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WEBINAR SERIES

**DATA &
DIGITAL
CAPABILITIES
DURING CRISIS**



EPISODE 5 (ADAPT & GROW)

 **LIVE** WEBINAR WILL START SHORTLY ...

 **Tuesday 26 May 2020**
15:30 – 17:30 CEST

Sponsored by:  **AZURGROUP**

#StayStrong #WeAreAviation #StrongerTogether



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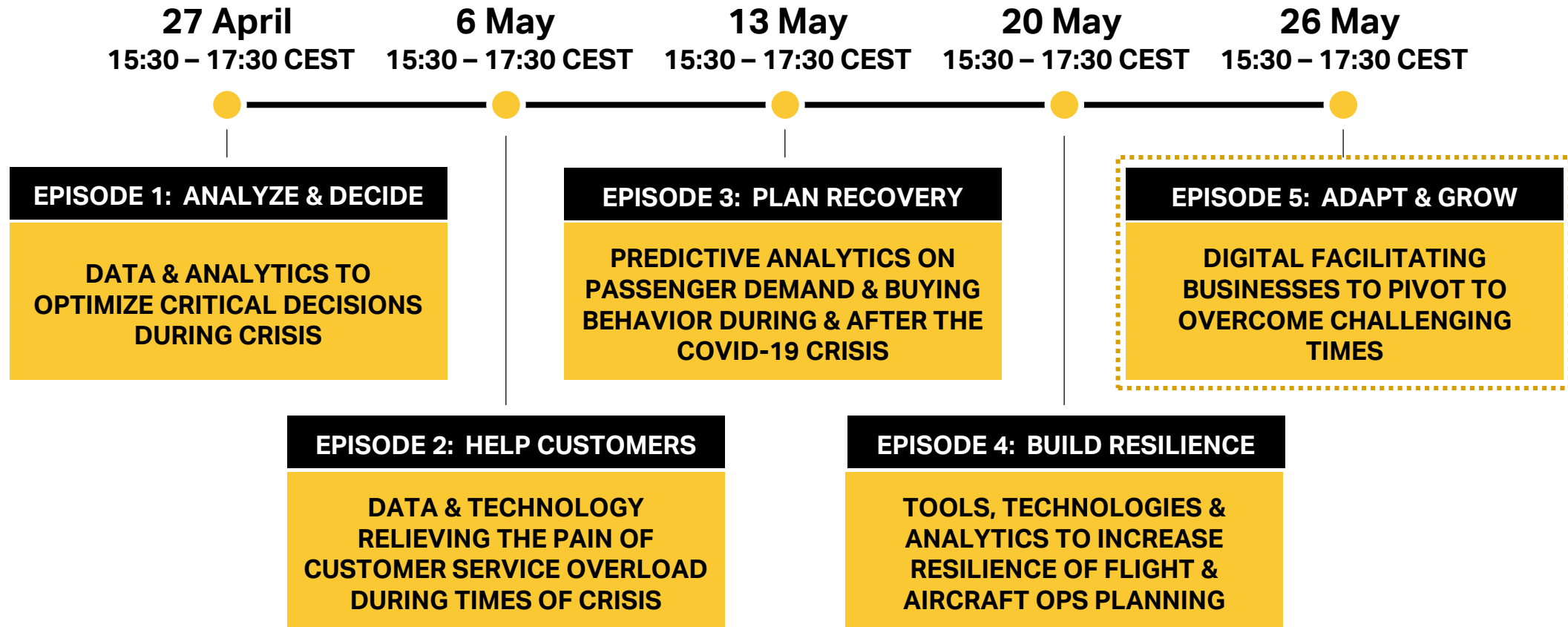
EPISODE 5 (ADAPT & GROW)



● **LIVE** PRESENTATION IN PROGRESS

Housman Goudarzi
Head of BI & Industry Engagement, IATA

Aviation Data & Digital Webinar Series



For agendas, slides, and recordings go to:

iata.org/addws

▶ AVIATION DATA & DIGITAL WEBINAR SERIES **EPISODE 5 SPEAKERS**



Houman Goudarzi
Head of BI & Industry
Engagement, IATA



Jean-Louis Lalonde
President & CEO of AZUR Group



Jim Davidson
President and CEO, Farelogix



Martin Mitev
Aviation Futurist



Muhammad Albakri
RVP & Sponsor, Digital
Transformation Strategy, IATA



Serdar Gürbüz
SVP, Digital Innovation &
Analytics Solutions, Turkish
Airlines



Dr. Thomas Wittmann
Managing Director, Lufthansa
Systems



This episode is sponsored by:



▶ DIGITAL FACILITATING BUSINESSES TO PIVOT TO OVERCOME CHALLENGING TIMES



Webinar Synopsis: This crisis has unprecedented impact on the airline industry, wider aviation, travel and the world. Going back to normal is very unlikely to happen, what will the new normal be and the role of digital?

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

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15:30 – 15:40

Welcome and Opening

Muhammad Albakri

RVP & Sponsor, Digital Transformation Strategy, IATA

15:40 – 16:00

Keynote: Digital transformation in flight operations: Optimizing each mission and the whole network through data and technology.

Dr. Thomas Wittmann

Managing Director, Lufthansa Systems

16:00 – 16:20

Keynote: Recovery & growth post COVID-19, best time to self-disrupt, rethink and optimize processes, leveraging data & digital capabilities.

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Serdar Gürbüz

SVP, Digital Innovation & Analytics Solutions, Turkish Airlines

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Digitalizing Flight Operations

Optimizing each mission and the whole network through data and technology.

Thomas Wittmann Lufthansa Group

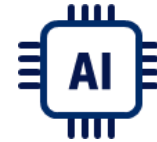
„The future is already
here — it's just not
very evenly
distributed.“

William Gibson

Key Enablers for Digital Flight Operations:



Big data & analytics



AI



Ubiquitous Connectivity



Automation



Cloud



**Resilient Scheduling takes
Operational Data into account
to develop schedules that are
robust against local delays**



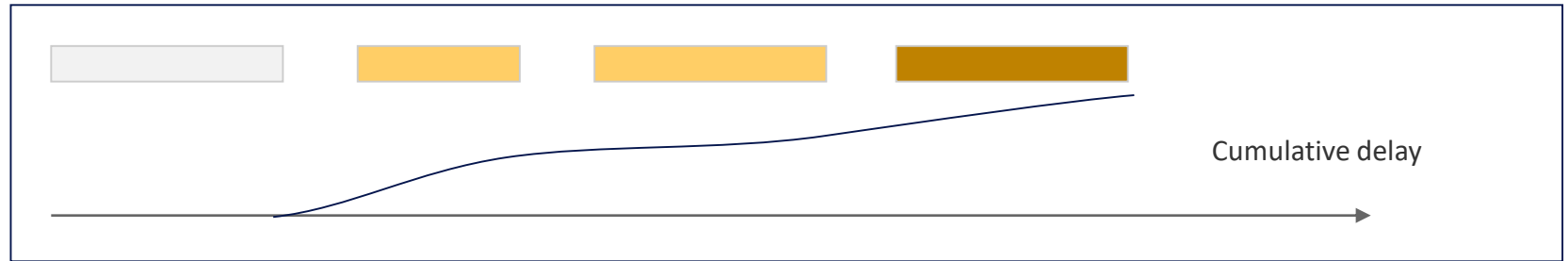


Big Data & Resilient Scheduling

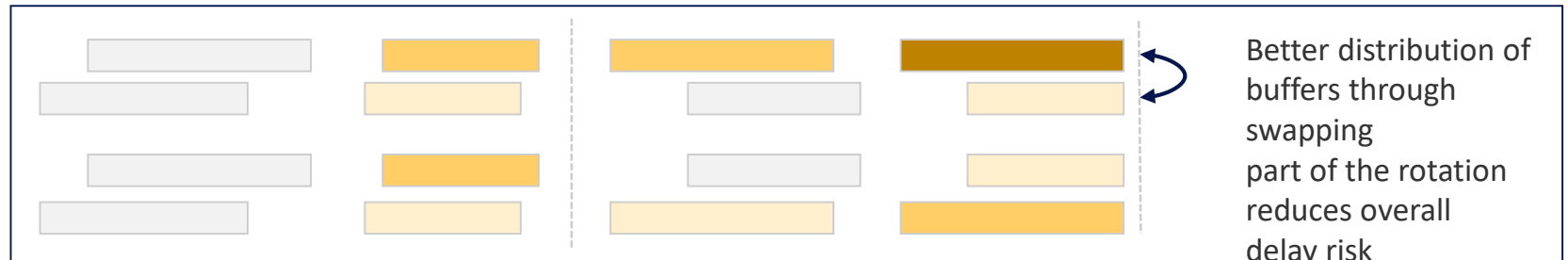
Collecting historical on-time performance **data** allows to understand delay probabilities by flight



Based on historical operational performance we can simulate the stability of a schedule to identify critical rotations
(Monte Carlo **Simulation**)



Through **optimization** we can significantly reduce the number of flights with a high delay risk and build more stable rotation





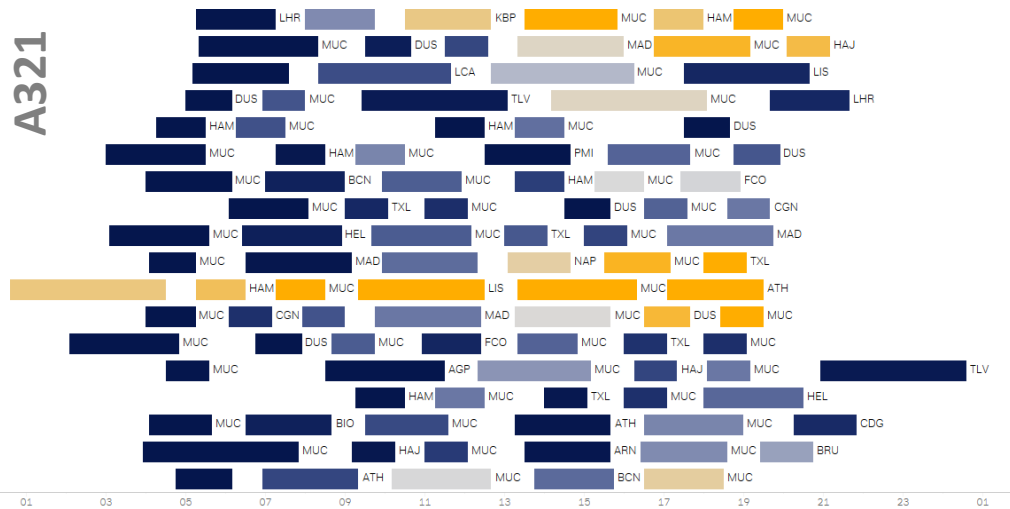
Rotational Delay can be reduced significantly through Optimizing the Rotations

Before

Rotational delay (Min.)

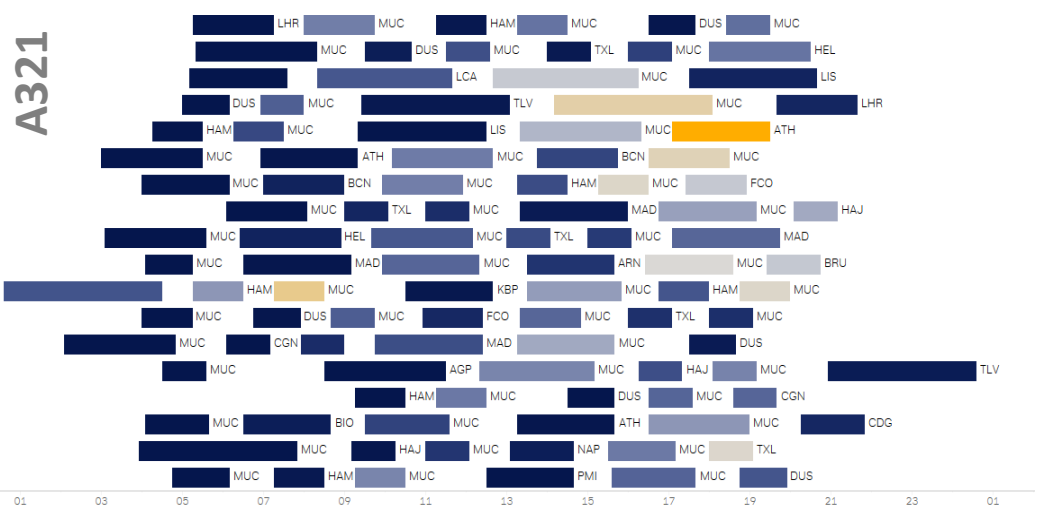


A321



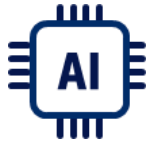
After Optimization

A321



aiOCC is the world's first AI-powered assistant for flight operations and is now turn-key ready implemented at Eurowings





aiOCC: an AI-powered assistant

Fully functional AI assistant aiOCC integrated into live operational systems:

- aiOCC recommends proactive tail swaps that allocate **buffer and stability where they will be needed** most
- Recommendations are generated by an Artificial Intelligence (AI) that relies on **Reinforcement Learning**
- The AI draws its strength **from correlating a huge body of information** from historic flight events

