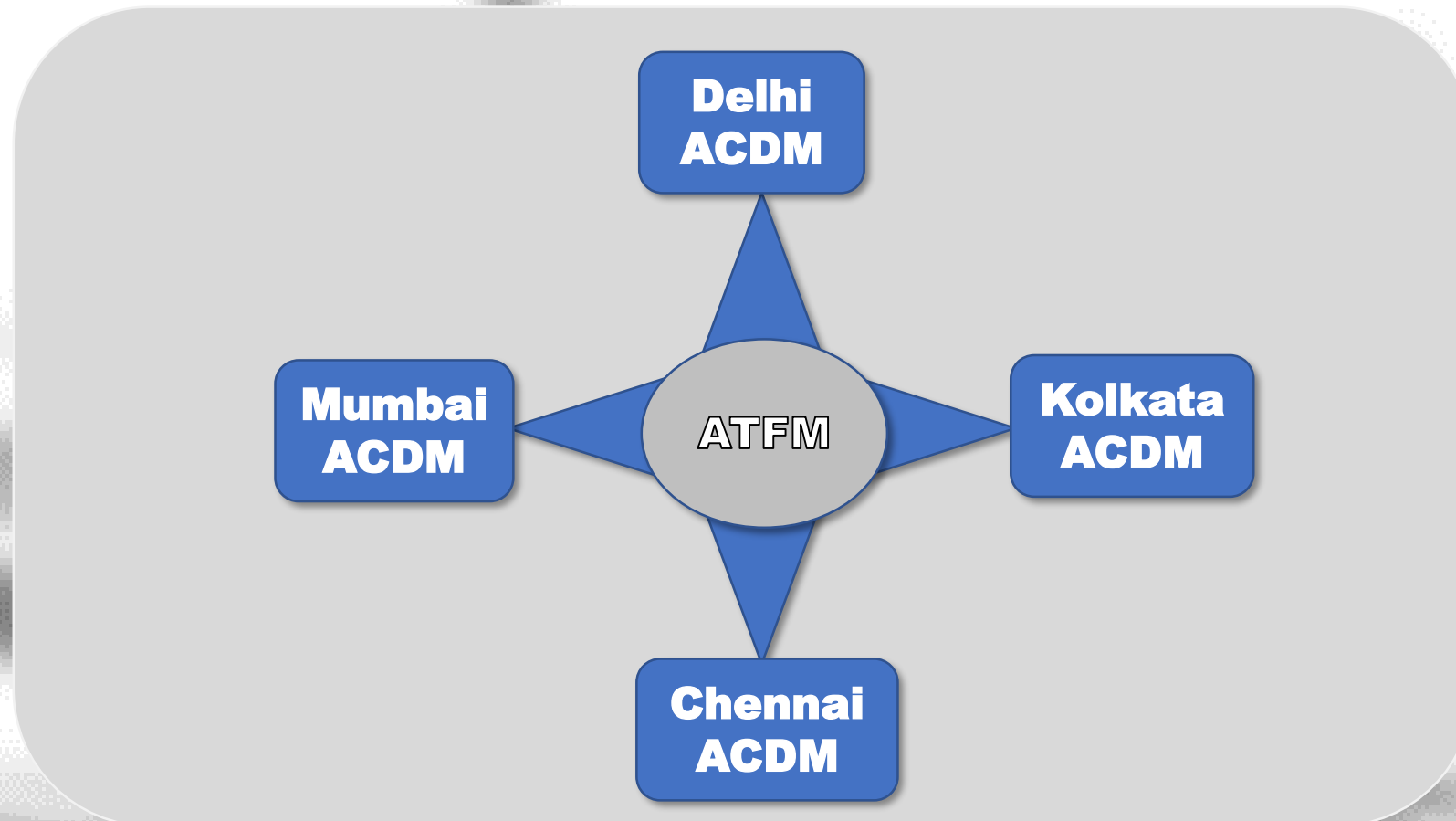


AIRPORTS AUTHORITY OF INDIA



ACDM-ATFM INTEGRATION

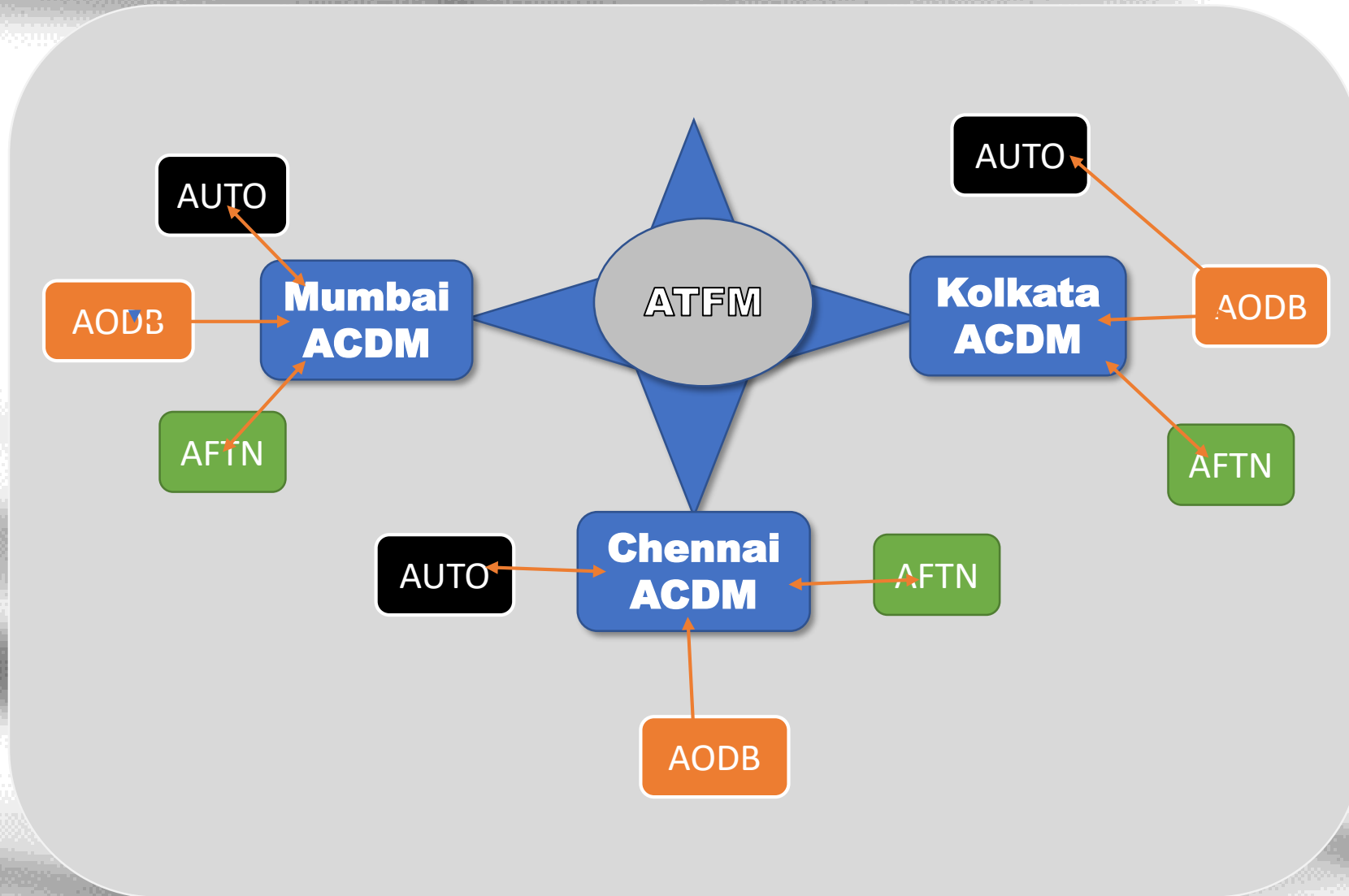


What is ATFM-ACDM Integration?



- ATFM-ACDM integration is a process to achieve automatic data exchange between ATFM and ACDM systems.

