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**DATA &  
DIGITAL  
CAPABILITIES  
DURING CRISIS**



**EPISODE 3 (PLAN RECOVERY)**

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

 **Wednesday 13 May 2020**  
**15:30 – 17:30 CEST**

**#StayStrong #WeAreAviation #StrongerTogether**



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**EPISODE 3 (PLAN RECOVERY)**



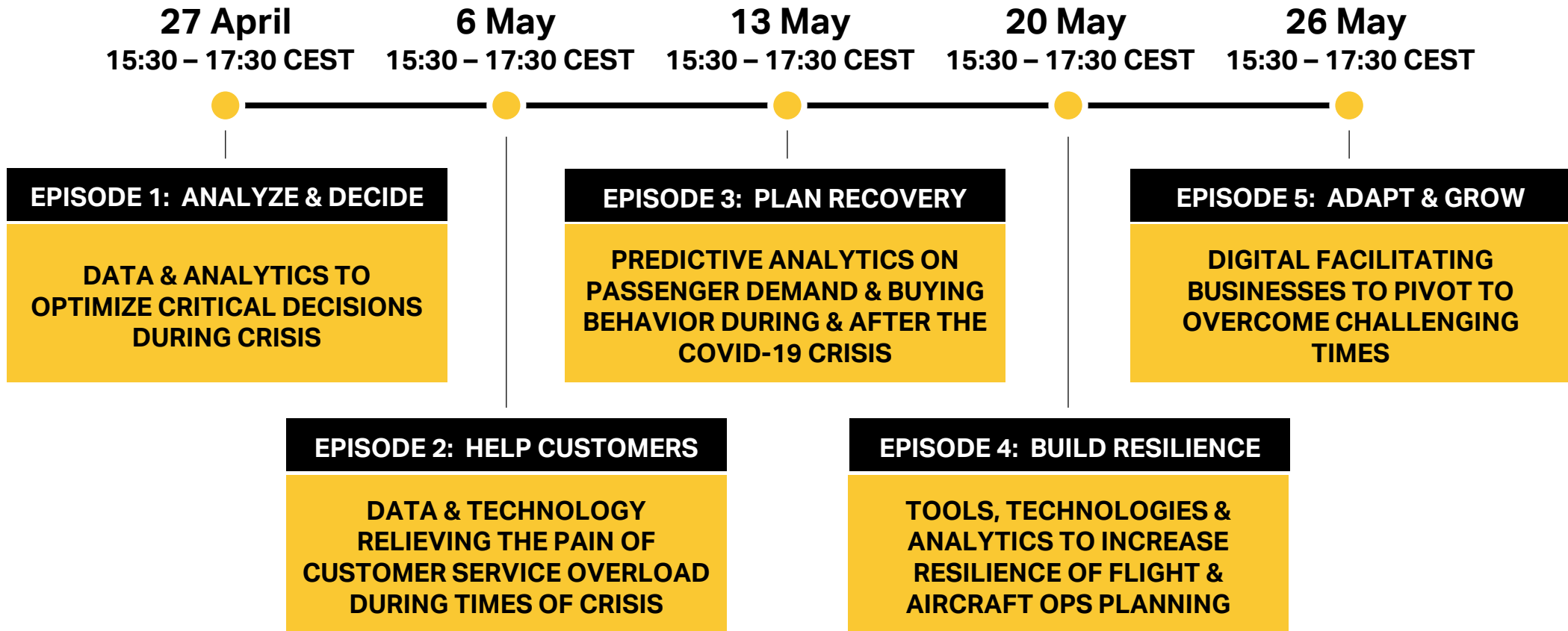
● **LIVE** PRESENTATION IN PROGRESS

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**Hومان Goudarzi**  
Head of BI & Industry Engagement, IATA

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# Aviation Data & Digital Webinar Series



For more information & Registration go to:

[iata.org/addws](https://iata.org/addws)

# ▶ AVIATION DATA & DIGITAL WEBINAR SERIES **EPISODE 3 SPEAKERS**



**Alberto Rey Villaverde**  
Chief Data Officer, JUST EAT



**Brian Pearce**  
Chief Economist, IATA



**Charles De Gheldere**  
Director Aviation Data, IATA



**Frederik van Essen**  
Commercial Director, Digital Ops, KLM



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



**Nils Gelbjerg-hansen**  
CEO, Infare



**Nina Wittkamp**  
Associate Partner, McKinsey & Company



**Olivier Jager**  
Co-founder & CEO, ForwardKeys



**Phil Callow**  
CEO, OAG



**Sébastien Texier**  
CEO, winglet.io



**Sebastien Touraine**  
Head Dynamic Offer, IATA



**Yanik Hoyles**  
Director Distribution, IATA

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## **EPISODE 3 (PLAN RECOVERY)**



● **LIVE** PRESENTATION IN PROGRESS

**Keynote:** Welcome and Opening

**Charles De Gheldere**  
Director Aviation Data, IATA

# ▶ ANALYTICS ON DEMAND & BUYING BEHAVIOR DURING & AFTER THE COVID-19 CRISIS



**Webinar Synopsis:** It is difficult to know when the recovery will start for airlines and the wider aviation and travel industries. Data and analytics can provide insights associated with the various scenarios, demand and buying behavior. This webinar will focus on data & technology in the context of the COVID-19 crisis.

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



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**15:40 – 16:00**

**Keynote:** COVID-19's impact on passenger demand, scenario analysis, and the expected recovery.

**Brian Pearce**  
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**16:00 – 16:20**

**Keynote:** Insights from KLM on how to maneuver during these uncertain times

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**16:20 – 16:40**

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**Panel:** Insights to track demand rebound: how to leverage various data sources (schedule, shopping/pricing, customer behavior, social media etc.) to plan recovery?

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# COVID-19

## Outlook for air travel in the next 5 years

Brian Pearce

Chief Economist

13<sup>th</sup> May 2020

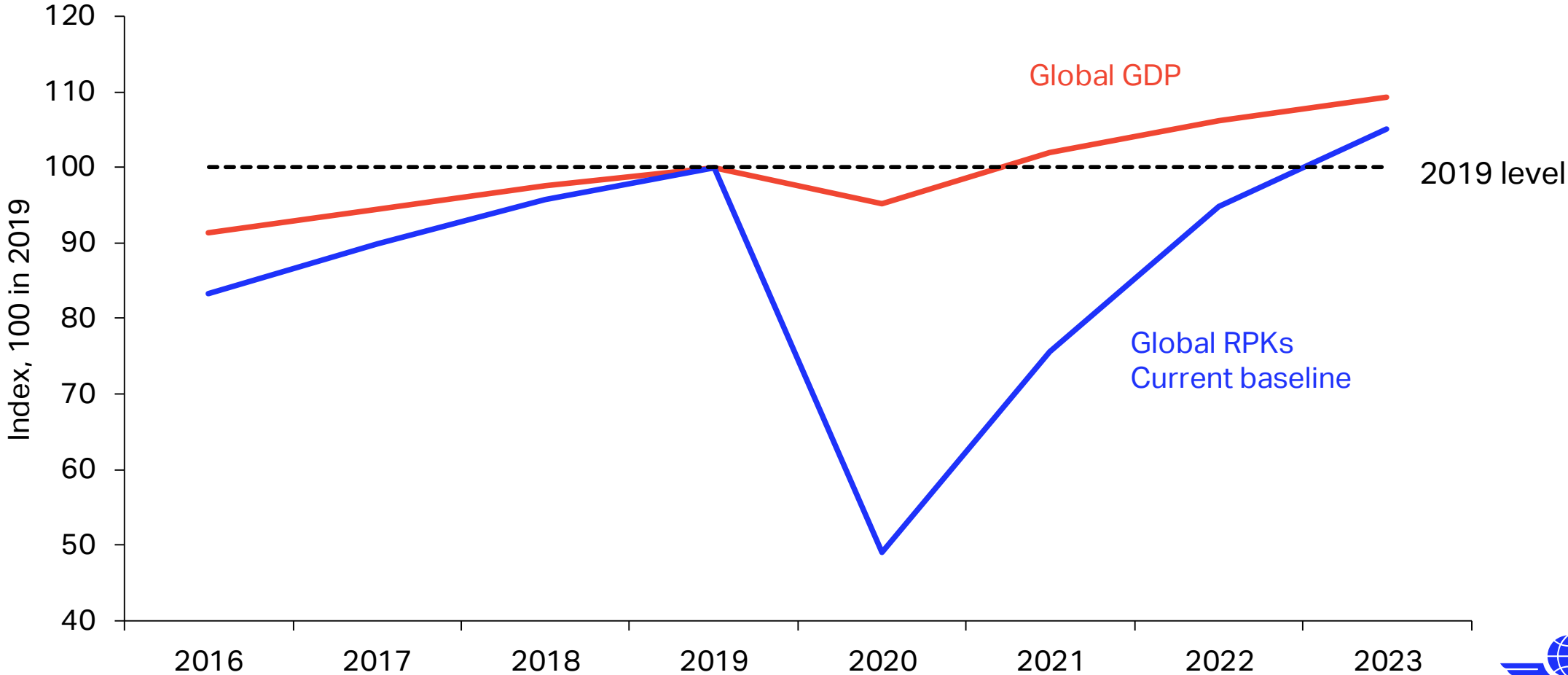




# Air travel may recover more slowly than most of economy

## Global RPKs recover 2019 levels in 2023, 2 years behind GDP recovery

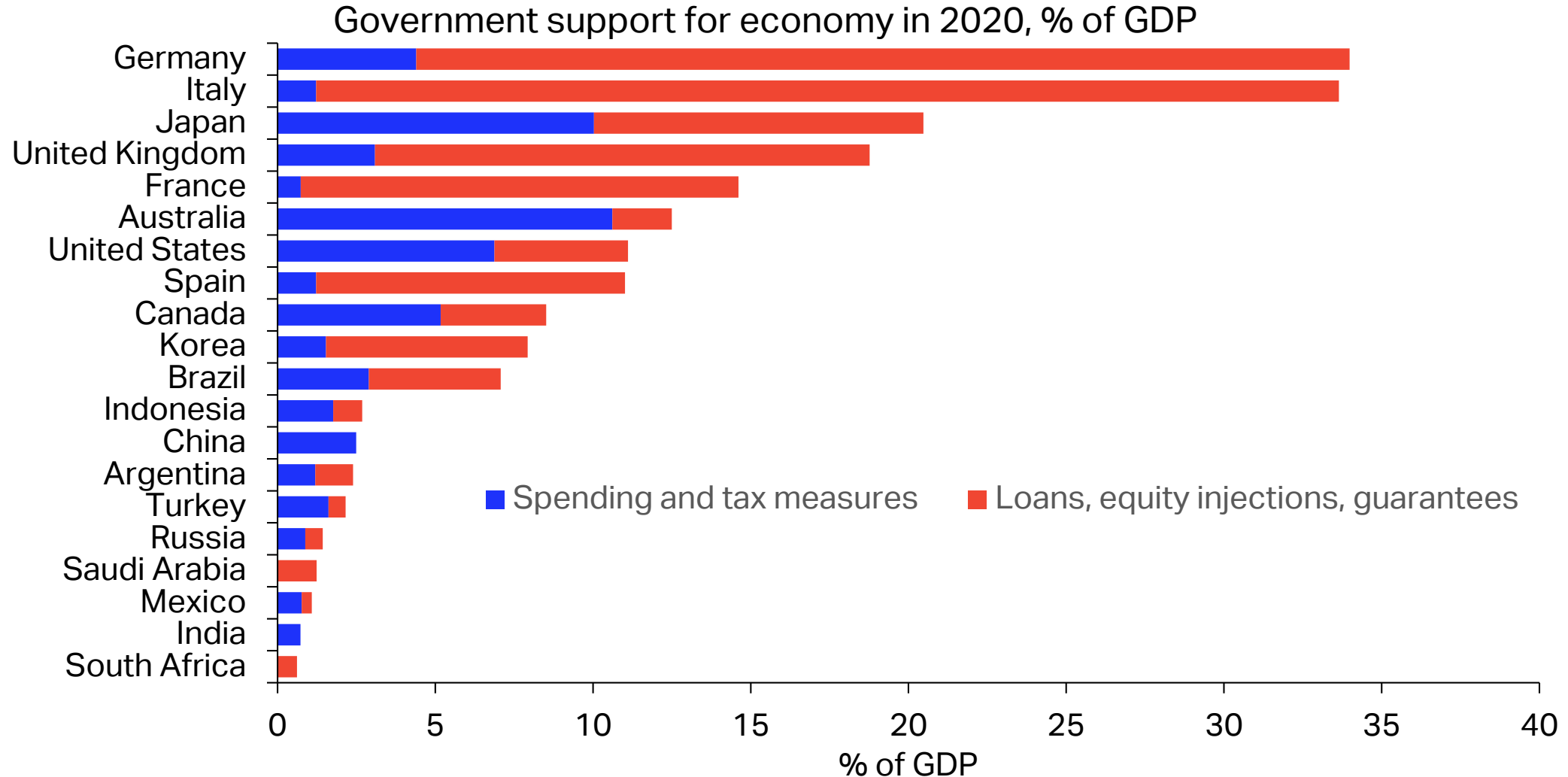
Global GDP and global RPKs, indexed to equal 100 in 2019



