

Supporting
European
Aviation



EASA/EUROCONTROL Network Manager/Latin America Webinar On ANSP/Airport Capacity Management

Airport - Collaborative Decision Making and other types of Airport connectivity

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30 June 2021



Agenda



- Airport Challenges for the Network
- A-CDM
- AOP/NOP Integration (higher level of connectivity than A-CDM)
- Regional Airport Integration
- Airport Corner

Airport Challenges for the Network

- 1 Integrating airports with the Network
- 2 nodes of the Network
- 3 bottlenecks to the Network
- 4 new/expansion very difficult



Airport Challenges for the Network



INFLUENCES



Airports performance **influences** Network performance

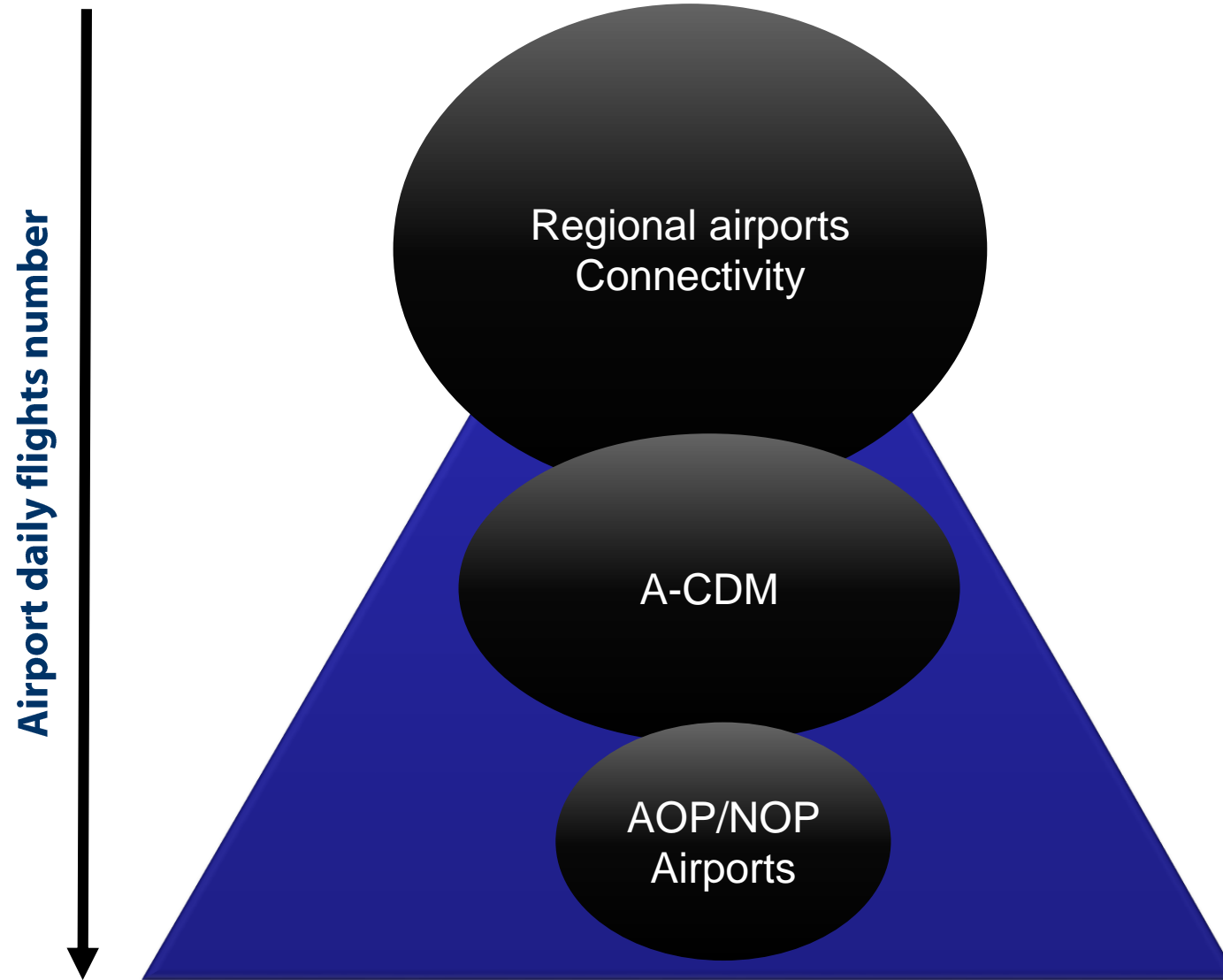


IMPACTS



Network performance **impacts** Airport performance

Airport Challenges for the Network – Connectivity Strategy



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A-CDM Implementation History in Europe

- First beginnings – end of '90s
Calculated Off Block (COB) procedure at Munich
- Airport CDM emerges and starts 2004
EUROCONTROL, FMG, DFS
- First fully implemented A-CDM airport 2007
Munich

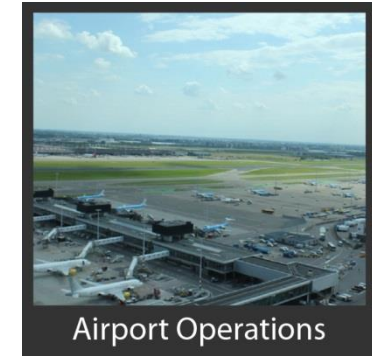


A-CDM Implementation History in Europe

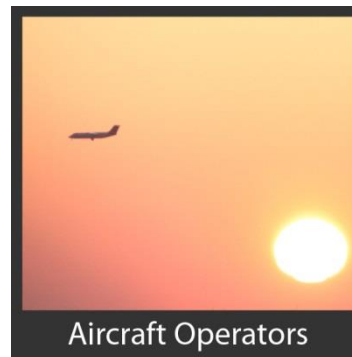
- 2007 – 1 airport
- 2010 – 3 airports
- 2013 – 8 airports
- 2015 – 18 airports
- Today – 30 airports



Airport CDM



- Improve predictability
- Improve on-time performance
- Reduce ground movement costs
- Optimise use of infrastructure & reduce congestion
- Reduce ATFM slot wastage
- Flexible pre-departure planning
- Reduce apron & taxiway congestion



A-CDM - Elements



Collaborative Management of Flight Updates

**Variable Taxi
Time
Calculation**

**Collaborative
Pre-Departure
Sequencing**

**CDM in
Adverse
Conditions**

Milestone Approach

Airport CDM Information Sharing

Foundation for Airport CDM



The **right** information



To the **right** people



At the **right** time

Information Sharing

Requirements

- One Airport CDM Platform

and

- Procedures, actions and alerts for each key milestone.

CDM - Microsoft Internet Explorer provided by The Hub

Heathrow **Welcome to the A-CDM Portal** Log off

Arrivals Departures Turn-round SAM Met 9W119-0-20120502

Auto-Refresh Yes ATC ?

