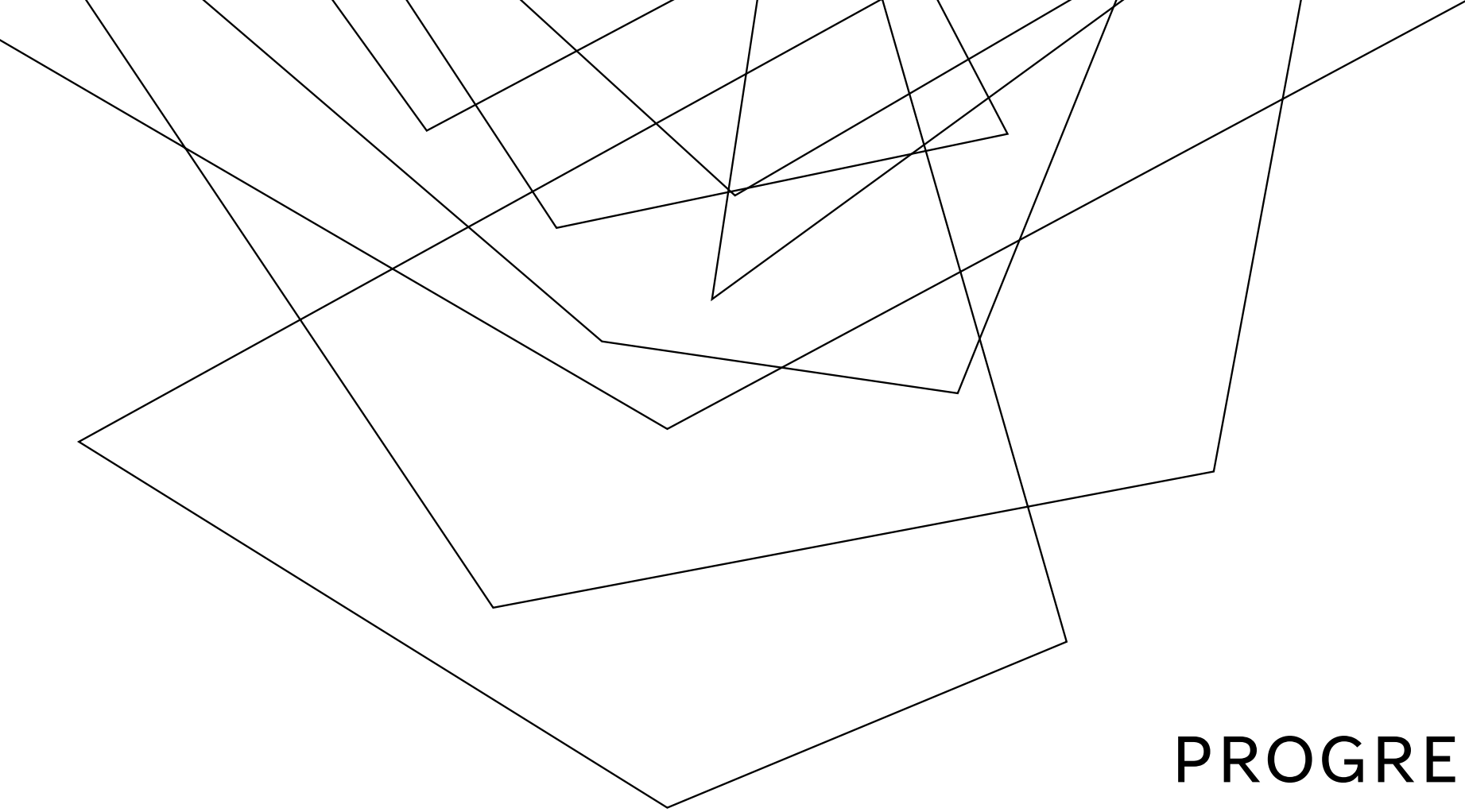


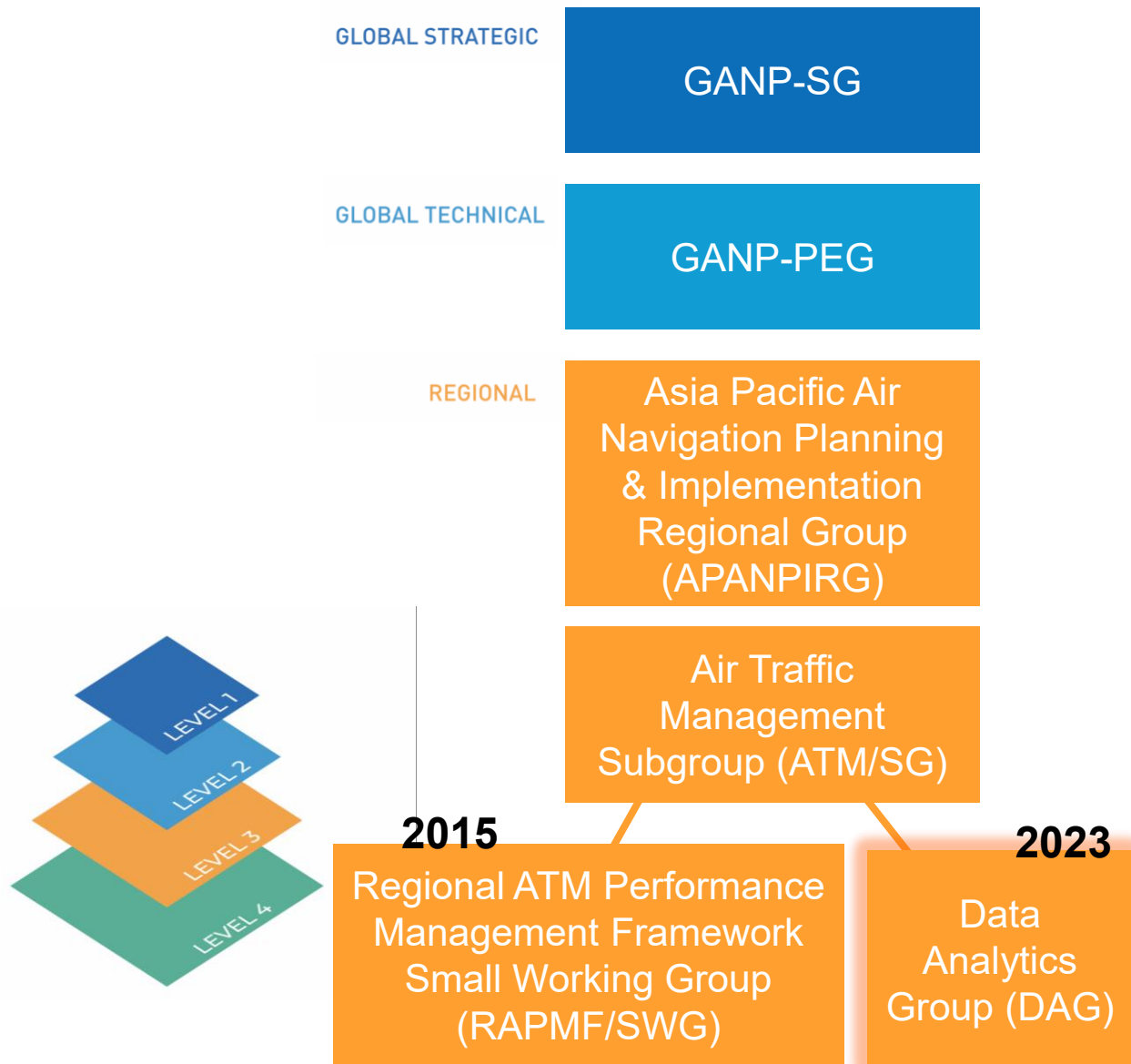
Abstract geometric lines in the top-left corner of the slide, consisting of several overlapping, irregular polygons and lines in black, creating a complex, layered effect.

