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CENTRAL AIR TRAFFIC FLOW MANAGEMENT (C-ATFM) – INDIA

Topics



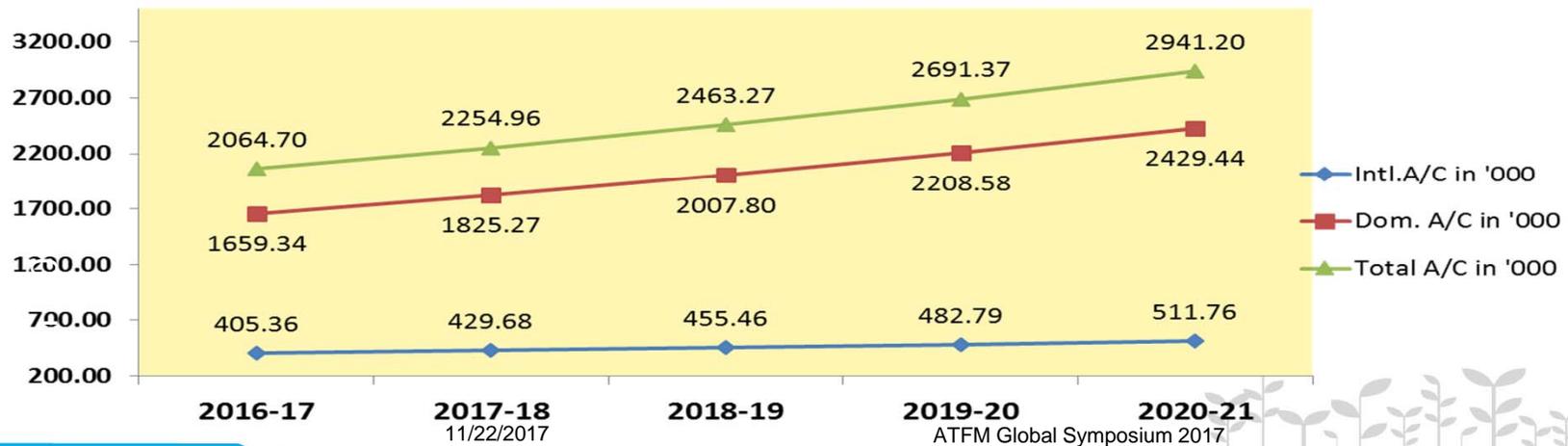
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- Topics
 - The Need
 - C-ATFM Network
 - C-ATFM Operations
 - Current Status and Activities
 - Challenges in Implementation
 - Future Developments