Last Updated: 2/5/2012 8:34:29 UTC

Hide Filter

Carrier All Terminal All Has Alert Hide CX & DV

Handler All Start Time All Save Filter

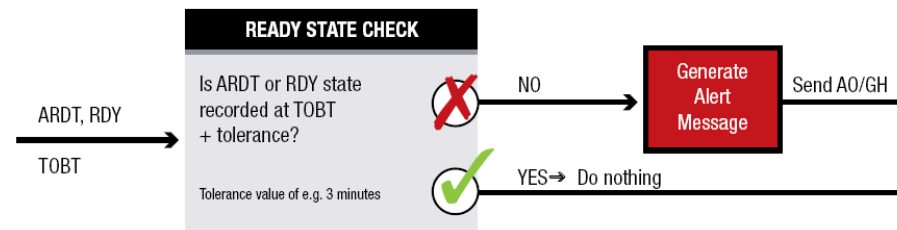
Alert	Flight No	Reg	Stand	Status	SOBT	EOBT	TOBT (E/D)	Start Restd	TSAT	AOBT	TOT	Rwy	Linked Flight
	BA548	GELVB	523	Taxied	08:10	08:10	08:10 D	✓	08:10	08:08	08:29 T	27R	BA901
	EV012	AGEHE	410	Taxied	08:15	08:15	08:15 E	✓	08:15	08:11	08:35 C	27R	EV011
	BA878	GELDI	524	Taxied	08:20	08:20	08:20 D	✓	08:20	08:24	08:46 T	27R	BA1301
	BA346	GELFZ	522	Taxied	08:20	08:20	08:20 D	✓	08:23	08:18	08:43 T	27R	BA331
	UA019	N19130	401	Taxied	07:40	08:00	08:20 D	✓	08:20	08:20	08:43 T	27R	UA110
	LH3373	GERCA	110	Taxied	08:05	08:39	08:25 D	✓	08:25	08:08	08:37 T	27R	LH3372
	OS452	OELBO	232	Taxied	08:15	08:25	08:25 D	✓	08:28	08:26	08:41 T	27R	OS451
	EI031	EIDWJ	176	Airborne	08:30	08:30	08:25 D	✓	08:22	08:22	08:33 A	27R	EI030
	BA306	GELDD	501	Start Req	08:05	08:35	08:27 D	✓	08:22	08:22	08:26 C	27R	BA1321
	SK524	SERER	311	Taxied	08:20	08:20	08:30 D	✓	08:30	08:27	08:48 T	27R	SK523
	9W119	VTJEL	411	Start Req	08:30	08:30	08:30 E	✓	08:42	09:02	09:02 C	27R	9W120
	BA540	GELPN	525	Taxied	08:30	08:30	08:30 D	✓	08:35	08:30	09:09 T	27R	BA341
	E1711	EIDEN	180	Taxied	08:30	08:30	08:30 D	✓	08:33	08:29	08:44 T	27R	E1710
	V5003	GVRAY	316	Taxied	08:30	08:30	08:30 E	✓	08:35	08:32	08:58 T	27R	V5004
	UA035	N69020	402	Taxied	08:30	08:30	08:30 E	✓	08:34	08:29	09:00 T	27R	UA034
	BA073	GZZC	551	Taxied	08:30	08:30	08:30 D	✓	08:30	08:30	08:50 C	27R	BA072
	A0551	N760AN	340	Taxied	08:30	08:30	08:30 E	✓	08:30	08:29	08:52 T	27R	A0100
	XMS231	IBIKO	421	Gate Closed	08:35	08:35	08:35 E	-1	08:36		08:53 T		A2226
	S1098	VBSLE	468	Gate Closed	08:40	08:40	08:35 D	-1	08:55	09:16	09:16 C		S1097
	W3102P	SNMDO	461	Taxied	08:00	08:40	08:35 D	-2	08:33	08:33	08:48 T	27R	W3101X
	BA512	ECILP	512	Taxied	08:10	08:31	08:35 D		08:31	08:31	08:52 T	27R	IB3170
	BA424	GELUE	502	Gate Closed	08:20	08:20	08:36 D		08:39		08:57 T	27R	BA1475
	BA938	GELXL	517	Last Call	08:40	08:40	08:40 D		08:46		09:15 C	27R	BA477
	BA578	GELFU	508	Gate Closed	08:40	08:40	08:40 D		08:46		09:04 T	27R	BA811
	DL523	N339MH	414	Gate Closed	08:40	08:40	08:40 E		08:49		09:06 T	27R	DL002

144 Rows: 26-50

LESS IMPROVEMENT WHICH WILL ENHANCE THROUGHOUT MAY! ***Weather 2nd May: A misty start clearing to NIL by 0900 Z. Some light showers possible from late p.m. & persist



Second step: To inform the AO/GH that TOBT has passed and the Airport CDM Platform has not yet received ARDT or Ready Status (RDY).

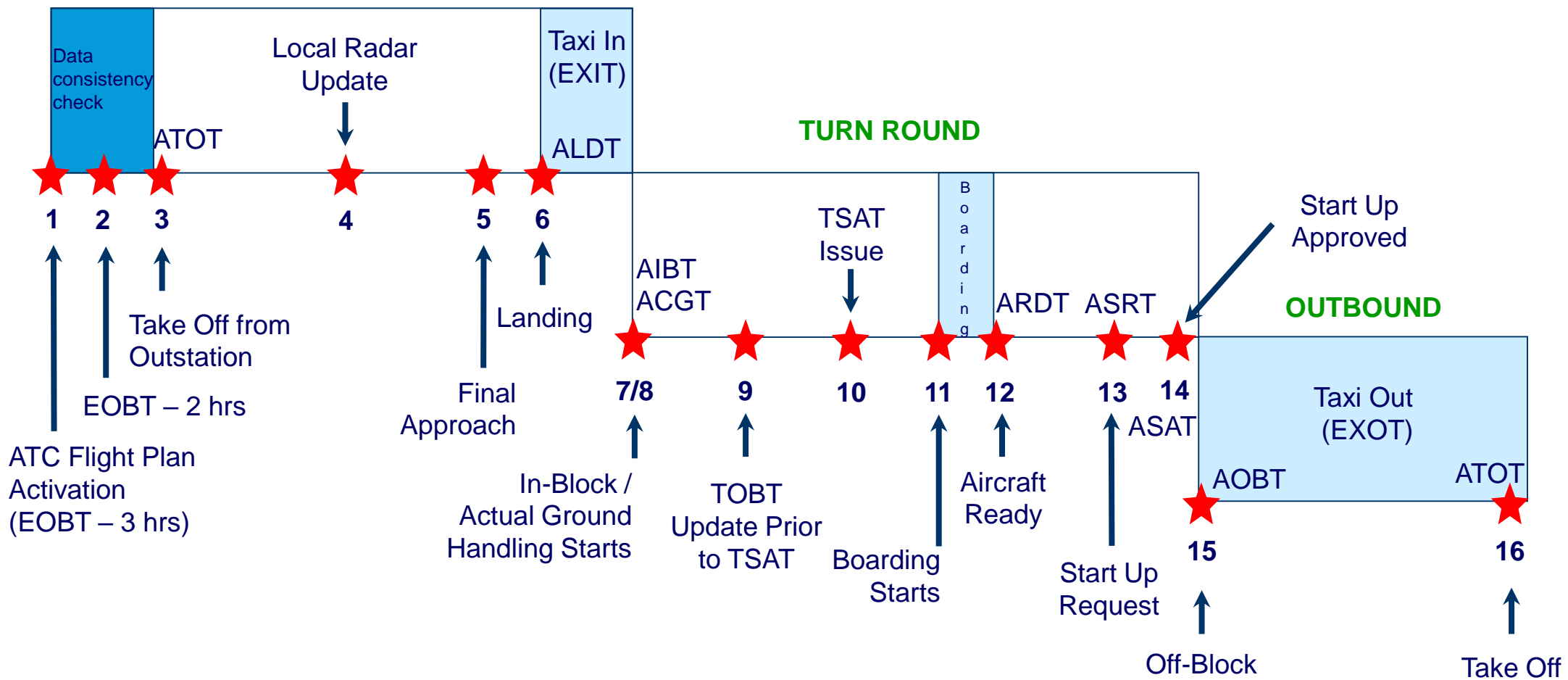


Milestone Approach [Generic]

INBOUND

TURN ROUND

OUTBOUND



Milestone Approach

Key Definitions

- **Target Off-Block Time (TOBT)**

The time that an **Aircraft Operator or Ground Handler** estimates that an aircraft will be ready, all doors closed, boarding bridge removed, push back vehicle available and ready to start up / push back immediately upon reception of clearance from the Tower

- **Target Start up Approval Time (TSAT)**

The time provided by ATC taking into account TOBT, CTOT and / or the traffic situation that an aircraft can expect start up / push back approval

Pre-Departure Sequencing

Objectives;

Improve prediction of push back order

Improve management of queuing aircraft at holding point

Principle;

Replace “first come first served” principle

Target Start-up Approval Time (TSAT) communicated by ATC

All CDM partners can see pre-departure sequence

Is this a Pre-Departure Sequence?