PROGRESS OF APAC DATA ANALYTICS GROUP

ATM/SG/13

25 – 29 August 2025

Background: Formation of Data Analytics Group (DAG) under the ambit of ATM/SG, reporting to APANPIRG



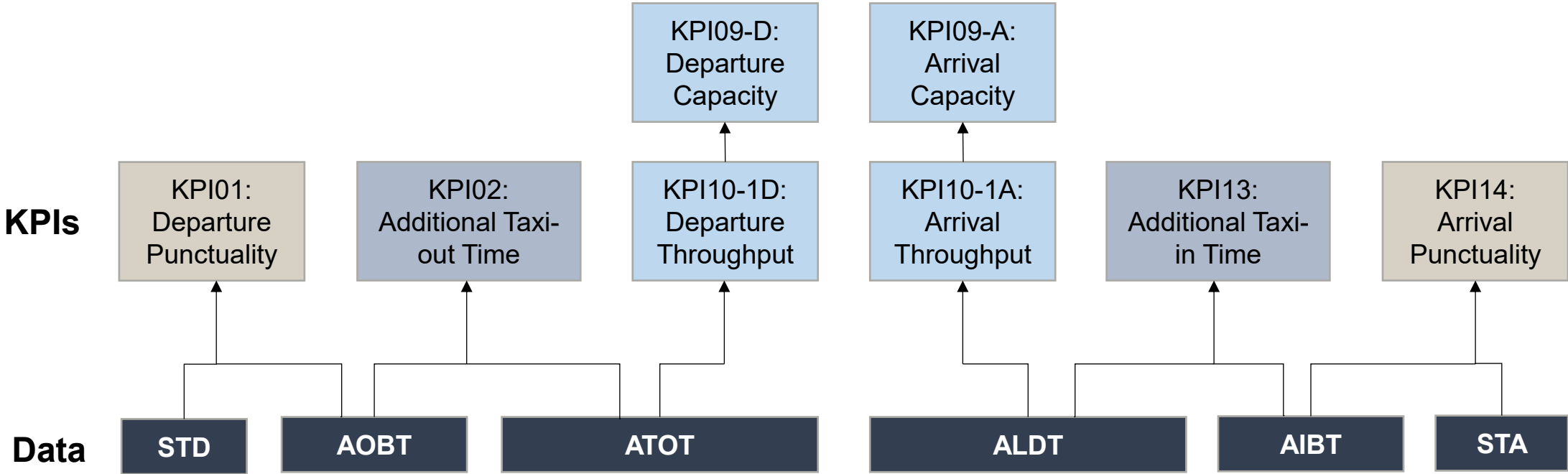
- In 2019, APANPIRG/30 endorsed the ATM Performance Management Framework (ATM/PMF) developed by the Regional ATM Performance Management Framework Small Working Group (RAPMF/SWG)
- APAC States/Administrations were urged to consider the ATM/PMF and initiate their own performance measurement practice to support the achievement of the Seamless ATM and regional ATFM goals in the APAC region
- The DAG was officially formed at ATM/SG/11 in 2023 to continue building on this foundation to expand harmonized reporting across the region

Progress of the APAC DAG

- The DAG had since convened 6 meetings – 4 online and 2 physical
 - Last physical meeting held on 14-15 May 2025 in Tianjin, China
- Building on the analysis conducted in 2024, DAG members have completed a comprehensive analysis using one year of performance data
 - In 2024, the analysis was conducted using three-month data to allow States to familiarise themselves with the process and kickstart data collation at a manageable scale.
 - Following this successful initial phase and increased familiarity with the data collection and measurement process, the analysis was conducted with one-year data

One year data analysis exercise was conducted

- Eight ICAO GANP KPIs were selected to examine its members' readiness for harmonized and regular reporting:



KPA	KPI	GANP variant	GANP KPI Code
Capacity	Airport peak capacity	Departure	KPI09-D
		Arrival	KPI09-A
Capacity	Airport peak throughput	Departure	KPI10-1D
		Arrival	KPI10-1A
Efficiency	Additional taxi-out time	Advanced	KPI02-2
Efficiency	Additional taxi-in time	Advanced	KPI13-2
Predictability	Departure punctuality	± 15 mins	KPI01-2A
Predictability	Arrival punctuality	± 15 mins	KPI14-2A

Standardised data collection template distributed to all members to ensure consistent reporting format

- Data reported at a monthly granularity level
- States with incomplete datasets are encouraged to share any available information, as even limited data (e.g., one week) provides meaningful insights

