Deciding with Data | Leveraging information to make better data-driven choices.
A-CDM and Linking into a Network

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A-CDM Implementation Manager
Network Concept

Consist of 2 or more Airports, Units, Sectors – not necessarily adjacent. All have a Network
European Network

- 41 Member States
  - 2 – comprehensive agreement
  - 16 – bilateral

- 1988 - ECAC decision
- 1996 - CFMU
- 2011 - Network Manager
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
Challenges for Airports Today

• No complete & common picture on the flight progress
• Partners are dealing with the flight independently from each other
• Conflicting decisions
Non - CDM airport - Departure Planning

ATIEC 2023

Flight Planning

EOBT
FPL
CTOT
SAM
default taxi-time
⇒ TOT
⇒ ETO

ATOT
DLA
FSA

Take off

ATC updates

ATOT
A-CDM - 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
A-CDM – Main Partners

- Aircraft Operators
- Airport Operations
- Air Traffic Control
- Network Operations
- Ground Handling
Information Sharing - Principle

Foundation for Airport CDM

The **right** information  →  To the **right** people  →  At the **right** time
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
A-CDM – Information Sharing

**Airport Operator**
- Airport slot data
- Stand & gate allocation
- Special events
- Reduction in airport capacity

**ATC**
- Real-time updates of landing
- Taxi times & SIDs
- Runway operational capacity
- A-SMGCS data/radar information

**Network Operations**
- Flight plan data
- ATFM departure slots
- Arrival information (Flight Status/ELDT)

**AO/GH**
- Flight plans
- Turn-round times
- Priority of flights
- Aircraft registration
- Aircraft movement data

**Other service providers**
- De-icing companies (de-icing times)
- Met office (met info)
Linking Airports with a Network – Non A-CDM

- Non optimal traffic demand picture
  - \((EOBT + \text{Default Taxi Time})\)
- Results in unnecessary restrictions applied
- Wasted ATFM slots
- Overload and traffic bunching
A-CDM - Linking Airports with a Network

**Objective**
- To share dynamic Airport CDM Information with the ATM Network

**Network – Airport – Network**
- Flight Update Message (FUM)
  - *Flight Status, Time over & landing times*
- Departure Planning Information (DPI) Message
  - *Off-Blocks & Estimated Take-Off Times*
  - *Aircraft type, Taxi times & SID*

**Benefits**
- Airports - *Arrival estimates*
- Network - *Take-Off estimates* *(improve en-route sector planning)*
A-CDM in the European Network

**DPI (Departure Planning Information)**
Supply the NMOC with updated information concerning a departure flight at a CDM Airport

**FUM (Flight Update Message)**
Inform the Partners at a CDM Airport about the progress of an arrival flight
Flight Update Message

• The main purpose of the FUM is to provide an airport of destination with the Estimated LanDing Time (ELDT) of a flight.
• The FUM also contains the Estimated Time Over (ETO) the last point en-route or of the Initial Approach Fix (IAF).
• Sent via AFTN or NM B2B web services
-TITLE FUM
-BEGIN ADDR
   -FAC EBBUZQZX
-END ADDR
-IFPLID AA19600528
-ARCID AMC101
-ARCTYP B763
-REG DABXW
-ADEP EGLL
-ADES LMML
-EOBD 051003
-EOBT 1055
-ELDT 1335
-ESTDATA -PTID MLQ-FL190-ETO 021003111500
-FLTSTATE TA
Departure Planning Information (DPI)

- The purpose of DPI is to provide ETFMS with the most up to date flight data currently available which cannot be sent via IFPS.
- DPI messages can be triggered by ATC (TWR) systems, by sequencing tools (e.g. DMAN) or by Collaborative Decision Making (CDM) systems at airports.
- Sent via AFTN or NM B2B web services

- **The main data to be received via the DPI message are:**
  - An accurate estimation of the take-off time (TTOT)
  - The individual taxi-time (EXOT)
  - The SID
## DPI types

<table>
<thead>
<tr>
<th>DPI type</th>
<th>DPI status</th>
<th>Filing time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-DPI (Predicted DPI)</td>
<td>DPISTATUS-Predicted</td>
<td>EOBT -20h until EOBT -3h</td>
</tr>
<tr>
<td>E-DPI (Early DPI)</td>
<td>DPISTATUS-Early</td>
<td>3h till 2h before EOBT</td>
</tr>
<tr>
<td>T-DPI_t (Confirmed)</td>
<td>DPISTATUS- Target</td>
<td>2h till 40min before EOBT</td>
</tr>
<tr>
<td>T-DPI_s (Sequenced)</td>
<td>DPISTATUS- SEQ</td>
<td>40min till AOBT</td>
</tr>
<tr>
<td>A-DPI (ATC DPI)</td>
<td>DPISTATUS- ATC</td>
<td>30min before EOBT till take-off</td>
</tr>
<tr>
<td>C-DPI (Cancel DPI)</td>
<td>DPISTATUS- CNL</td>
<td>Anytime</td>
</tr>
</tbody>
</table>
T-DPI_s - example

03-14:07 DLH464  2 Incoming Message   - Dpi EDDFYDYX @AFTN
Message:
Received from: EDDFYDYX @AFTN. Est. Xmit at: 18/11/03 14:07:00. Message
description:-TITLE DPI
- DPISTATUS SEQ
- ARCID DLH464
- ADEP EDDF
- ADES KMCO
- EOBT 1350
- EOBD 181103
- TOBT 1410
- TSAT 1410
- TAXITIME 0016
- TTOT 1428
- SID SOBRA1L
- ARCTYP B744
- REG DABTL
- IFPLID AA07669834
Non - CDM airport - Departure Planning

- EOBT
- FPL
- SAM
- CTOT
- DLA
- SRM
- ATOT
- FSA
- ATC updates

Default taxi-time:
⇒ TOT
⇒ ETO
CDM Airport - Departure Planning Information (DPI)

+ variable taxi-time => TOT
SUPPORTING EUROPEAN AVIATION

Thank you
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