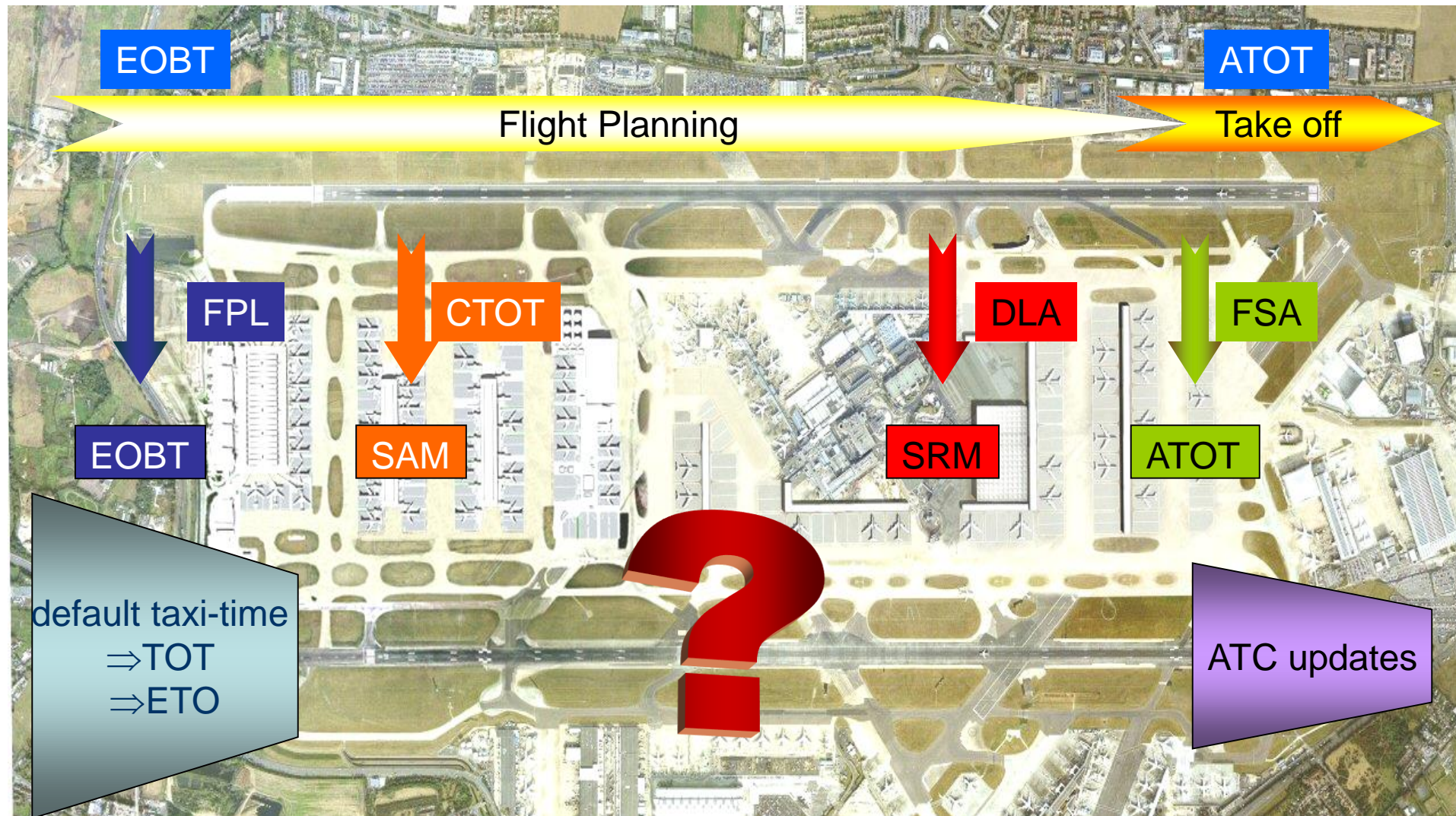


Link to ATFM (NMOC)

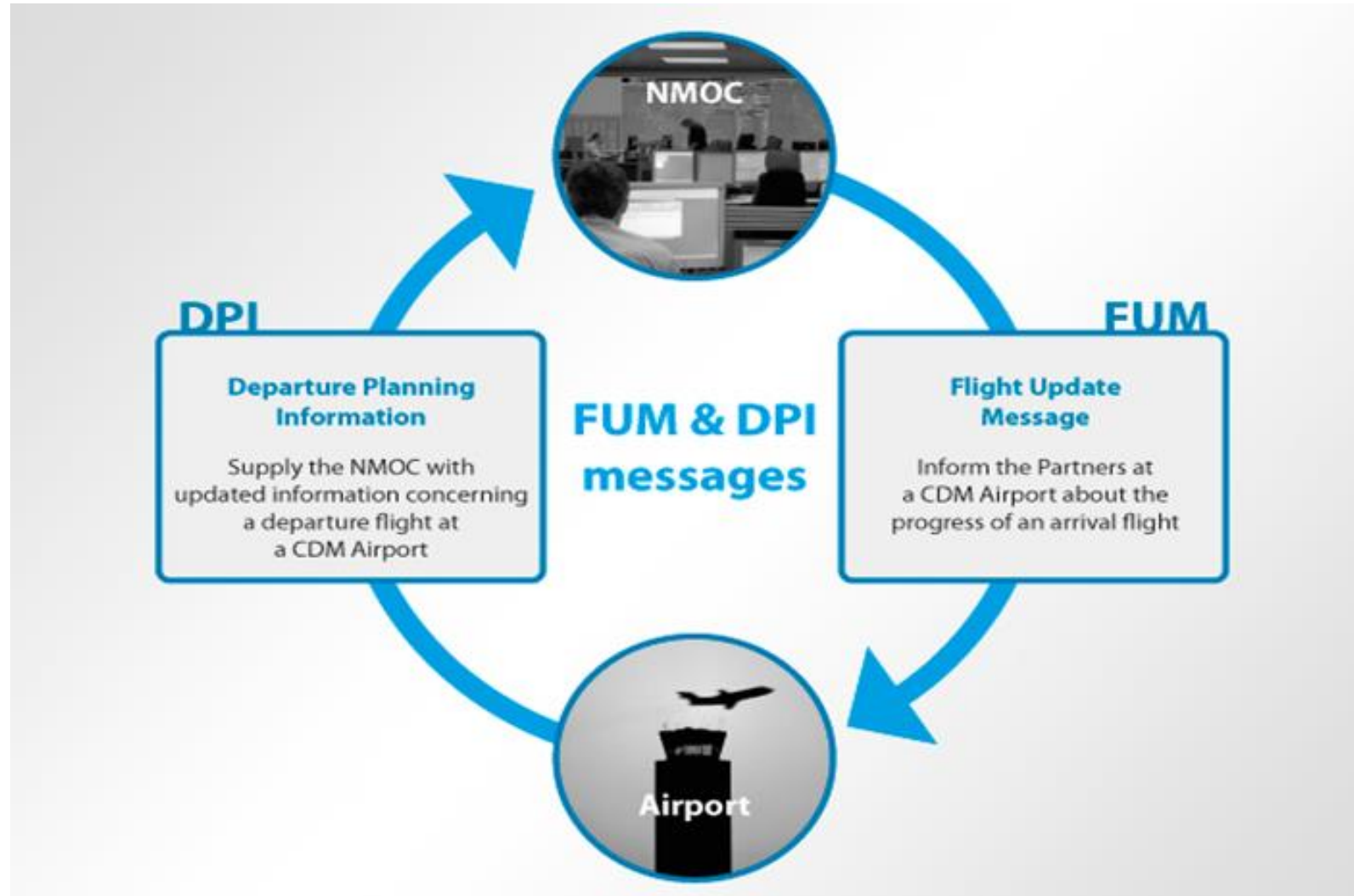
- The link between Airport Operations and Network Operations
- Provides a two-way exchange of information
- Recognised as a way to integrate airports with the ATFM Network with benefits for both