AIRPORTS AUTHORITY OF INDIA

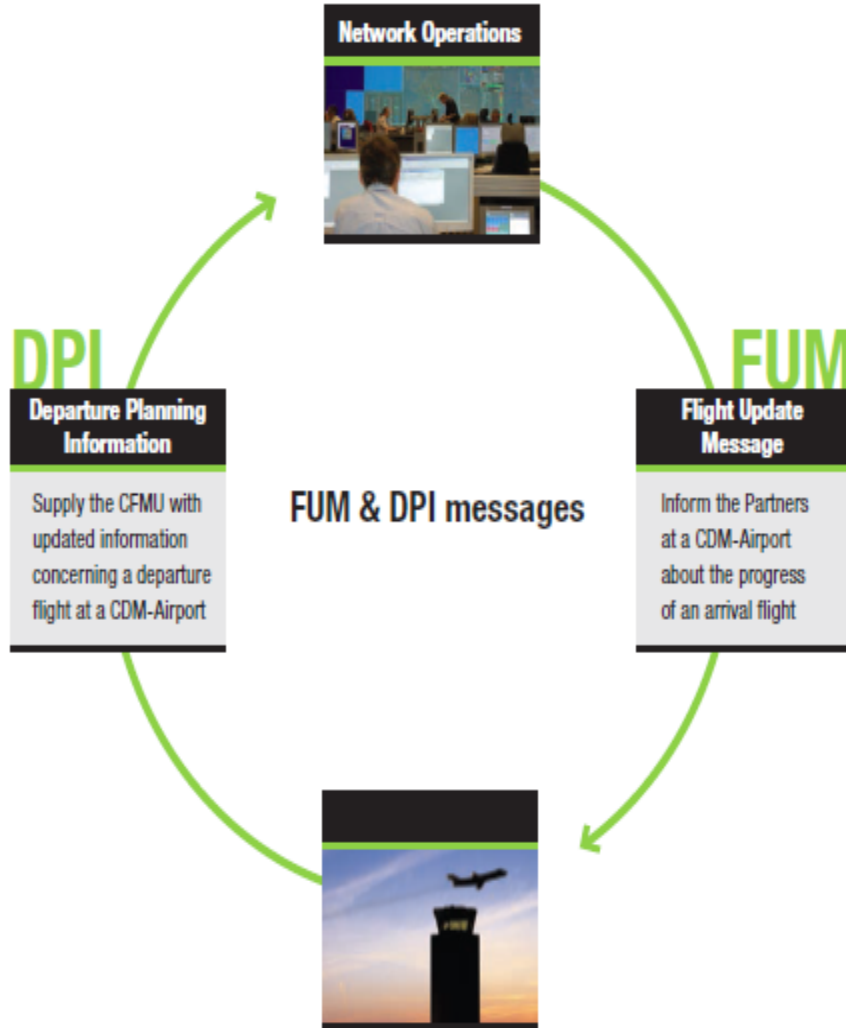


What is ATFM-ACDM relationship?



- The scope of ACDM is Airport specific whereas ATFM caters to wide airspace comprising several Airports.
- In India, CATFM at New Delhi serves the nation's airspace. Integration of ACDM and ATFM will benefit both the system by exchanging relevant, timely and reliable data.
- Collaborative Flight Update, an important concept element of ACDM, will require integration of ACDM and ATFM.

What is ATFM-ACDM relationship?



5 Collaborative Management of Flight Updates enhances the quality of arrival and departure information exchanges between the Network Operations and the CDM airports. →

4 (CDM in) Adverse Conditions achieves collaborative management of a CDM airport during periods of predicted or unpredicted reductions of capacity. ↑

3 (Collaborative) Pre-departure Sequence establishes an off-block sequence taking into account operators preferences and operational constraints. ↑