Lufthansa Systems | NetLine/aiOCC | ZERO

Selection: STR, TXL, HAJ, PMI

Swap recommendation

GWX-GWY Crew ● Overbooking +0

11:55 DUS 00:35 EW7463 12:30 MXP 00:35 EW7464 14:00 14:35 16:05 16:40 DUS 00:35

11:50 DUS 00:50 EW6943 12:40 TXL 00:35 EW6944 13:55 14:30 15:45 DUS 01:15 17:00

Resilience +2.2% ↑

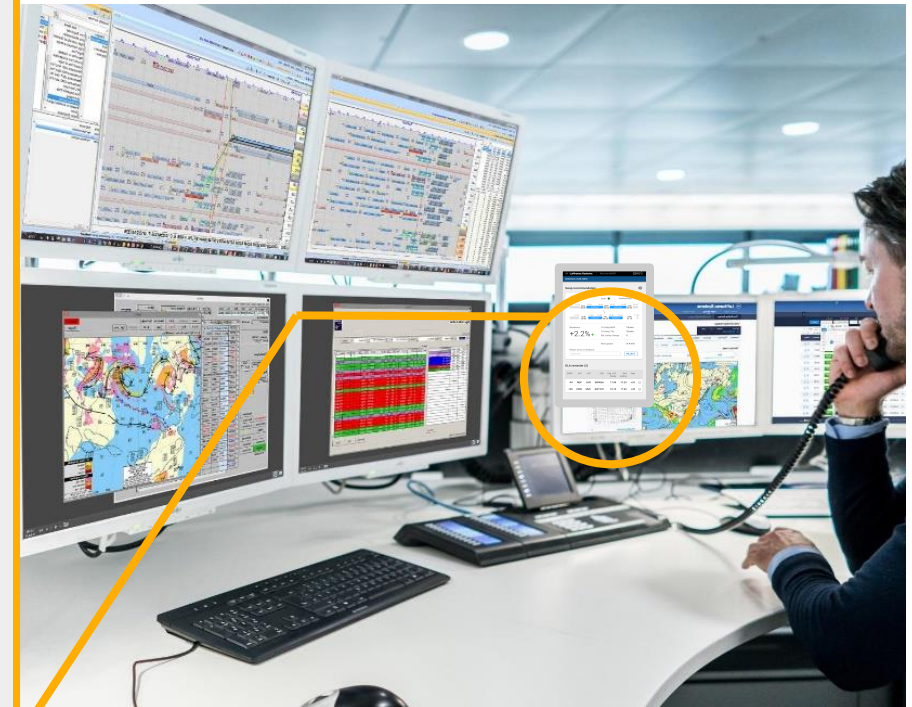
TA Delay MXP 15 min
TA Delay TXL 10 min
Rot. Delay Change 0

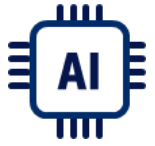
Next update in 4 min

Please send us feedback
Optional REJECT

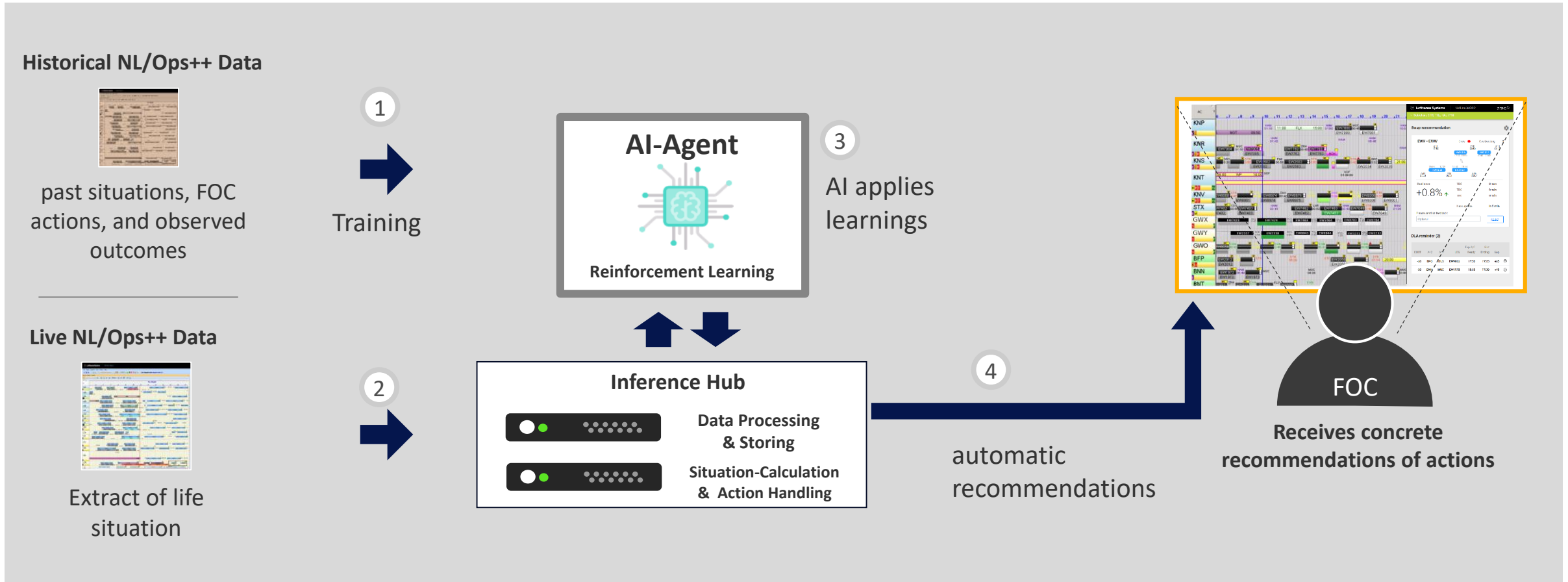
DLA reminder (2)

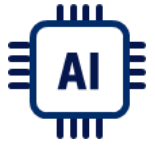
EOBT	A/C	A/P	LEG	Exp. A/C Ready	Slot ending	Gap
-90	BQP	DUS	EW9066	17:50	17:25	+25
-105	EWN	MUC	EW1978	18:15	17:30	+45





aiOCC in a nutshell: From Eurowings' live NL/Ops++ system to AI generated recommendations displayed to the right user





Extensive evaluations show its potential to increase OTP significantly ... and we are just getting started

Evaluations in a „what-if“ replay

- Given 100% acceptance of aiOCCs recommendations, it can be shown that more than **1,400 delay minutes** could have been saved in September 2018* for AOC Eurowings alone
- **aiOCC** is capable of taking actions that are **beneficial in the long run** weighing short term sacrifices against the greater good
- It can be seen that **minor additional delays** around afternoon **are traded against high improvements in OTP** by the end of the day
- Current AI has **still immense potential for improvement**, e.g. by employing lifelong learning. This ability is not utilized in this evaluation

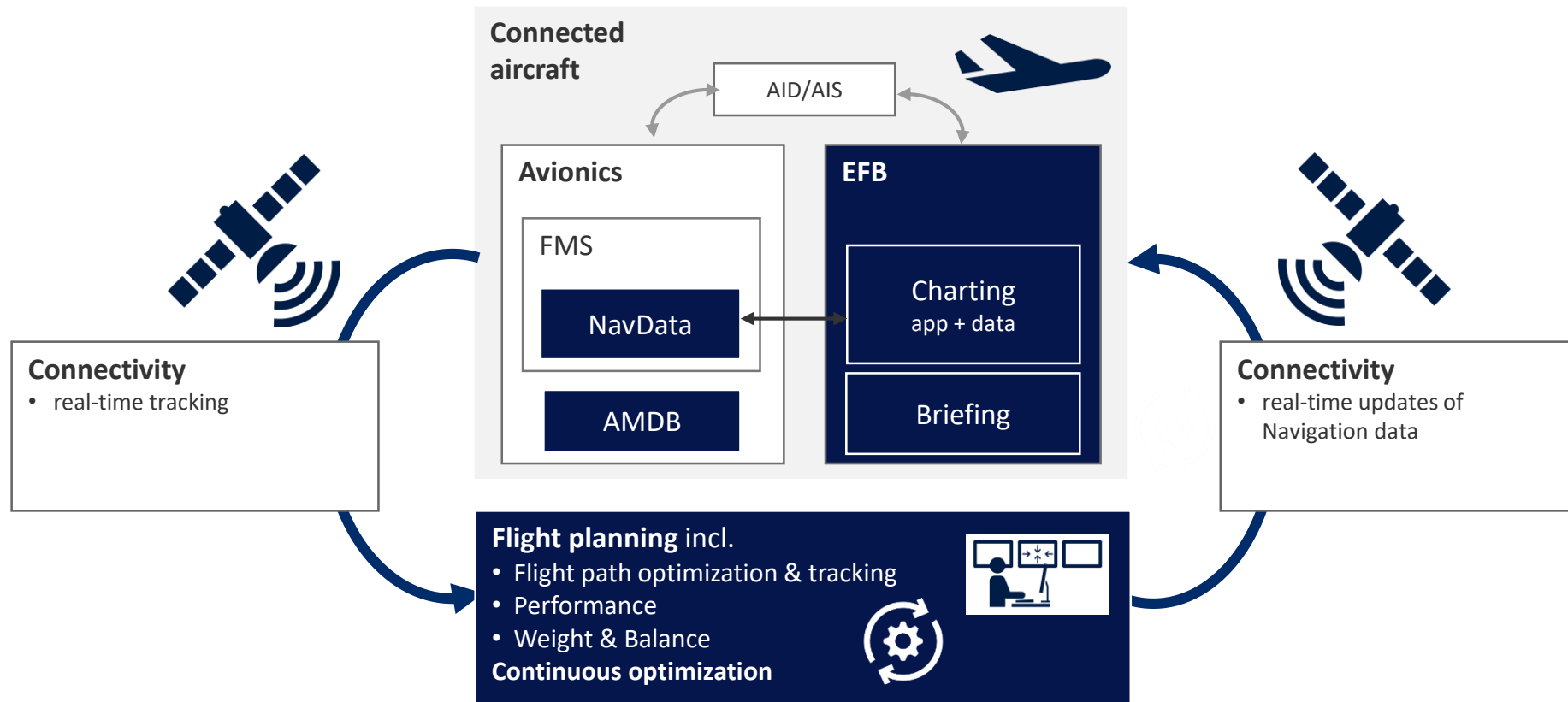
*Mainly summer schedule 2018 was used for evaluation since the originally planned flight schedule for 2020 was much closer to 2018 than to 2019

**With ubiquitous Connectivity
and abundant Compute
Power we can make Flight
Path Optimization dynamic:
Total Mission Optimization**



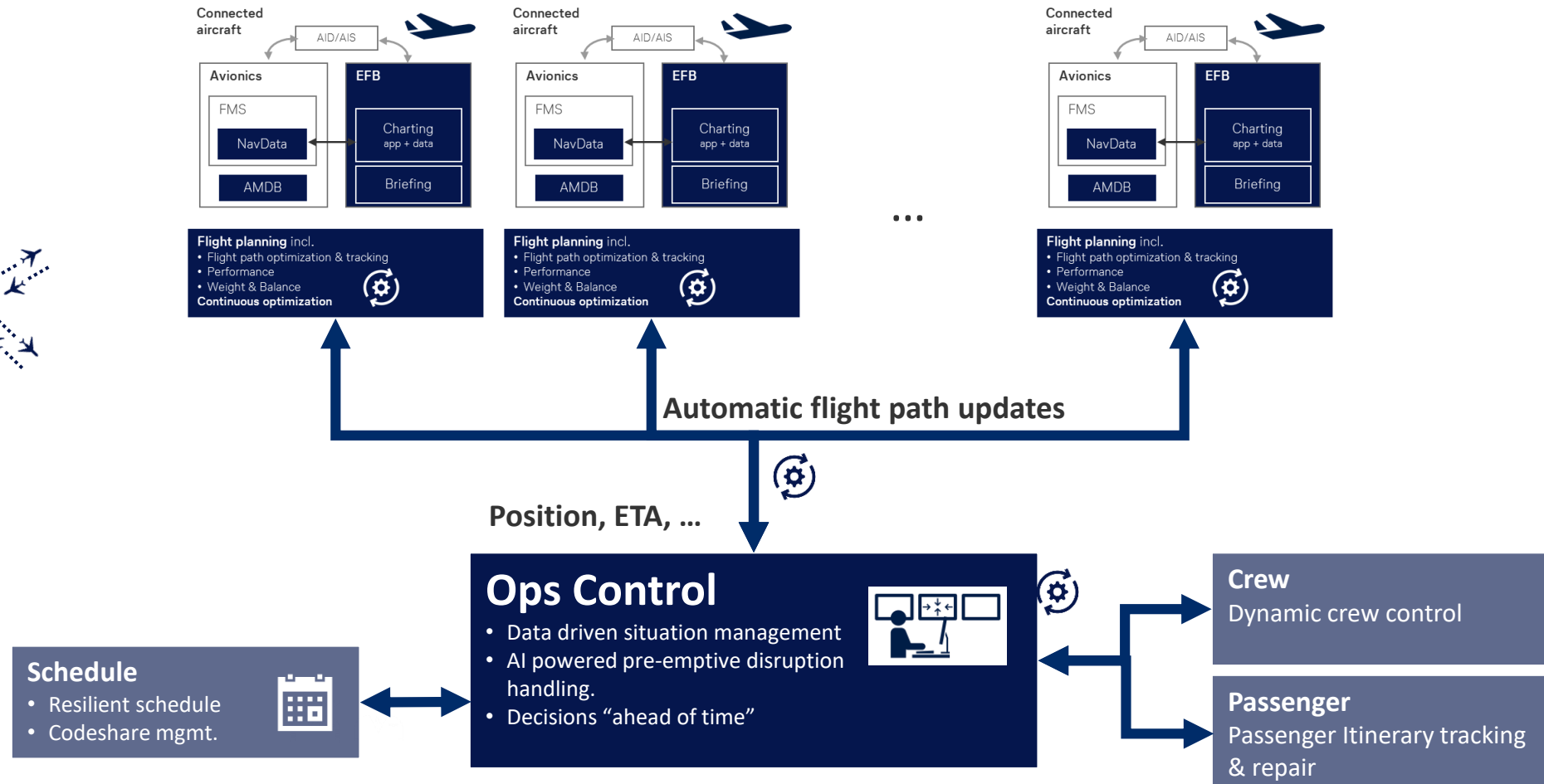
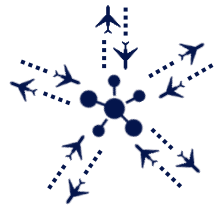


Total Mission Optimization



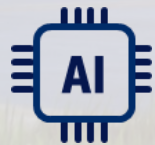


Next Step: Fully Automated Dispatch gives Ops Control new Capabilities: **Total Network Optimization**



Conclusion:

- Technology Development creates new opportunities to support Airline Operations to save cost and increase punctuality.
- Airlines need to work on empowering their operations with digital technology. Digital is not only for sales and customer services.
- These opportunities are still relevant in post crisis times, even more relevant taking into account the need to reduce cost.



