SUPPORTING EUROPEAN AVIATION

AOP-NOP Data Exchange

PRC-ACI EUROPE APOC EXCHANGE

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CONSORTIUM COORDINATOR sesar DEPLOYMENT MANAGER

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NETWORK MANAGER

Airport – Network connectivity
Connected airports

- Provide per flight information to **ETFMS** (**E**nhanced **T**actical **F**low **M**anagement **S**ystem) via DPI and API messages

- ETFMS provides enhanced tactical data to all operational stakeholders.
- ETFMS has two main functions:
  - Calculation of traffic demand in every sector of the NM area of operations, using information received from AO, Airports and ANSPs.
  - Computer-assisted slot allocation (CASA), calculation, slot allocation and distribution of resulting lists to all parties involved.

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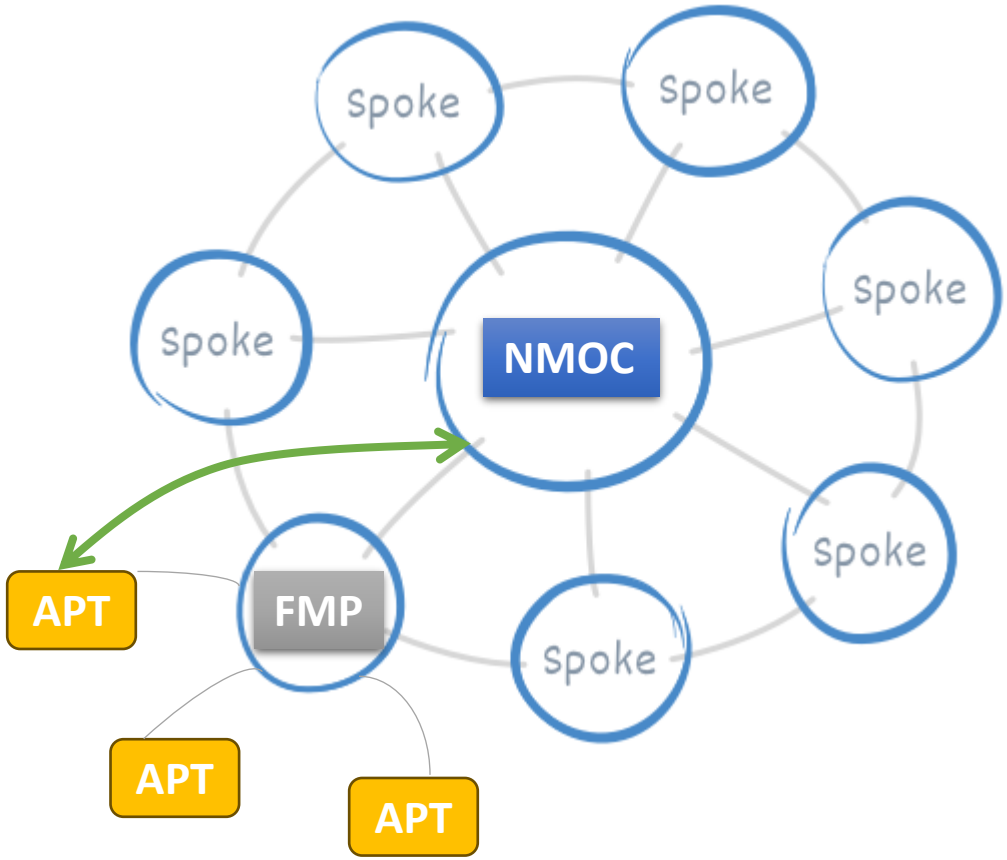
Airport – Network connectivity



- Integration of Airports with the ATM Network
  - Data exchange
  - +
  - Supporting processes