Airport	Date	Phase	No. of Flights	(-INF, -15)	[-15,15]	(15, INF)
ZZZZ	2025-06	DEP	12,345	190	8,386	3,769
ZZZZ	2025-07	DEP	12,346	114	8,064	4,168
ZZZZ	2025-08	DEP	12,347	137	8,886	3,324
ZZZZ	2025-06	ARR	12,348	2,203	6,887	3,258
ZZZZ	2025-07	ARR	12,349	2,038	6,237	4,074
ZZZZ	2025-08	ARR	12,350	2,347	6,619	3,384

Template for Predictability (KPI01,14)

Airport	Date	KPI02-1	KPI02-2	KPI13-1	KPI13-2
ZZZZ	2025-06	10.03	4.85	2.07	1.75
ZZZZ	2025-07	11.71	5.27	2.34	1.83
ZZZZ	2025-08	11.89	5.32	2.40	1.90

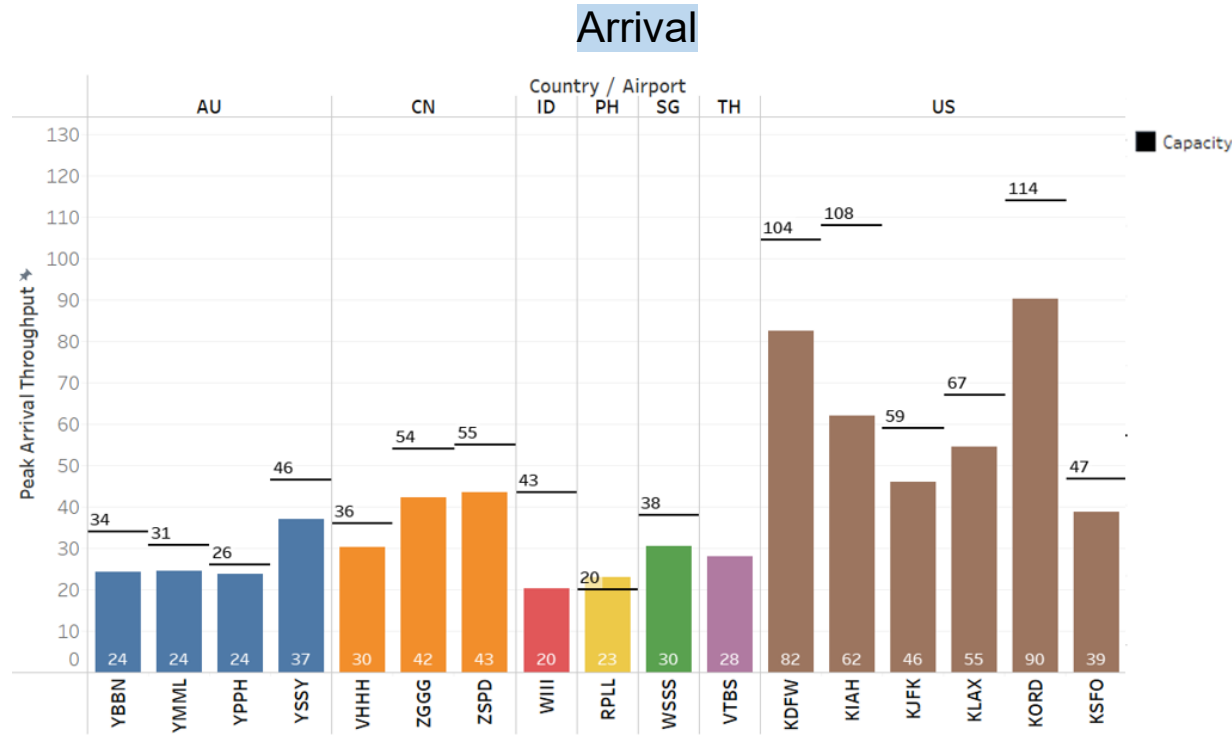
Template for Efficiency (KPI02,13)

Airport	Date	KPI09-AD	KPI10-1AD	KPI09-A	KPI10-1A	KPI09-D	KPI10-1D
ZZZZ	2025-06	73	45	38	27	40	24
ZZZZ	2025-07	73	47	38	28	40	25
ZZZZ	2025-08	73	47	38	27	40	24