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Agenda

Who is AZUR Group

Adapting to COVID-19

Data & Science to the rescue

Aviation Industry Readiness Score *AIRS*

Cloud technologies to support Global Restart Plan



Software Development Firm

Cloud Expert

Microsoft & Salesforce
Partner

Working with the Aviation Industry Since 2004



Jean-Louis Lalonde
President and CEO

Canadian company based in Montreal ! Great Team working safely from home!

- IATA Strategic Partner - Developing Cloud financial solutions and more since 2004
- Montreal International Airport (YUL) - Developing security software and more since 2006
- CAE - Software modernization for flight simulator testing and more since 2015)

Adapting to COVID

The best innovations happen during tough times

It is not the strongest that survives but the **most adaptable**. Charles Darwin



The world cannot wait to walk down the (airplane) aisle again.
Passengers will lead the way when they feel safe & secure to fly.



What this pandemic has taught us is to be **better prepared** for the next global crisis.



Industry New Normal



This pandemic presents itself as a huge challenge, and it also offers us an unprecedented opportunity to reinvent the aviation industry.



- To review the economic model
- To review traffic congestion and air pollution
- To reduce waiting lines
- To optimize unused seats/space
- To reduce, reuse and recycle
- And more...

Smaller planes

More leisure & less
business trips

***Bleisure* travel** Mixing
business trips with
leisure time

Leaner & Greener Industry
Promoting Sustainability & Social Responsibility

Restarting the Industry



The Power of DATA & Science to the Rescue

There are ways to ensure collaboration between all involved parties: Governments, Airlines, Airports, Passengers, etc.



Source CNN



Optimizing the right parameters of a global restart plan

What are the main parameters of a global restart plan for the aviation industry?

How and when will the restrictions to travel be lifted? What will be the various steps from domestic to international?

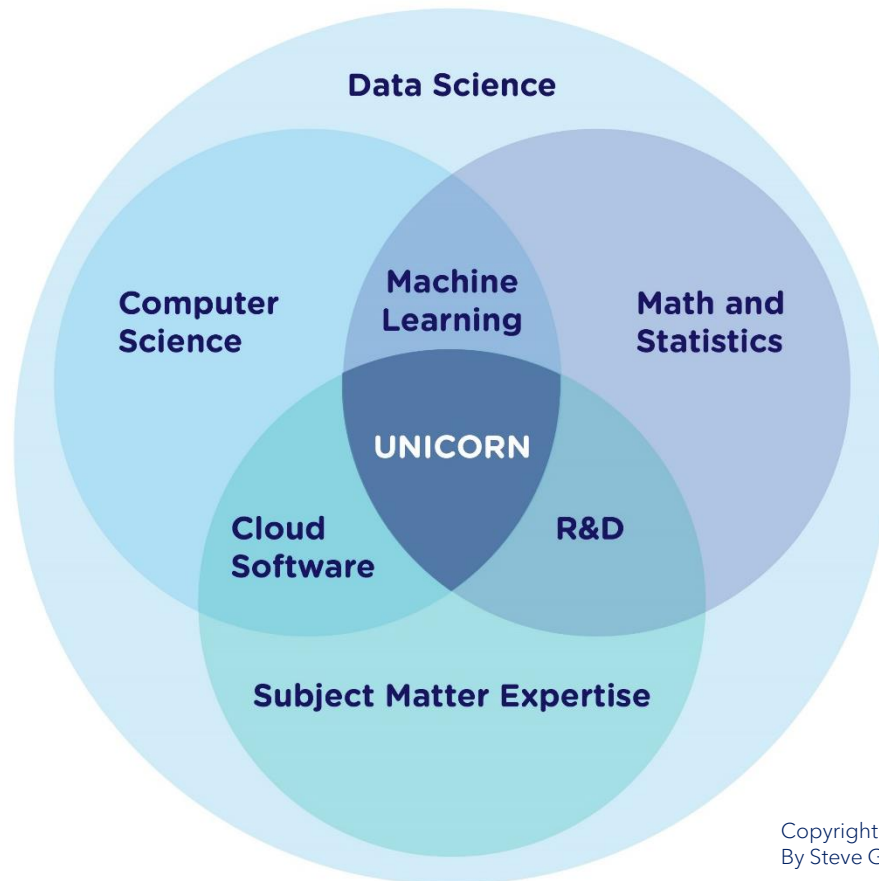
How can we influence passengers with the right scientific arguments?

Helping passengers feel secure and safe to fly on a full plane

Finding a Unicorn Solution



Unicorn Solution: something that is highly desirable yet difficult to find or obtain



Copyright © 2014
By Steve Geringer Raleigh, NC

The **aviation industry's extreme situation** requires a **unicorn solution** to restart it as quickly as possible!

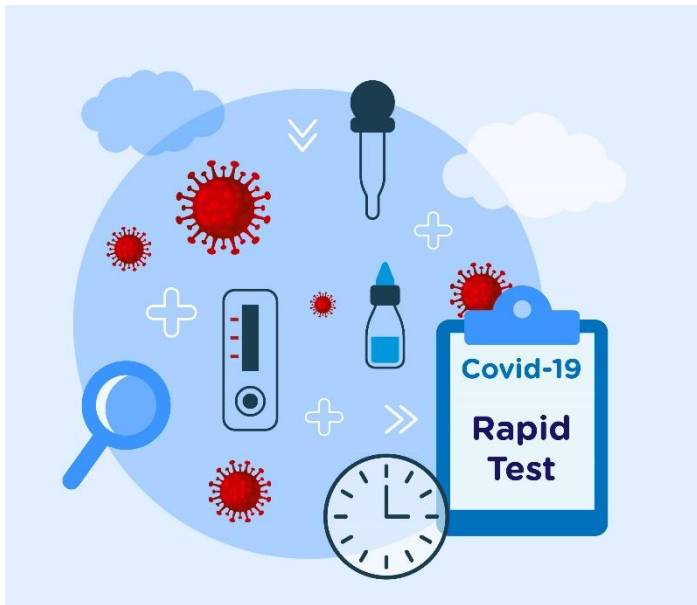
Creative ideas are emerging in all sectors and innovations, what comes out will have positive impacts.





Rapid & Affordable Testing

Take a quick and accurate test at home just before leaving for the airport.

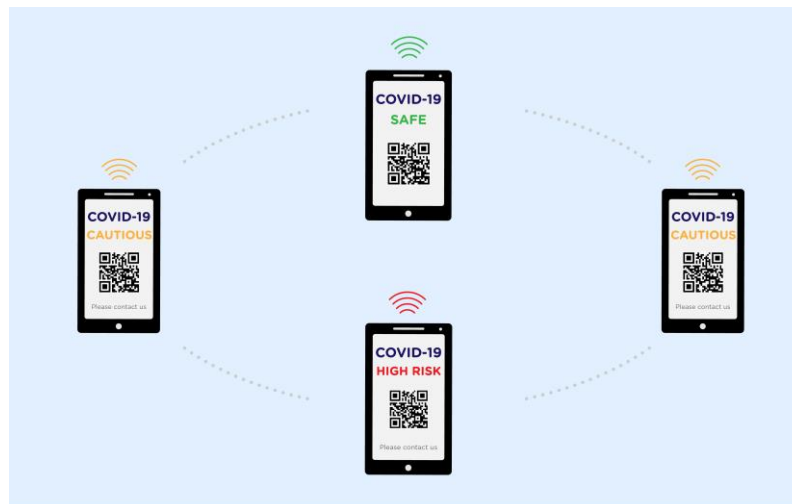


Peer-to-peer AI-tracing of Covid-19 at the airport

Keep track of the probability that you are infected based on where you have been and the encounters you have made.

To share this information with people you will encounter via a mobile app, updating their own risk estimation (score).

Source: Yoshua Bengio



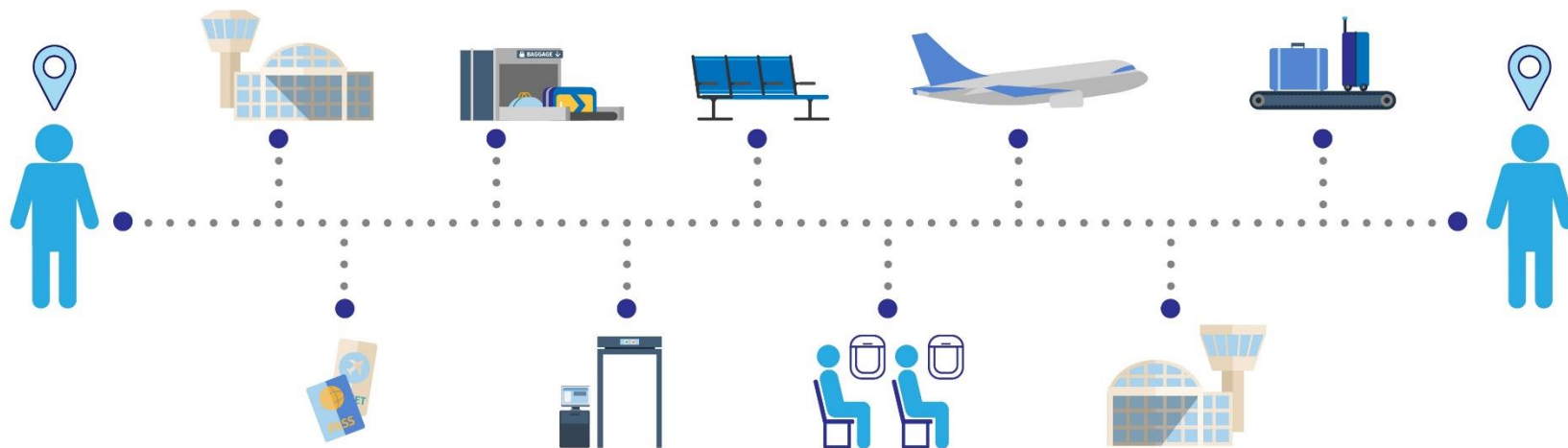
Availability?
Level of accuracy?

Good decisions are both ethical
and effective

Data to Measure Readiness

Anonymously & Dynamically

Each passenger COLLECTING DATA at each step of their journey



Proving with science

Aviation industry's readiness & risk mitigation

Challenge

How can the aviation industry reassure passengers they will be safe, protected and secure throughout their journey?

Opportunity

Define a well-structured and global collaborative approach to **evaluate the risk of a traveler's journey;**
Scoring Data

Collecting & Scoring Data



SMART APP | Aviation Industry Readiness Score

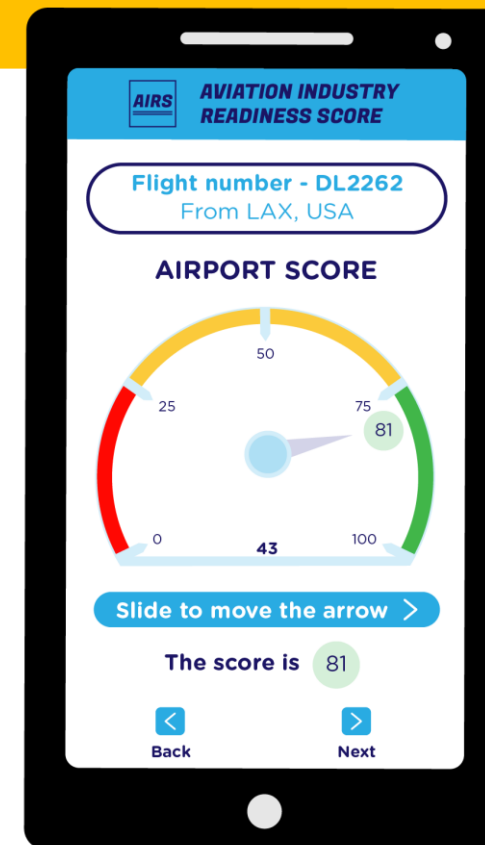


Find the right data and process to **balance health risks and economic factors**

Publish **guidelines and information** to minimize passenger risks

Key Data Governance Metrics for all Parties

Providing assessment of industry data and process to help identify areas of needed improvement



Input data to score

- Flight price
- Passenger health
- Airport venue
- Cabin
- Airplane readiness
- Pilot and crew readiness

Other scores :

Taxi , Hotel, Event,...