Source: IATA/Tourism Economics, Air Passenger Forecasts, April 2020

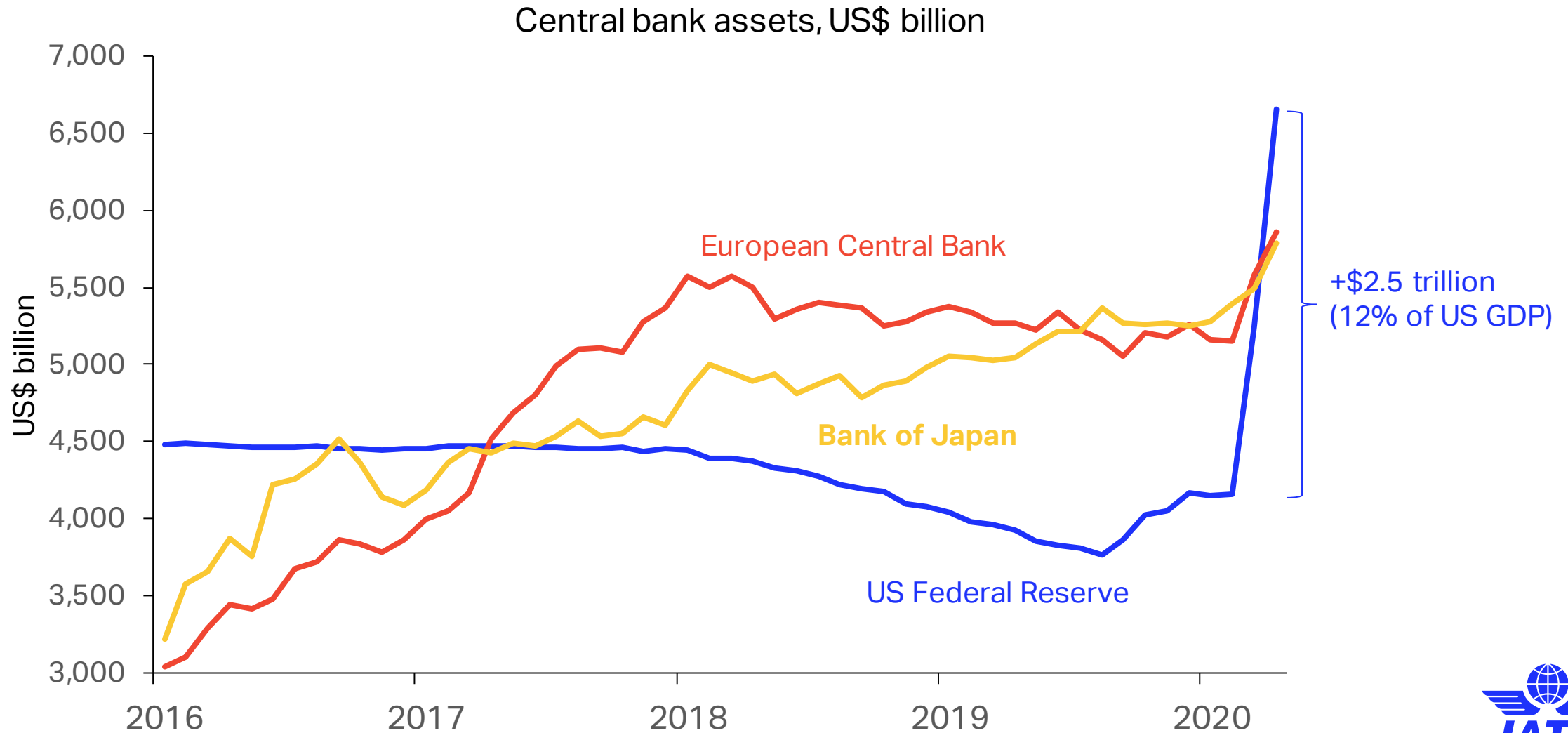
# Governments have provided unprecedented support

## Wage subsidies, grants and loans should allow strong GDP rebound



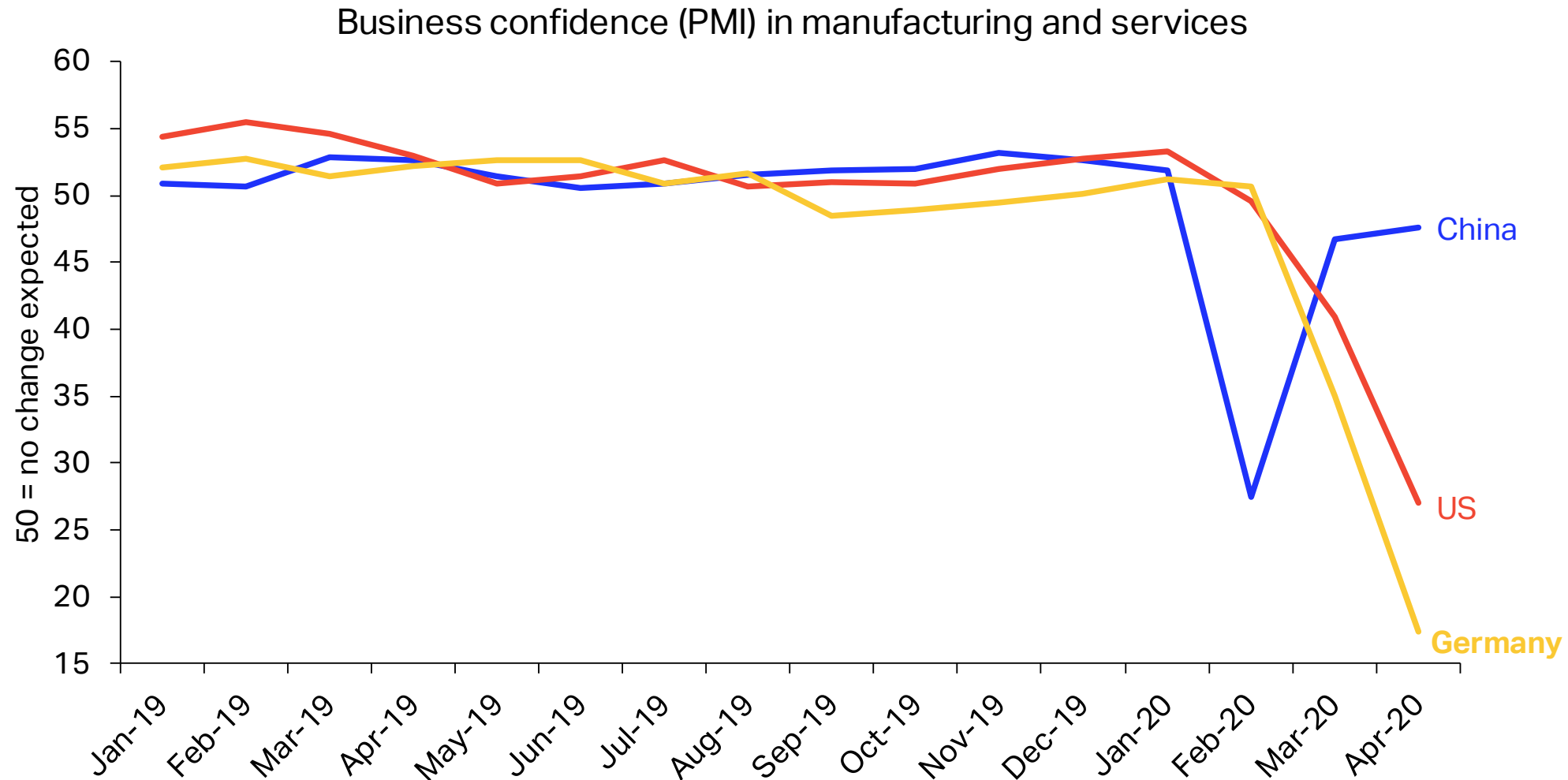
# Central banks have also injected cash into economies

## The US Federal Reserve has added cash equivalent to 12% of US GDP



# Business confidence has rebounded in China

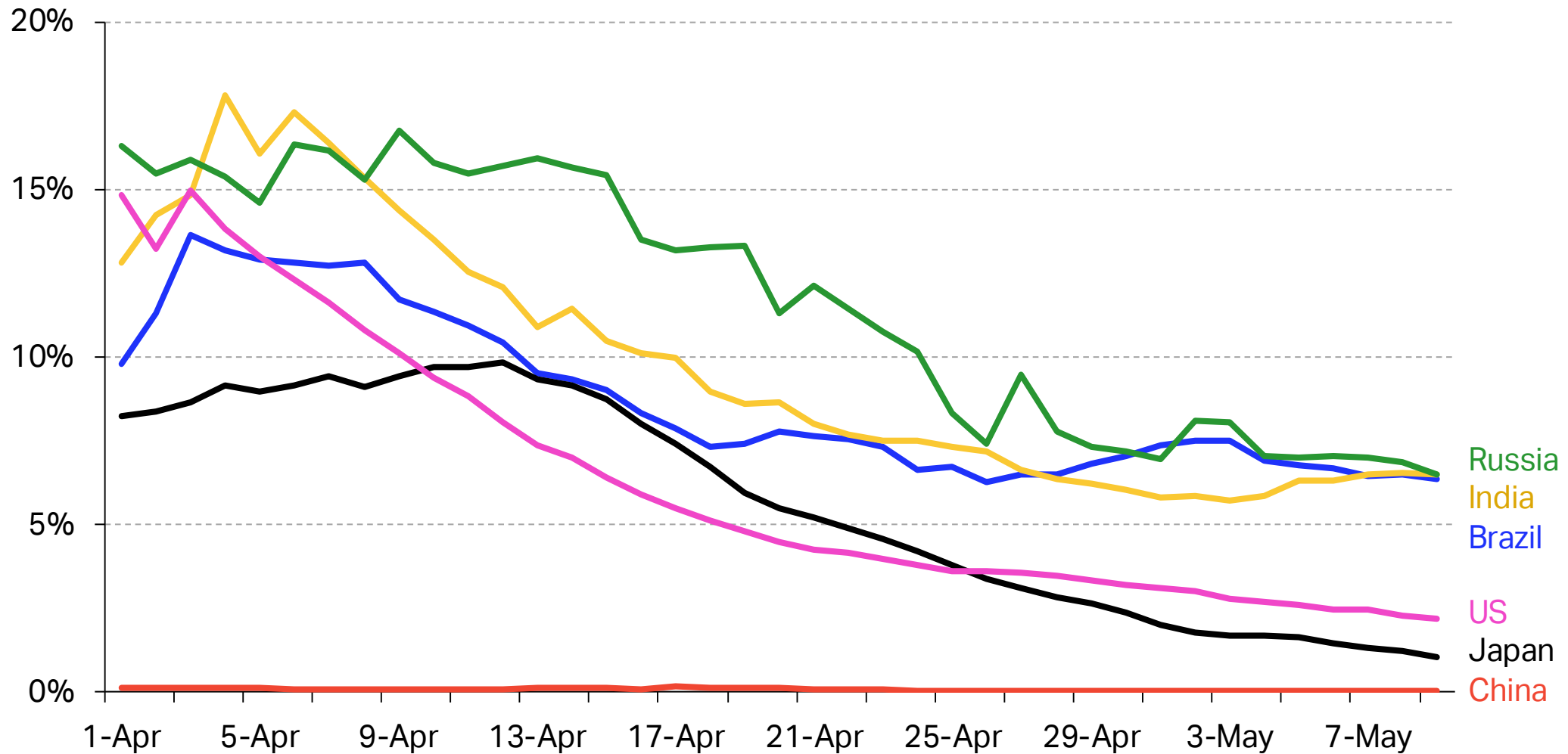
## As lock-down relaxed in China 'V-shaped' rise of business confidence



# Solving health challenge critical for international travel

## Until vaccine, opening borders to travel requires fall in COVID-19 risk

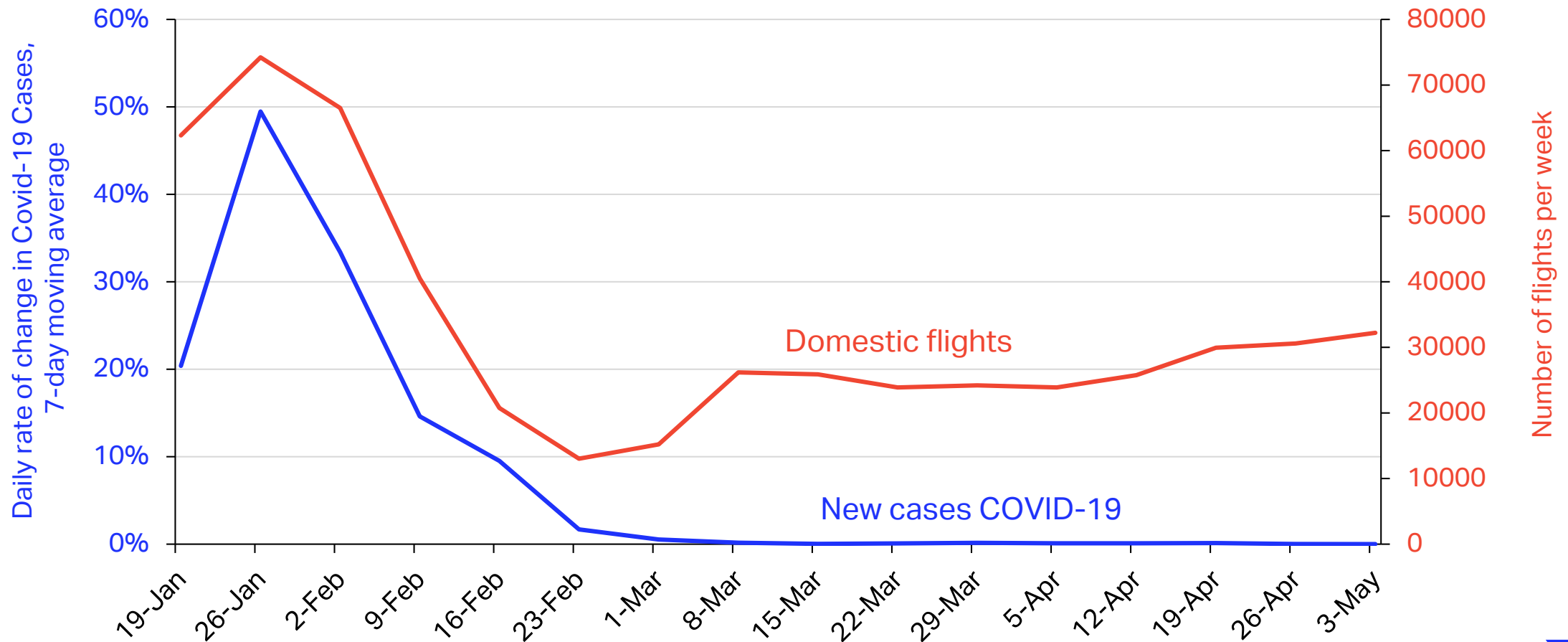
New COVID-19 cases, % of total cases, 7-day moving average