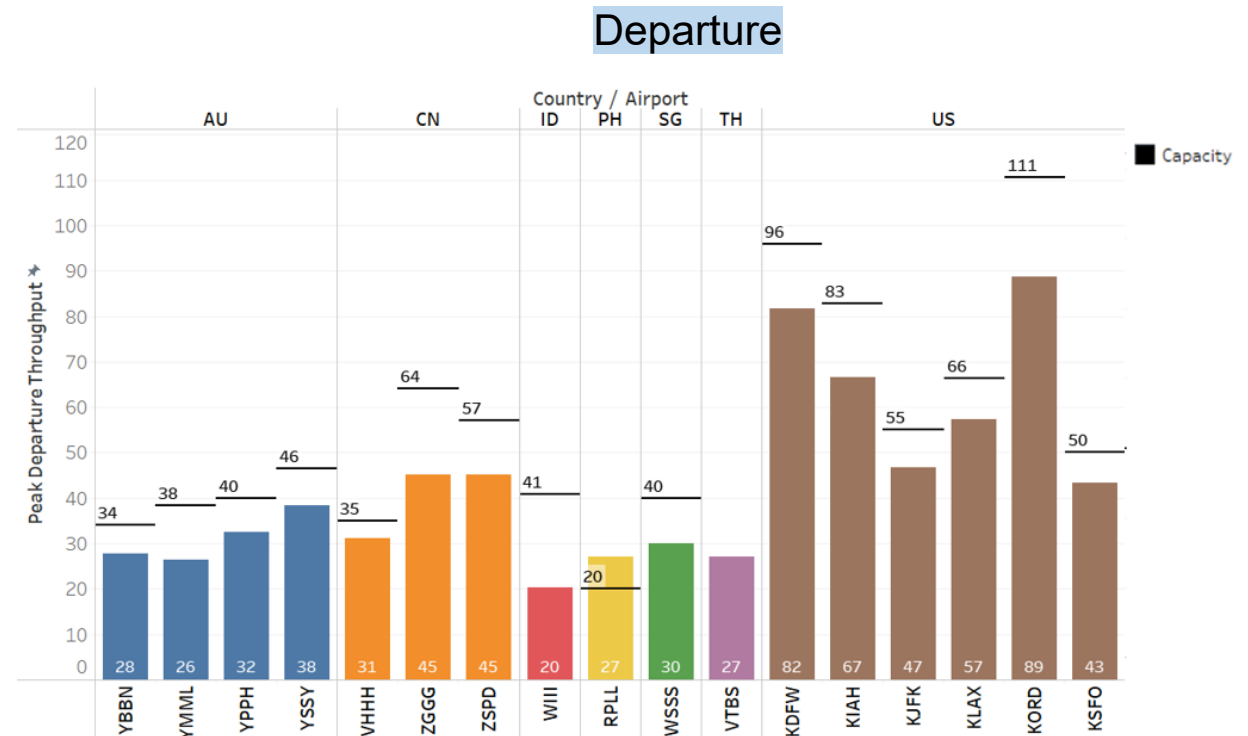
Template for Capacity (KPI09,10)

Results and analysis from one-year data exercise

Capacity



Arrival capacities and peak arrival throughputs (KPI09-A, KPI10-1A)