Introducing the Readiness Score

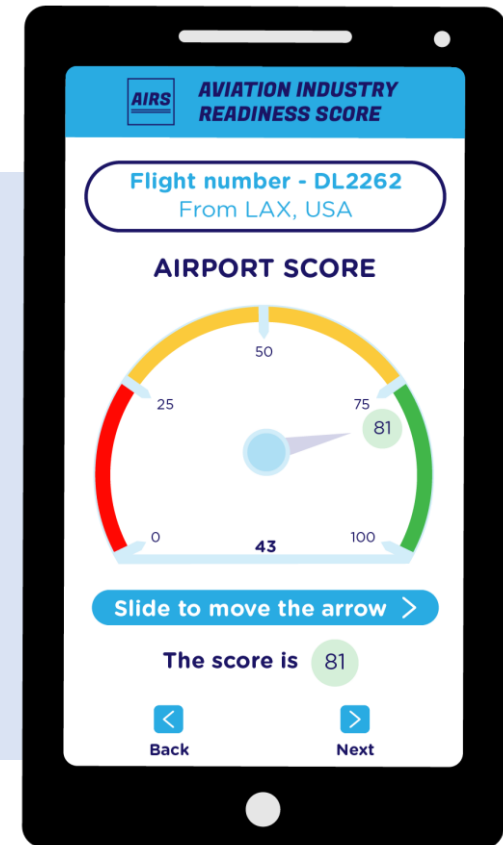
Scoring Data



Airport Venue Readiness Score



- Checking process
- Baggage handling
- Waiting room
- Restroom
- Security room
- Immigration room



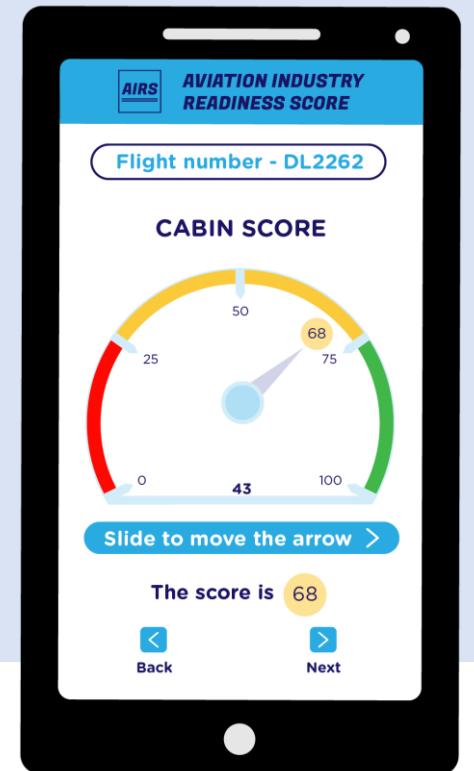
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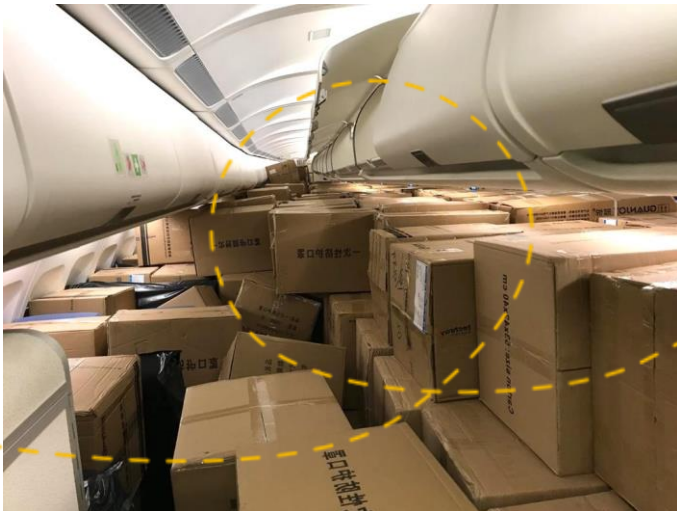
Cabin Readiness Score



- Social distancing factor
- Plane disinfected before and after boarding
- Air quality
- Quality of protective gear for all passengers and crew
- Regular hand & surface sanitation during flight
- On flight services offered
- Washroom management and cleanliness

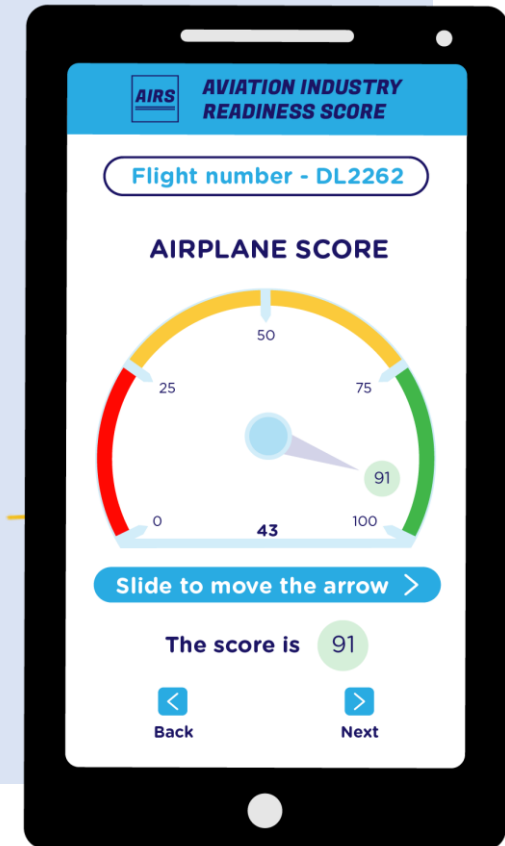


Scoring Data



Airplane Readiness Score

- Planes need to come out of storage and airplanes re-certified
- Airplane load factor must be optimized
- Optimal mix of Cargo and Passenger to ensure profitability and safety

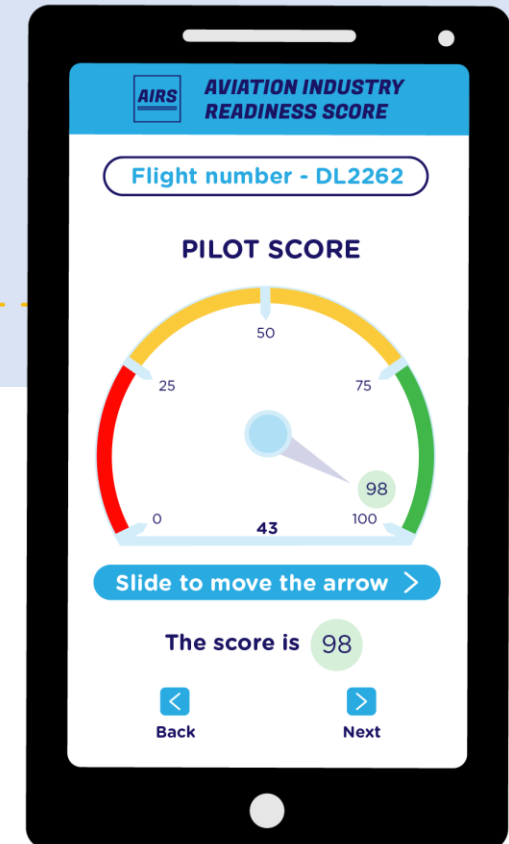


Scoring Data



Pilot and Cabin Crew Readiness Score

- Pilots need to train and be re-certified
- Cabin crew training and certifications on new health and safety measures



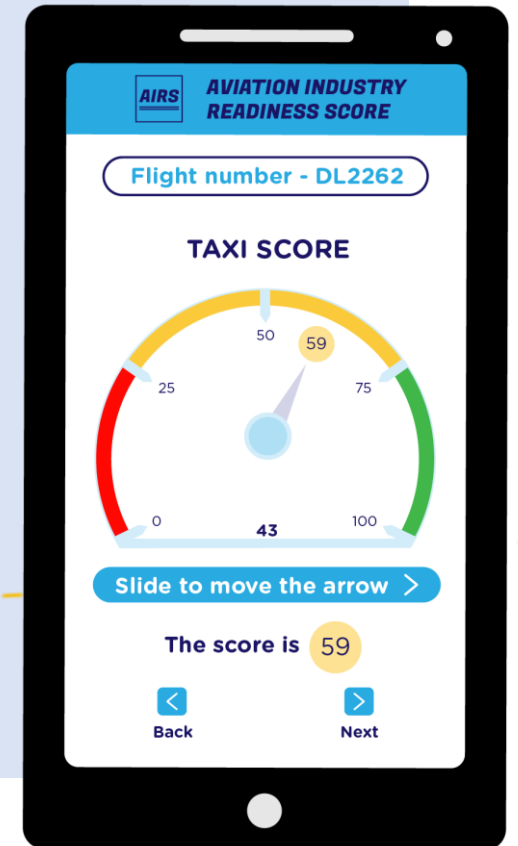
Scoring Data



Other Related Readiness Score



- Restaurants
- Events
- Resorts and Hotels
- Taxi
- ...

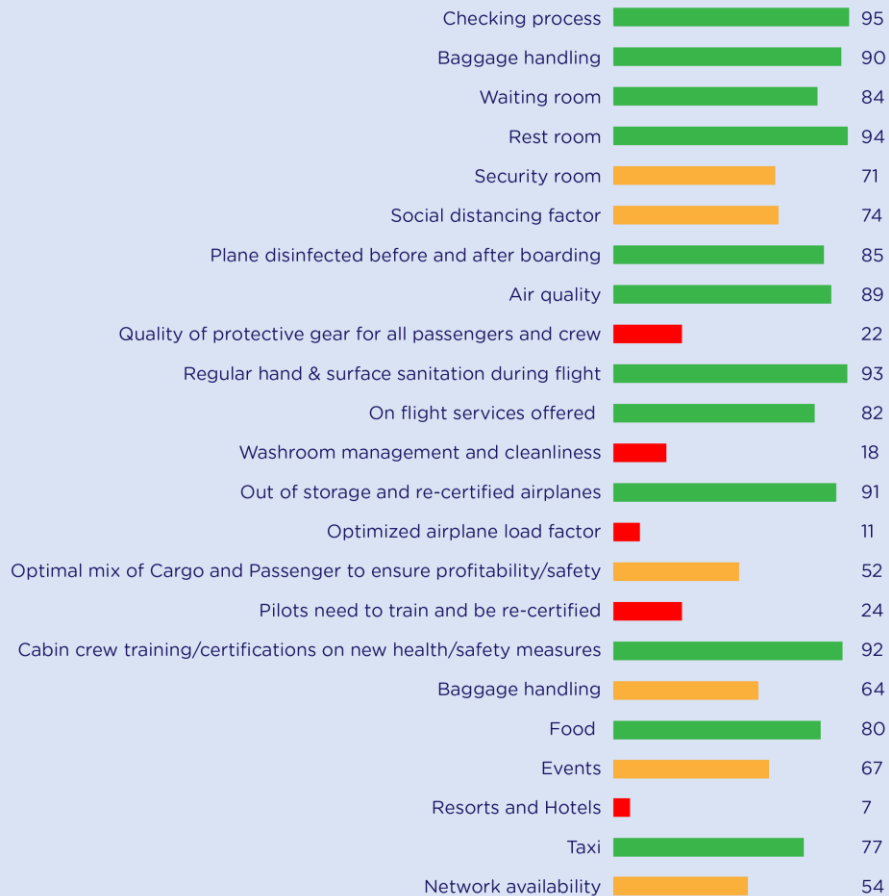


Data Reporting



Using Microsoft Power Platform Dashboards can be easily designed

e.g.: Bar Chart for Flight DL2262 and AF007



Using domestic flight information to reopen international flights quicker

Publishing the information



Salesforce example for Work.com Guidelines & Dashboards

The screenshot shows the Salesforce Work.com homepage with a navigation bar including 'Products', 'Solutions', 'Support & Services', 'Events', 'Resources', 'About Us', and 'COVID-19'. The main banner features the text 'WORK.COM Reopening will be a journey. Here's your guide.' and buttons for 'WATCH DEMO' and 'DOWNLOAD THE PLAYBOOK'. Below the banner are three device screens: a tablet showing a 'Global COVID-19' Tableau dashboard with 'Total Confirmed' at 3,256,694 and 'Total Deaths' at 233,385; a desktop monitor showing a 'CONTACT TRACING' network diagram; and a smartphone displaying 'EXPERT ADVICE'.

Get all the latest thinking, models, advice, and our all-new Work.com solutions.

- ✓ Get products to support your return to the workplace
- ✓ Find thought leadership content from renowned experts
- ✓ Access all the latest COVID-19 data
- ✓ Learn through inspiring stories
- ✓ Extend with guidance from our ecosystem

Using Salesforce Community Cloud to publish and share the Aviation Industry Score System's anonymous results

Providing strategic information to all Industry and government stakeholders

Community Cloud



Community Cloud is an online social platform that enables companies to connect customers, partners, and employees with each other and the data and records they need to get work done.

This next-generation portal combines the real-time collaboration of Chatter with the ability to share any file, data, or record anywhere and on any mobile device.



Community Cloud allows you to streamline key business processes and extend them across offices and departments, and outward to customers and partners

Closing

Let's work together to restart the industry



The work we do now for the aviation industry will make it more resilient to face what the future brings us.

Data Science & Cloud Resources can help find alternatives to arrival quarantine measures.



Supporting IATA to represent, lead, and serve the airline industry

Thank you and safe travels!