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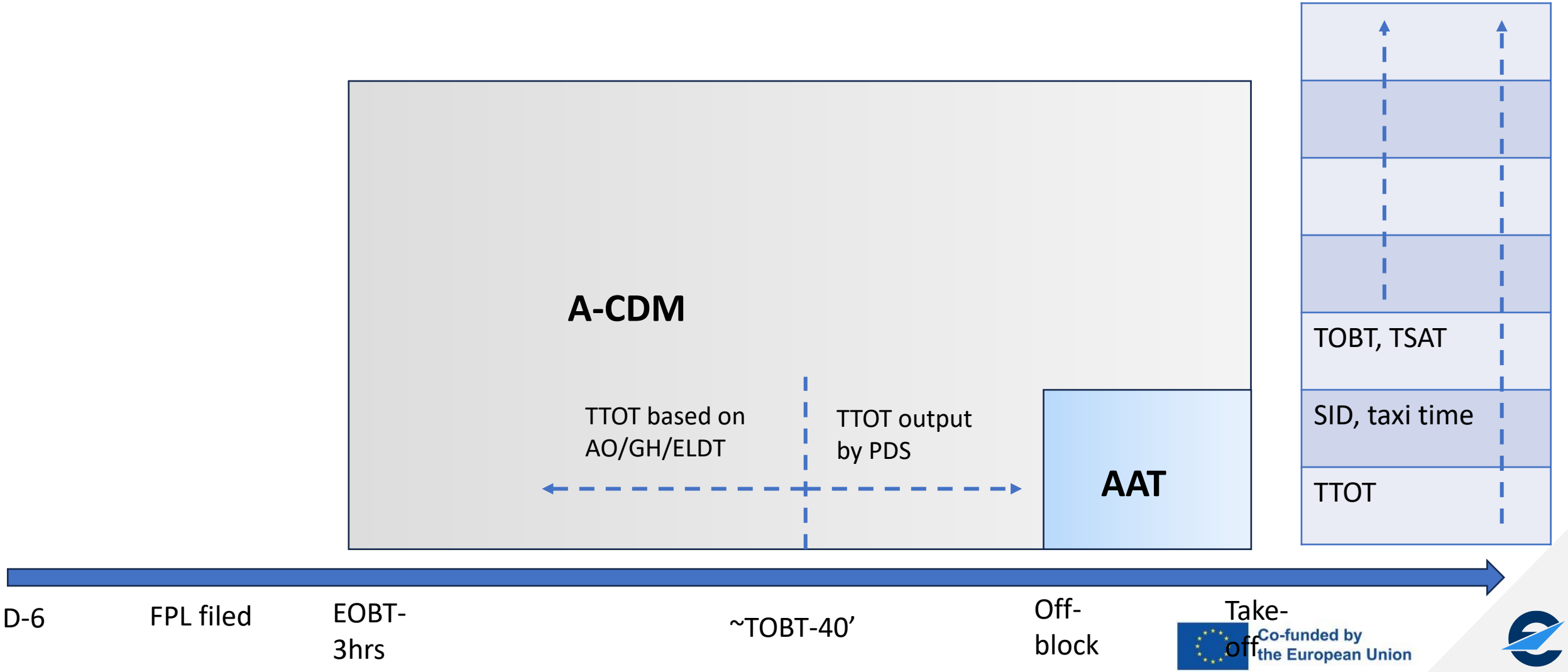
Airport – Network connectivity

Airport Collaborative Decision Making (A-CDM)



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Airport – Network connectivity

From A-CDM towards Advanced Network Integrated airport

- **AOP/NOP integration** - Strategic CP1 project for higher integration than A-CDM between Airports and NM via the Airport Operations Plan (AOP) and the Network Operations Plan (NOP).

- It is divided in two phases:
  - ***Initial*** AOP/NOP integration for 19 airports by end of 2023
    - 8 implemented up to now + 3 this month
  - ***Extended*** AOP/NOP integration for 31 airports by end of 2027

iAOP - NOP

- LFMN Nice
- LPPT Lisbon
- LOWW Vienna
- LEMD Madrid
- LIRF Rome Fiumicino
- LFPG Paris Charles-de-Gaulle
- LFPO Paris Orly
- EDDF Frankfurt
- EGLL Heathrow
- LIMC Milan Malpensa
- EKCH Copenhagen

Airport – Network connectivity
From A-CDM towards Advanced Network Integrated airport

- iAOP-NOP Airports provide information to Network starting from when the FPL is filed (builds on A-CDM) , in the extended AOP-NOP integration from D-6.

- All DPI message types
  - Network has better predictability from D-6 (or FPL filing) to take-off.
  - Reactionary delay is included by linking inbound and outbound flights.
  - Enables optimisation of resources locally, including in the pre-tactical phase

- Departure Planning Information (DPI) implementation guide | EUROCONTROL

- + Arrival Planning Information (G-API)
- Arrival Planning Information (API) implementation guide | EUROCONTROL

