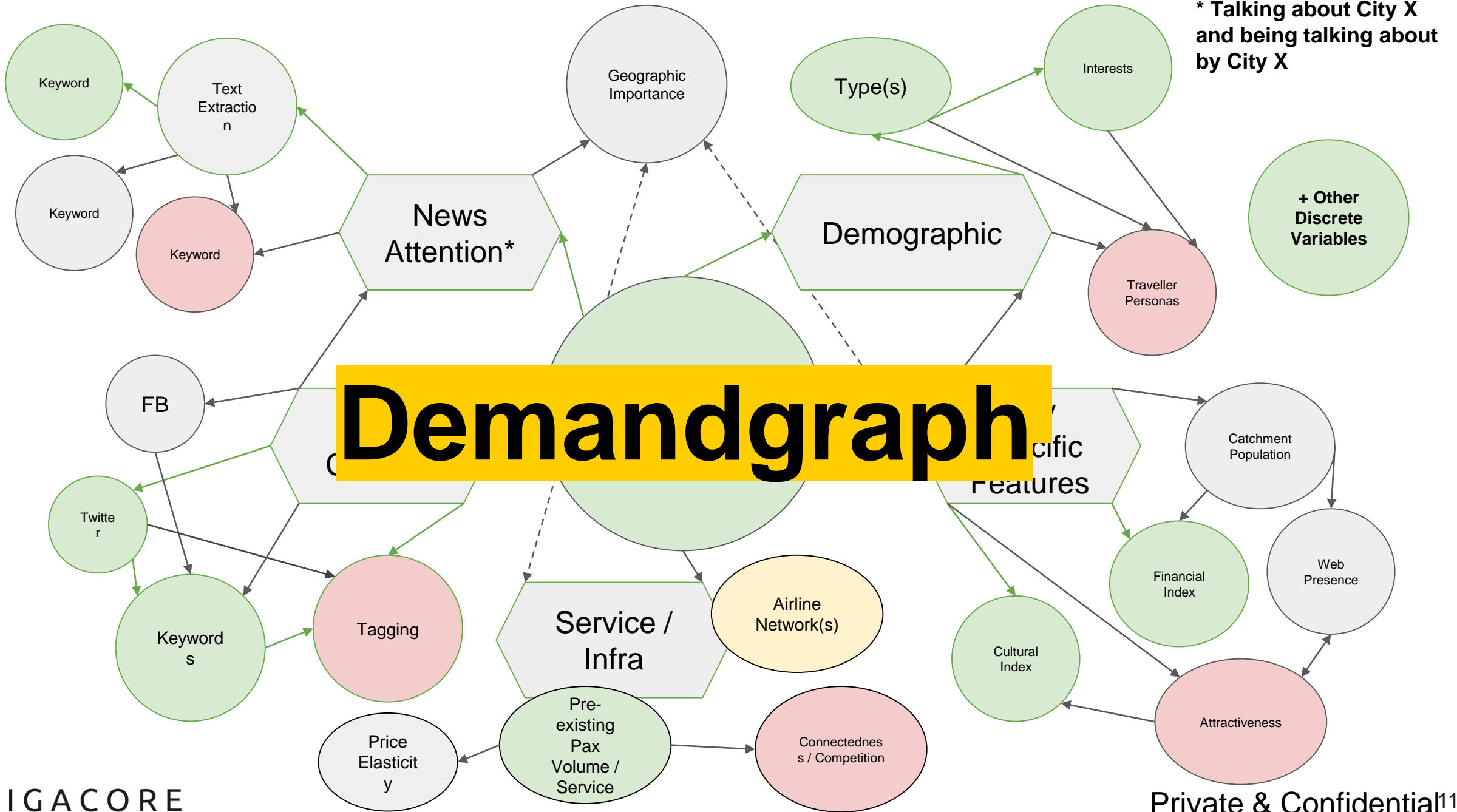
# Register Your Interest!





**Our Customers**







# Thanks!

*Any **questions** ?*

You can find me at:

- [abheer@migacore.com](mailto:abheer@migacore.com)

**IATA**

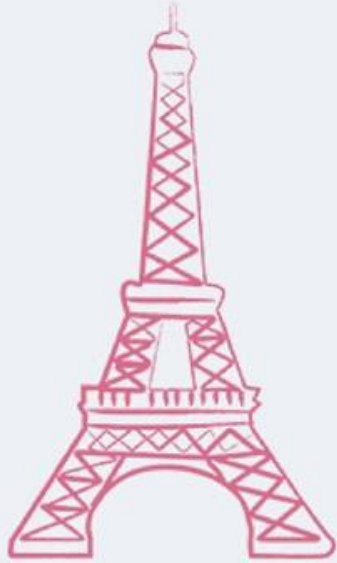
**AVIATION**

**DATA**

**SYMPOSIUM**

**ATHENS, GREECE 25 – 27 JUNE 2019**





# TripStack

The all in one solution for travel mobility





# **BI Driven Content: Dawn of Travel Mobility**

# Reality Check

TRILLIONS

of  
possible flight itineraries DAILY  
+ Market Fragmentation

100K

direct commercial flights  
flown from 4,000 airports DAILY

Geo Based Pricing - CUG -  
Better Itineraries

**not available** for purchase.



Legacy Airlines distribute /  
generate data **Mainly** still on  
**GDS**

300+

LCCs worldwide

High distribution cost + rise of the  
internet = distribute **DIRECTLY** to  
consumer