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SVP, Digital Innovation and
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SERDAR GÜRBÜZ

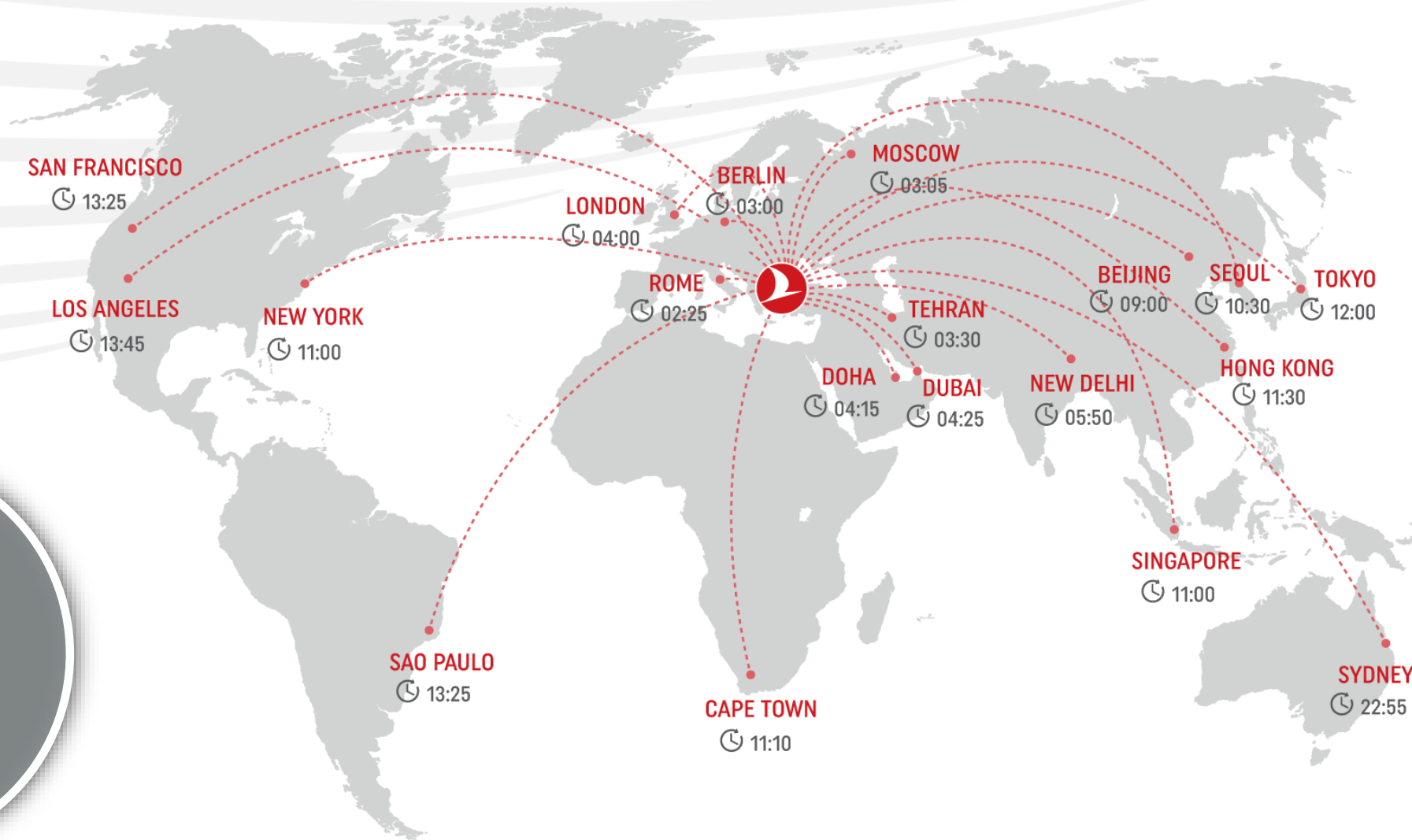
SVP, DIGITAL INNOVATION AND ANALYTICS SOLUTION

- Leading teams responsible for data&AI, BI, digital innovation and CRM technologies.
- +12 years of experience in different sectors; including telecom, FMCG, fintech and aviation (+6 years).
- Experience in digital, mobile, new business development, innovation and data.
- Founder and board member of Turkey Technology Team (T3) Foundation and Teknofest, Aerospace and Technology Festival.
- Married with a beautiful woman and has two sons.

 **TURKISH AIRLINES**

A STAR ALLIANCE MEMBER 

Flying to **more countries** than any other airlines in the world.



3 hour to
+50
COUNTRIES



Among other industries, where does **airlines** stand in terms of technology and innovation?

Which Industries Have the Highest and Lowest Skill in Business, Data, and Tech?

Rank	Business skill	Tech skill	Data skill
No. 1	Manufacturing	Manufacturing	Technology
No. 2	Consulting	Insurance	Consulting
No. 3	Telecommunications	Telecommunications	Telecommunications
No. 4	Health/medicine	Technology	Manufacturing
No. 5	Technology	Finance	Media/entertainment
No. 6	Media/entertainment	Media/entertainment	Consumer
No. 7	Insurance	Health/medicine	Insurance
No. 8	Consumer	Consulting	Health/medicine
No. 9	Finance	Automotive	Finance
No. 10	Automotive	Consumer	Automotive

Source: Coursera

- Maturity level is low and
- The culture is reluctant to take risks.

NOT IN TOP 10



ONE SIZE DOESN'T FIT FOR ALL

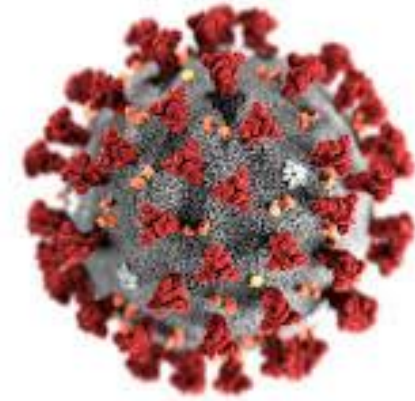
THERE ARE MULTIPLE WAYS TO INNOVATE

- Be aware of the goal
- Know your options
- It's a never ending journey

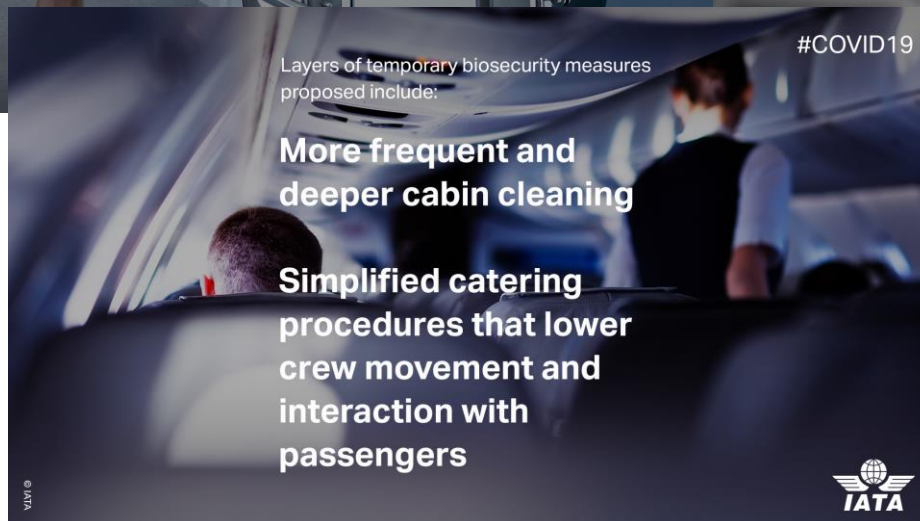
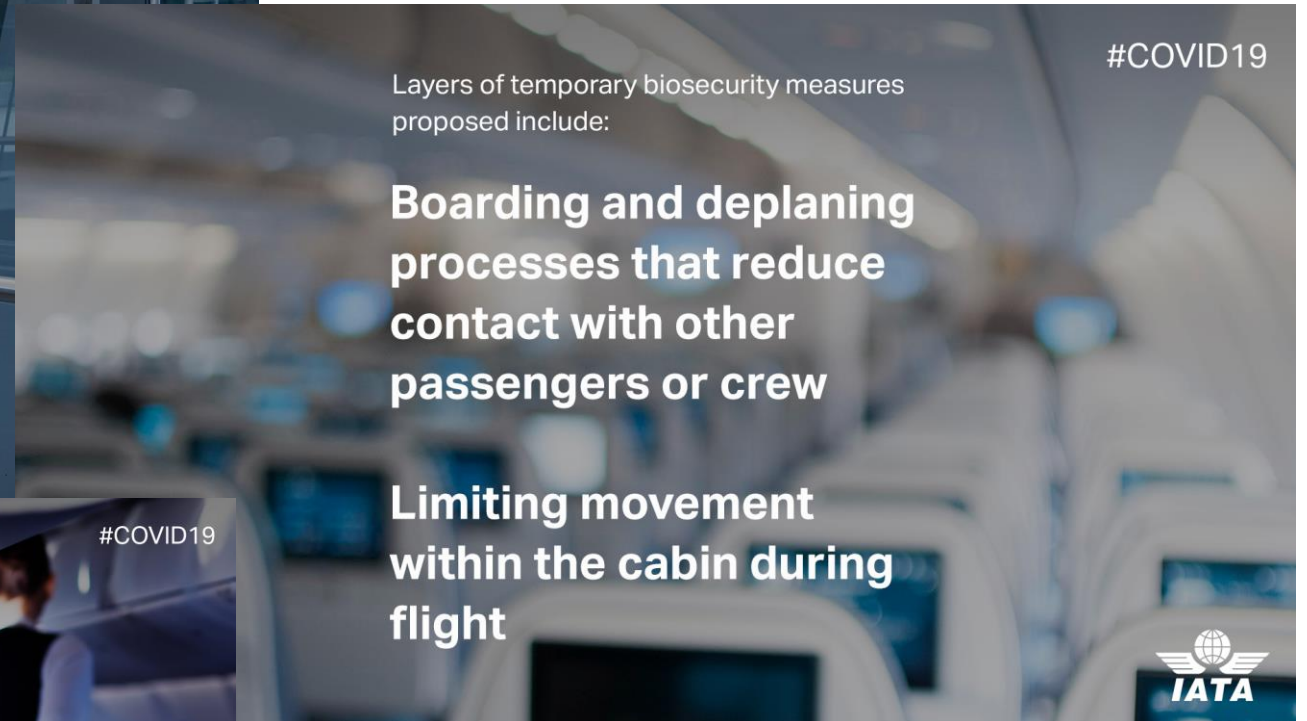
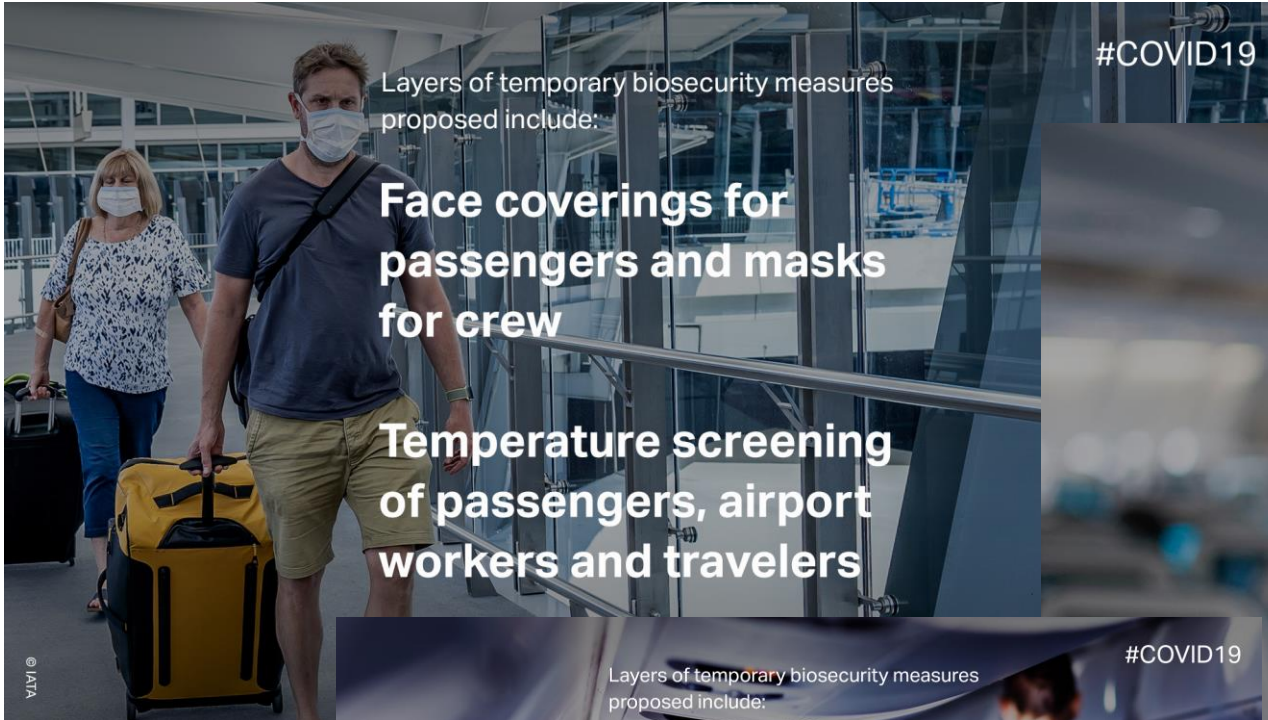
THE WORLD IS **CHANGING** FAST



2020



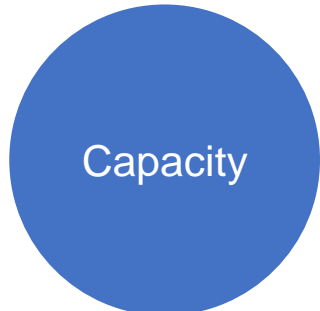
The **new** normals



The effects on airline **business**



Customer
Demand



Capacity



Products

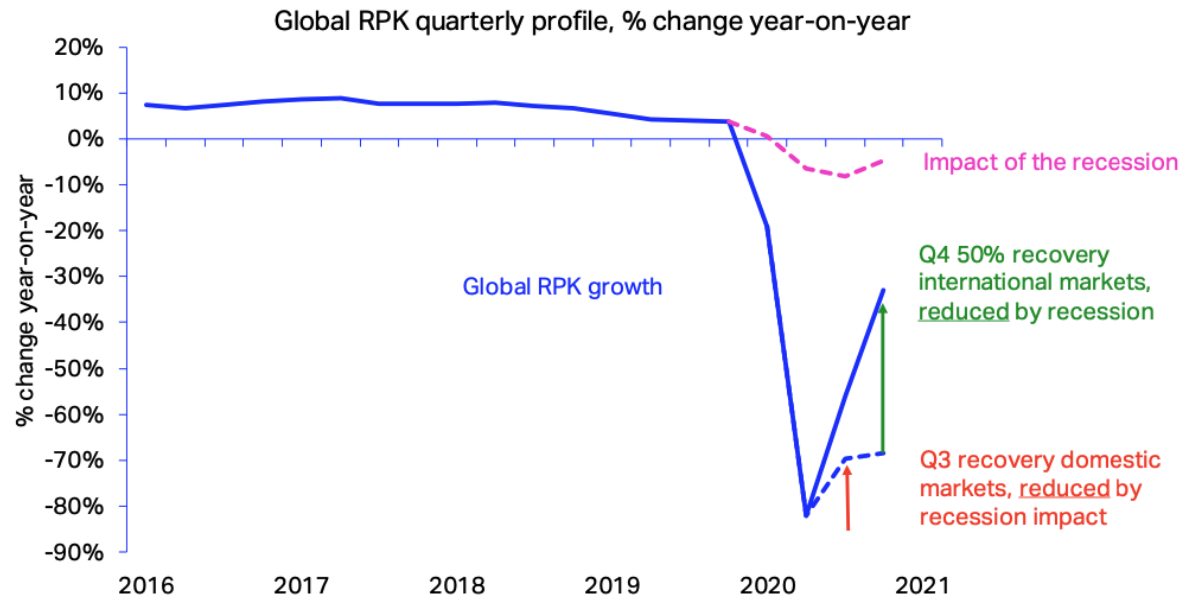


Pricing



Channels

Travel and transportation industry will be affected most. Should **innovation and digital transformation** still be one of the top priorities of companies?