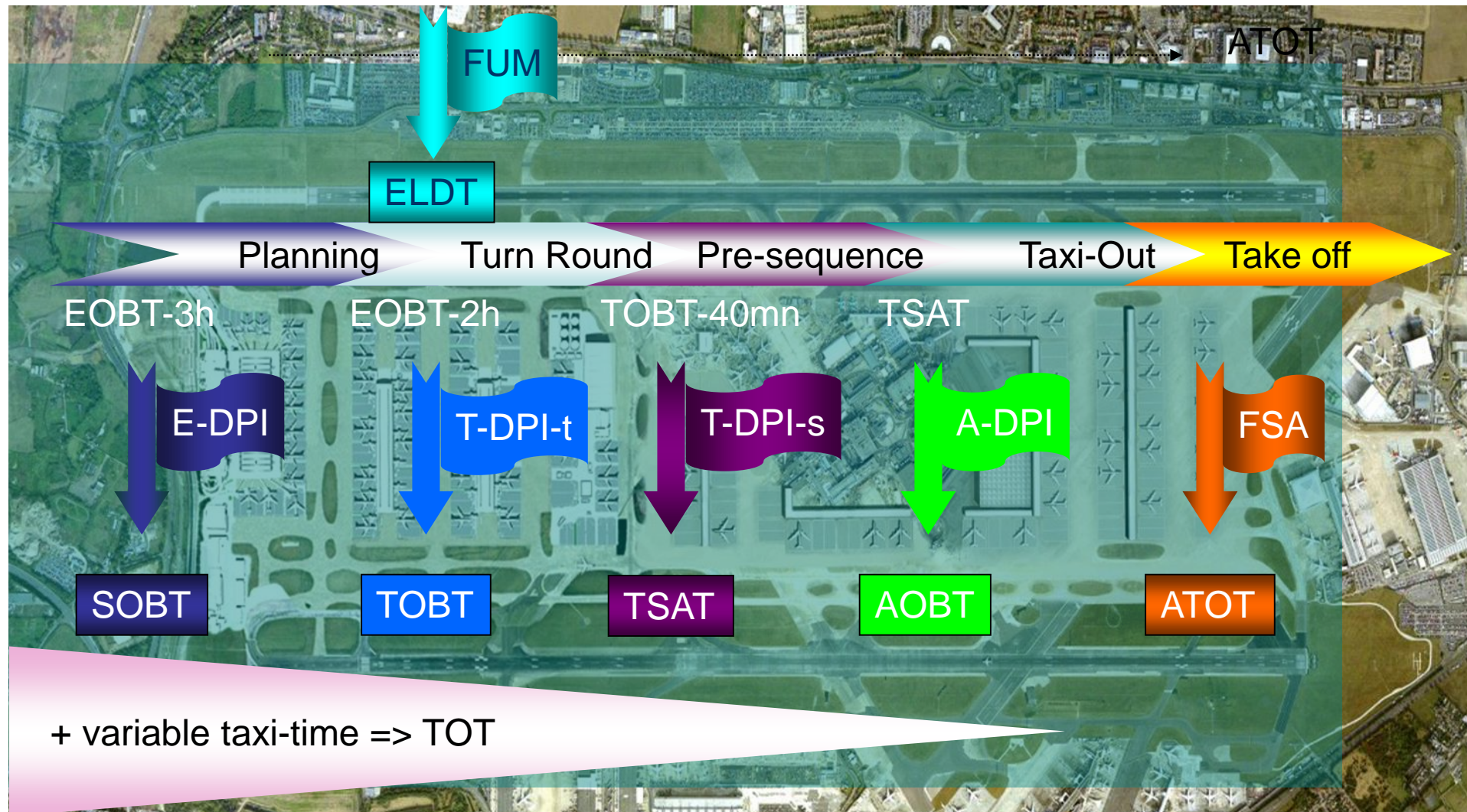
Gap – in departure information



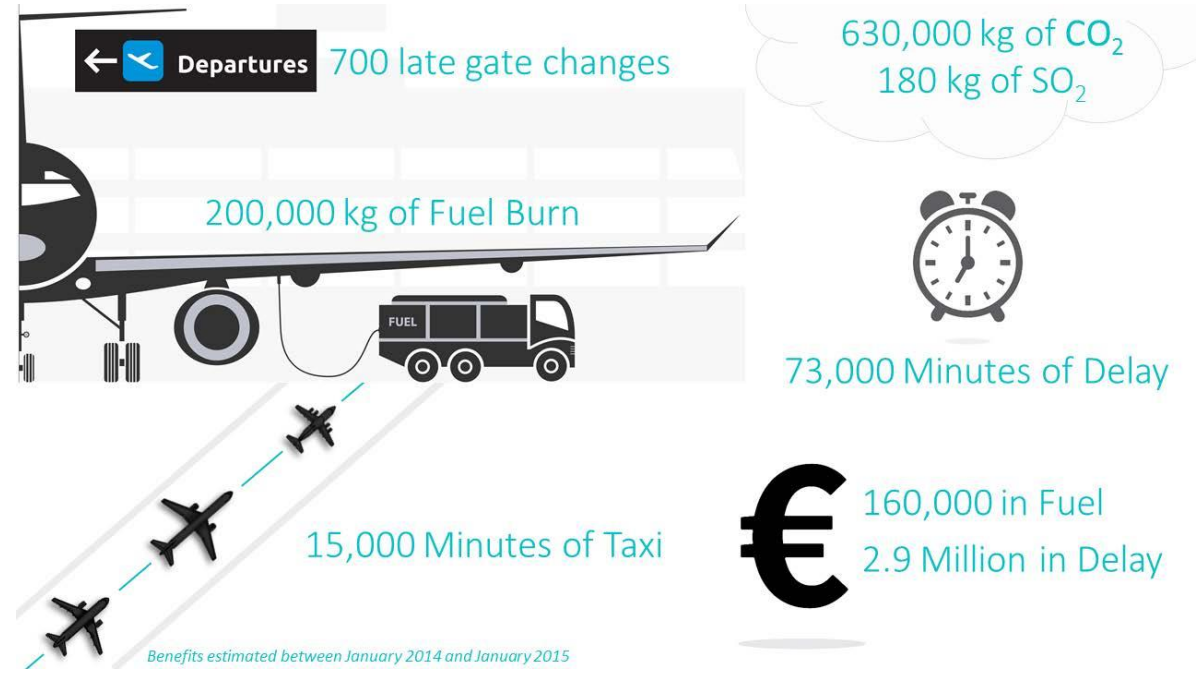
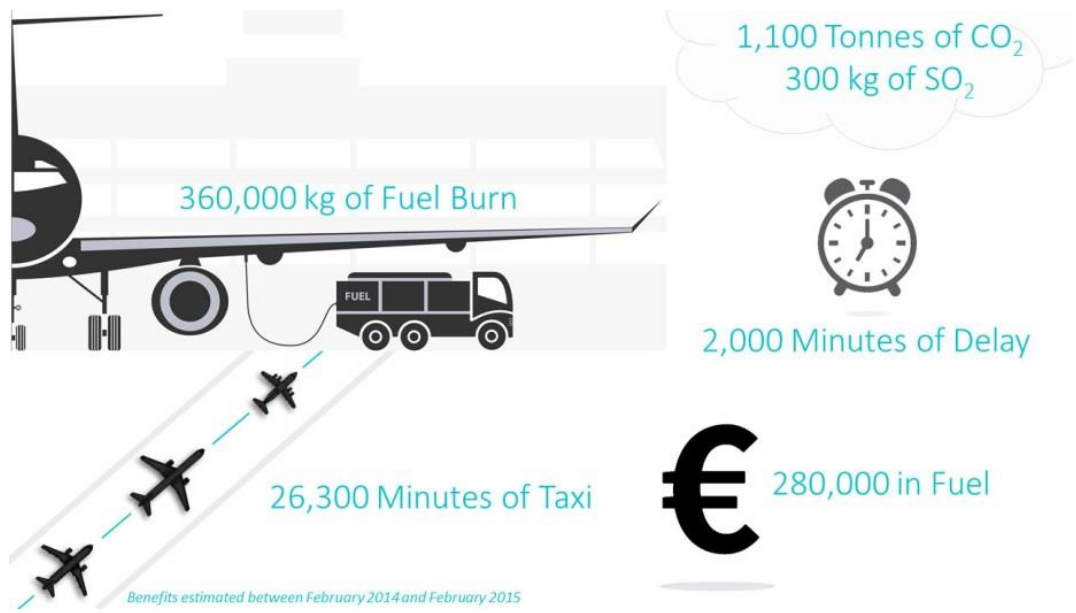
A-CDM – in the European Network