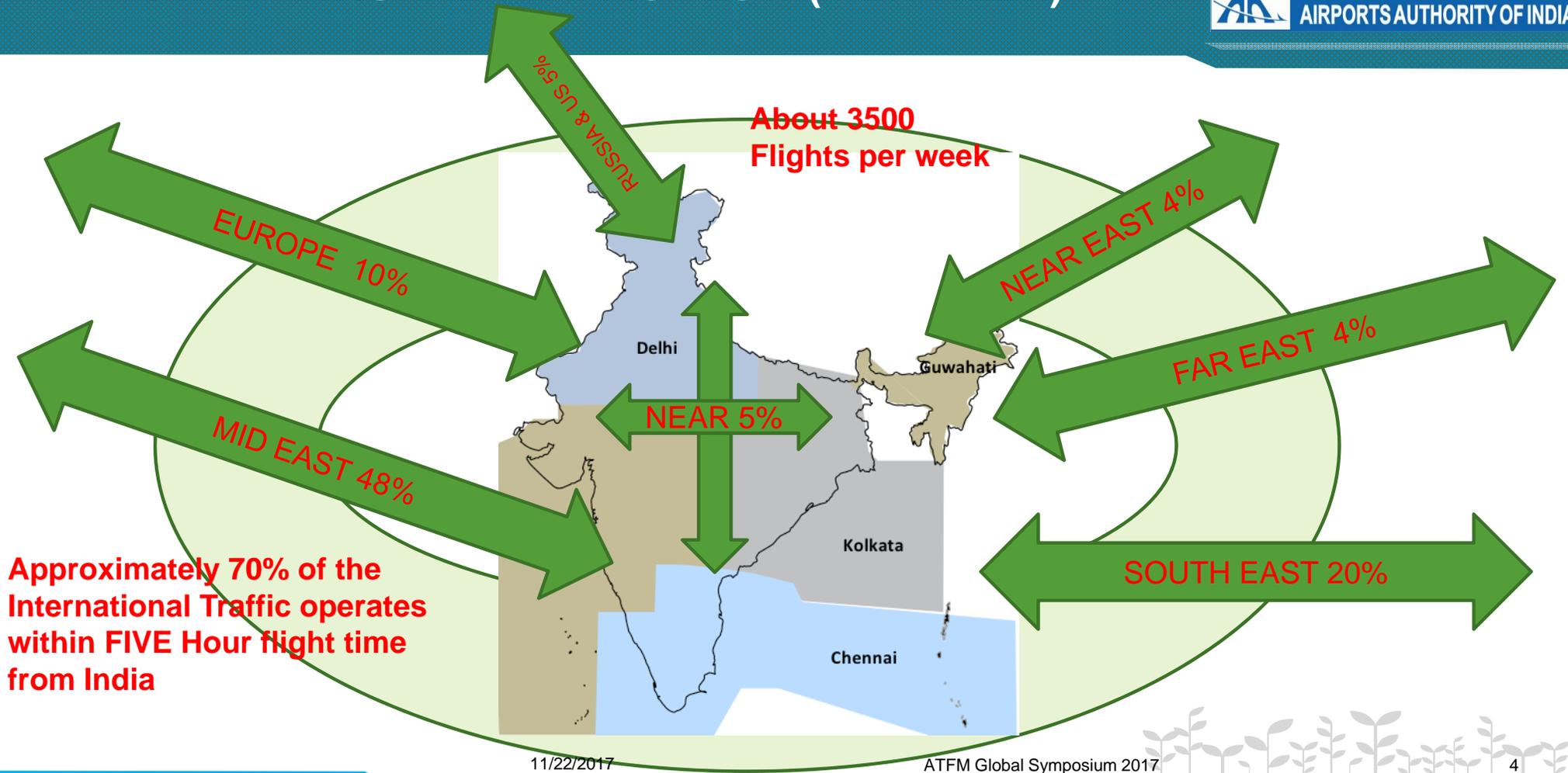


Air Traffic Forecast 2016-2021

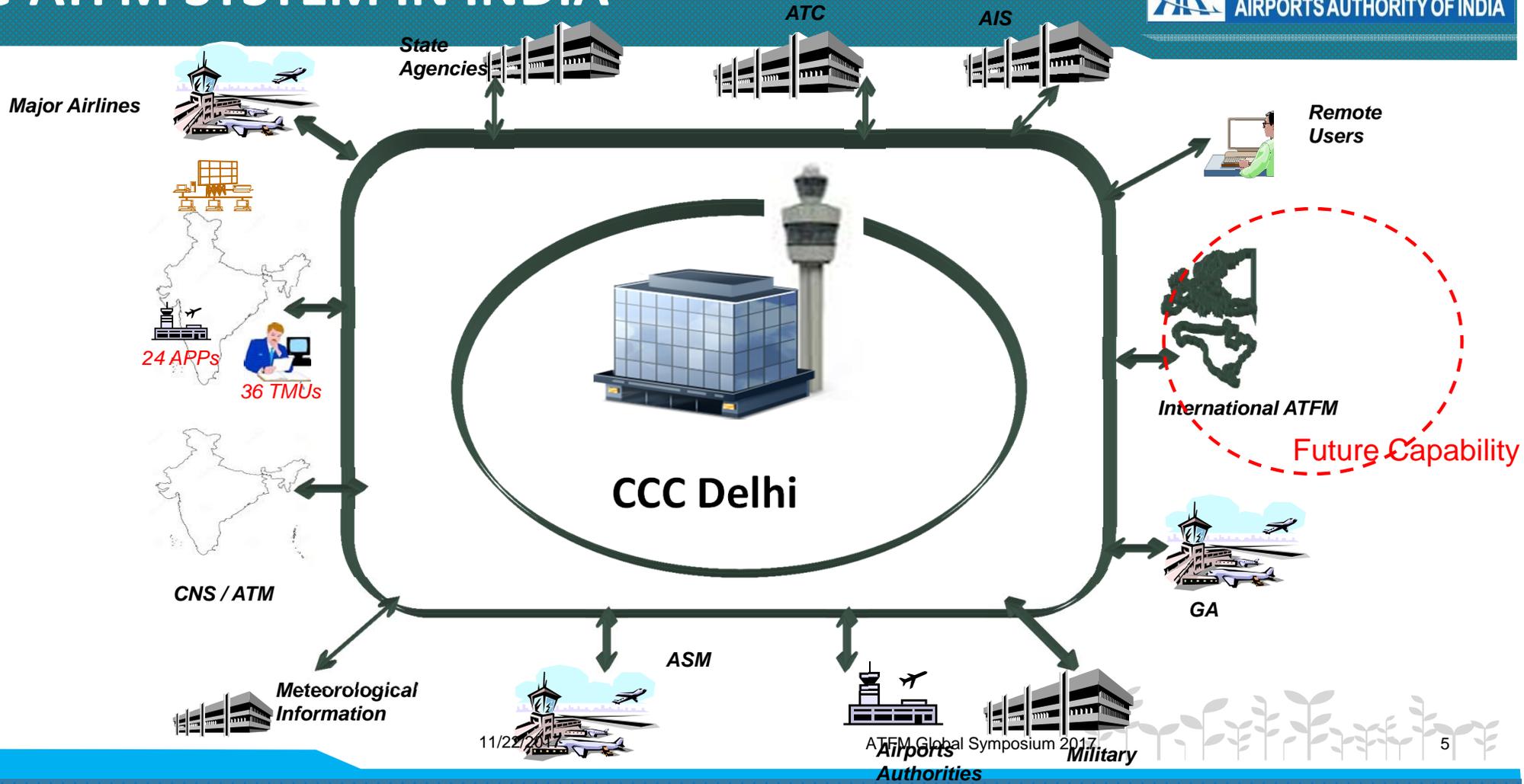
YEAR	International	Domestic	Total
	A/c Movements (in '000)	A/c Movements (in '000)	A/c Movements (in '000)
2016-17	405.36	1659.34	2064.70
2017-18	429.68	1825.27	2254.96
2018-19	455.46	2007.80	2463.27
2019-20	482.79	2208.58	2691.37
2020-21	511.76	2429.44	2941.20
CAGR	6.4%	11.4%	10.4%