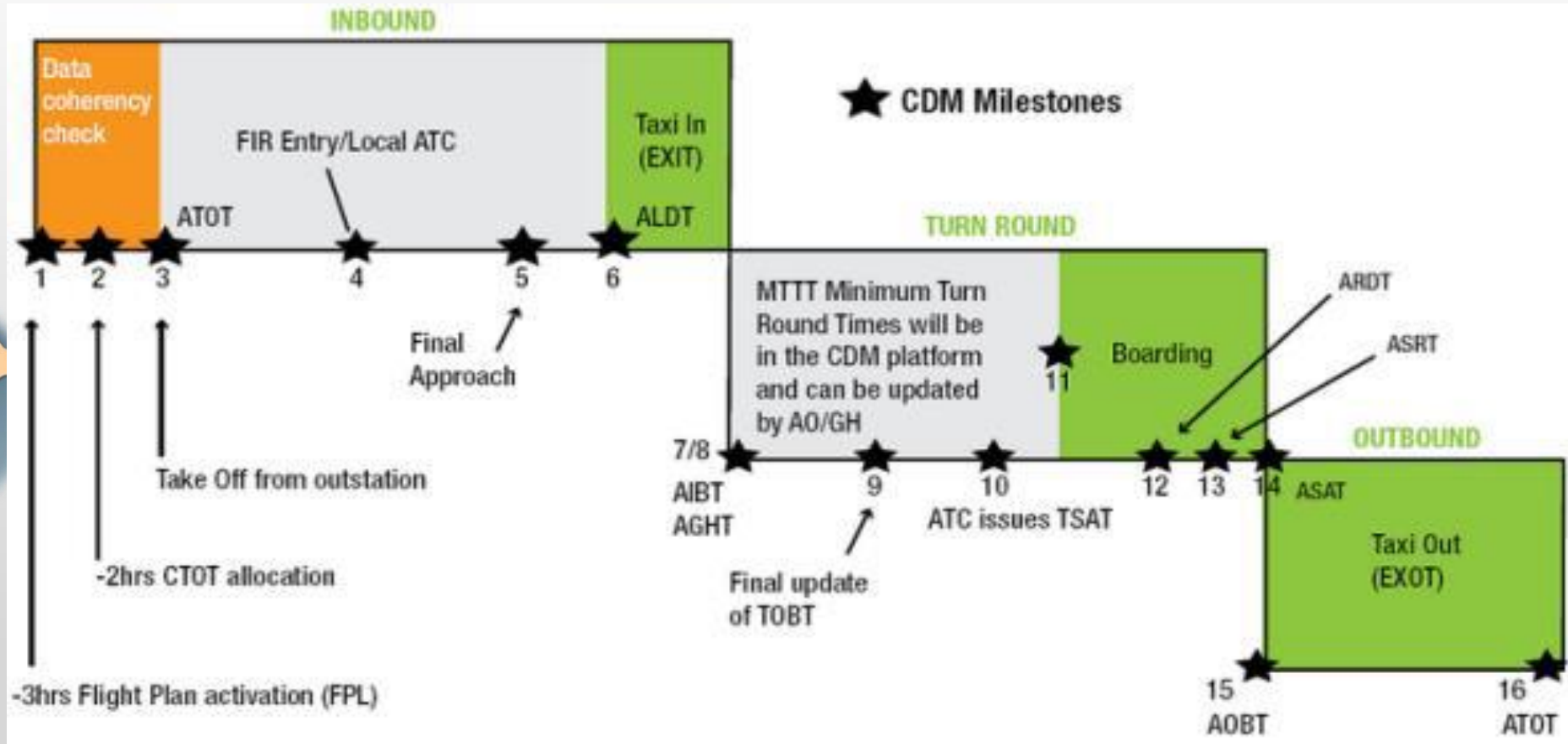
2 Variable Taxi Time is the key to predictability of accurate take-off in block times especially at complex airports. ↑

Airport CDM Concept Elements

(Airport CDM) Information Sharing is essential in that it forms the foundation for all the other elements and must be implemented first. ✈️ →

1 The Milestones Approach (Turn-Round Process) aims to achieve common situational awareness by tracking the progress of a flight from the initial planning to the take off. ↑

What is ATFM-ACDM relationship?





STRATEGIC

ATFM

PRE TACTICAL

ATFM / ACDM

TACTICAL

*Dynamic
Demand
Capacity
Management*

ACDM

*Information Sharing,
Milestone Approach, Pre-
Departure Sequencing,
Variable Taxi Times,
Collaborative Flight Data,
Updates Adverse
Conditions*