Departure Planning Information (DPI)

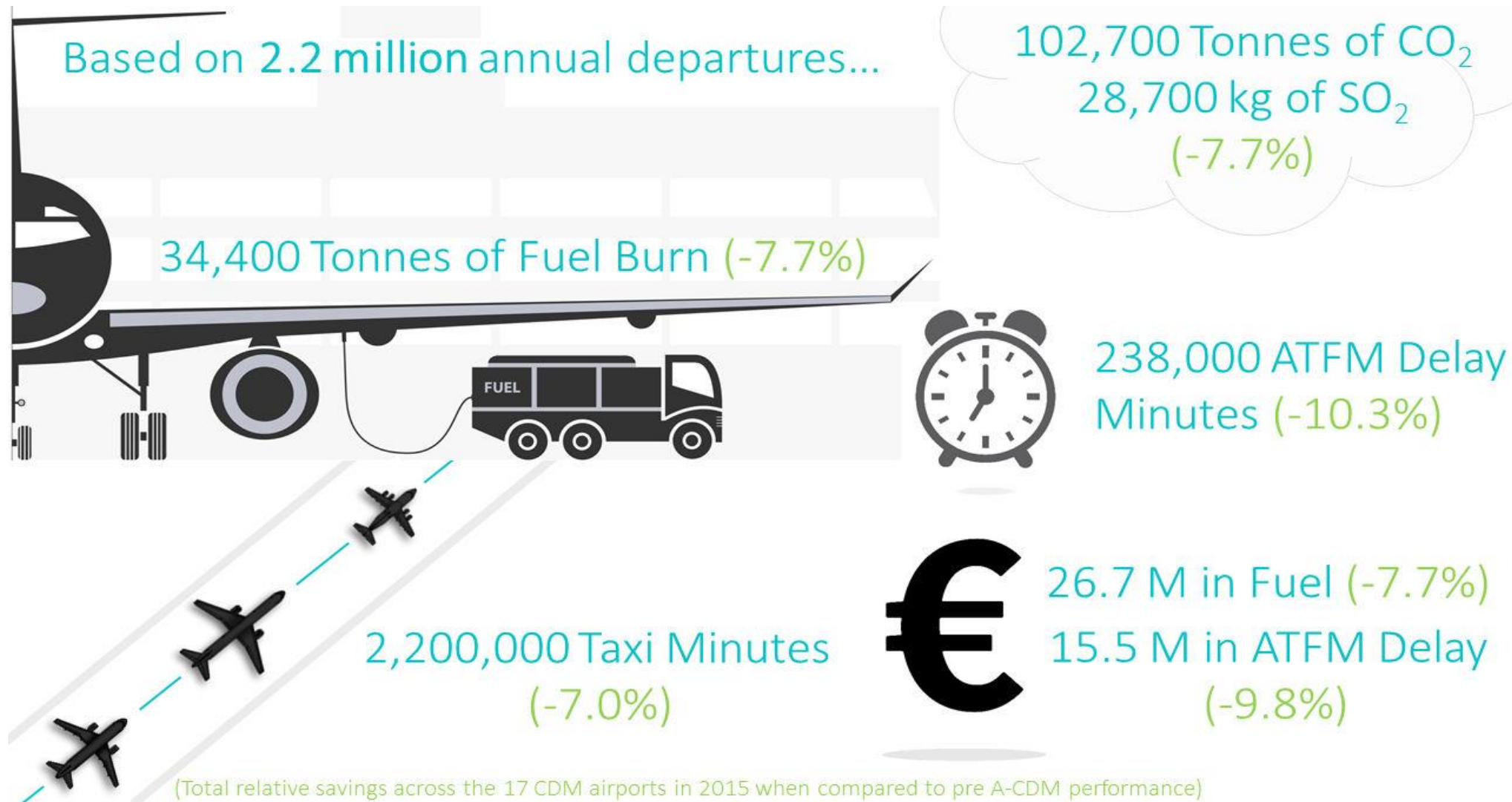


Benefits – Partners



Benefits – Network

Based on 2.2 million annual departures...



Reference Documents



<https://www.eurocontrol.int/concept/airport-collaborative-decision-making>

Supporting European Aviation

ABOUT US WHAT WE DO NEWSROOM EVENTS LIBRARY OUR DATA WE OFFER

A-CDM

Airport collaborative decision-making

Improving the efficiency and resilience of airport operations by optimising the use of resources and improving the predictability of air traffic.

THIS IS PART OF

- AIRPORT INTEGRATION
- OPTIMISED OPERATIONAL PERFORMANCE

Airport CDM (A-CDM) aims to improve the efficiency and resilience of airport operations by optimising the use of resources and improving the predictability of air traffic. It achieves this by encouraging the airport partners (airport operators, aircraft operators, ground handlers and ATC) and the Network Manager to work more transparently and collaboratively, exchanging relevant accurate and timely information. It focuses especially on aircraft turn-round and pre-departure processes.

It also allows the exchange of more accurate departure information, particularly target take-off times, with the European ATFCM network, leading to improved en-route and sectoral planning.

Implementation

The A-CDM concept has been globally recognised. A-CDM is fully implemented in 27 airports across Europe, including Barcelona, Berlin-Schönefeld, Brussels, Copenhagen, Düsseldorf, Frankfurt, Geneva, Hamburg, Helsinki...