Source: IATA Economics using data and forecasts from Oxford Economics and IATA

DEMAND (RPK, YEAR-ON-YEAR)		
Q2	Q3	Q4
↓ 82%	↓ 56%	↓ 33%
FLIGHT CANCELLATIONS (UNTIL 30 JUNE)		
- 4.5 million		
LOST REVENUES EST. 2020 (US\$)		
⊗ ↓ \$314 billion	↓ 55%	

Digital transformation will accelerate even though companies' revenues are shrinking

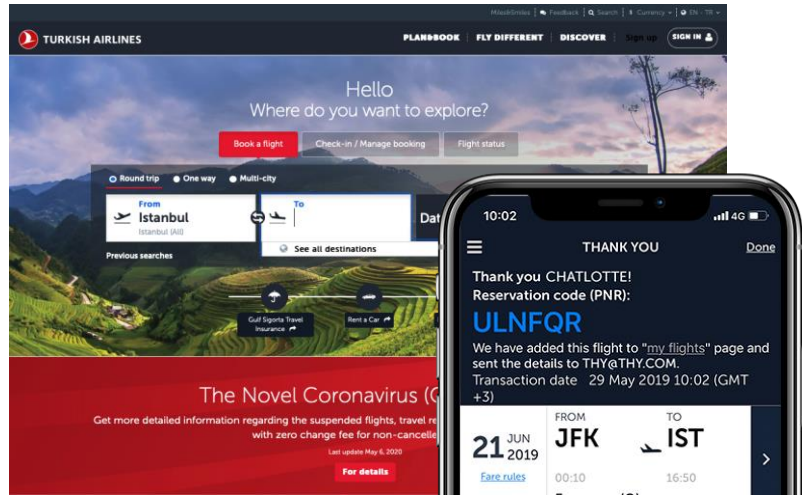


“We’ve seen two years’ worth of digital transformation in **two months.**”

Satya Nadella – Microsoft CEO



Digital ready online customer experience



- Digital shopping experience
- Ancillary revenues
- NLP and bots
- 360 degree customer view
- Personalised and real time communication



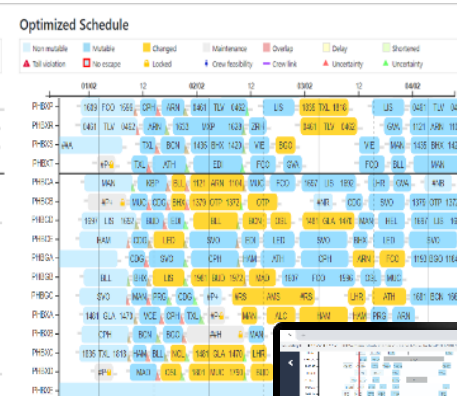
Digital ready on the ground passenger experience



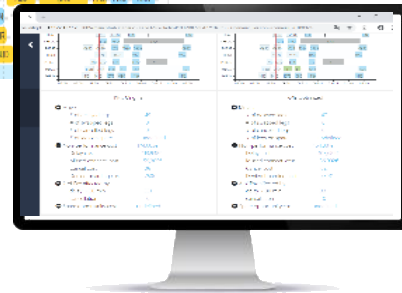
- Self-service experiences
- Biometric access
- Automation



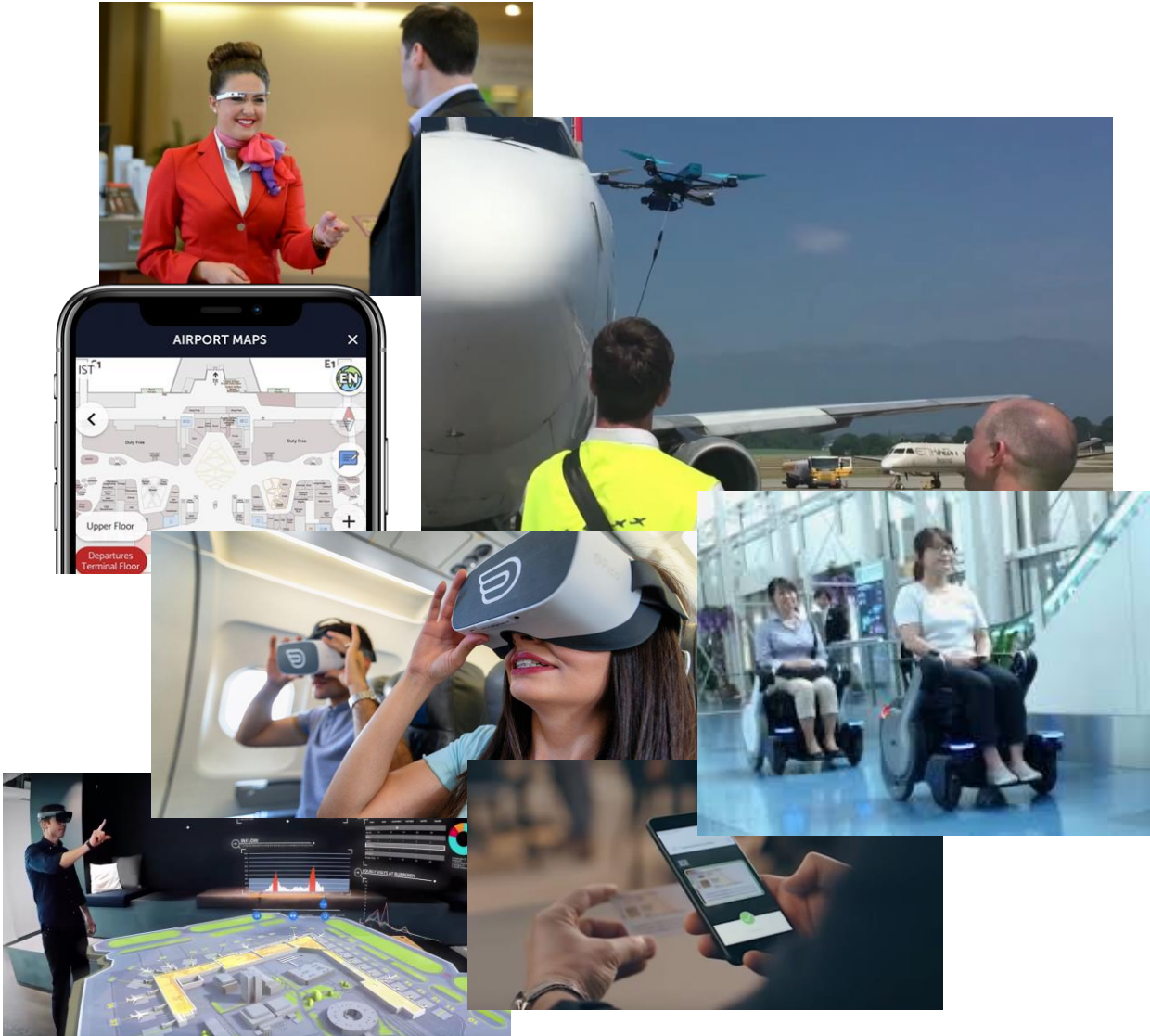
Digital ready operation, crisis and disruption management



- Advanced operation tracking
- Automated notifications and updates
- Real time event triggering

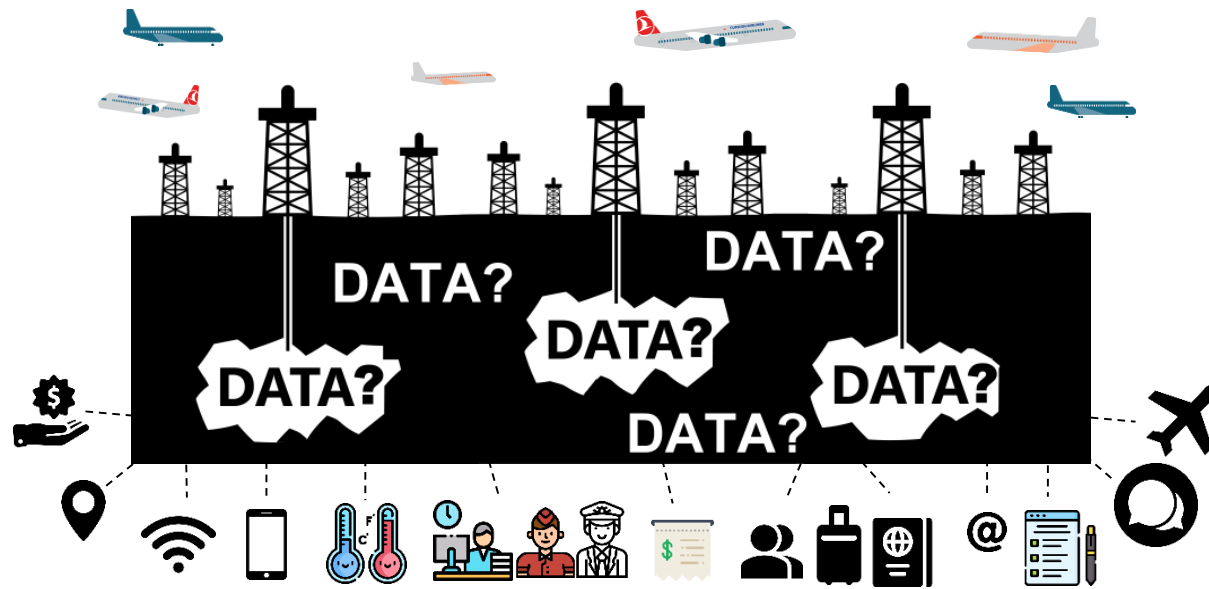


Digital Innovation



- Bots, robots, drones
- Virtual, augmented, mixed reality
- Blockchain, IoT

What **data** provides to companies in terms of transformation?

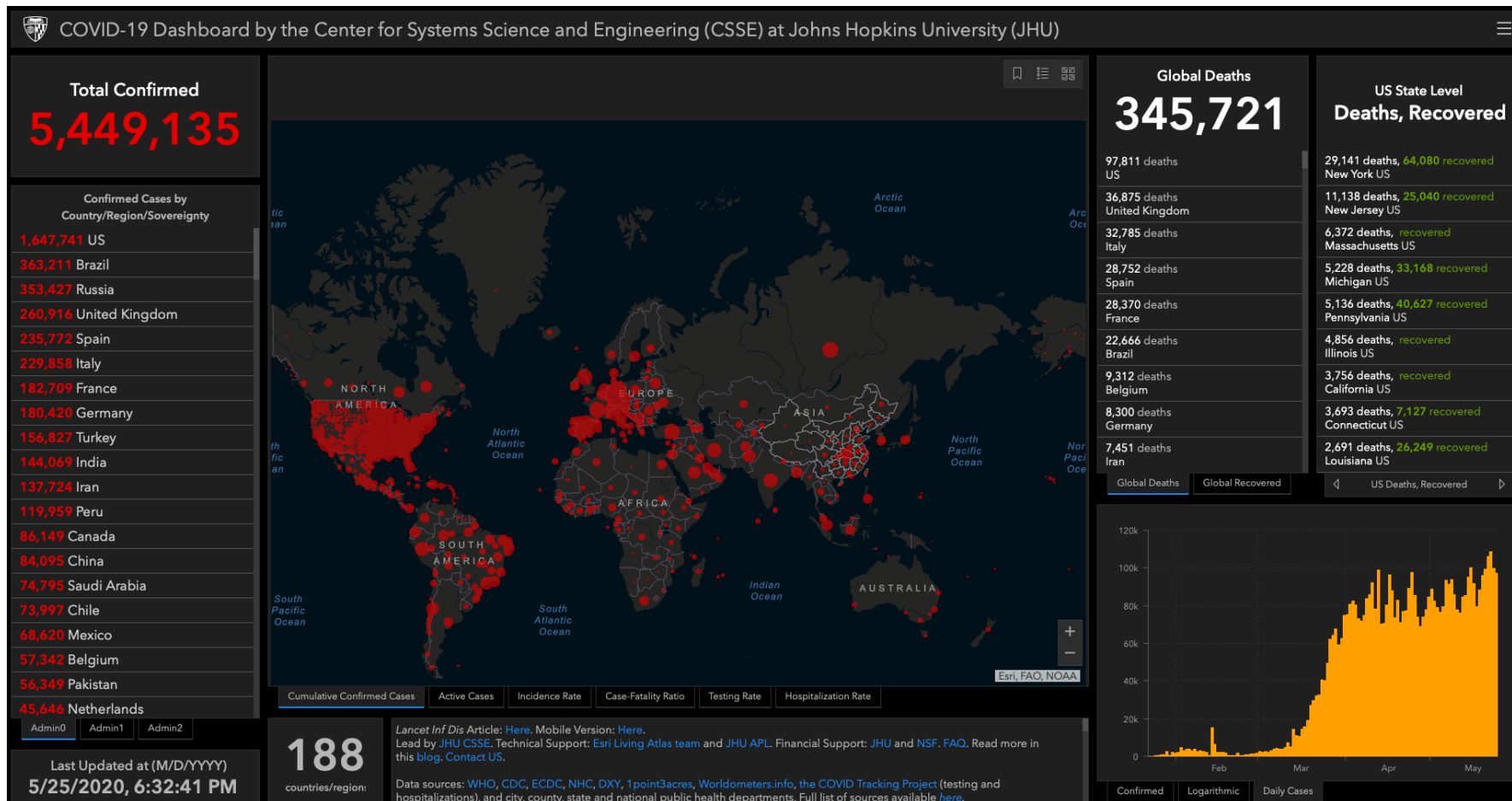


Big data will become a key basis of competition, underpinning new waves of productivity growth, innovation, and consumer surplus—as long as the right policies and enablers are in place.