# China domestic air travel lagging business confidence

## Rise in flights with return to work & VFR, but discretionary travel weak

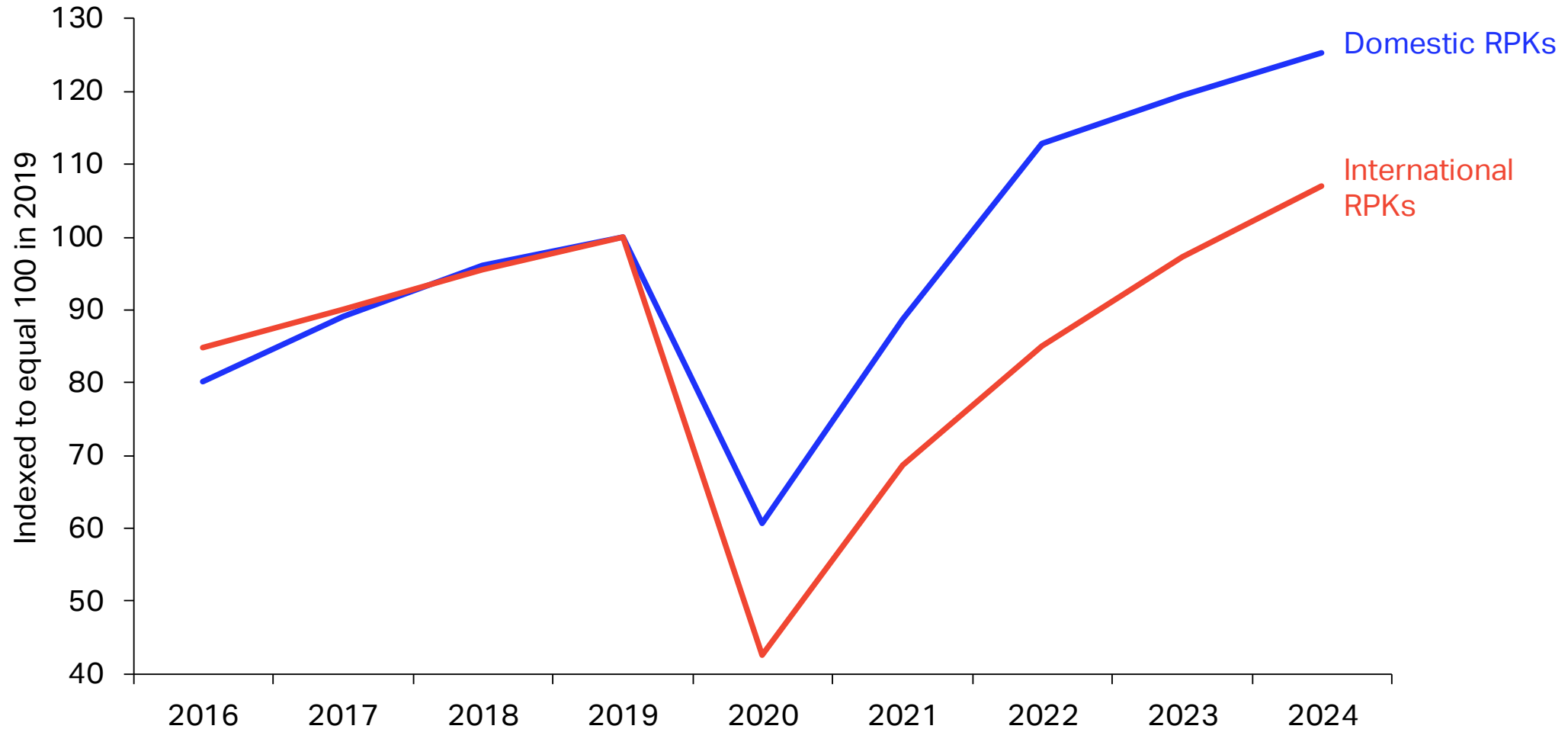
China domestic flights, COVID-19 new cases



# International RPKs will lag domestic air travel markets

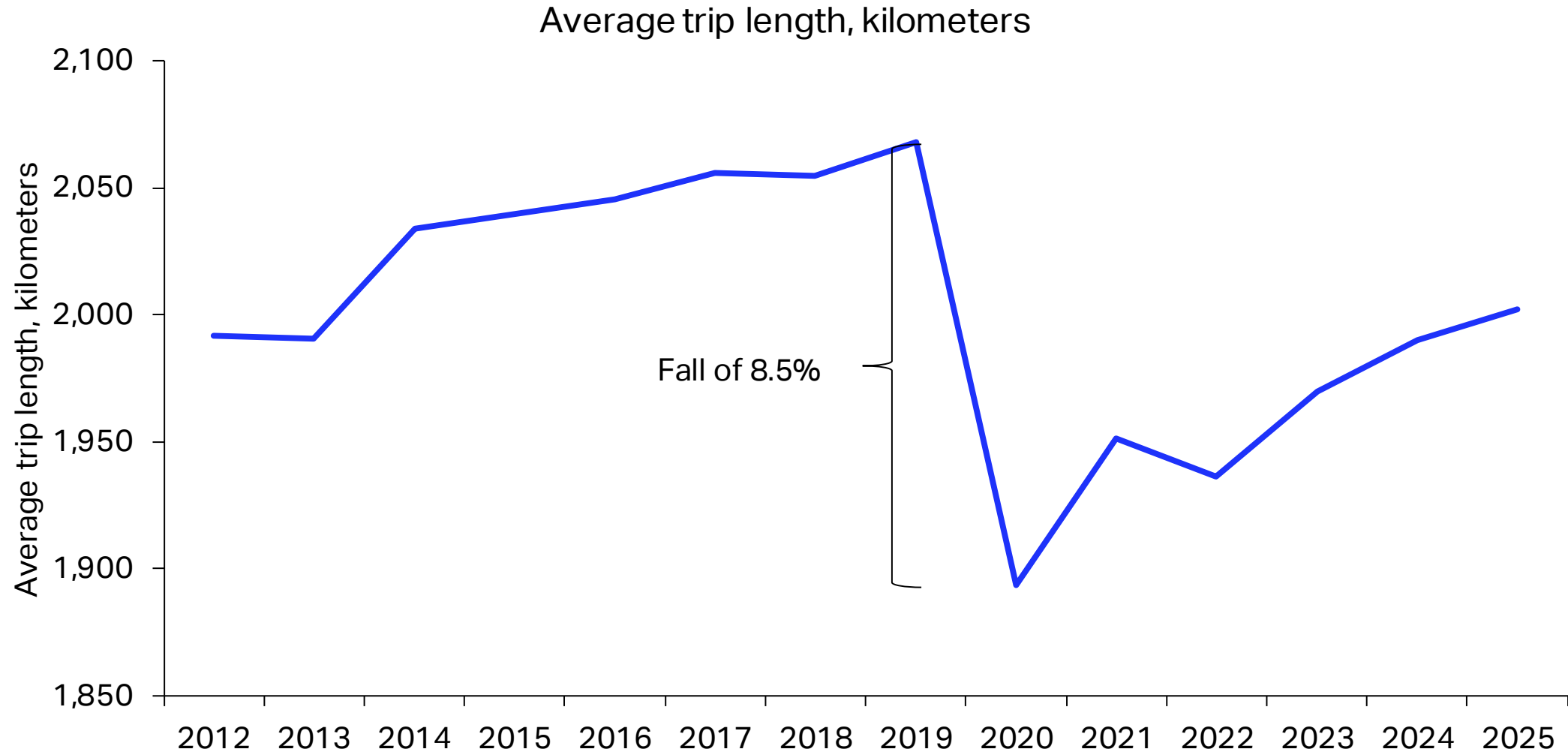
## International air travel may not recover 2019 levels until 2023-24

Global domestic and international RPKs, indexed 2019=100



# Average trip length will fall sharply

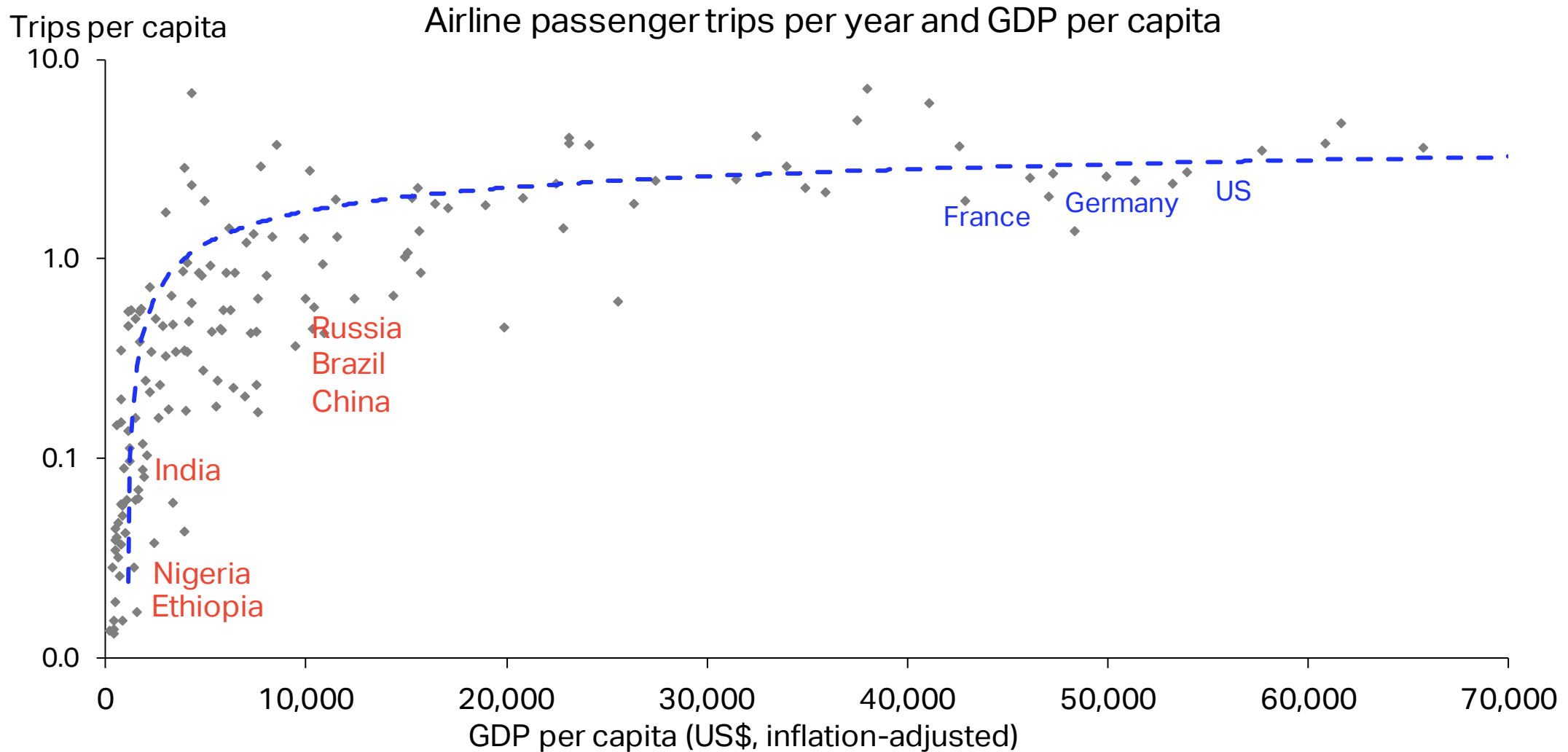
Domestic markets open first and initial preference for short-haul trips





# Long-term drivers for expanded demand remain

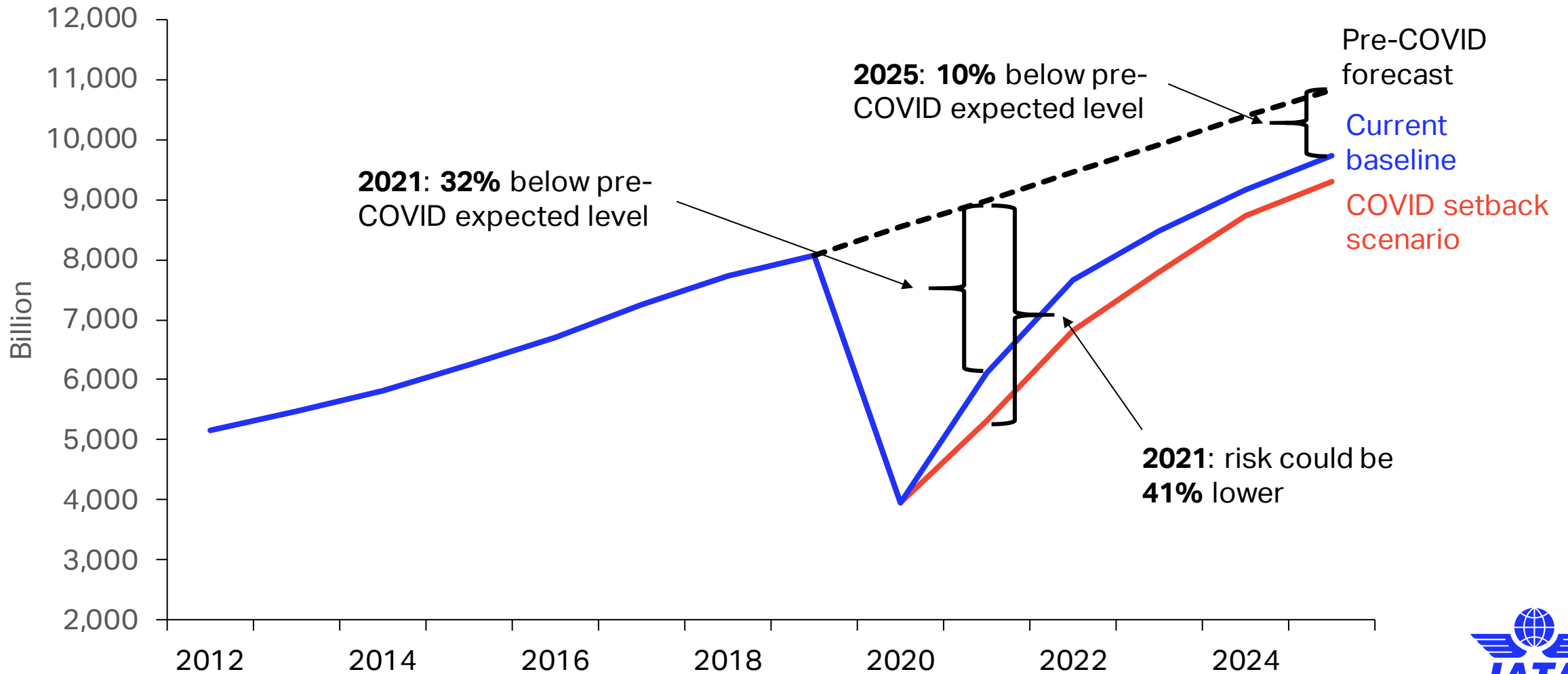
## Populous emerging markets are still likely to want more air services