INTERNATIONAL TRAFFIC FLOW (PER WEEK)

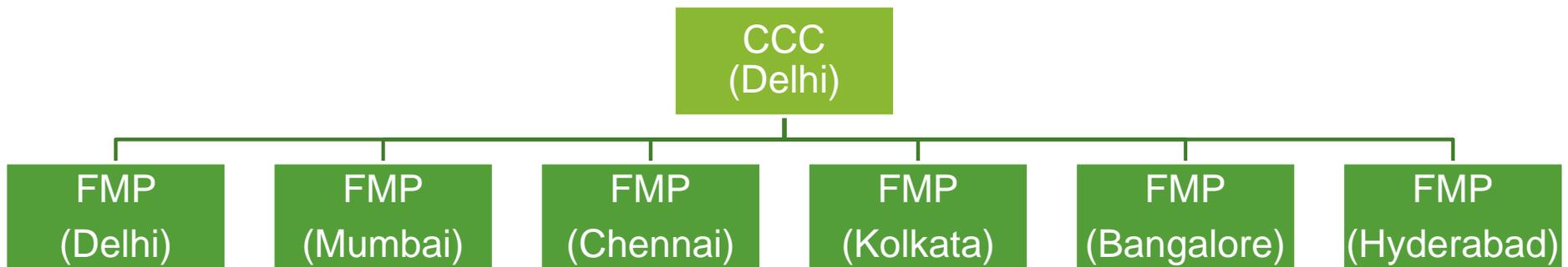


C-ATFM SYSTEM IN INDIA



C-ATFM ORGANISATION

- Phase 1 C-ATFM operations ATFM operation in India started w.e.f. 27/04/2017.
 - a CCC at Delhi and
 - 6 FMPs at the major ACCs of
 - Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad
 - These cities' airports handle about 60% of Indian traffic



Ground Delay Program (GDP)



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- The C-ATFM System applies regulations to arrivals to a constrained airport in the form of GDP.
- The departures departing from Indian airports are given a Calculated Take Off Time (CTOT) .
- The CTOT is the expected time of departure. The airline accordingly adjusts the EOBT.
- The CTOT window is (-5' to +10') .
- CATFM Phase I operations mainly concentrate on GDP program.



CCC Assessment Process



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- Which airports are congested?
- When and for how long? To what extent?
- Can the situation be managed without restrictions?
- How many aircraft are impacted?
- What time is the expected impacted?
- Do we have the time for customers' collaboration?
- What measures are to be used to balance demand with capacity (i.e., GDP, GS)



Process of Implementation



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Phase I 2015-17

- Airport (Ground)Delay Program
- Airport Arrival Constraints e.g. weather, runway outage
- Addressing constraints of Six Major Airports

Phase II 2017-18

- Ground Delay Program and Airspace Flow programs supporting Airspace Congestion & DCB at most airports across Country
- Interconnectivity among ATFM –ACDM systems
- Availability of WEB Services for all stakeholders

Phase III 2019 onwards

- Ability to exchange information with adjacent ATFM Systems
- Integration with SWIM and 4D-Trajectory Management