By [James Manyika](#), [Michael Chui](#), Brad Brown, Jacques Bughin, Richard Dobbs, Charles Roxburgh, and Angela Hung Byers

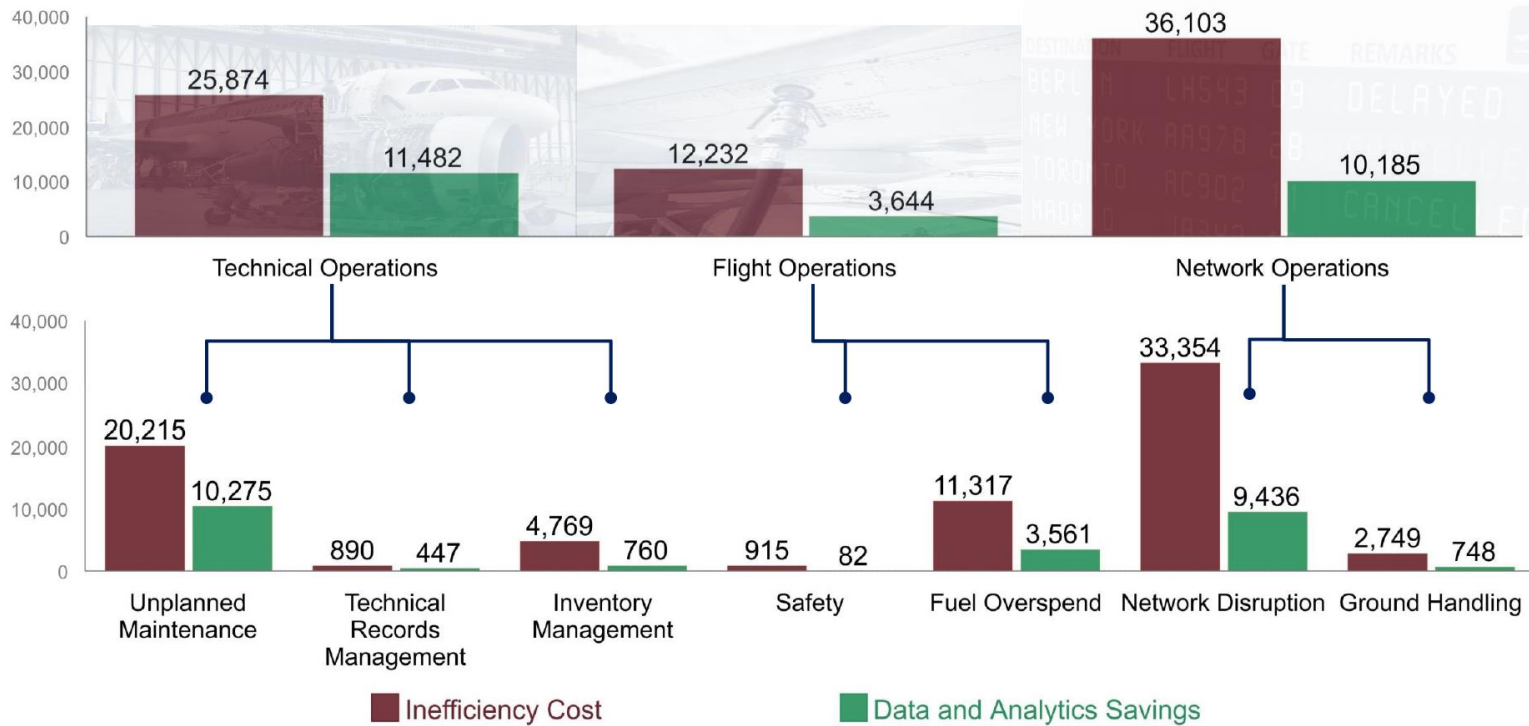
[McKinsey Global Institute](#) May 2011 | Report

How **data** will help to recover fast during post crisis period?

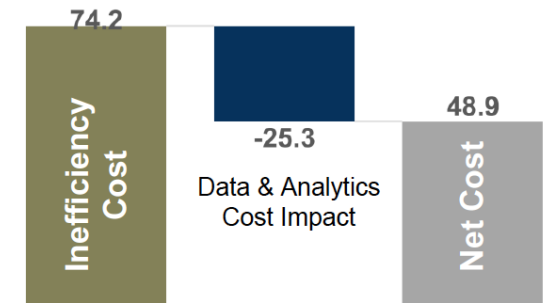


Data and analytics can increase industry operating margin for aviation from 5.8% to 8.9%*

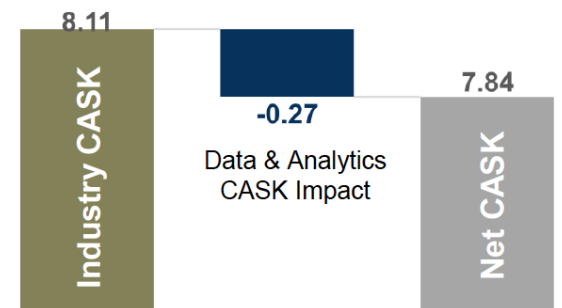
Inefficiency costs and savings from data and analytics, in US\$ Million (2018)



Value of Data and Analytics, in US\$ billion



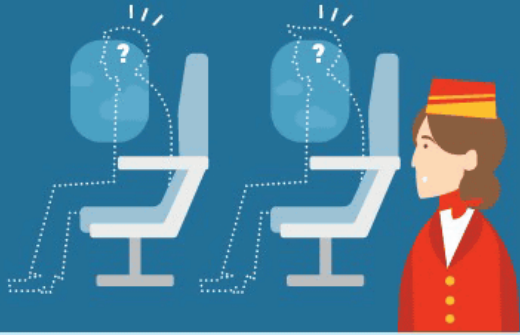
Industry CASK Impact (US\$ cents)



* Frost & Sullivan

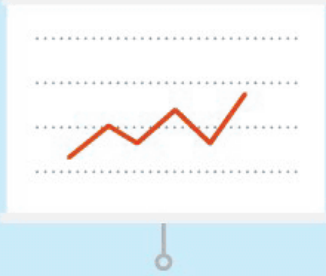
WHY DOES THIS HAPPEN?

Airlines oversell flights because they expect a certain percentage of passengers to not show up. Airlines call this percentage the **No Show Rate**.



HOW DOES THIS WORK?

The **No Show Rate** is calculated from past data and is used as a prediction tool. It allows the airline to determine how many tickets to sell to make a profit. The number of tickets sold in this case is greater than the number of seats available.



There is a lot of math working behind the scenes which help an airline decide how, when and where to overbook a flight. This math takes the following into consideration:



No Show Rate

Number of passengers with confirmed bookings that are expected not to show.



Physical Capacity

Actual number of seats on a flight available to passengers (Not always equal to number of seats on the aircraft).



Authorized Capacity

Maximum passengers airline can book, including extra tickets sold based on the **no show rate**.

No-Show prediction

Building a model to add personalized parameters in flight based no-show prediction model.

- Start with only one destination to Istanbul
- Add customer data to prediction model
- Design the model and test



In-flight meal optimization

Certain amount of food served in-flight become waste. Data helps to predict how much food will be consumed by passengers during flight.

- Collect unconsumed meal on each flight
- Interview with cabin crew to define attributes
- Design the model and test



Flight purpose prediction

In order to make pricing and marketing campaigns better, the business teams benefit to know which passenger flight for which purpose.

- Categorize flights and destinations
- Build and test hypothesis
- Use passenger surveys to test

Using the power of **open-innovation** ecosystem

Accelerator Programs

PLUGANDPLAY

STARTERS HUB

VOYAGERIQ

Developer Portal

TURKISH AIRLINES



Developer Portal

Technopark Partnership

ITU'ARI
TEKNOKENT
ADVANCED RESEARCH AND INNOVATION

teknoparkistanbul

teknoparkizmir
tech together

BİLKENT
CYBERPARK

ODTÜ-TEKNOKENT
"FuturMaker"

Hackathons

TRAVEL HACKATHON

Incubator Programs

YILDIZ
KULÜCKA
MERKEZİ

ATMOSFER TTO

EMBRYONIX
Teknoloji Transfer Ofisi

HayalEt
yenilikçilik iş geliştirme girişim platformu

Teknoloji
Transfer
Ofisi

Invest on Board

INVEST
ON
BOARD

PoC and Pilot Projects



THANK YOU

For More Information

serdargurbuz@thy.com

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

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AVIATION

DATA & DIGITAL

WEBINAR SERIES

EPISODE 5 (ADAPT & GROW)



● LIVE PRESENTATION IN PROGRESS

Keynote: Big picture perspective on digital transformation of aviation & travel post COVID-19, and some concrete use cases.

Serdar Gürbüz
SVP, Digital Innovation & Analytics Solutions, Turkish Airlines

▶ DIGITAL FACILITATING BUSINESSES TO PIVOT TO OVERCOME CHALLENGING TIMES



Webinar Synopsis: This crisis has unprecedented impact on the airline industry, wider aviation, travel and the world. Going back to normal is very unlikely to happen, what will the new normal be and the role of digital?

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

 **Tuesday 26 May 2020**
15:30 – 17:30 CEST

15:30 – 15:40

Welcome and Opening

Muhammad Albakri

RVP & Sponsor, Digital Transformation Strategy, IATA

15:40 – 16:00

Keynote: Digital transformation in flight operations: Optimizing each mission and the whole network through data and technology.

Dr. Thomas Wittmann

Managing Director, Lufthansa Systems

16:00 – 16:20

Keynote: Recovery & growth post COVID-19, best time to self-disrupt, rethink and optimize processes, leveraging data & digital capabilities.

Jean-Louis Lalonde

President & CEO of AZUR Group

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Keynote: Now is the time to unleash digital, with very little to lose

Jim Davidson

President and Chief Executive Officer, Farelogix

17:00 – 17:30

Panel: What are areas where digital is bound to change how airlines and the wider aviation continue after the crisis.

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Martin Mitev

Aviation Futurist

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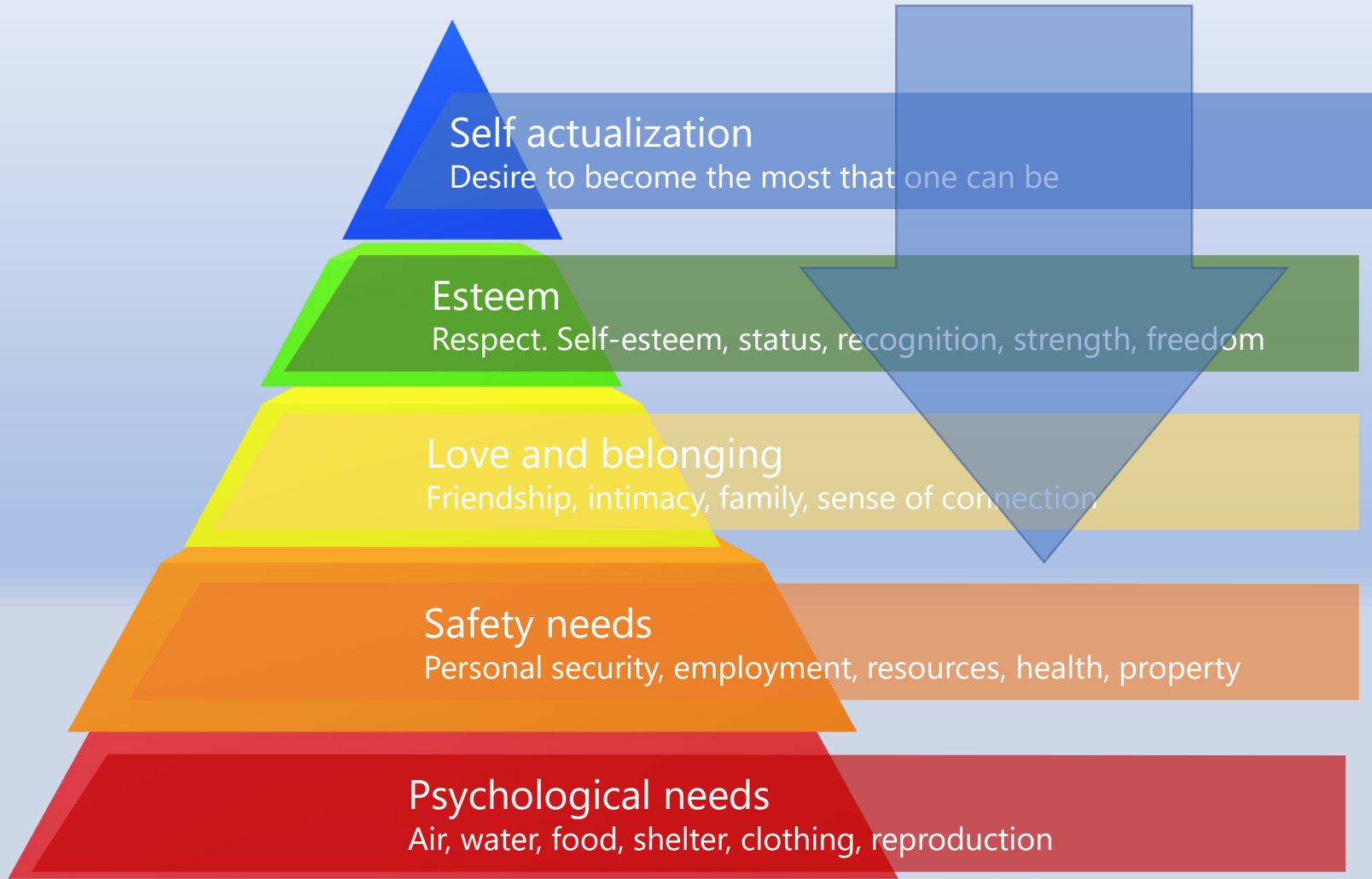
UNLEASHING