# Return to growth post-COVID but at a lower level

## Global RPKs forecast to be 32%-41% below expected levels in 2021

Global RPK medium term scenarios, O-D basis



# Contacts

[economics@iata.org](mailto:economics@iata.org)

[www.iata.org/economics](http://www.iata.org/economics)



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**Audience:** Live Poll (Relevant Data Sources)

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# Acting upon The Great Aviation Reset



Frederik van Essen, Digital OPS





**KLM and BCG Partnership**  
Joint teams develop AI-driven tools for the operation of airlines, which are launched as a service to the aviation industry



# Agenda: Data & digital in post-COVID recovery

for airlines to influence



## Virus evolution & govt. response

National government action for citizens with specific impact on travel

- Virus severity and spread
- Specific travel restrictions
- Announced or expected duration of restrictions
- Conditions for reopening (for example, health screening)



## Demand recovery scenarios

Consumer sentiment and behavior

- Overall, by segment (business vs. leisure and short-haul vs. long-haul) and by market
- Impact of COVID-19 on megatrends, such as ways of working and sustainability
- Level of trust and safety concerns



## Market structure scenarios

Financial health of airlines at onset and actions taken to manage through the crisis (for example, liquidity management)

Level and type of financial support by governments, banks, investors

M&A, joint ventures, and partnerships



## Flight plan to emerge stronger

Design for the new normal

- Optimizing/restructuring network and fleet
- Whole-airline transformation using a zero-based approach

With vision for end state in mind, prepare for rebound

Digital & data capabilities

A large KLM aircraft is shown inside a hangar. The aircraft is white with blue accents and the KLM logo on the tail. The hangar has a complex metal structure with yellow beams and lights. A blue semi-transparent overlay covers the middle of the image, and a white text box is overlaid on it. The text 'Demand recovery scenarios' is written in white on the blue overlay. In the bottom left corner, there is a photo credit 'Photo: Marco Spuyman'. In the bottom right corner, there is the KLM logo.

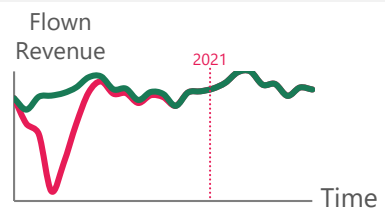
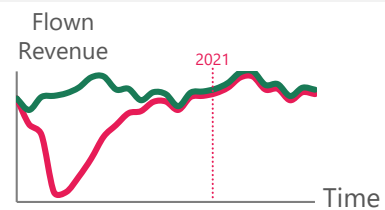
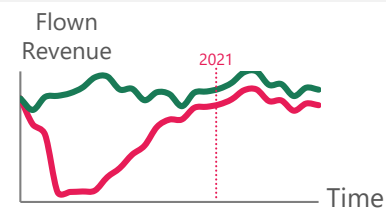
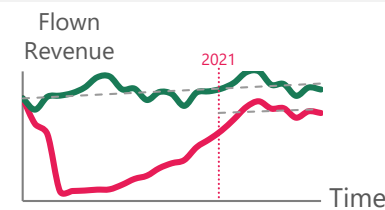
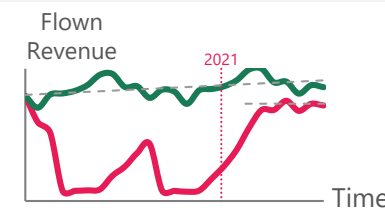
# Demand recovery scenarios

Photo: Marco Spuyman



# Five possible airline demand scenarios in a highly uncertain future

As of mid April

|   |   |    |   |   |   |
|---|--|--|--|--|--|
| <b>Scenario</b>                         | <b>V-shape</b>   | <b>U-shape</b>   | <b>Prolonged U-shape</b>   | <b>L-shape</b>   | <b>W-shape</b>   |
| <b>Likelihood</b>                       | Very unlikely  | Very unlikely  | High likelihood  | High likelihood  | Medium likelihood  |
| <b>Reduction in rev. vs 2019</b>        | <ul style="list-style-type: none"> <li>2020: \$100B-\$200B</li> <li>2021: -</li> </ul>   | <ul style="list-style-type: none"> <li>2020: \$250B-\$325B</li> <li>2021: -</li> </ul>   | <ul style="list-style-type: none"> <li>2020: \$325B-\$400B</li> <li>2021: \$25B-\$75B</li> </ul>   | <ul style="list-style-type: none"> <li>2020: \$400B-\$450B</li> <li>2021: \$100B-\$200B</li> </ul>   | <ul style="list-style-type: none"> <li>2020: \$400B-\$450B</li> <li>2021: \$200B-\$250B</li> </ul>   |
| <b>Return to 2019 level<sup>1</sup></b> | <ul style="list-style-type: none"> <li>~6 months</li> </ul>  | <ul style="list-style-type: none"> <li>~10-18 months</li> </ul>  | <ul style="list-style-type: none"> <li>~24 months</li> </ul>   | <ul style="list-style-type: none"> <li>~48+ months</li> </ul>  | <ul style="list-style-type: none"> <li>~48+ months</li> </ul>  |
| <b>Virus severity and spread</b>        | <ul style="list-style-type: none"> <li>Quick containment (rapid drop in new cases and deaths)</li> </ul>   | <ul style="list-style-type: none"> <li>Gradual decrease in rate of new cases and deaths</li> </ul>   | <ul style="list-style-type: none"> <li>Slow, gradual decrease in rate of new cases and deaths</li> </ul>   | <ul style="list-style-type: none"> <li>Slow, gradual decrease in rate of new cases and deaths</li> </ul>   | <ul style="list-style-type: none"> <li>Spread of virus decreases but then rapidly increases (new strain)</li> </ul>                                    |
| <b>Government action for citizens</b>   | <ul style="list-style-type: none"> <li>Successful containment; relax policies and reassure public</li> </ul>   | <ul style="list-style-type: none"> <li>Lockdown for ~2 months; borders gradually reopen</li> </ul>   | <ul style="list-style-type: none"> <li>Lockdown for several months; travel discouraged; borders reopen slowly</li> </ul>   | <ul style="list-style-type: none"> <li>Lockdown policies in place and limitation on non-essential travel for rest of 2020</li> </ul>   | <ul style="list-style-type: none"> <li>Policies relaxed then rapidly reinstated at sign of resurgence</li> </ul>                                       |
| <b>Consumer sentiment and behaviors</b> | <ul style="list-style-type: none"> <li>Leisure and business traffic bounce back quickly</li> <li>Consumer confidence recovers quickly</li> <li>No structural change to behavior</li> </ul> | <ul style="list-style-type: none"> <li>Consumer confidence returns quickly</li> <li>Business and short-haul leisure travel first, followed by long-haul leisure</li> <li>Travel distributors ramp up operations</li> </ul> | <ul style="list-style-type: none"> <li>Consumer confidence does return - slowly</li> <li>Businesses restrict business travel temporarily</li> <li>Economic recession</li> <li>Travel distributor failures</li> </ul> | <ul style="list-style-type: none"> <li>Leisure travel reduced by fear &amp; sustainability issues</li> <li>New ways of working persist; permanent drop in group and large meetings</li> <li>Economic depression</li> <li>Widespread failures in travel distribution</li> </ul> | <ul style="list-style-type: none"> <li>Confidence returns only to be hit once more, for a more prolonged period, as safety concerns persist</li> </ul> |

1. Return to 2019 level is the first month of a forwarding looking twelve month rolling window where monthly average RPKs are at or above 2019 monthly average RPKs



# Tracking selected indicators key to determine which scenario is most likely and where in the recovery we are

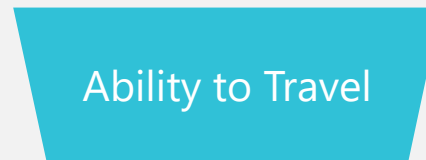
## Key questions

## Key indicators to track



### Duration of Crisis

How does COVID-19 evolve in hubs and outstation countries?  
What are government restrictions; how and when are they softened?



COVID-19 Development (by country)  
Government travel restrictions between countries



### Shape of Recovery

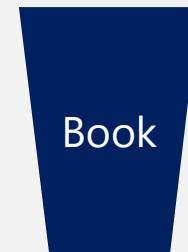
**For both leisure & business consumers:**  
Are they optimistic about the current economy?  
Are they interested in traveling again?  
Are they planning to fly?



Economic sentiment (by region)  
• Consumer sentiment (by region)  
• Change vs previous survey  
• vs. other categories



GDS search data (ARC & 3 Victors)  
• By POS/O&D  
Web traffic data (by country)  
• vs. other industries  
• Changes vs. previous period



Transaction data (by country) (e.g. booking, refunds)  
• Changes vs. previous period  
OAG schedules  
• By O&D  
• Changes vs. previous period  
• Impact of market structure changes

# Signals that will point to airline industry recovery: TRIP tool



KLM | BCG - Home

https://airlineoperations.ai/

Portal Home | Summary: Search & Tickets | Summary: Consumer Sentiment | Recovery Trends | Domestic vs International Impact | Travel Month Comparison | Impact by Geography | Impact by Route | Metr

## Travel Recovery Insights Portal

BCG × ARC × 3VICTORS TRAVEL BI

Click on a topic title to learn more

**ABILITY TO TRAVEL**

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**INTENT**

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**SEARCH**

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**PURCHASE**

**COVID Progression** ●●●

Europe continues to see a linear—rather than exponential—increase in cases, with signs of ‘flattening’ in Germany and France. In the US, cases hit 1.3 million, with the rate of increase at its lowest in 7 weeks. In Asia, the epidemic still appears to be under better control, but a recent COVID cluster has been identified in Seoul and 5 new cases were reported in Wuhan.

**Economic Sentiment** ●●●

COVID has dramatically stymied business growth in all regions. In the US and elsewhere, heavy job losses will likely drive unemployment figures to record levels.

**Air Travel Search, Powered by 3Victors** ●●●

Domestic search has seen only modest improvements in recent weeks; it was down 70% YoY globally on May 6—up from a low of -79% YoY on April 21. The increase in domestic ticketing activity is driven by an increase in the look-to-book ratio that stems from increased consumer confidence.

**Air Travel Transactions, Powered by ARC** ●●●

Domestic ticketing continues to rise globally, down only 35% YoY on April 26 vs. down 86% YoY at the trough on April 6. Norway’s round-trip domestic ticketing has followed a strong rising trend, with several days in late April actually achieving a positive YoY increase. Yet domestic travel within most European countries is not yet rebounding, despite improving consumer sentiment.

**Airline Capacity** ●●●

With some countries easing lockdown restrictions, a few carriers are testing market demand with slight capacity additions. Many airlines have announced that they expect it will take several years for capacity to return 2019 levels. Domestic flights currently 85% of total global capacity.

**Government Restrictions** ●●●

Lockdown is being lifted across Europe, with loosened restrictions in many countries. In the US, more than half of the states are starting to ease lockdown restrictions.

**Consumer Sentiment** ●●●

Consumers are beginning to express more favorable sentiment about the future. In the latest Consumer Sentiment Snapshot, more than 80% of consumers say that they miss leisure travel. These results suggest that significant pent-up demand for these activities will be released once consumers feel comfortable engaging in them again.

**Web Traffic** ●●●

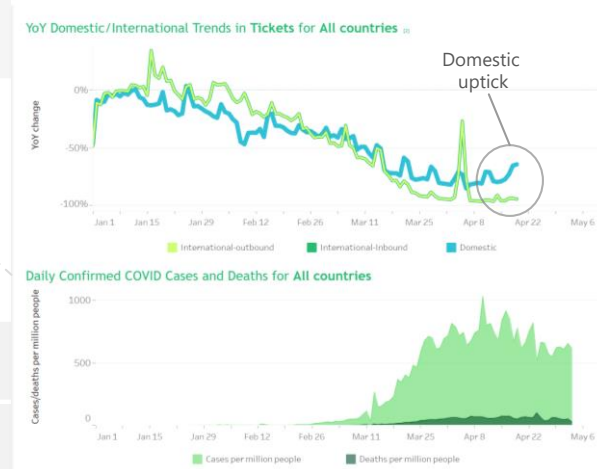
According to BCG Demand Sentinel, air travel web traffic is declining even further than in prior weeks, down -73% YoY. Travel continues to experience the largest weekly drop in traffic of any web traffic category.