Contact us

THE MANUAL

Airport CDM Implementation

Version 5.0
31 March 2017

ACI EUROPE EUROCONTROL IATA

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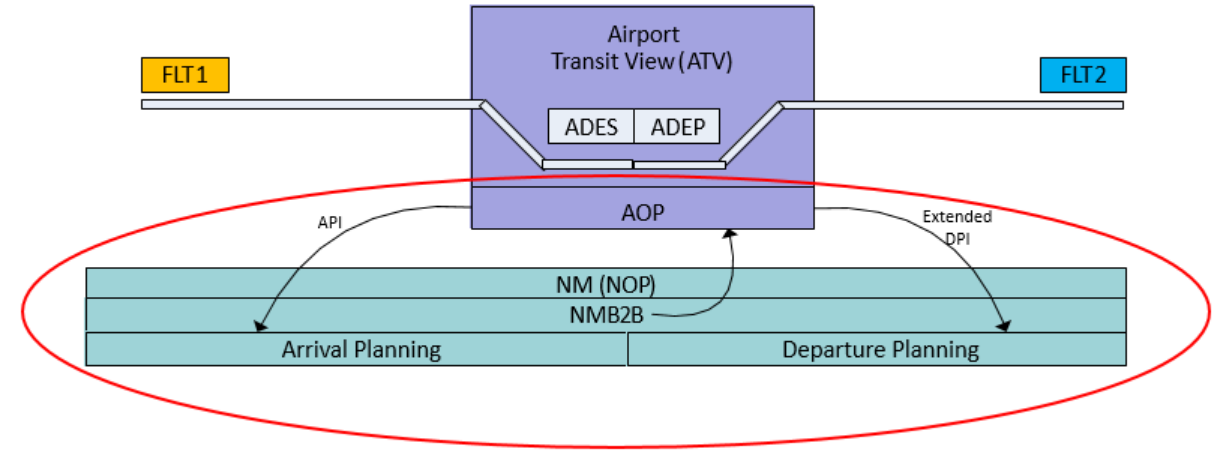
Initial AOP/NOP Integration - Requirements

❑ DPI:

- DPI in A-CDM process (pre-requisite)
- **P-DPI Mandatory**

❑ API:

- **G-API Mandatory**
- TTA-API Optional
- TTO-API Optional

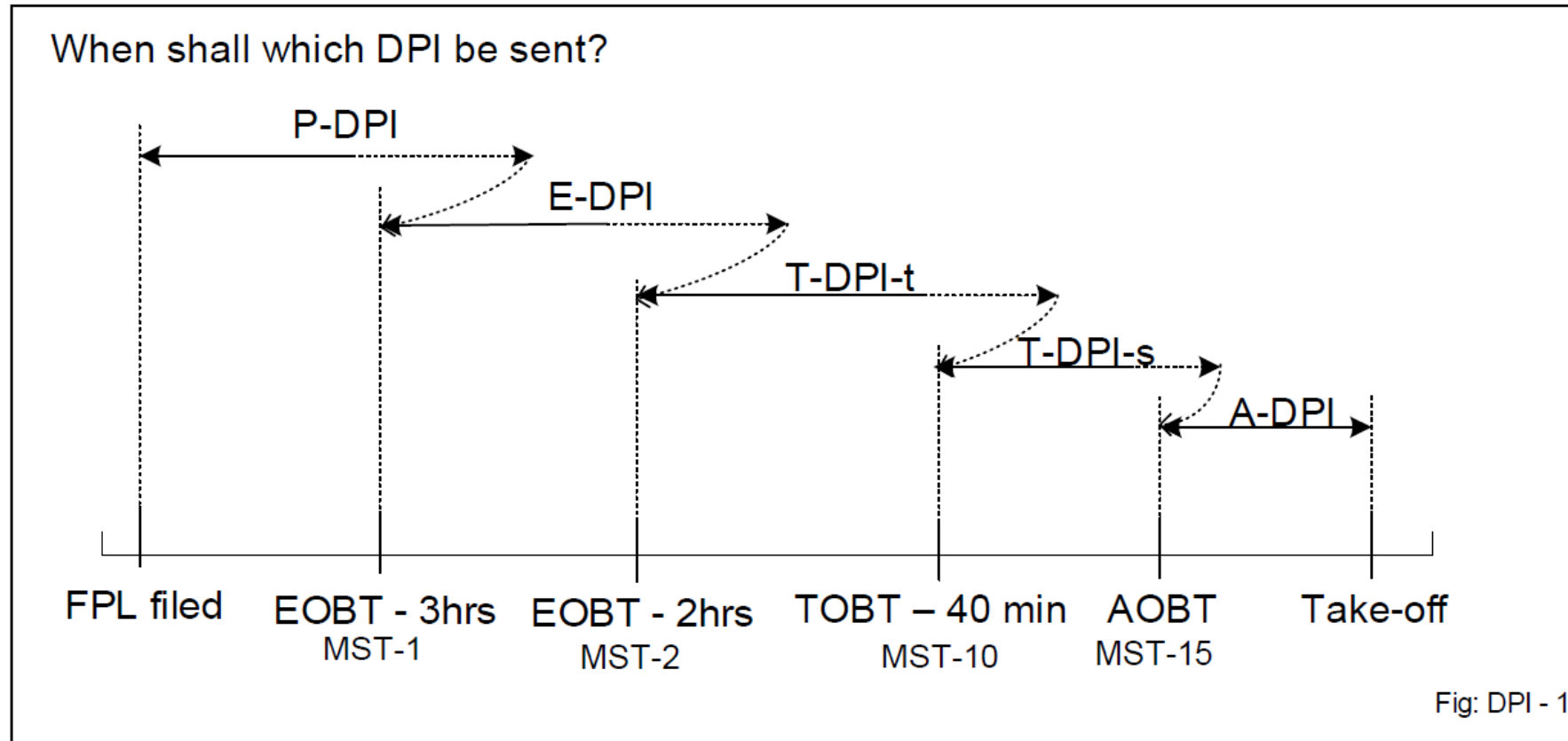


❑ DPI and API exchange via **NM B2B services** (over Internet rather than AFTN)

❑ Airport capacity information and weather events expected impact provided via **Airport Corner**

❑ Deployment planned to be completed within 31/12/2023

P-DPI objective is to extend A-CDM timeframe



Initial AOP-NOP integration – Airport Partners

CEF 2015_113_AF4:

- ADP (CDG, ORY)
- FRAPORT (FRA)
- LONDON Heathrow (LHR)

CEF 2016_131_AF4:

- SCHIPHOL (AMS)
- AENA (MAD, BCN, PMI)
- BRUSSELS (BRU)
- STOCKHOLM (ARN)

CEF 2017_052_AF4:

- ROME Fiumicino (FCO)
- MILAN Malpensa (MXP)
- VIENNA (VIE)
- MANCHESTER (MAN)
- LONDON Stansted (STN)
- NICE (NCE)
- DUSSELDORF (DUS)

Not in CEF but in CP1 regulation

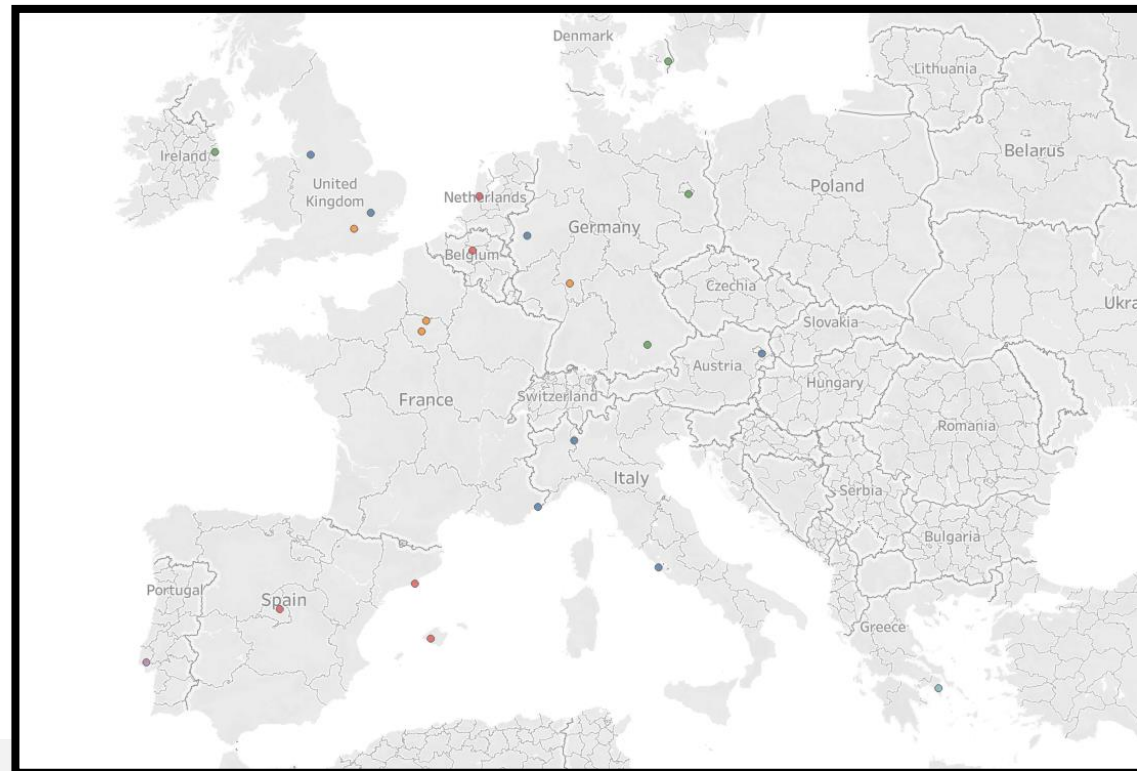
- BERLIN Brandenburg (BER)
- COPENHAGEN (CPH)
- DUBLIN (DUB)
- MUNICH (MUC)