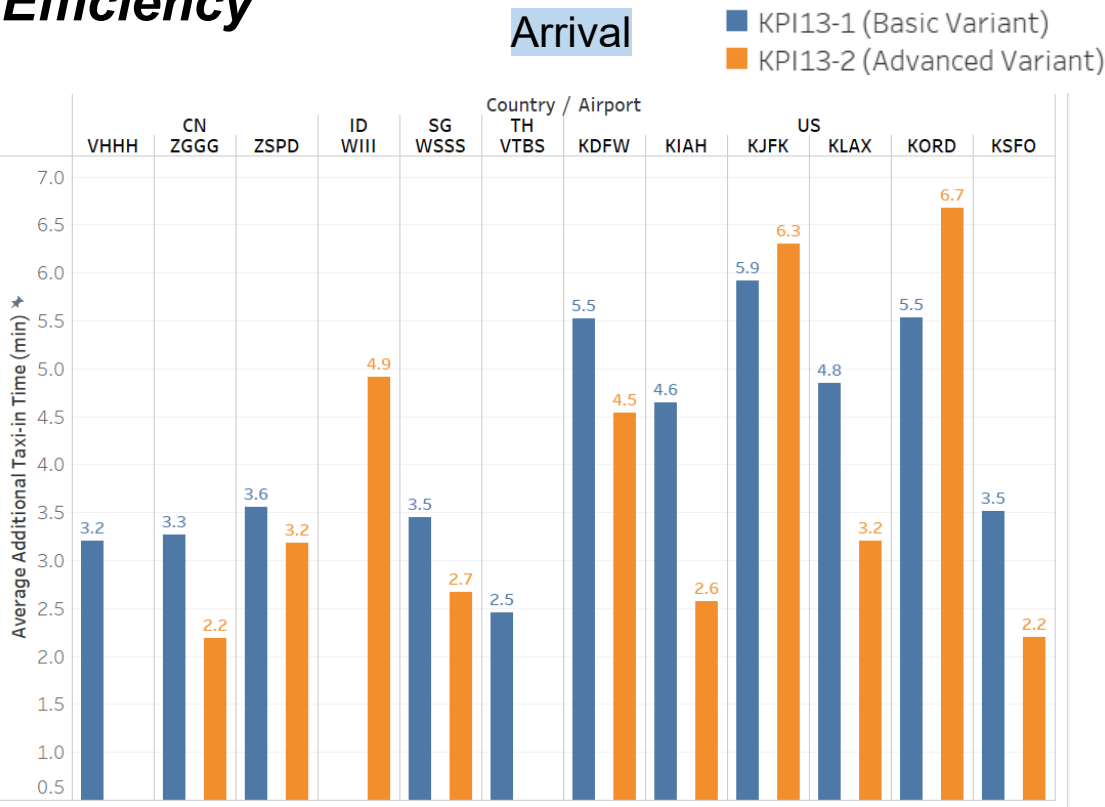


Departure capacities and peak departure throughputs (KPI09-D, KPI10-1D)

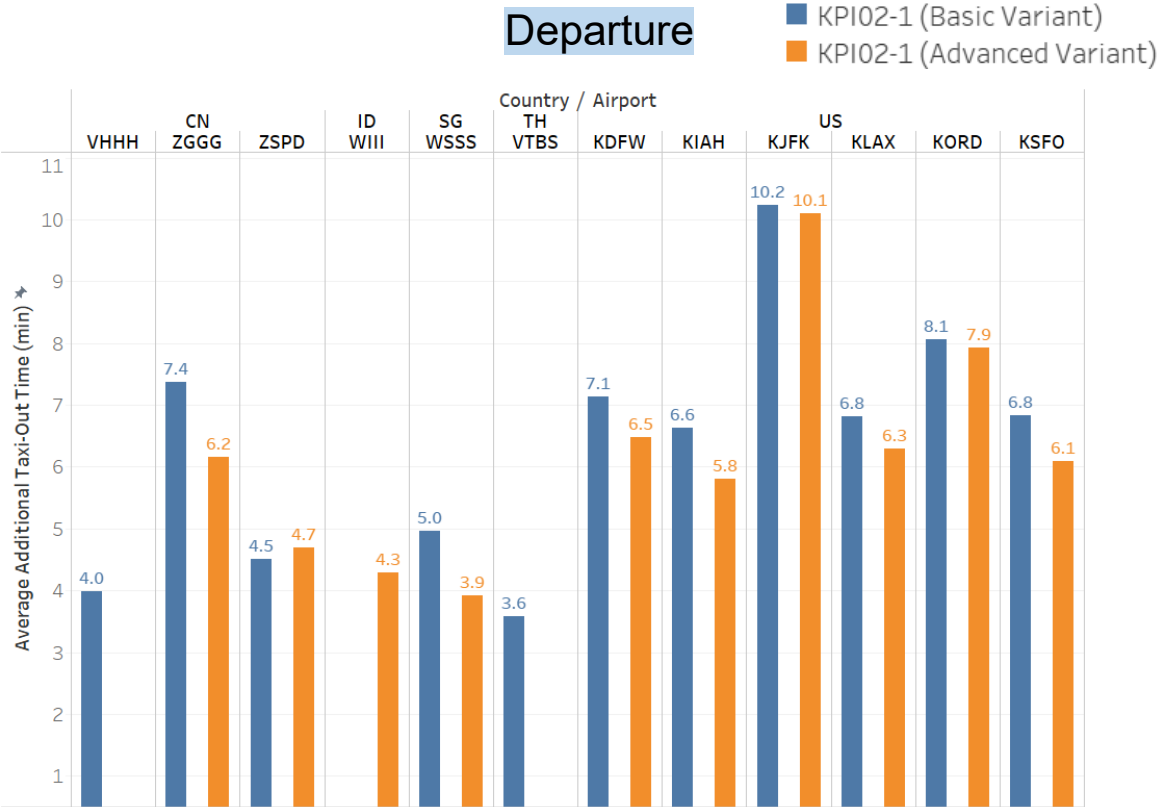
- While majority of airports were operating below their peak capacities, Ninoy Aquino international airport (RPLL) in Manila was operating above the peak capacity.
 - A 2016 study conducted by the University of the Philippines suggested the potential to increase capacity to 47-52 movements per hour, however, these recommendations were not implemented due to safety considerations; a joint memorandum was issued to restrict general aviation and aerial works traffic at RPLL to manage the movement rate