**Government Support**

Airlines are still seeking urgent financial help from their governments. This week, UK airlines called for “urgent additional government support” and Avianca filed for Chapter 11 bankruptcy protection in the US to protect their essential air transport services.

FREE link on:

**AirlineOperations.ai**



A photograph showing a large KLM airplane being hoisted by a crane at a museum. The airplane is suspended by cables and is being moved towards the Aankomsttoren tower. The scene is set outdoors under a blue sky with white clouds. In the foreground, there are some people and a garden area. A semi-transparent blue rectangle is overlaid on the image, containing the text "Market structure scenarios".

# Market structure scenarios



# Flightplan new normal





# Digital & data will play a key role in the new normal enabling better, more granular, integrated decisions from planning-to-execution

## Start with determining target size and shape

### 1 Reset and resize Network & Fleet

- Adjust based on expected demand recovery & sequence (business/leisure, short/longhaul) and market structure scenarios
- Adjust fleet strategy for efficiency, e.g. less types, smaller and more efficient gauges
- Optimize for free cash flows/ profit

## Stimulate demand to drive top-line recovery

2 Address shifting traveler needs and behaviors (e.g. health & safety and sustainability; new shopping/booking behaviors)

3 Use advanced analytics to boost performance (e.g. personalization, next gen RM, marketing effectiveness)

4 Revisit distribution strategy: increase focus on digital channels; re-size re-shape and re-purpose sales force

5 Pursue new partnership and M&A opportunities—within the core and beyond

10 Drive sustainability as a core business objective to stimulate demand and achieve competitive advantage, e.g. integrate into metrics across business

## Apply zero-based design for lean, flexible operations

6 Design and implement "at scale" health and distancing measures in customer and employee journeys and practices

7 Resize operations and fundamentally shift to more variable staff and operations, e.g. with different labor contracts

8 Leverage AI and bionic opportunities to maximize resource utilization, flexibility, efficiency from planning-to-execution

9 Prepare to rebound and adjust quicker than competitors; build capabilities to deal with more frequent, extreme disruptions

## Implement the organization to deliver

11 Rebuild more agile and digitally enhanced organization; e.g. cross-functional and cross-hierarchical teams, new ways of working

12 Embrace diversity and protect top talents, ensure to avoid "last-in first-out" as a standard mechanism to reduce workforce

13 Drastically reduce technology budget by radical shift to value-based technology approach incl reducing legacy IT systems, costs



14 Strengthen focus on free cash flow and liquidity throughout the recovery including digital procurement




# Digital & data will play a key role in the new normal

## two examples

### Start with determining target size and shape

 Demand Recovery Dashboard (TRIP)  Zero Based Scaling (ZBS)


### Stimulate demand to drive top-line recovery

 Pricing & Revenue management suite

### Apply zero-based design for lean, flexible ops

 KLM-BCG Digital Ops Suite

### Implement the organization to deliver

 Zero Based Technology Transformation

# Prescriptive solutions go beyond predictive



Travel Recovery Indicator Portal (TRIP)



Zero Based Scaling (ZBS)



KLM-BCG Digital Ops Suite

Function

Dashboard that supports demand predictions

Optimizer that defines routes to fly with what aircraft and how often

Suite of decision support tools for airline operations

Use Cases

Demand prediction for network planning

Dynamic, demand-based schedule creation  
Schedule right sizing  
Resource planning

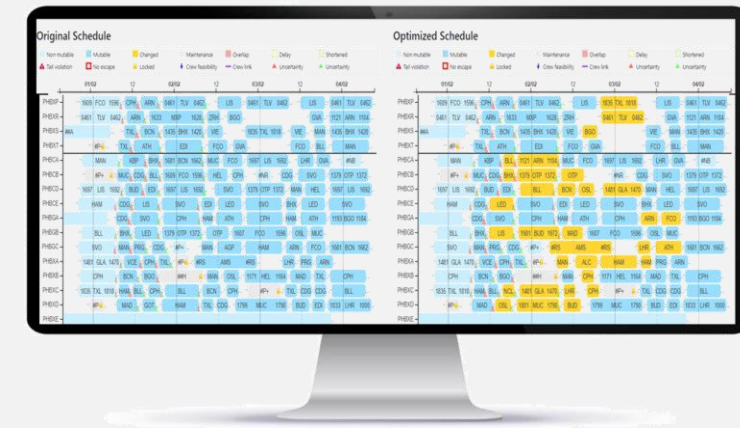
Resource planning  
Optimized line of flight/tail allocation  
Day of ops disruption mgmt

Business Value

Define demand scenarios

Optimize profit / free cash flow  
Scenario Planning

Maximize utilization  
Optimize OTP  
Minimize Non-performance cost



Zero Based Scaling for post-COVID rebound



## Objective

Rapidly defines what the routes to fly, with what aircraft and how often based on constantly evolving world demand forecast aiming for optimal profitability/free cash flow

Focus on multiple months before DoO



## Overview of key features/ use cases

Demand forecasts to develop multiple scenario's

Assessment of schedule viability

Adjust schedule to maximize network planning and fleet management



## Value

Increased flight profitability through lower variable operating costs & higher captured revenues

Enhanced customer benefits through avoiding schedule changes & enhanced employee benefits through assistance in scheduling process


# Zero-based scaling| Digital network design for the new normal




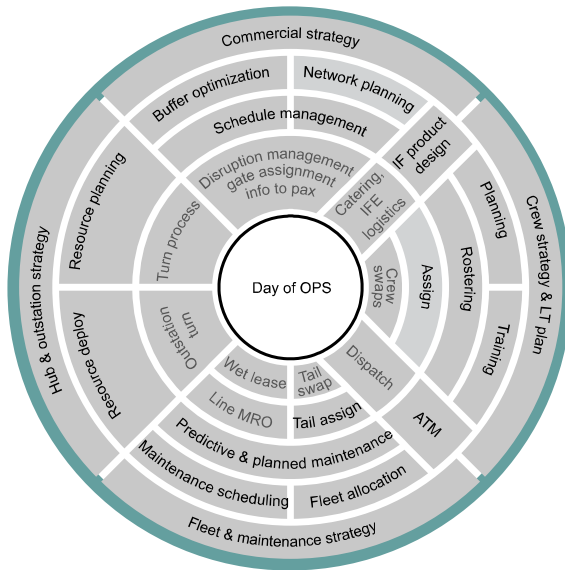
# Digital Operations


## Integrated, quantified decision making across silos and planning horizons


### WE APPLY A HOLISTIC FRAMEWORK...

 Commercial planning, network and info to passengers

 Ground crew & equipment



 Flight crew

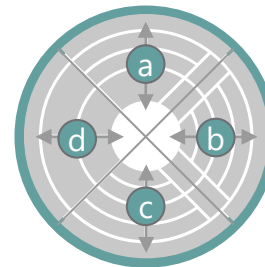
 Fleet and maintenance

### ... TO DRIVE INTEGRAL DECISION MAKING



Covering 3 planning cycle horizons including feedback loops between them

- 1) **Strategic:** ~12-4 months before Day of Operation
- 2) **Robustness:** ~3 months until day before DoO
- 3) **Execution, managing disruptions:** DoO

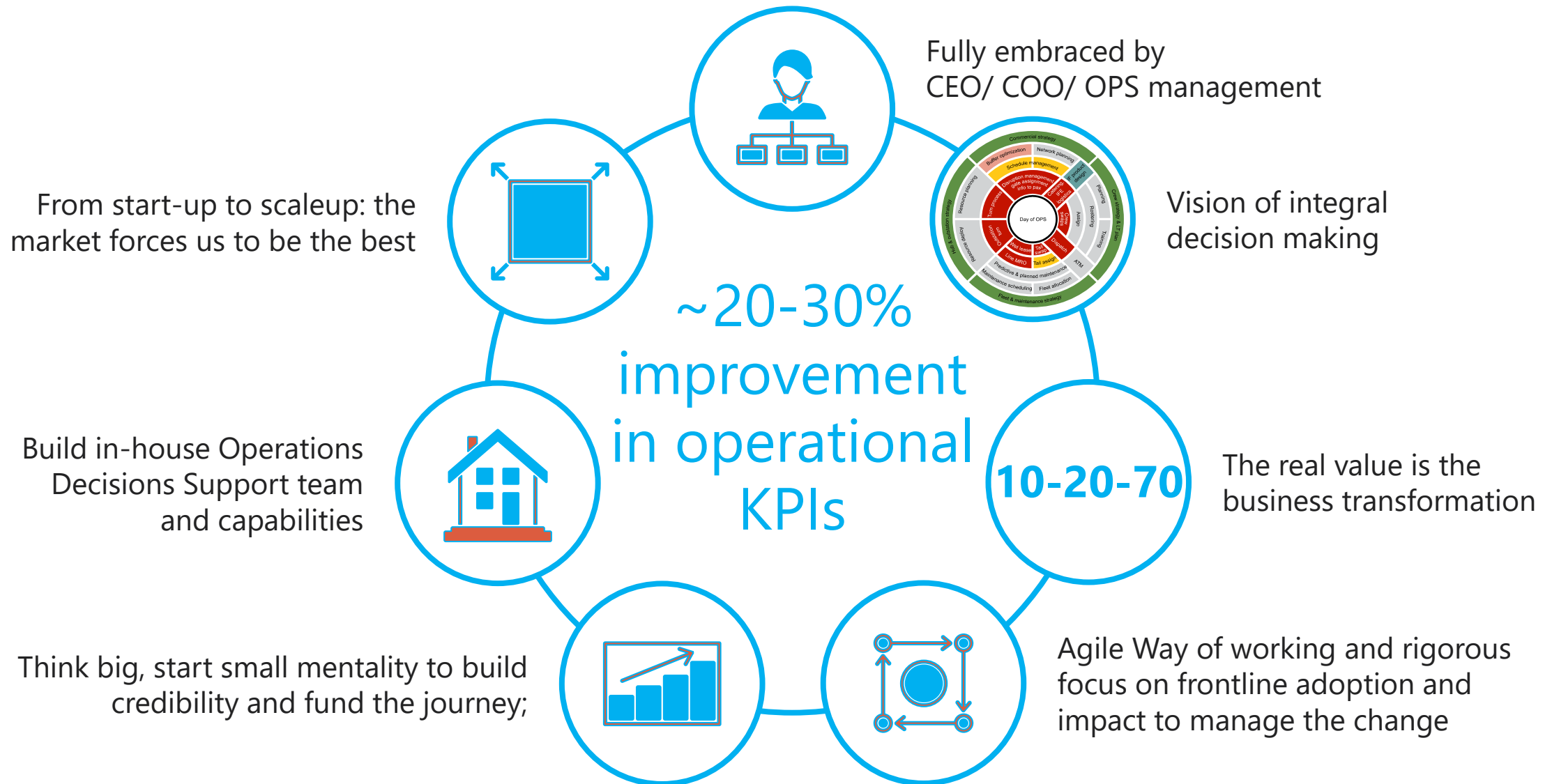


Covering all contributors needed to deliver every day, every flight

- a) Commercial planning, network and info to passengers
- b) Flight crew
- c) Fleet and maintenance
- d) Ground crew and equipment



# KLM 's digital OPS transformation



 **KLM** Royal Dutch Airlines

[www.airlineoperations.ai](http://www.airlineoperations.ai)



Photo: Jennifer Renting



**IATA**

**AVIATION**

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**WEBINAR SERIES**

## **EPISODE 3 (PLAN RECOVERY)**



● **LIVE** PRESENTATION IN PROGRESS

**Keynote:** Insights from KLM on how to maneuver during these uncertain times

**Frederik van Essen**  
Commercial Director, Digital Operation, KLM



# ▶ ANALYTICS ON DEMAND & BUYING BEHAVIOR DURING & AFTER THE COVID-19 CRISIS



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



**Wednesday 13 May 2020**  
15:30 – 17:30 CEST

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# OAG CHANGING SCHEDULES IN A COVID-19 WORLD

# LIVING WITH CHANGING DATA

- The pace of change in capacity has never been more dramatic.
- To date, 489,000 flights scheduled to operate in January have been dropped by airlines.
- Some 76.5 million seats that were to have been operated since January have been dropped.
- We've tracked everyone of those schedule changes, capacity changes, timing changes and distributed them around the globe.

|                           | "Then" (20 <sup>th</sup> January) | "Now" (11 <sup>th</sup> May) |
|---------------------------|-----------------------------------|------------------------------|
| Weekly Capacity           | 106.4m                            | 29.8m                        |
| Weekly Flights            | 712,871                           | 226,005                      |
| Number of Airlines Flying | 709                               | 537                          |
| Number of Airport Pairs   | 47,756                            | 25,237                       |

| Schedule Files Deleted | 2019    | 2020    | % Change |
|------------------------|---------|---------|----------|
| January                | 193,534 | 208,293 | 7.6%     |
| February               | 202,250 | 324,133 | 60.2%    |
| March                  | 214,801 | 849,362 | 395%     |
| April                  | 223,544 | 750,521 | 335%     |

Source: OAG Schedules Analyser

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# NO TWO AIRLINES ACT AT THE SAME TIME....

Many of the major global airlines file schedule changes everyday, some on multiple occasions.

And every airline has a different way in handling schedule changes.