CEF_M2015_1125276

- LISBON (LIS)

CEF_2017-EL-TM-0158-W

- ATHENS (ATH)



Agenda



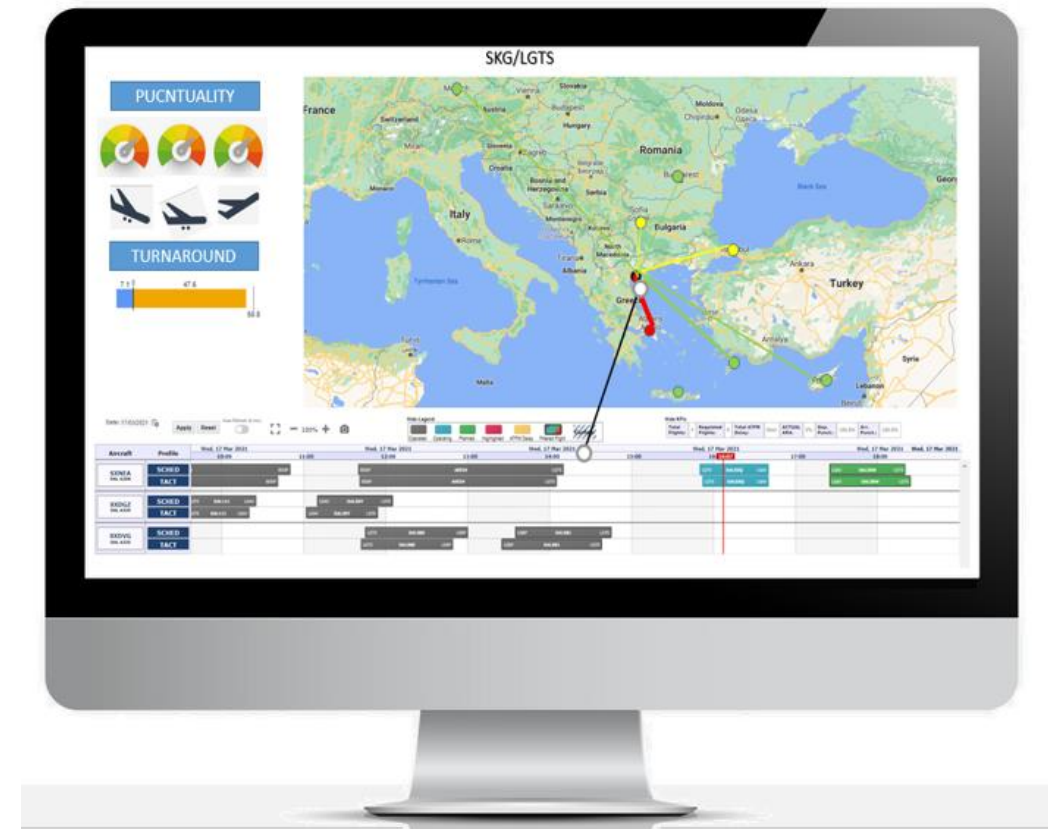
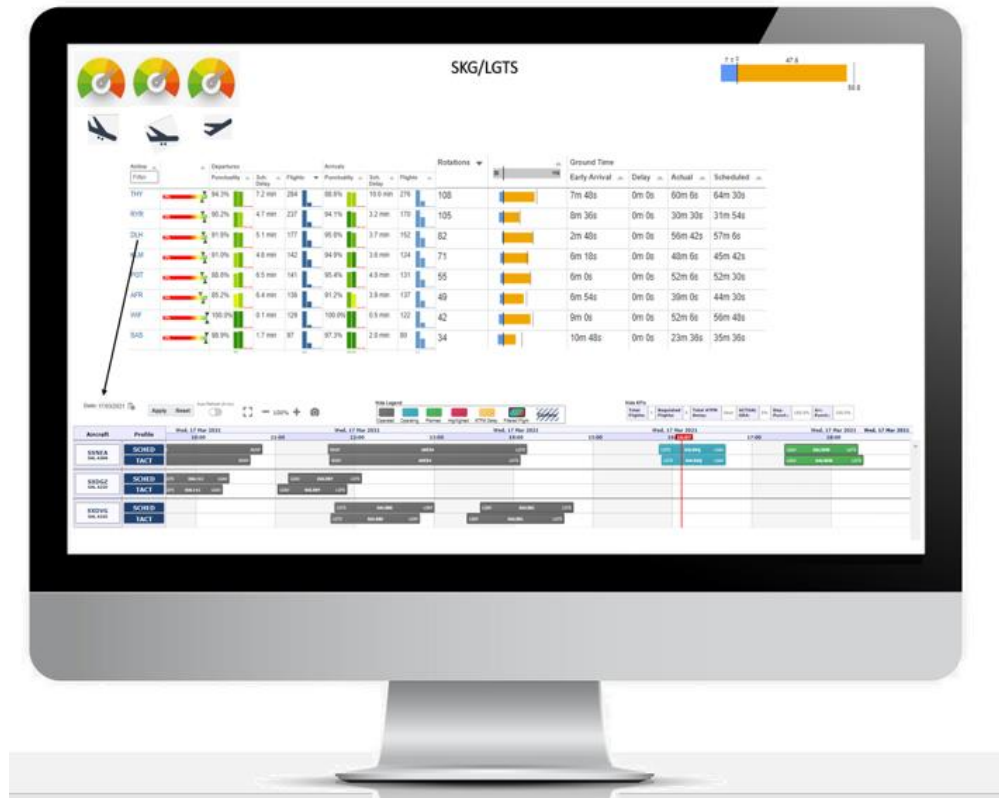
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Regional Airports Integration

- ❑ Program initiated in 2020 with two objectives
 - ❑ Engage small and regional airports with the network. (Airports are the nodes of the network)
 - ❑ Increase the % of traffic departing from connected airports up to 95%.