DIGITAL

Jim Davidson

Farelogix

WE ARE IN A NEW PLACE



More Revenue
Happy Customer



Protect jobs

Keep the lights on

WE ARE IN A NEW PLACE

Self actualization

Desire to become the most that one can be

Esteem

Respect, Self-esteem, status, recognition, strength, freedom

Love and belonging

Friendship, intimacy, family, sense of connection

Safety needs

Personal security, employment, resources, health, property

Psychological needs

Air, water, food, shelter, clothing, reproduction

THE JOURNEY BACK TO "NORMAL"

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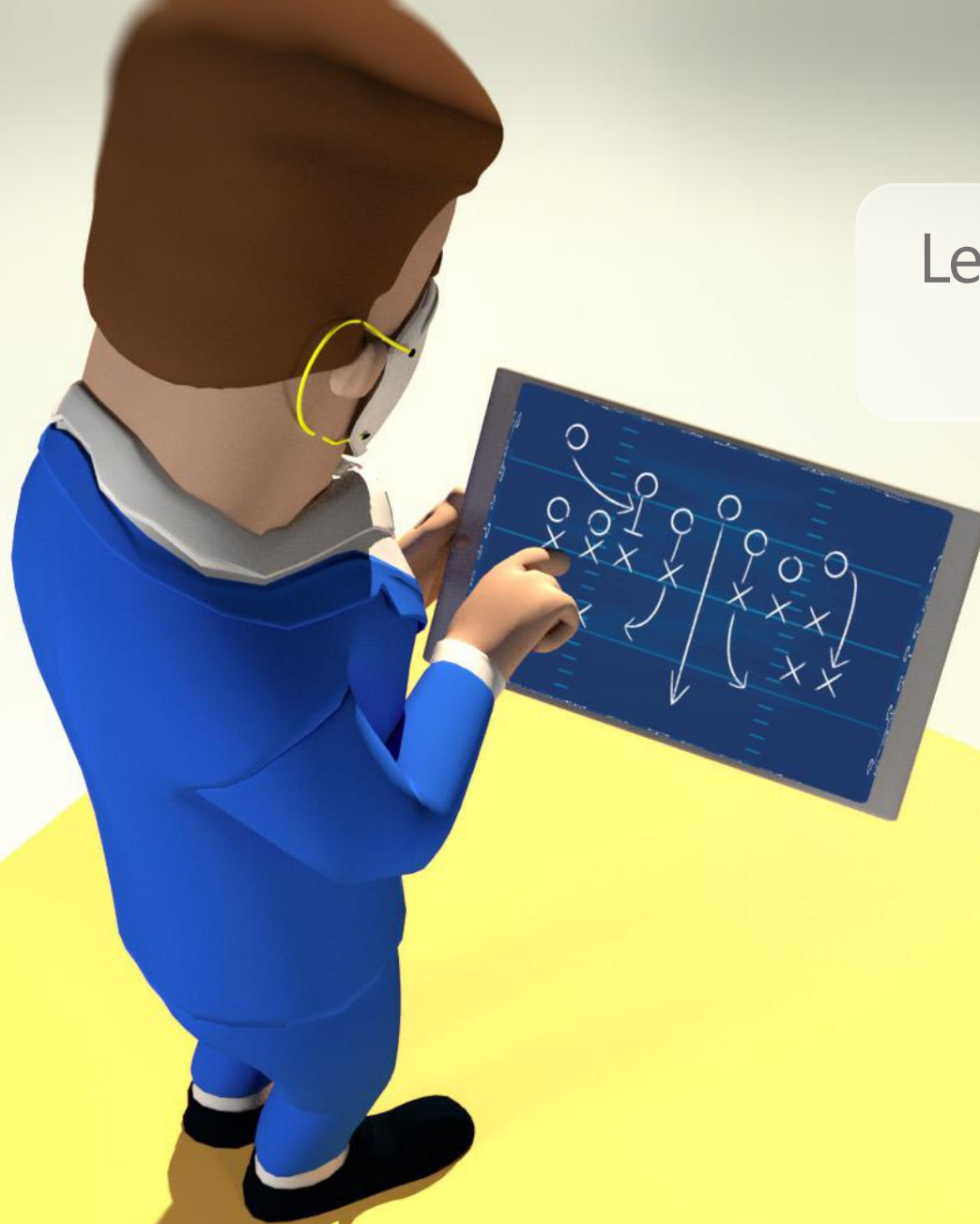
Air, water, food, shelter, clothing, reproduction

Phew! Pause here?

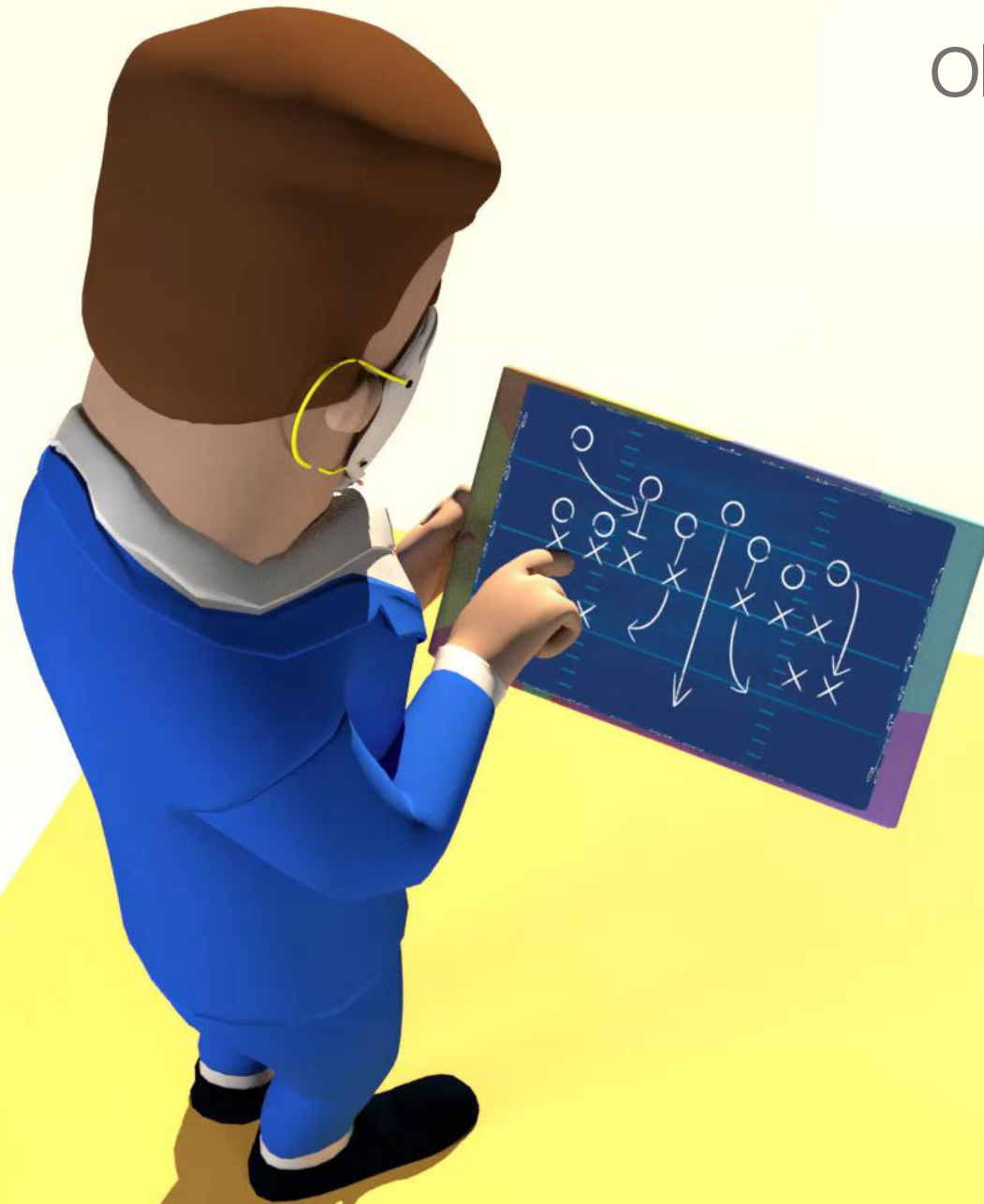
Your competitors
won't!



Lets see..what worked
in the past?



Old playbooks are
useless



WELCOME TO OUR FIRST TOTAL RESET

Adventurers unite!

Experiment

Stand apart

Take Risks





NEW NORMAL = **CONSTANT ADAPTATION**

The Path to Airline Self-Actualization and Competitive Advantage

- Meet your customers where they are
- Accelerate your business to a more futureproof ground
- Choose the right tools

MEET YOUR CUSTOMERS WHERE THEY ARE



The offer is still king ... it's just different

- Abandon historical pricing/RM mechanisms
- Embrace dynamic offers and bundles
- Personalize, pivot, find what works
- Remember, *it's not only about the fare*

Recovered customers today = deeper loyalty tomorrow

- “Made me feel safe”
- “Did right by me”

Automation and simplified servicing are now minimum requirements

ACCELERATE YOUR BUSINESS TO A
MORE FUTUREPROOF GROUND

What was a “gradual evolution” is now a race to survival

- Dynamic Offers
- NDC and adapted distribution
- Simplified, streamlined payments and settlement
- ONE Order and digital retail



CHOOSING THE RIGHT TOOLS



Futureproof and Flexible

- From closed systems to open interoperability
- PSS agnostic by default
- Systems built to pivot with you
- New data science that leverages this world of Reset, including searches and schedule optimization
- Airline controlled tech, *every time*

Performant and scalable

- Cope with escalating look to book
- Extreme search at lower costs
- Elasticity to adapt to changing demand

Low cost of ownership

- Automation and adaptation leveraging cloud, off-PSS options and best of breed

UNLEASHING RECOVERY





GOODBYE!
AND THANK YOU



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● **LIVE** POLL IN PROGRESS

Audience: **Live Poll** Should the aviation and travel industry accelerate Digital Transformation?





Homan Goudarzi
Head of BI & Industry Engagement, IATA
(Moderator)



Jean-Louis Lalonde
President & CEO of AZUR Group



Jim Davidson
President and CEO, Farelogix



Martin Mitev
Aviation Futurist

● LIVE PANEL IN PROGRESS

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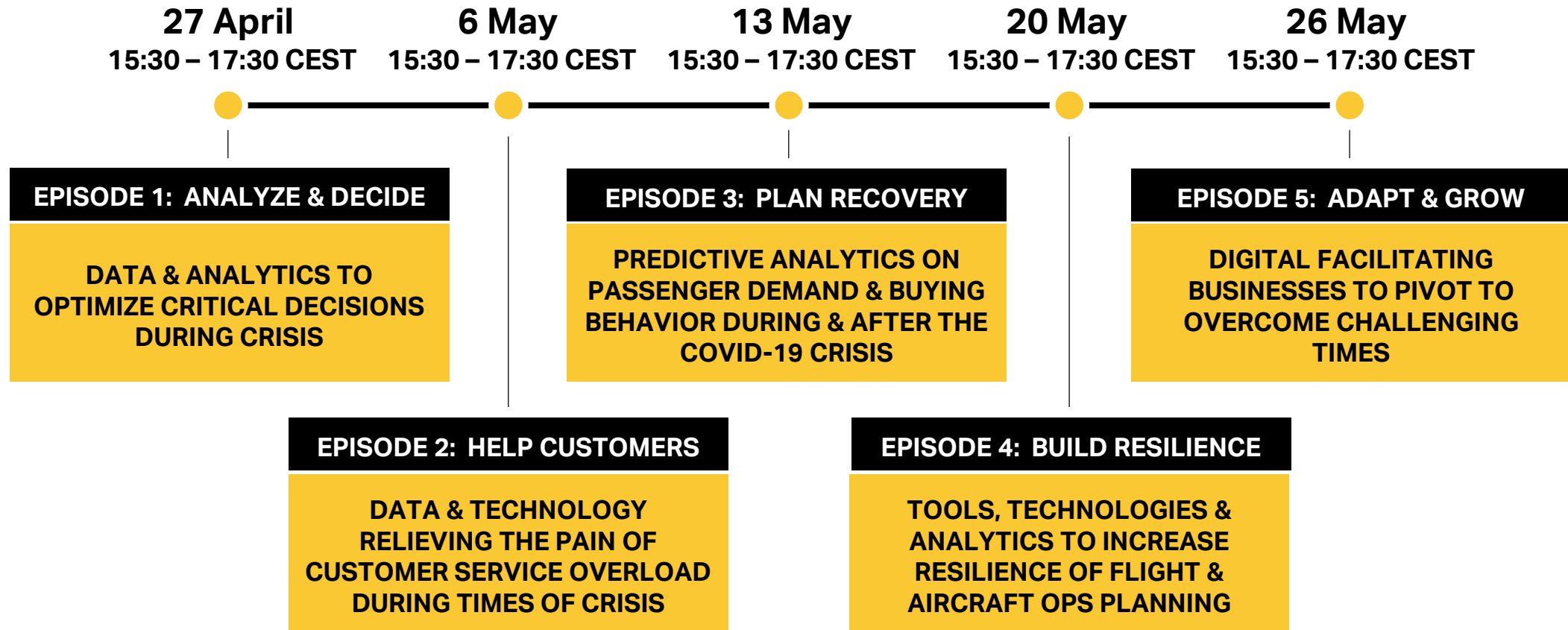


Serdar Gürbüz
SVP, Digital Innovation & Analytics
Solutions, Turkish Airlines



Dr. Thomas Wittmann
Managing Director, Lufthansa Systems

Aviation Data & Digital Webinar Series



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Thank you, and see you soon!