ACDM/DMAN

*Departure
Sequencing,
Spacing, and
Runway
Allocation*

*Arrival
Sequencing,
Spacing, and
Runway
Allocation*

AMAN

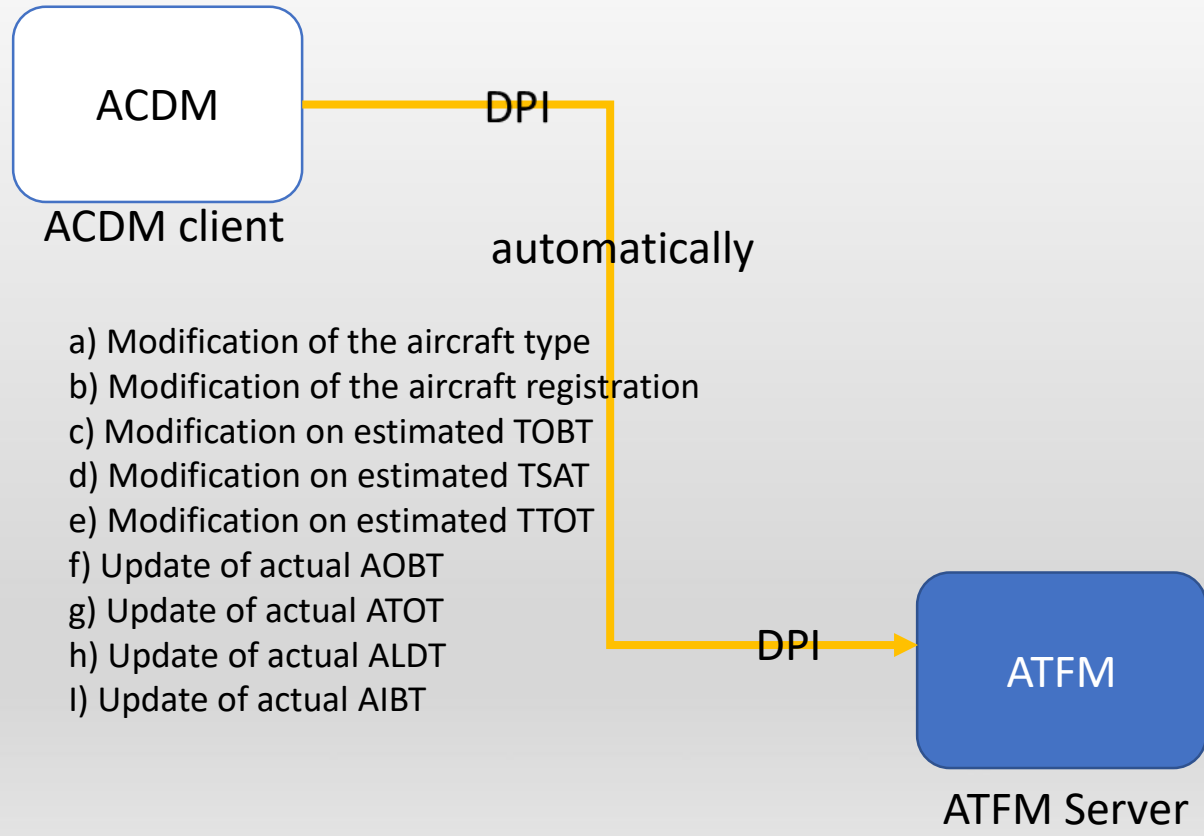


Project Description:

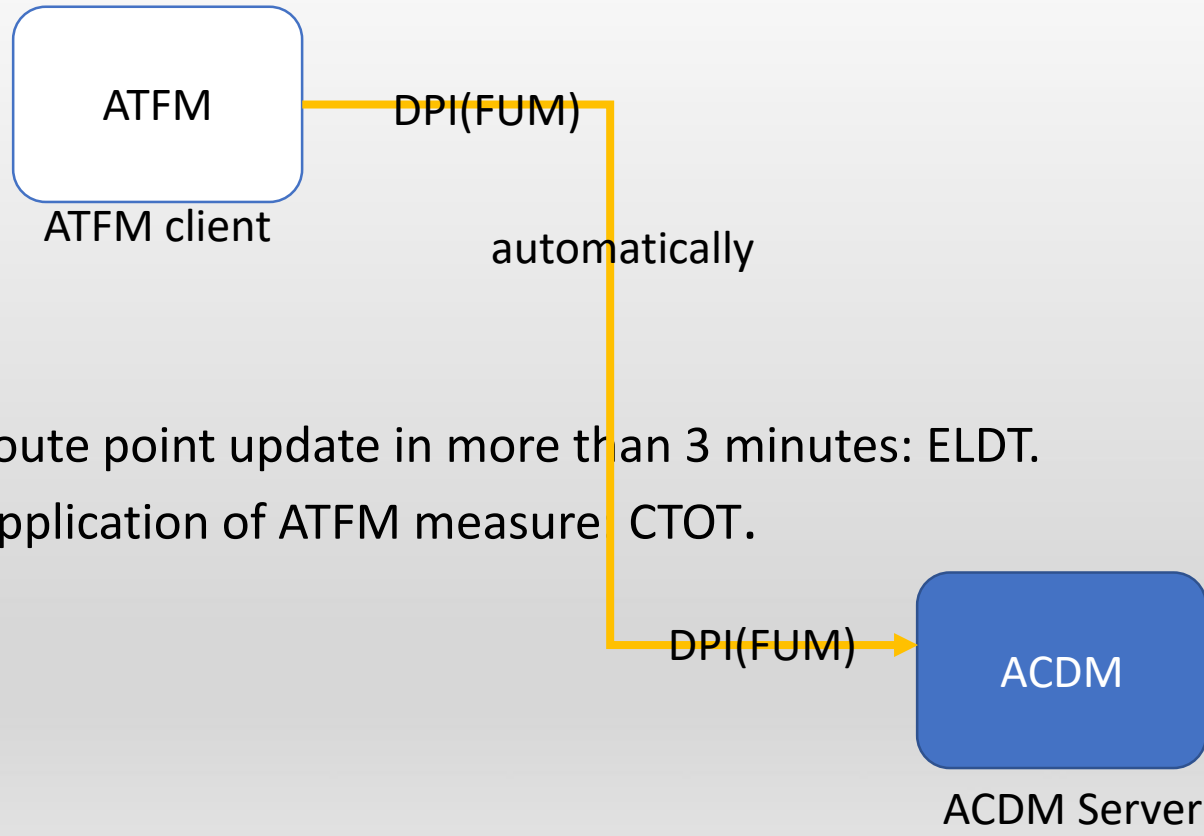


- Integration of data between ACDM and ATFM has been carried out as per Interface Control Document (ICD) between C-ATFM and ACDM, developed by M/S, Atech, Brazil.
- SOAP 1.1 based web service has been used for data exchange.
- Data exchange has been achieved using two Web services running simultaneously.

ATFM Client Program:



ATFM Client Program:



- a) Route point update in more than 3 minutes: ELDT.
- b) Application of ATFM measure CTOT.

Development Process: Step By Step:



- A) Establish Connectivity from ACDM client to ATFM server.
 - B) Selecting Data from different tables in the ACDM Database.
 - C) Formatting Data in ADEXP format.
 - D) Establish SOAP 1.1 connectivity.
 - E) Sending Data to ATFM.
 - F) Automating the process.
 - G) Monitoring Data exchange.
-
- H) Establish Connectivity to ACDM server from ATFM client.
 - I) Developing Business rule for validating Data.
 - J) Collecting received Data in the Database.
 - K) Monitoring Data Exchange.



- Integration between ACDM and ATFM will benefit both the systems.
- ACDM system will generate TSAT taking into account any ATFM measure from ATFM (Based on CTOT).
 - Similarly, timely- and reliable data from ACDM systems will benefit ATFM system to generate more accurate ATFM measures and to deal with Demand and Capacity Balancing.



- Monitoring of Data exchange is an important element in the integration process.
- A web based monitoring tool has been deployed to ascertain correct data format, to collect errors for debugging program and server responses.

Screenshots: ACDM Data and ATFM Responses:



- Kolkata ACDM
- Home
- TSAT
- Arrivals
- ATIS
- Departures
- On Time Performance
- Satellite Picture India
- CATFM Data
- Contact

Toggle



ACDM data to ATFM & ATFM Response

Show 10 entries

Search:

ACDM sent data	ATFM Response	Time	DPI Type
-TITLE DPI-ORGNID VECCACDM-ARCID IGO994-ADEP VECC-ADES VOBL-EOBD 200603-EOBT 1035-TOBT 1035-TIMESTAMP 200603100601	SUCCESS - Flight Plan IGO994 successfully updated.	2020-06-03 10:06:07	TOBT
-TITLE DPI-ORGNID VECCACDM-ARCID IGO292-ADEP VECC-ADES VEGT-EOBD 200603-EOBT 1005-AOBD 200603-AOBT 0956-TIMESTAMP 200603100201	SUCCESS - Flight Plan IGO292 successfully updated.	2020-06-03 10:02:07	AOBT
-TITLE DPI-ORGNID VECCACDM-ARCID AIC691-ADEP VECC-ADES VEBN-EOBD 200603-EOBT 1025-TOBT 1025-TIMESTAMP 200603095601	SUCCESS - Message received successfully.	2020-06-03 09:56:08	TOBT
-TITLE DPI-ORGNID VECCACDM-ARCID AIC745-ADEP VECC-ADES VEAT-EOBD 200603-EOBT 1145-ARCTYP A319-TIMESTAMP 200603095001	SUCCESS - Flight Plan AIC745 successfully updated.	2020-06-03 09:50:09	TYPE
-TITLE DPI-ORGNID VECCACDM-ARCID AIC714-ADEP VELD-ADES VECC-EOBD 200603-EOBT 0831-ALDT 0927-AIBT 0932-RWYARR 19L-TIMESTAMP 200603094701	SUCCESS - Message received successfully.	2020-06-03 09:47:02	AIBT
-TITLE DPI-ORGNID VECCACDM-ARCID IAD536-ADEP VECC-ADES VEBD-EOBD 200603-EOBT 0940-AOBD 200603-AOBT 0934-ATOT 0941-RWYDEP 19L-TIMESTAMP 200603094701	SUCCESS - Flight Plan IAD536 successfully updated.	2020-06-03 09:47:02	ATOT
-TITLE DPI-ORGNID VECCACDM-ARCID IGO875-ADEP VECC-ADES VOBL-EOBD 200603-EOBT 1235-ARCTYP A321-TIMESTAMP 200603094601	SUCCESS - Flight Plan IGO875 successfully updated.	2020-06-03 09:46:08	TYPE
-TITLE DPI-ORGNID VECCACDM-ARCID CG02-ADEP VECC-ADES VECC-EOBD 200603-EOBT 1000-TTOT 1012-TIMESTAMP 200603094301	SUCCESS - Message received successfully.	2020-06-03 09:43:08	TTOT
-TITLE DPI-ORGNID VECCACDM-ARCID IGO946-ADEP VECC-ADES VOHS-EOBD 200603-EOBT 1215-ARCTYP A320-TIMESTAMP 200603094001	SUCCESS - Flight Plan IGO946 successfully updated.	2020-06-03 09:40:09	TYPE

Screenshots: Monitoring of CTOT from ATFM:




Kolkata ACDM

- Home
- TSAT
- Arrivals
- ATIS
- Departures
- On Time Performance
- Satellite Picture India
- CATFM Data
- Contact

Kolkata
Netaji Subhas Chandra Bose
International Airport

AIRPORT COLLABORATIVE DECISION MAKING



CTOT,CLDT from CATFM in last 24 hours.

Show entries Search:

Callsign	Dep	Dest	EOBD	EOBT	CTOT	CLDT	Origin	Time Received
No data available in table								

Showing 0 to 0 of 0 entries Previous Next

Screenshots: Monitoring of ELDT from ATFM:



- Kolkata ACDM
 - Home
 - TSAT
 - Arrivals
 - ATIS
 - Departures
 - On Time Performance
 - Satellite Picture India
 - CATFM Data
 - Contact
- Toggle



ELDT from CATFM

Show 10 entries

Search:

Callsign	Dep	Dest	EOBD	EOBT	ELDT	Origin	Time Received
IGO206	VEMN	VECC	200603	0830	1009	VIDPCTFM	200603095810
IGO6444	VEBD	VECC	200603	0920	1026	VIDPCTFM	200603095311
IGO6444	VEBD	VECC	200603	0920	1030	VIDPCTFM	200603095210
IGO9138	VEIM	VECC	200603	0830	0938	VIDPCTFM	200603093640
IGO9138	VEIM	VECC	200603	0830	0943	VIDPCTFM	200603093425
IGO9138	VEIM	VECC	200603	0830	0942	VIDPCTFM	200603092725
LLR740	VEGT	VECC	200603	0730	0925	VIDPCTFM	200603092425
LLR740	VEGT	VECC	200603	0740	0922	VIDPCTFM	200603092110
IGO994	VEAT	VECC	200603	0820	0918	VIDPCTFM	200603091725
LLR740	VEGT	VECC	200603	0740	0925	VIDPCTFM	200603091426

Showing 1 to 10 of 15 entries

Previous 1 2 Next

//

Way forward:



- After successfully testing, ACDM Kolkata/Mumbai/Chennai have been connected with Production server of ATFM.

By 31st December, 2020 following ACDM implementations will be connected with ATFM:

- JAIPUR ACDM.
- AHMEDABAD ACDM,
- GUWAHATI ACDM
- TRIVANDUM ACDM.