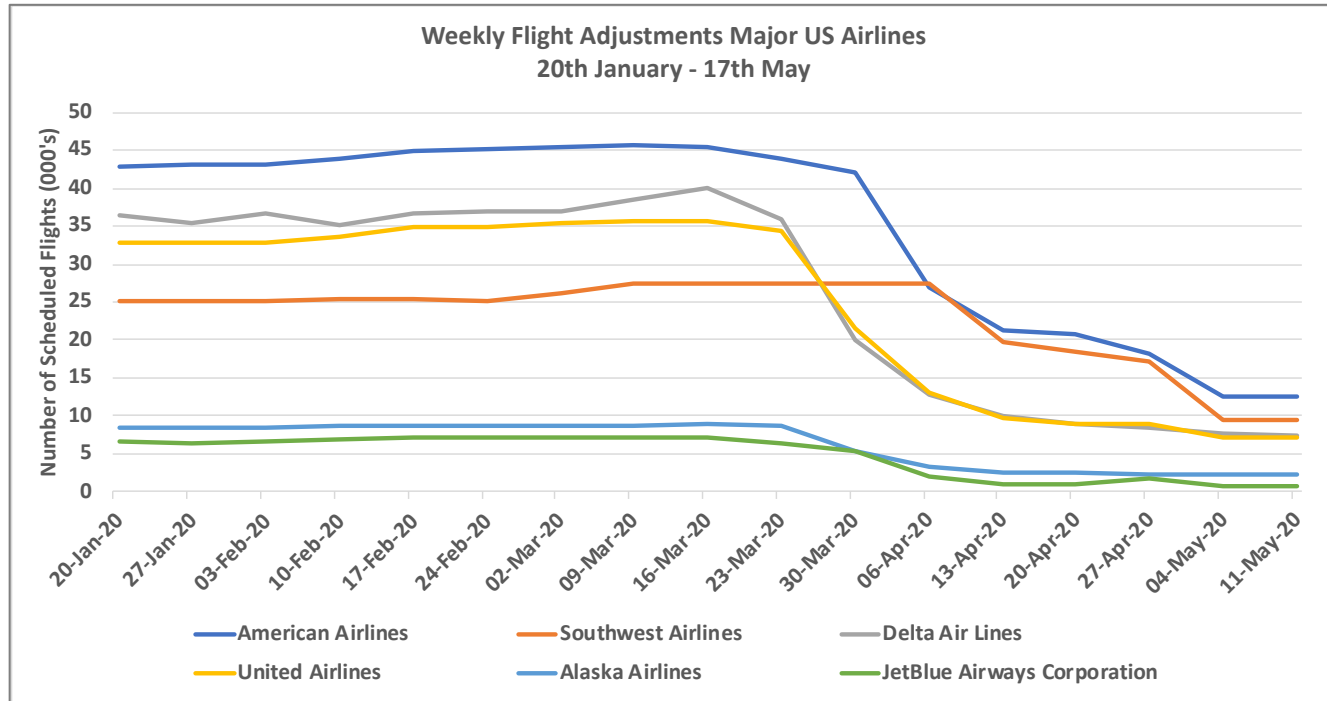
- Some want their flights removed straight away
- Some want to re-protect passengers first
- Some want to continue showing the flight but close out sales via the GDS's
- Some want to wait until their codeshare partners services are aligned
- Some want to make adjustments well in advance
- Some want to make adjustments at the very last minute in case sudden demand occurs

Last Saturday **Delta Air Lines** made some **89,000** schedule changes in one filing submitted to OAG

Diving into the COVID-19 event has seen huge with unprecedented levels of schedule change.

Coming back out we expect to see even more changes as airlines seek a way forward.

# A US MARKET EXAMPLE....



- DL & UA started adjusting schedules on the 23<sup>rd</sup> March.
- AA on the 30<sup>th</sup> March
- WN on the 6<sup>th</sup> April
- Every major US carrier has made multiple changes to their schedules in the last eight weeks as they work through what's happening.

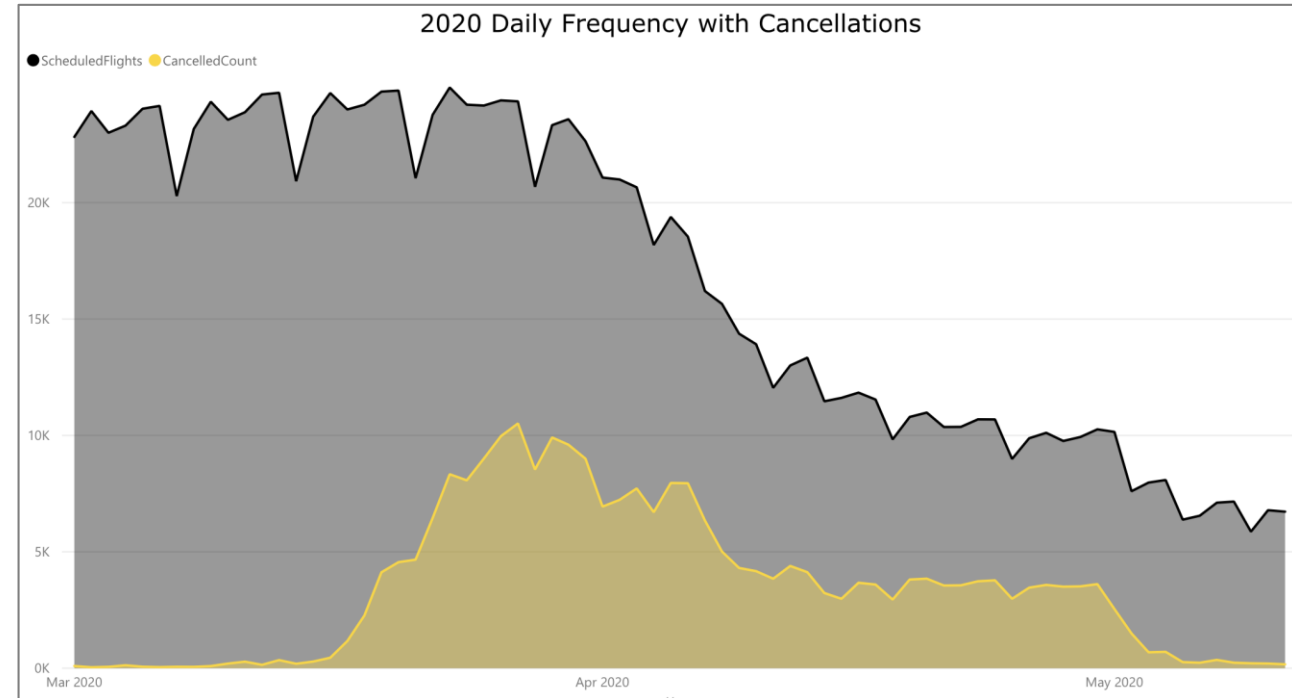
Source: OAG Schedules Analyser

But schedule changes only tell half of the story.



# DRAMATIC CANCELLATION SPIKE ACROSS US DOMESTIC NETWORKS **OAG**

- Cancellation rates reached 40% in late March as airlines grappled with schedule changes, network adjustments and falling demand.
- Only in the last week have we seen cancellation rates back at near normal levels.
- We could see similar rates of cancellations if too much capacity is added back too quickly such is the careful balancing required in the next few months.



Source: OAG Schedules Analyser



**Sébastien Touraine**  
Head Dynamic Offer, IATA  
(Moderator)



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# Air Travel Pulse includes a selection of leading indicators for air travel demand rebound



## Dashboard description

### Summary: Recovery Scorecard

Overview of leading indicators, demand and capacity trends

## Sample questions addressed by page

Where do we see early signals for changes in air travel demand?

Which regions/ countries should be positioning themselves for an increase in capacity?

How is consumer sentiment, search and booking behavior changing by country?

Market Pulse - Demand Rebound Tracking: Recovery Scorecard..

Please choose the index:  
 Pre-crisis (First week of 2020)

| Region          | COVID-19 Pandemic Status   |                        | Passenger Interest in Travel |                       | Willingness and Decision to Travel |                       | Flight Capacity       |  |
|-----------------|----------------------------|------------------------|------------------------------|-----------------------|------------------------------------|-----------------------|-----------------------|--|
|                 | New COVID-19 Cases per 10K | Travel Prohibited from | Travel Interest Index        | Flight Interest Index | Flight Search Index                | Flight Purchases Ind. | Flight Capacity Index |  |
| Africa          | 0.2                        | 81%                    | 37.9                         | 33.6                  | 0.0                                | 0.0                   | 31.1                  |  |
| Asia            | 0.5                        | 96%                    | 31.4                         | 31.6                  | 0.0                                | 13.3                  | 27.2                  |  |
| Caribbean       | 1.6                        | 67%                    | 41.9                         | 27.0                  | 0.0                                | -6.8                  | 15.5                  |  |
| Central America | 0.8                        | 75%                    | 37.0                         | 29.5                  | 0.0                                | 0.1                   | 20.6                  |  |
| Europe          | 4.8                        | 33%                    | 37.3                         | 23.1                  | 0.0                                | -2.4                  | 15.0                  |  |
| Middle East     | 3.6                        | 74%                    | 38.4                         | 31.2                  | 0.0                                | -0.7                  | 43.4                  |  |
| North America   | 3.3                        | 56%                    | 45.3                         | 29.8                  | 0.0                                | -0.1                  | 44.9                  |  |
| Oceania         | 0.1                        | 100%                   | 35.4                         | 25.0                  | 0.0                                | -1.9                  | 30.0                  |  |
| South America   | 1.1                        | 100%                   | 21.4                         | 24.1                  | 0.0                                | 6.7                   | 14.9                  |  |

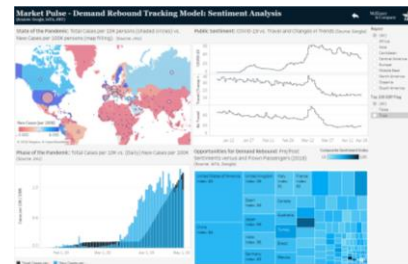
## Sentiment and Web Analytics dashboard

View of COVID-19 developments and travel interest using Google search trends as a proxy

Where along the COVID-19 curve is a certain region/ country standing on?

How much have travel-related Google searches increased/ decreased over time?

What travel search terms are people looking for (hotel, car rental, etc.)?



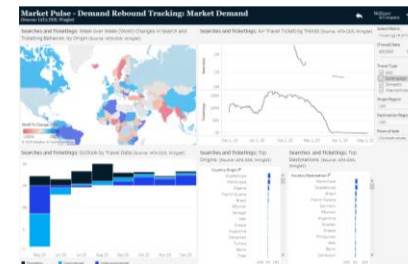
## Search and booking trends dashboard

Searches and bookings by country/ region and their corresponding trends

Which countries/ regions are seeing the greatest demand in searches?

Are people booking domestic or international travel?

What kind of travel are people searching for/ booking (one-way, weekend, etc.)?



## Air travel capacity dashboard

Comparison of current air travel demand and supply

How much has capacity been cut across different countries/ regions?

How have countries/ regions adjusted their capacity relative to shifts in demand?

Is there high/ low saturation in a particular market?



# Recovery scorecard captures selected leading indicators along the demand funnel

Please choose the index:

- Pre-crisis (First week of 2020)
- Previous week

|                 | COVID-19 Pandemic State >                         |  | Passenger Interest in Travel > |                       | Willingness and Decision to Travel > |                        | Flight Capacity >     |
|-----------------|---|--|--------------------------------|-----------------------|--------------------------------------|------------------------|-----------------------|
| Region          | New COVID-19 Cases per 10K People (Last Week Avg) | Travel Prohibited from x% of Countries | Travel Interest Index          | Flight Interest Index | Flight Search Index                  | Flight Purchases Index | Flight Capacity Index |
| Africa          | 0,2   | 81%                                    | 37,9                           | 33,6                  | <i>Coming soon</i>                   | 0,0                    | 31,1                  |
| Asia            | 0,5   | 86%                                    | 31,4                           | 31,4                  |                                      | 11,3                   | 47,2                  |
| Caribbean       | 1,6   | 67%                                    | 41,9                           | 27,0                  |                                      | -6,8                   | 15,5                  |
| Central America | 0,8   | 75%                                    | 37,0                           | 29,5                  |                                      | 0,1                    | 40,9                  |
| Europe          | 4,8   | 83%                                    | 37,3                           | 25,1                  |                                      | -2,4                   | 19,0                  |
| Middle East     | 3,6   | 74%                                    | 38,4                           | 31,2                  |                                      | -0,7                   | 43,4                  |
| North America   | 8,3   | 56%                                    | 45,3                           | 29,8                  |                                      | -0,1                   | 44,9                  |
| Oceania         | 0,1   | 100%                                   | 35,4                           | 25,0                  |                                      | -1,9                   | 30,0                  |
| South America   | 1,3   | 100%                                   | 24,4                           | 24,1                  |                                      | 8,7                    | 14,9                  |



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|                           |                                |                                      |                   |
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|-----------------|---|--|-----------------------|-----------------------|---------------------|------------------------|-----------------------|
| Africa          | 0,2   | 81%                                    | 113,0                 | 111,8                 | <i>Coming soon</i>  | -124,2                 | 98,3                  |
| Asia            | 0,5   | 86%                                    | 81,9                  | 107,5                 |                     | 8,5                    | 105,3                 |
| Caribbean       | 1,6   | 67%                                    | 127,2                 | 101,2                 |                     | 72,6                   | 53,9                  |
| Central America | 0,8   | 75%                                    | 88,2                  | 70,5                  |                     | 159,5                  | 72,2                  |
| Europe          | 4,8   | 83%                                    | 104,5                 | 102,0                 |                     | -166,6                 | 78,5                  |
| Middle East     | 3,6   | 74%                                    | 107,6                 | 126,4                 |                     | -18,6                  | 98,0                  |
| North America   | 8,3   | 56%                                    | 99,7                  | 101,5                 |                     | 84,6                   | 79,3                  |
| Oceania         | 0,1   | 100%                                   | 97,8                  | 84,6                  |                     | -327,3                 | 66,2                  |
| South America   | 1,3   | 100%                                   | 104,9                 | 98,7                  |                     | 85,2                   | 70,9                  |