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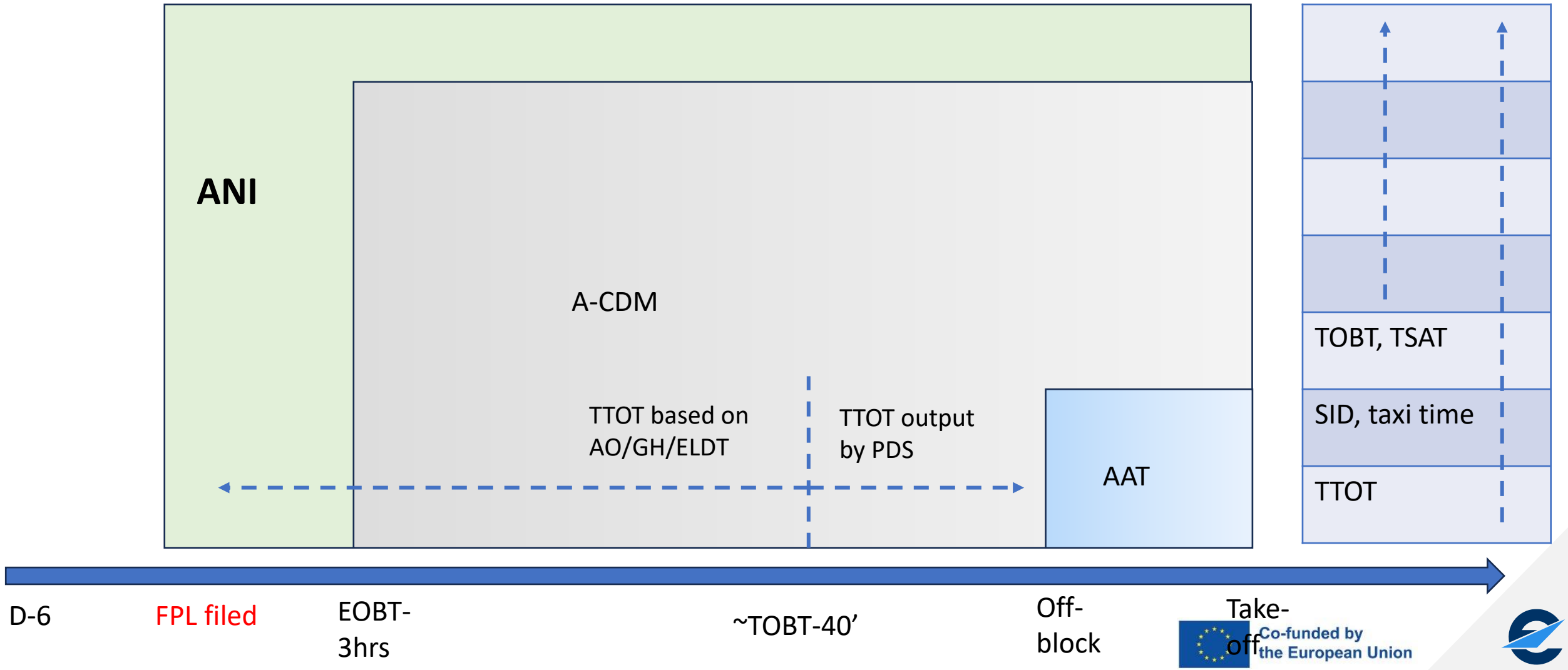
Airport – Network connectivity iAOP-NOP