Proposal to Improve the Present Integration Process:

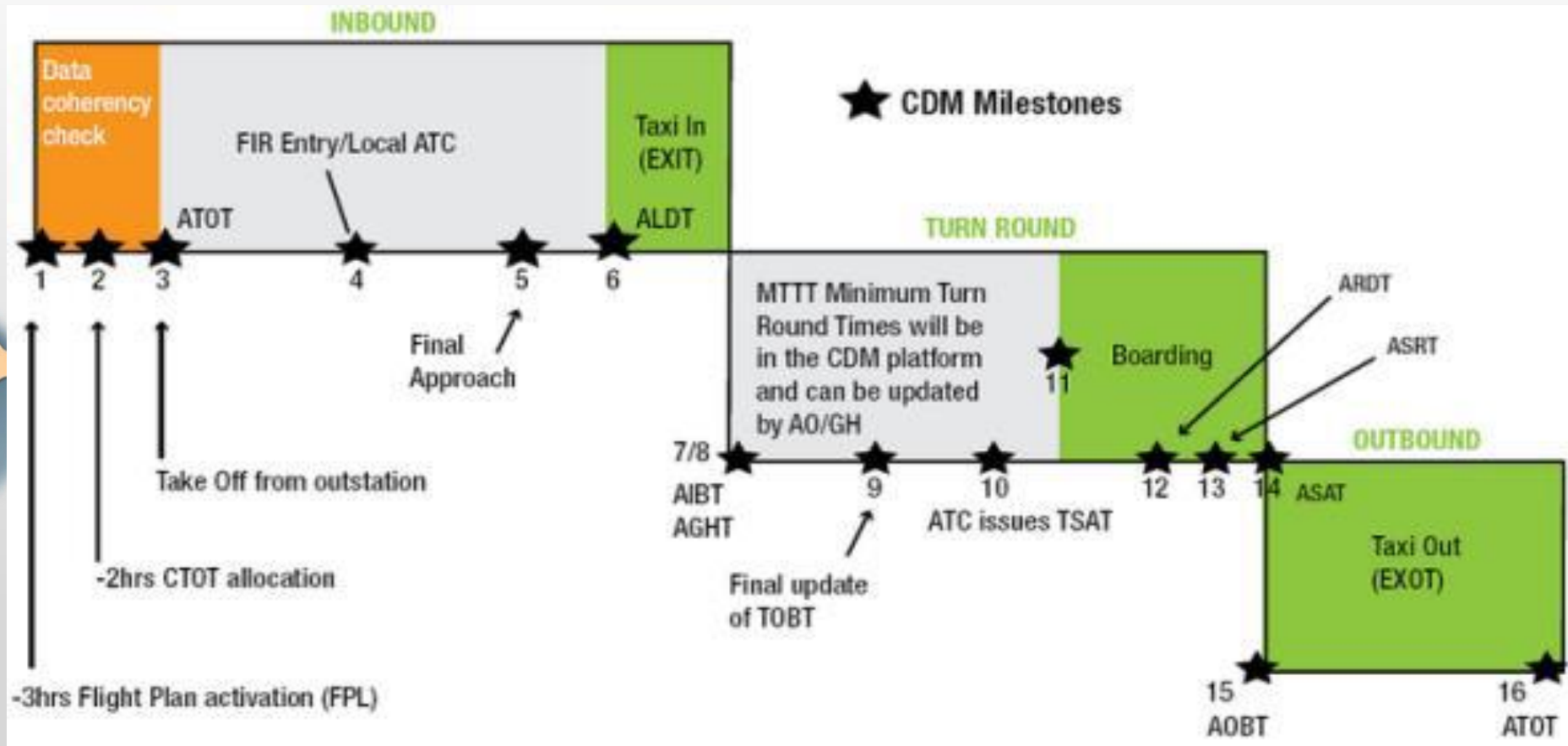
Some ACDM milestone data, generally available with ATFM, can be shared to ACDM like “-3 hours FPL activation”, “Take off from out station”. Weather data and Runway/Taxiway data can be shared by ACDM.



Proposal to Standardize Data Format and Protocol:

There is a need to specify ICAO Guidelines for data format and data exchange protocol for harmonising data format and protocol over APAC Region.

Way forward:





Thank you.