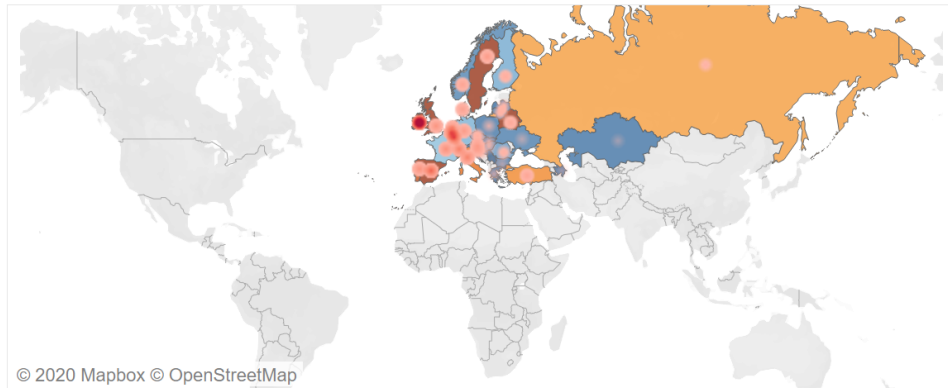
# Europe is interesting since summer holiday destinations get ready for inbound tourism

## Market Pulse - Demand Rebound Tracking Model: Sentiment Analysis

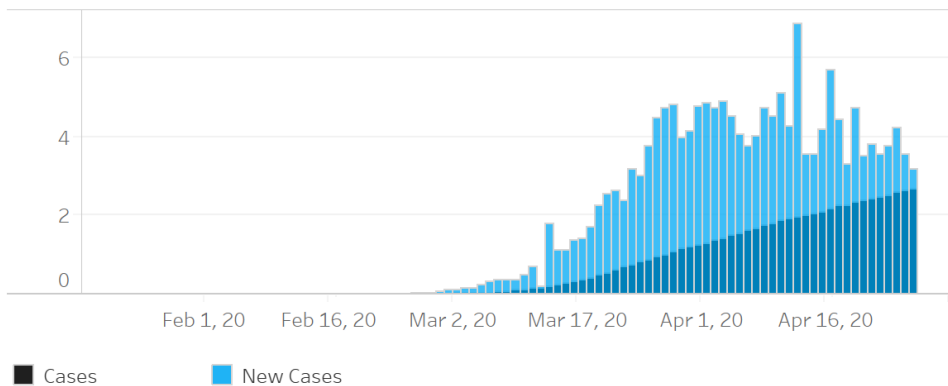
(Powered by: Google, IATA, JHU)



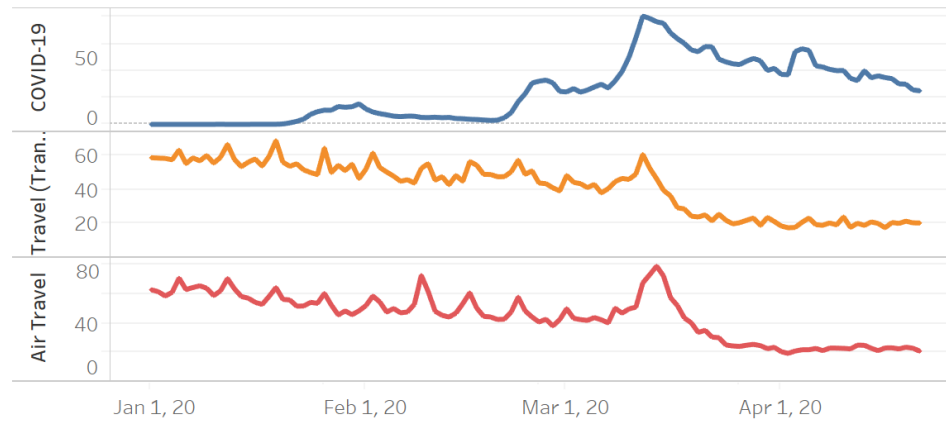
**State of the Pandemic:** New Cases per 100K persons vs. Total Cases 10K persons (Source: JHU)



**Phase of the Pandemic:** (Total) Cases per 10K vs. (Daily) New Cases per 100K (Source: JHU)



**Public Sentiment:** COVID-19 vs. Travel and Changes in Trends (Source: Google)



Region

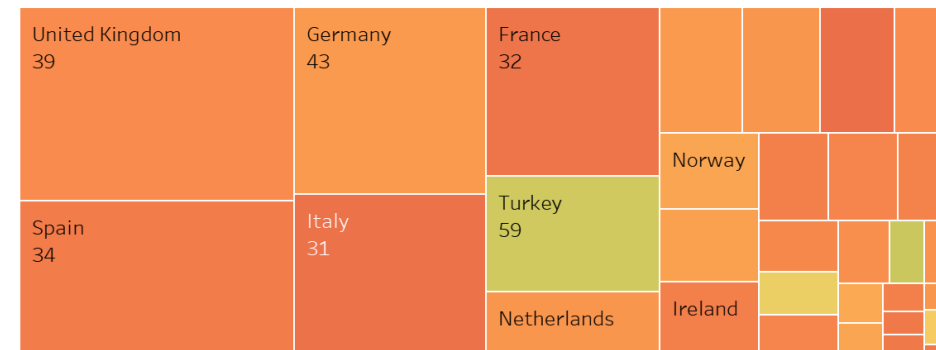
- (All)
- Africa
- Asia
- Caribbean
- Central ...
- Europe
- Middle E...
- North A...
- Oceania
- South A...

Top 100 GDP Fl..

- (All)
- False
- True

**Travel Demand Rebound Signal:** Opportunities for Demand Rebound Based on Sentiments and Flown Passengers (Source: IATA, Google)

Air Travel Composite Score  
10 100





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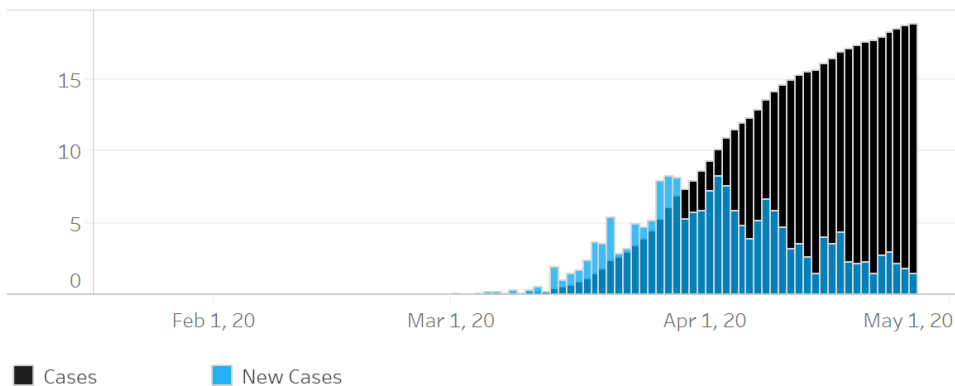
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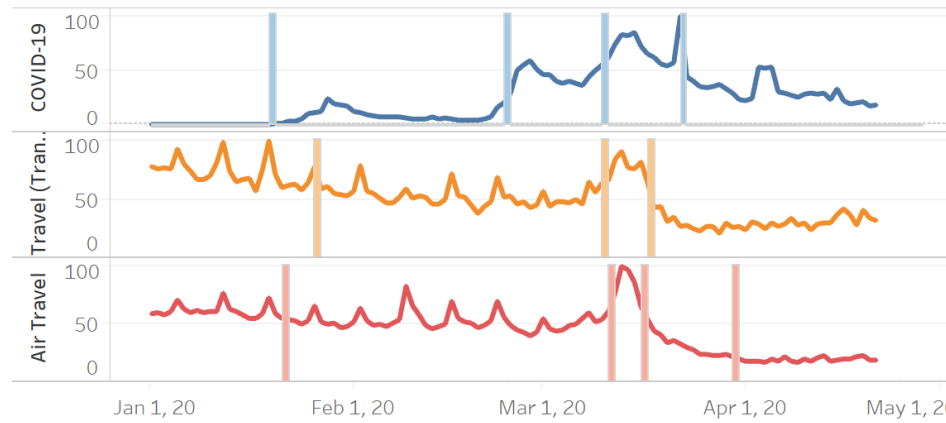
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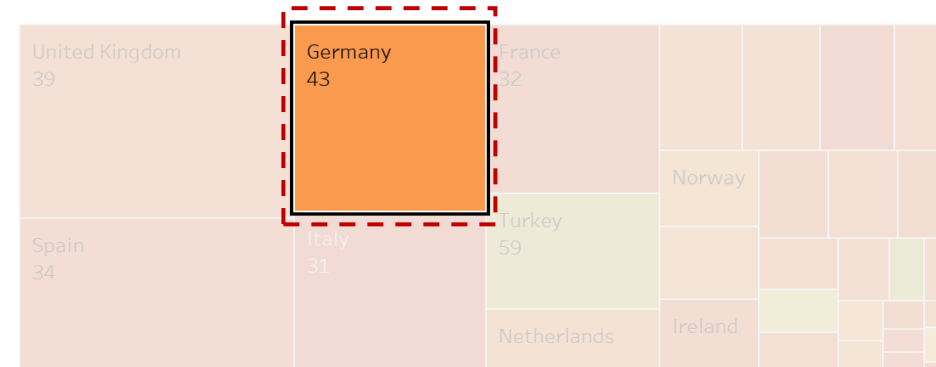
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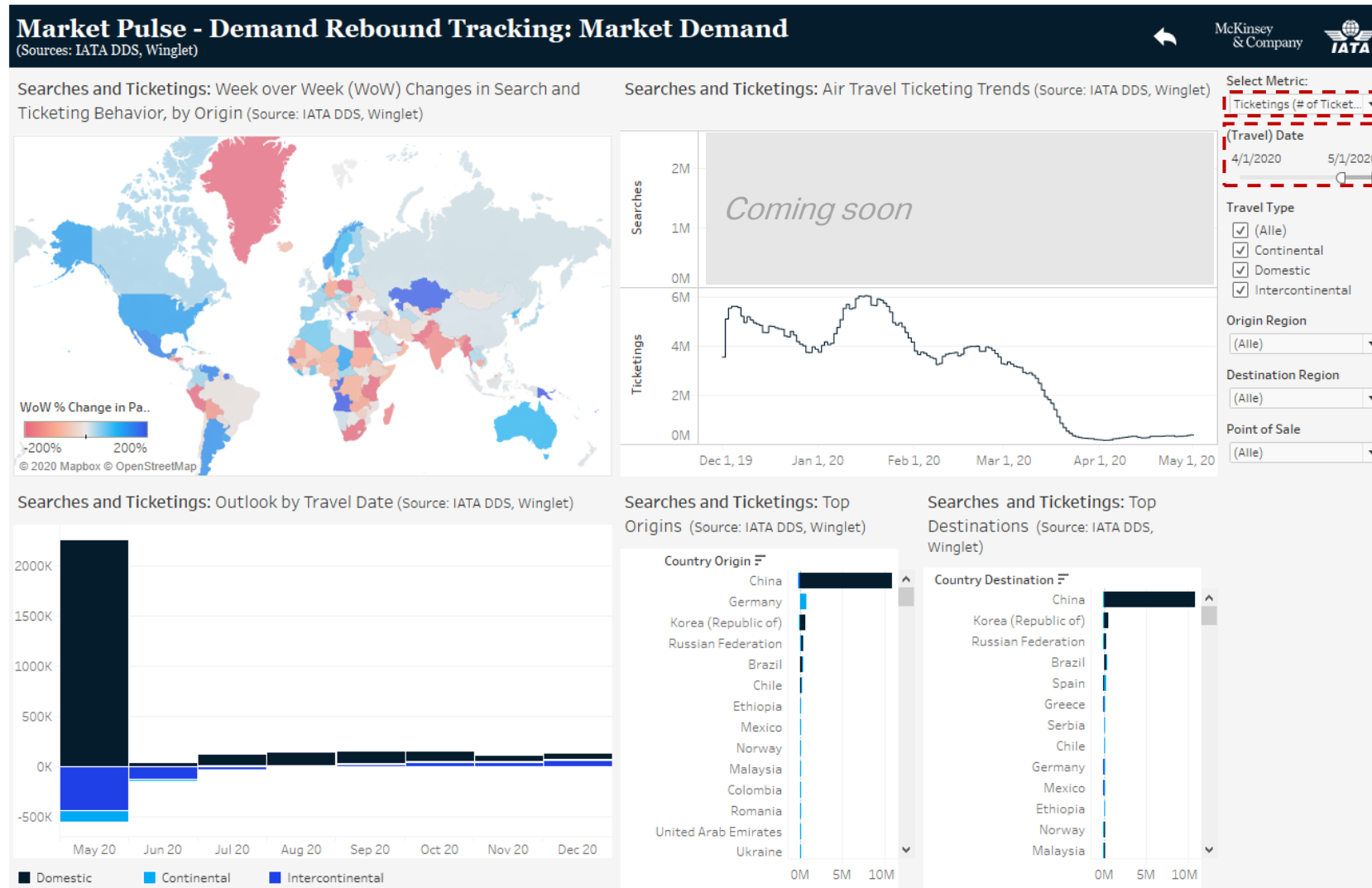
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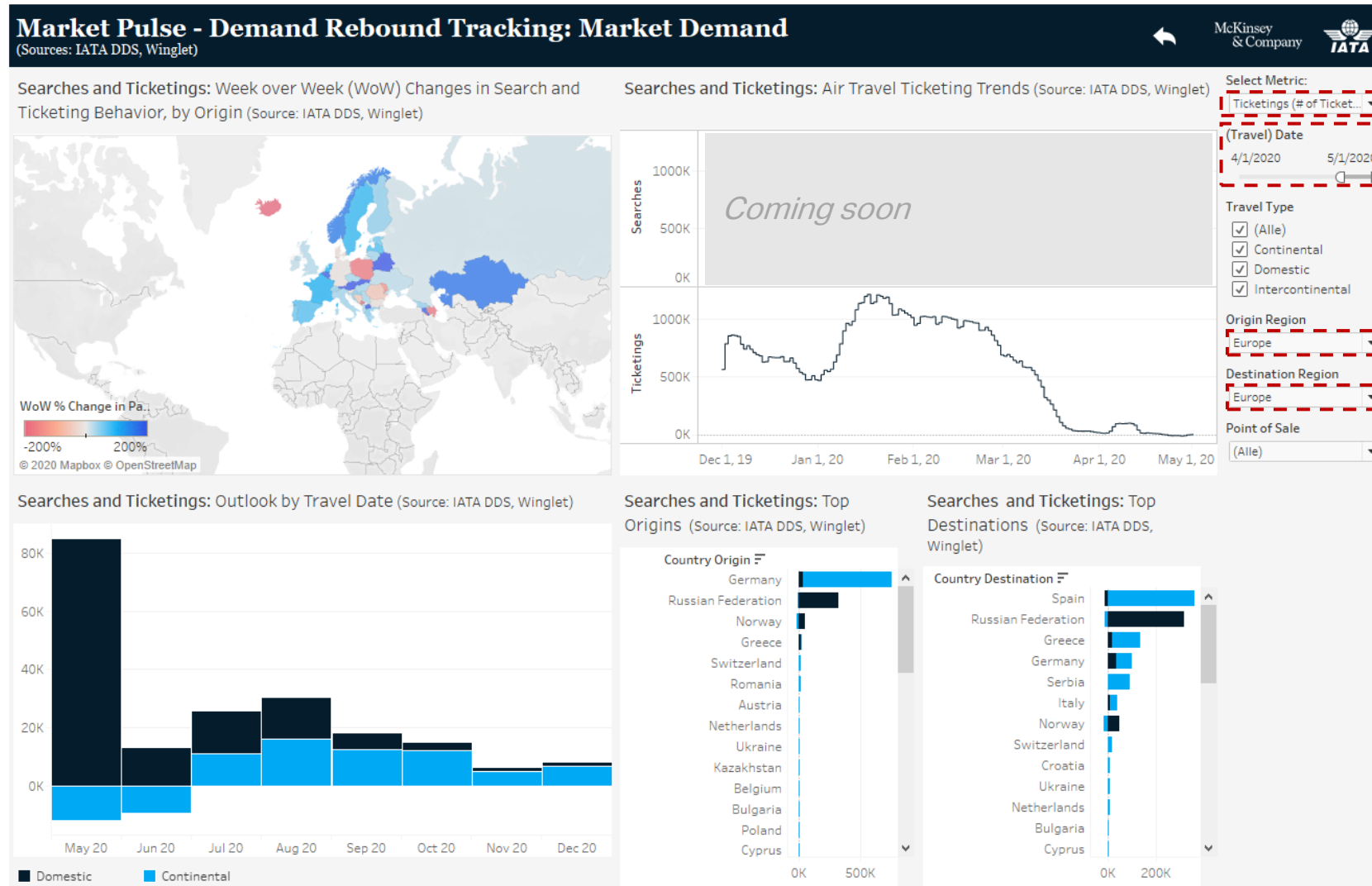
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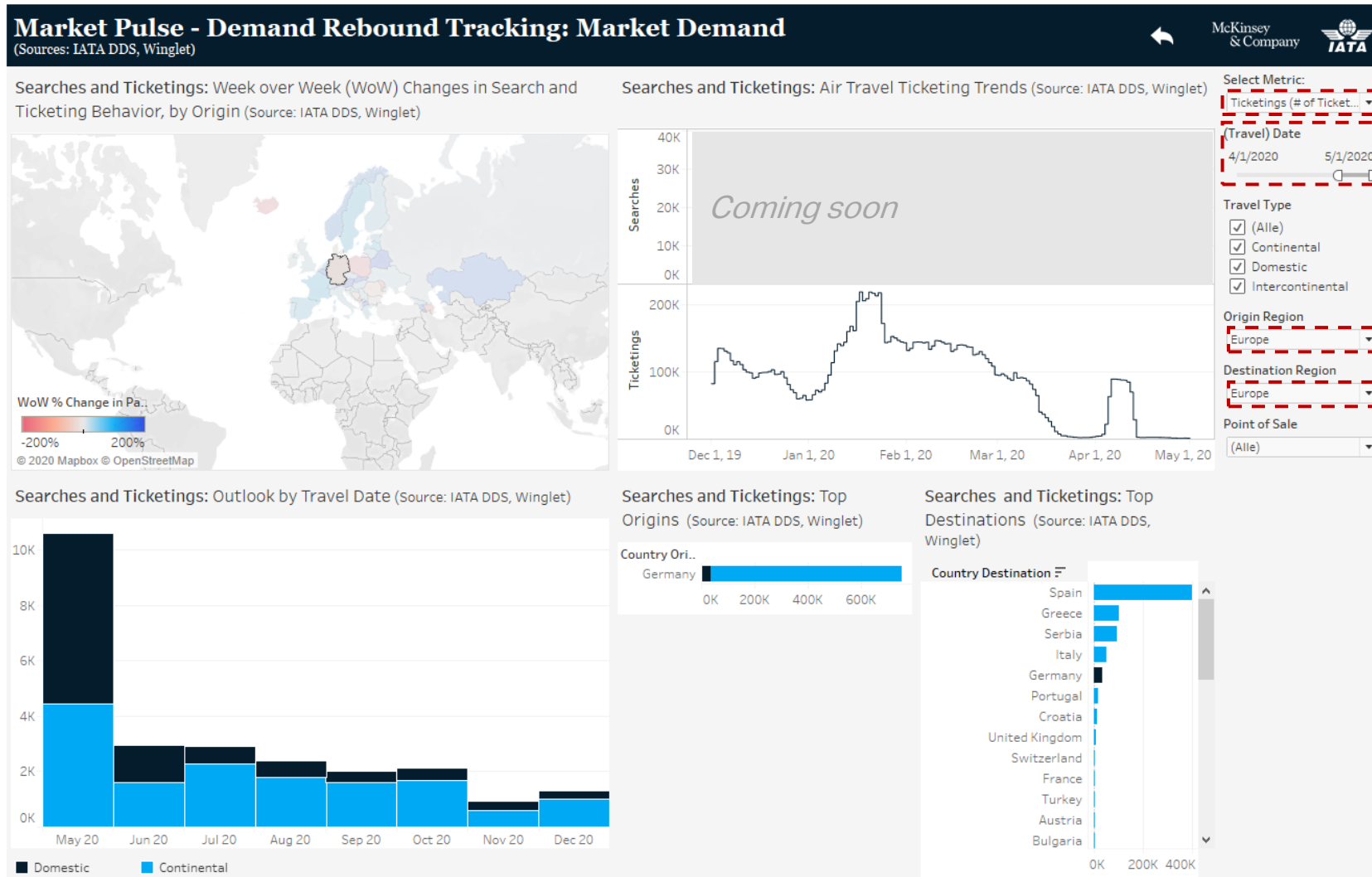
# In the short-term, we observe a high number of cancellations of cross-border flights