- ❑ The new concept is based on:
 - ❑ The exchange of a limited amount of information with the Network Manager to improve traffic demand predictions. (Advanced ATC Towers)
 - ❑ Use of ADS-B for a/c ground surveillance
 - ❑ Automation
 - ❑ Provide added value Network Services for Regional Airports to improve airport performance and Passenger Experience

Regional Airports Integration



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Information Scope Evolution



Strategic Planning

Forecast capacity Planned events Environmental Management Local contacts
Air-Rail Inter-modality plans Runway configuration usage Traffic forecast
Standard / Temporary Diversion capabilities A-CDM, CDO/CCO status **COVID**

Pre Tactical Planning

Events: Adverse Weather Unforeseen maintenance
 Industrial action Unforeseen impact of planned events

Diversions Capabilities

Tactical Operations

Emergency quick reporting
Diversion Capabilities Process

Post Operations

Post-ops feedback: NMOC and Airport Unit Feedback
 Applied regulations Top 50 most delayed flights
 Regulation profile What can be improved

Support to Crisis Management

COVID dedicated interface
Emergency Reporting Process
Future “Crisis Management interface”

Airports Events Reporting Example

Airport: EHAM / Amsterdam/Schiphol
Author(s): Airside Operations Manager Airside Operations Manager
Date & Time: 10/12/2017 16:02:16 (UTC)

The following event has been **created**

Event Name	Event Description	Start Date/Time (UTC)	End Date/Time (UTC)	Status	Type(s)	NOTAM(s)	Event Probability	Additional Information
Capacity reduction expected	Due to the expected winter weather (snowfall), a capacity reduction expected.	11/12/2017 14:30	11/12/2017 22:00	Not Started	- Capacity Enabler - Weather		95	
Confidentiality				Files		AIP(s)	Coordination among stakeholders	
Public				No file was uploaded			- Airport Operator - Local ATC - FMP - Main Carrier Airline	
Expected Capacity								
Arrival	Departure	Global	Date (UTC)					
10mvts/h	10mvts/h	20mvts/h	11/12/2017 14:30					

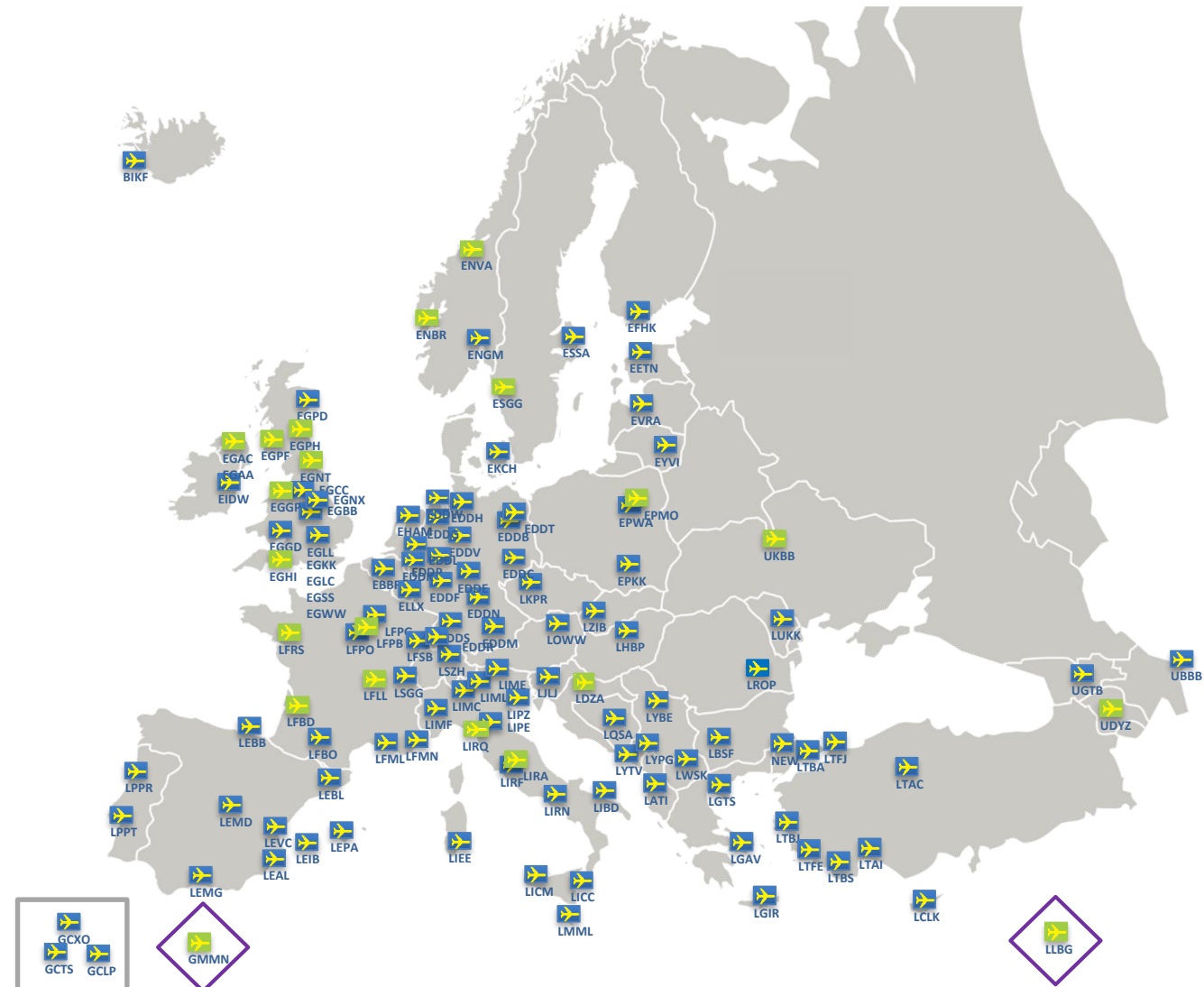
NMOC is automatically notified about:

- ✓ Weather events
- ✓ Industrial Action events
- ✓ Events with capacity impact in the next 6 days (pre-tactical/tactical)

Airports Coverage

□ **130 Airports, about 1000 data providers**

- ✓ Top 40 most constraining
- ✓ Member States main airport
- ✓ More than 50K movements/year
- ✓ Seasonal airports
- ✓ Voluntary requests to join
- ✓ Ad-hoc opportunities



Airport Corner Benefits

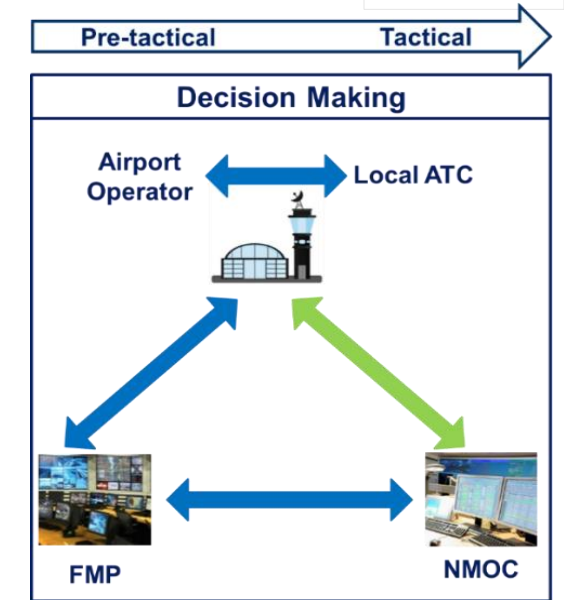


➤ Enhancing Situational Awareness:

- Single source for monitoring short, medium and long term airport operation plans: **Support to strategic decision making and NM capacity planning**
- **Wide range of airport information** made available to EUROCONTROL, airlines and airports
- **Pre-tactical/tactical:**
 - ✓ The **direct exchange of information** between airports and NM allows NM, Airport Operators, ATC and Airlines to take **better informed decisions**
 - ✓ Supporting **early identification of issues** (e.g. events, diversions)
 - ✓ **Enabling early mitigation actions** and **minimizing operational impact**
- Providing background information **complementing other sources** such as AIPs, AIP SUPs and NOTAMs

➤ Support to Crisis:

- **Enabling quick and regular airport information provision** to all ATM partners (e.g. COVID capacities, operational constraints)
- **Facilitating coordination in a diversion situation** (e.g. severe weather events, diversion capabilities)



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Thank you, questions?