Results and analysis from one-year data exercise

Efficiency



Additional Taxi-In Time for Basic and Advanced Variants (KPI13-1, KPI13-2)

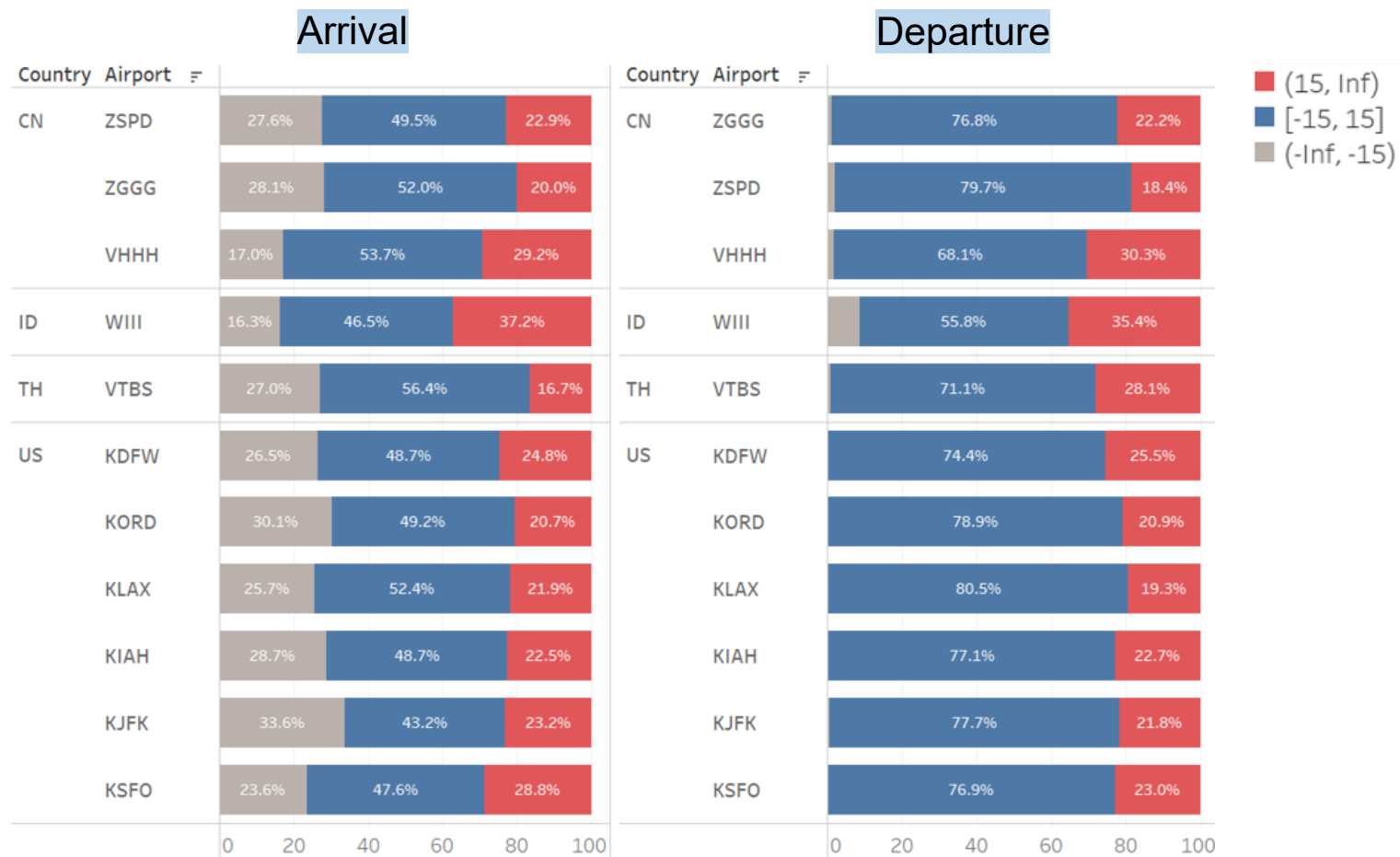


Additional Taxi-Out Time for Basic and Advanced Variants (KPI02-1, KPI02-2)

- Advanced variant produced a different additional taxi-in and taxi-out time as compared to the basic variant. Airport layout and location of gates relative to runways impact the difference between the basic and the advanced taxi time variants.
- Taxi-out times are generally longer than taxi-in times across all airports. Taxi-out times are affected by departure queue management at runway holding points which is less pronounced during taxi-in operations, where arriving aircraft typically proceed directly to their assigned gates with minimal holding

Results and analysis from one-year data exercise

Predictability



Range of arrival and departure punctuality across airports (KPI14, KPI01)

- Across all airports, arrival on-time performance was observed to be poorer as compared to departures
- States have implemented several initiatives to improve OTP, demonstrating region's commitment to improving predictability

Results and analysis from one-year data exercise

Overall key insights

1. Performance variations across States reflect the diverse operating environments in the region. Several key factors contribute to these differences:

- **Traffic composition** - airports handling predominantly international flights facing distinct challenges in predictability due to the complexity of long-haul operations and network effects, compared to those managing mainly domestic operations
- **Infrastructure configuration** - multi-runway airports typically demonstrate different efficiency patterns in their taxi times compared to single-runway facilities
- **Weather patterns** - airports in tropical regions contends with more seasonal monsoons and visibility constraints
- **Ratio of passenger to cargo operations** - distribution of traffic throughout the day influence both capacity utilisation and predictability metrics