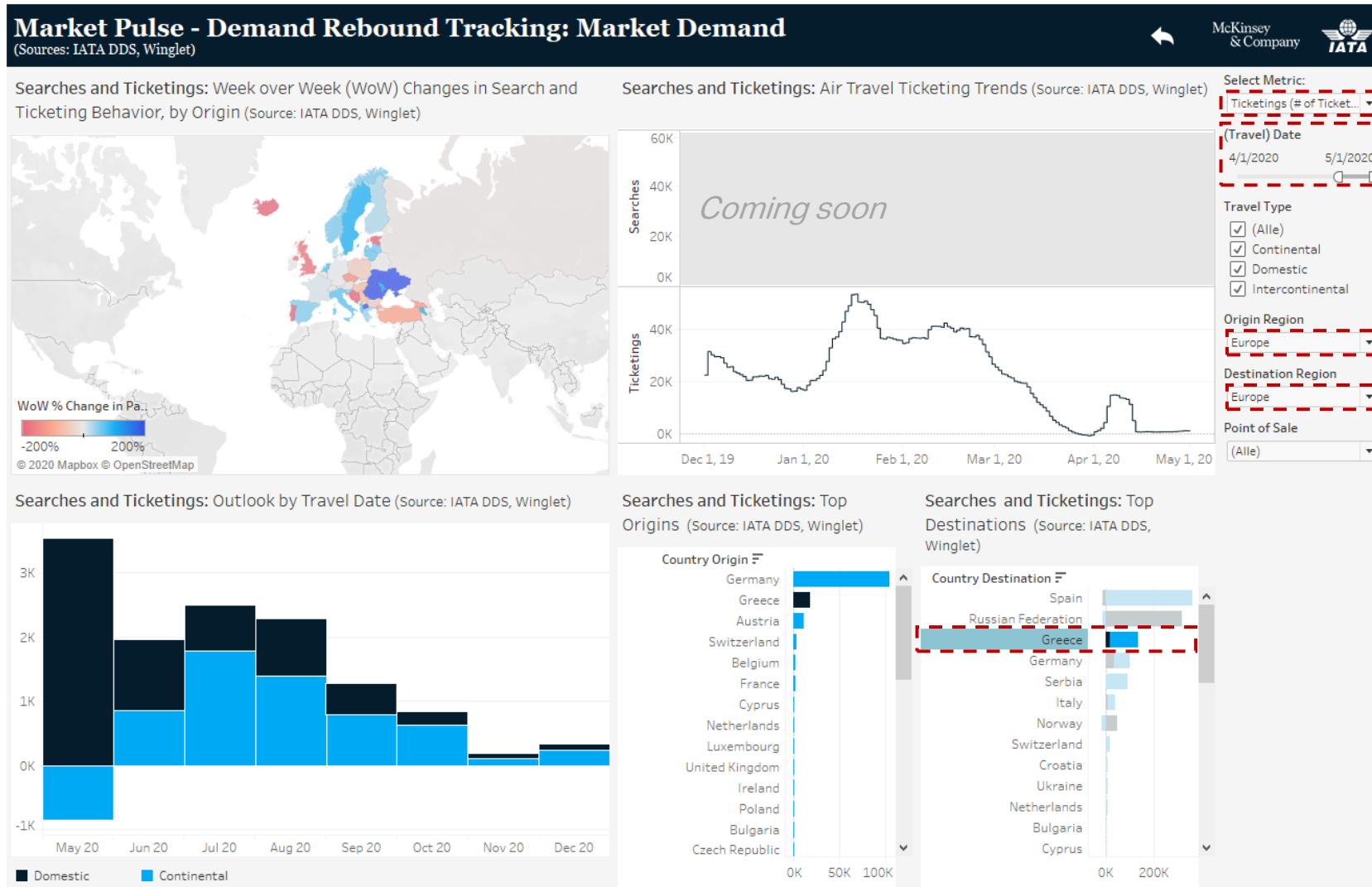
# Bookings in Europe start to pick up slightly for travel during summer holiday season



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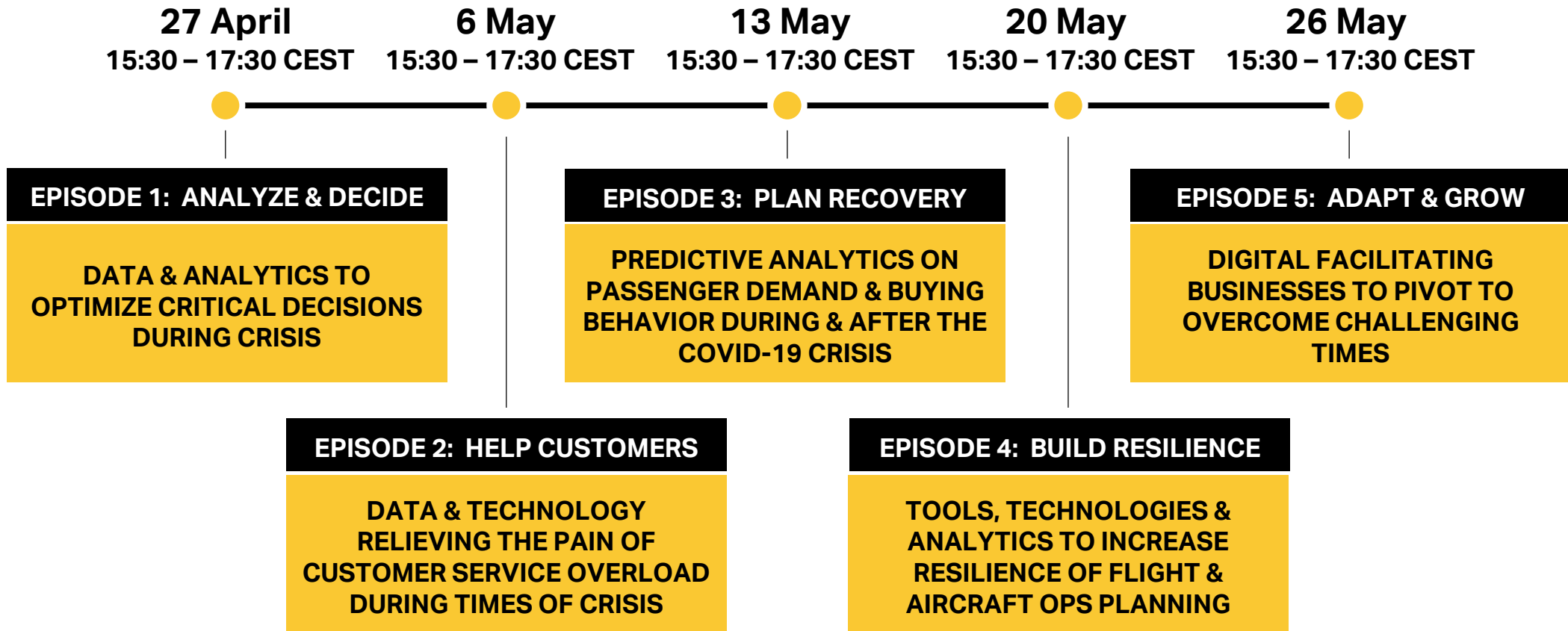
**Audience:** Live Poll (Demand in 2021)

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# Aviation Data & Digital Webinar Series



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[iata.org/addws](https://iata.org/addws)



**Thank you, and see you soon!**