DPI + API messages



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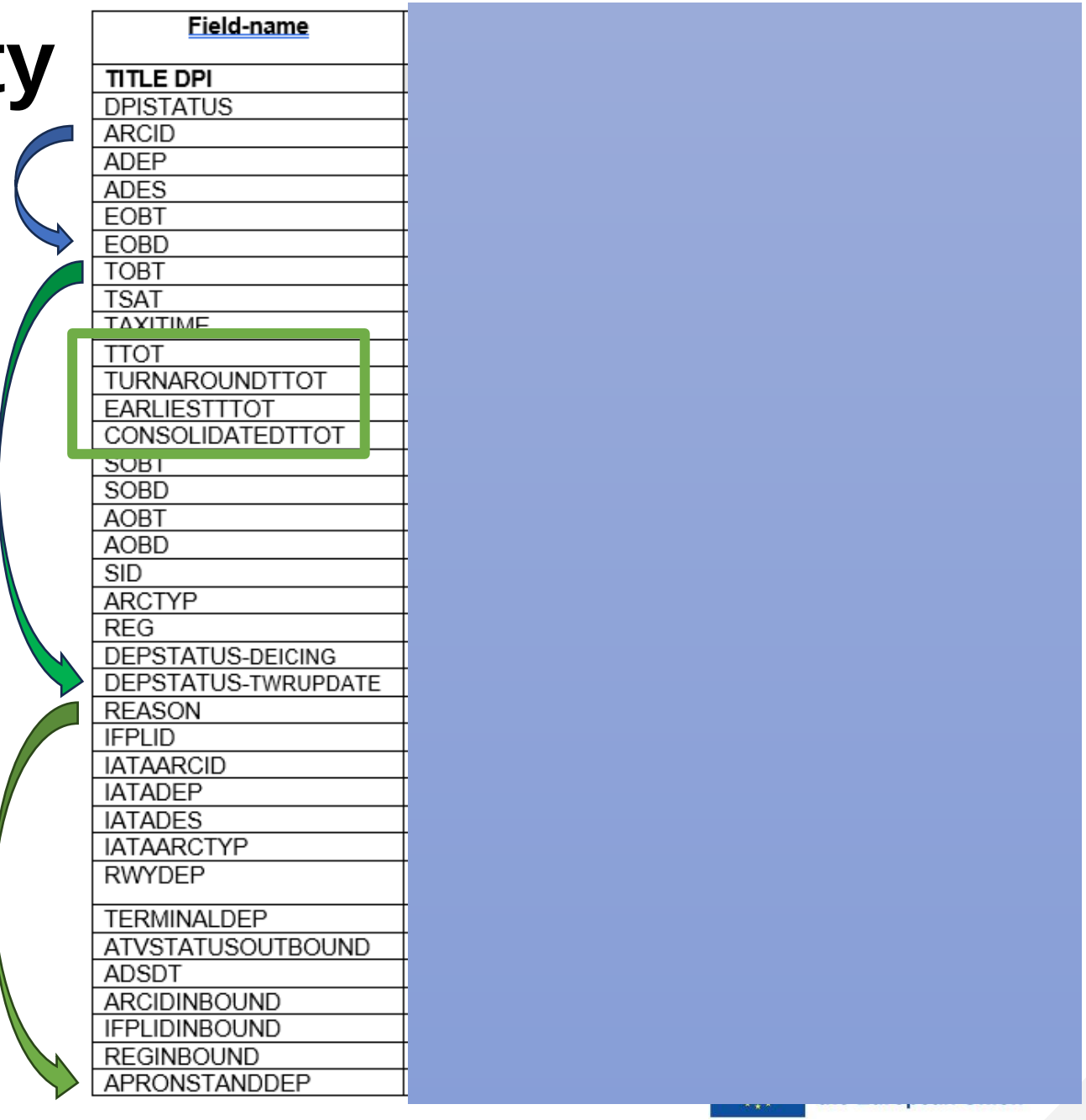
Airport connectivity

DPI content

For Correlation

Impact on Flow

For information sharing



Field-name
TITLE DPI
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ARCID
ADEP
ADES
EOBT
EOBD
TOBT
TSAT
TAXITIME
TTOT
TURNAROUNDTTOT
EARLIESTTTOT
CONSOLIDATEDTTOT
SOBT
SOBD
AOBT
AOBD
SID
ARCTYP
REG
DEPSTATUS-DEICING
DEPSTATUS-TWRUPDATE
REASON
IFPLID
IATAARCID
IATADEP
IATADES
IATAARCTYP
RWYDEP
TERMINALDEP
ATVSTATUSOUTBOUND
ADSDT
ARCIDINBOUND
IFPLIDINBOUND
REGINBOUND
APRONSTANDDEP

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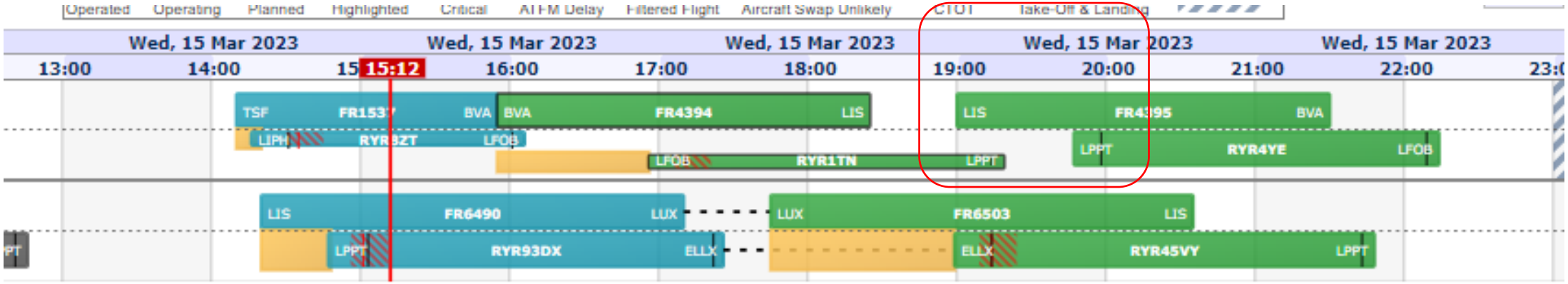
TurnaroundTTOT benefits with inbound-outbound linking



RYR Flight FR4394 to Lisbon is late due to ATFM delay, turnaroundTTOT (sent with P-DPI in this case) provides a good estimation of the TTOT compared to the FPL information currently available.