These operational contexts, combined with local airspace characteristics and ground movement constraints, collectively shape the performance profiles observed across airports in the region

Results and analysis from one-year data exercise

Overall key insights

2. Key Performance Areas hold notable interdependencies

- **Capacity and Predictability** - airports operating closer to their declared capacity generally demonstrate lower OTP
- **Efficiency and Predictability** - airports experiencing longer additional taxi-in times typically record poorer arrival punctuality.

This highlights a need for a balanced optimization approach, where improvements in one performance area are aligned with and support outcomes in others

3. Regional trends indicate that major hub airports share common characteristics

- Departure punctuality generally exceeds arrival punctuality, likely reflecting the greater control that airports and airlines have over departure processes compared to arrivals, which are more susceptible to upstream variability
- Additional taxi-out times generally exceed taxi-in times across all airports, pointing to a common regional characteristic in departure management practices in runway sequencing and departure queue management

Next steps for the DAG and action by meeting

Next steps for DAG

- Expand data collection scope to include 3 additional GANP KPIs:
 - KPI08 – Additional Time in Terminal Airspace
 - KPI11 – Airport Throughput Efficiency
 - KPI16 – Additional Fuel Burn
- Expand analytical scope to encompass cross-boundary issues that affect multiple States and regional operational challenges
 - Incorporate root cause analysis to better understand the underlying drivers of observed performance variations and enable more targeted improvements
 - Adopt a more integrated approach that identifies emerging issues, shares best practices, and proposes data-driven solutions to enhance overall ATM performance in the Asia Pacific region

Action by meeting

- Note the information contained in this paper;
- Encourage States who are not currently members to join the DAG; and
- Encourage States to participate in the ICAO Asia/Pacific Data Analytics Group to share best practices and solve common problems.