ATFM Parameters being monitored



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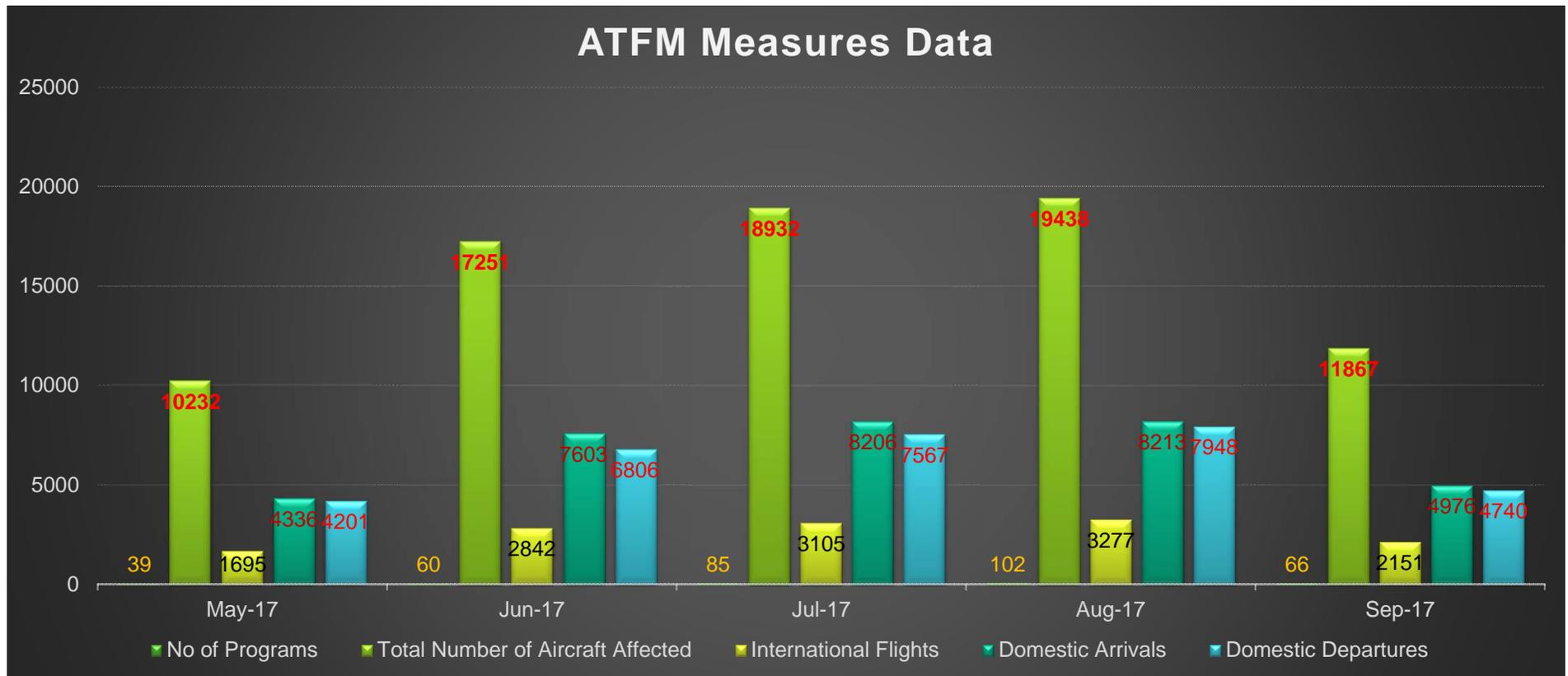
ATFM Program Impact	ATFM Ground delay statistics (ATFM ground delay defined as CTOT-ETOT)	ATFM Compliance Measurement
ATFM Scenario	ATFM Delay statistics	Overall compliance rate
Affected Flight statistics	ATFM Delay Distribution	ATFM departure slot adherence distribution
	Month wise Average ATFM Delay	Adherence rate of Airline operators
		Adherence rate of Regions
		Adherence rate of Airports within different Regions



ATFM Measures Since May 17



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CHALLENGES

- Data availability for network-wide demand projection – Eg., Flight Plan Data, No Ops Data, delay, change
- Flexibility to adapt the plan
- Capacity can change, the plan must be able to change with it
- Aircraft operators can modify flight priorities and schedules
- Non adherence to CTOTs and Flight Schedule;
- Active Participation of Stakeholders;
- Reliable Met Forecast ;
- Evolution of C-ATFM System;
- Integration of ACDM with ATFM
- Airspace Reorganization – WIP;
- Coordination with Military – FUA



- Implementation of ATFM measures in Indian Airports –
 - Phase I commenced on 27th April 2017 for 6 airports
 - Phase II September 2018–Nation wide application
- Cross Border ATFM – 2019 ?
- Integration with Global ATFM.