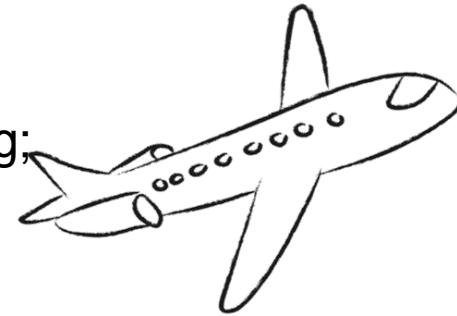
**TripStack**

# Our Mission

We started with the dream of making travellers and companies life easier, with a single system for flight content delivery.

## But...While looking for it....

In the search of providing all **100,000 direct flights and the billions of missing itineraries and rates** in one search offering; we discovered that we were resting on an invaluable cache of data for flight content around the world.



# This allows for

1. Developer first API
1. State of the art API, ready for NDA and inclusion of other travel / transportation products
1. Smart caché + best in industry response times for avail, book and booking management
1. Invaluable legacy and Legacy Data Points (on price, routes, fare comparison and travellers) readily available for consumption on different platforms / impact pricing - yield decisions
1. Moving from Virtual Interline to Travel Mobility (seamless travel experience)

# Our Products

“Working together with  
one API”

## EFOE - “Every Flight on Earth”

*It's exactly as it sounds.*  
TripStack plans to integrate every airline in the world with their best content and make it available to our customers through a simple and cost effective API.

## Tripbuilder

Intelligent analysis of billions of route combinations and price points to produce unique flight itineraries at the lowest prices.



# Every Flight on Earth (EFOE)

## Feature packed Flight API

- Access to 140 LCCs TODAY
- Ancillaries available (for legacy and LCC)
- 30 new LCCs added every month.
- Self learning algorithms
- Highly scalable flight cache - super fast
- Discounted airfares
- Geo based pricing & booking



# Virtual Interlining



Virtual Interlining connects flights from carriers that do not have commercial interline agreements into a single itinerary.

Passengers have been creating these itineraries by HAND so far.

i.e Traditional Carrier + LCC Carrier

# AI + BI working for you

Concept	Possible Routes
You can fly from Los Angeles to any of the 400 airports in the US and then to Paris (1-stop)	400
You can fly from Los Angeles to any of the 600 airports in the Europe and then to Paris (1-stop)	600
You can fly from Los Angeles to any of the 400 airports in the US and then onto any of the 600 airports in Europe and then to Paris (2-stop)	241.000

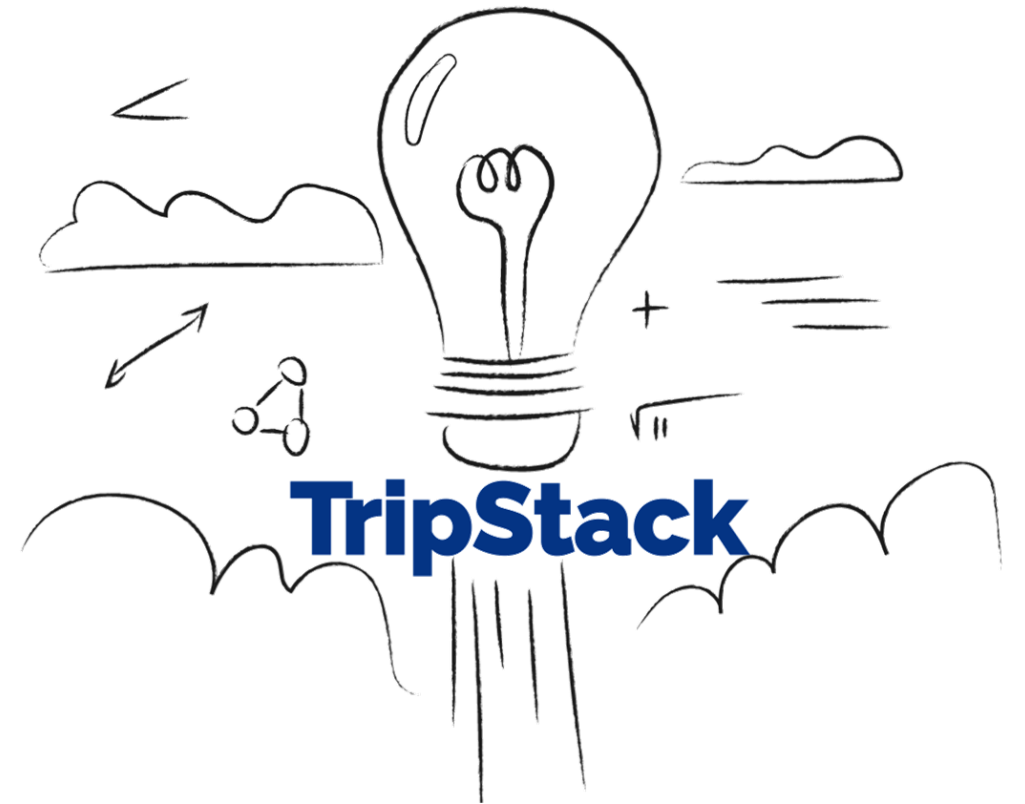
**TripBuilder (VI = BI + AI) uses big data and proprietary algorithms to reduce 241,000 routes to the BEST 5!**

# AYM

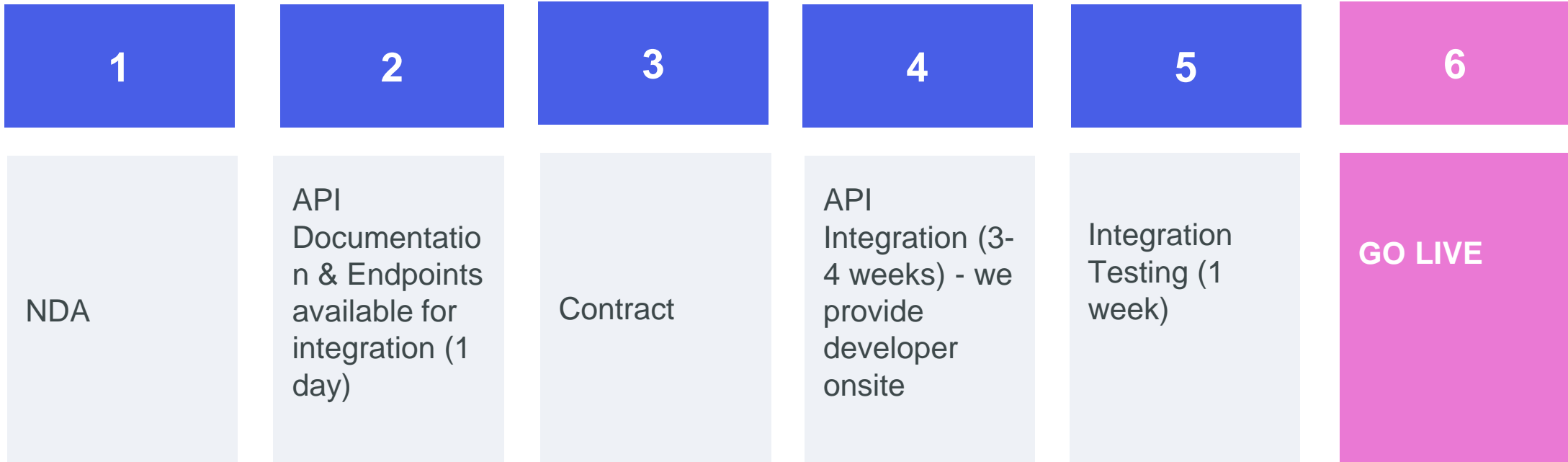
## AI driven pricing optimization

On top of our offerings, we enable our clients to use our data cache and integration (data collection) technology focused on rate and ranking, processed by AI and ready to consume by any kind of platform (RMS, internal dashboards, api-api).

The output then is AI pricing optimized for competitiveness - conversion.



# Integration - what it looks like



**Integration Time =  
4-6 weeks!**



# Travel Mobility = The Future

Traditional Transportation + Non Traditional Transportation  
/ leveraged by AI and historical caché on rates and connection  
times

=

**Seamless** transportation experience for the customer and **Breadth  
and Depth** of offering for travel companies

# About TRIPSTACK

- <https://ytcropper.com/cropped/Ak5d07934247142>
- Born and raised in Toronto
- Co-founders Naman Budhdeo and John Boguslawski
- Offices in Canada, USA, Spain and India
- Serving the biggest names in Travel (OTA's, agencies, and more)
- **Currently #tripstackingtheworld**

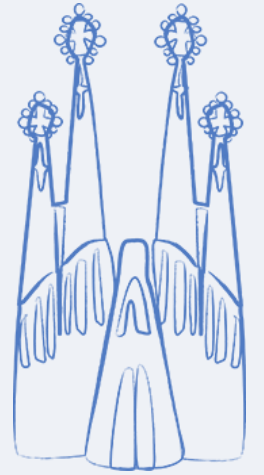


# Thank you

[alex.gomez@tripstack.com](mailto:alex.gomez@tripstack.com)

<https://www.linkedin.com/in/aglosada>

+34652024269



# TripStack

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# Aviation Data Start-up of the Year

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# Closing Remarks

**Aleksander Popovich**

Senior Vice President, Financial and Distribution Services

IATA



# Aviation Data Symposium 2019



**IATA**  
**AVIATION**  
**DATA**  
**SYMPOSIUM**

ATHENS, GREECE 25 – 27 JUNE 2019

## Thriving in the age of Data & Digital Transformation

**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

# Aviation Data



- ✈️ Key building block for Digital Transformation
- ✈️ Supports wider strategic priorities



# ADS 2019: Highlights?



# ADS 2020: Where Next?





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**Aleksander Popovich**

Senior Vice President, Distribution and Financial Services  
IATA