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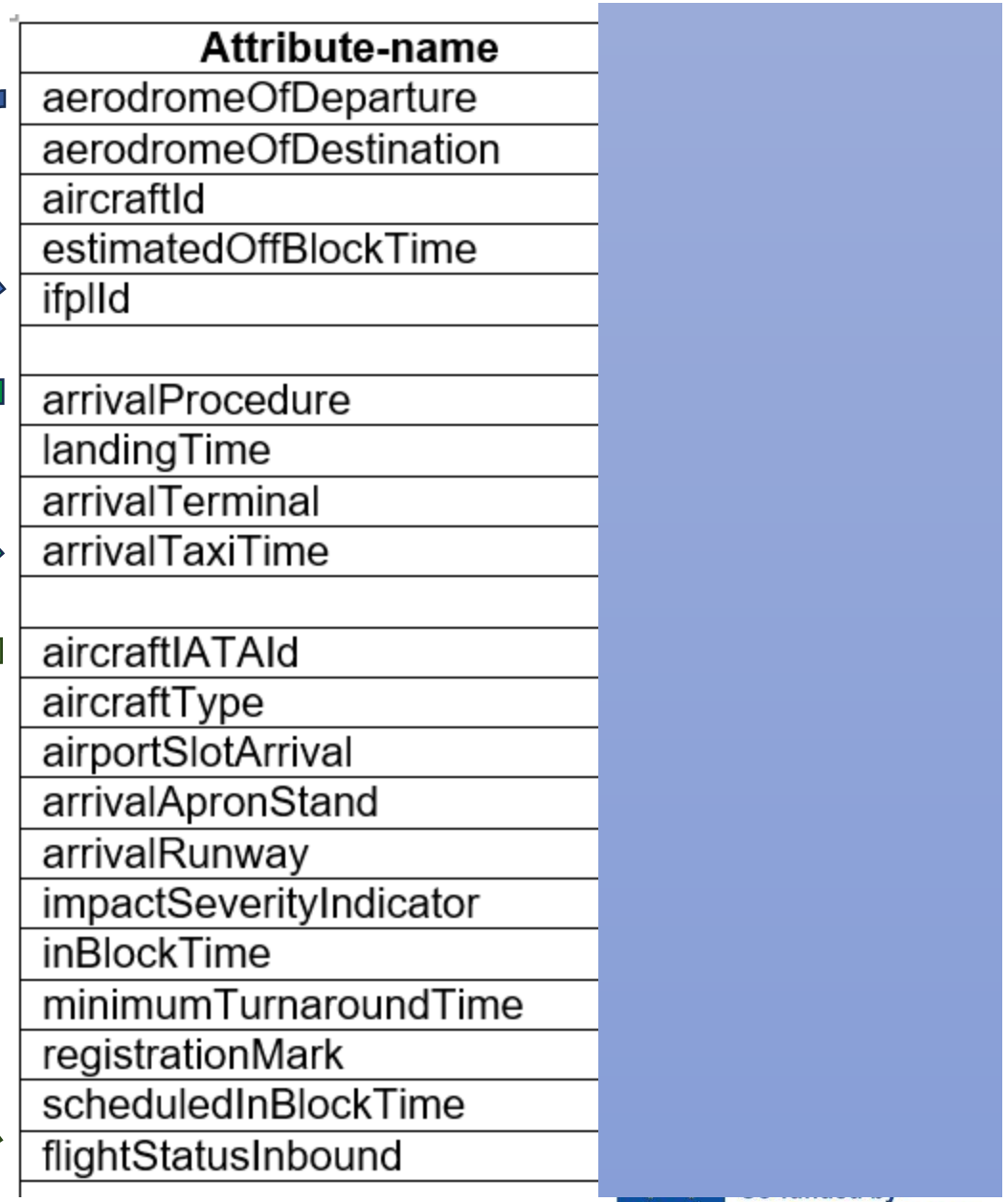
Airport connectivity
API content

For Correlation

Impact on Flow

For information sharing



Attribute-name
aerodromeOfDeparture
aerodromeOfDestination
aircraftId
estimatedOffBlockTime
ifplId
arrivalProcedure
landingTime
arrivalTerminal
arrivalTaxiTime
aircraftIATAId
aircraftType
airportSlotArrival
arrivalApronStand
arrivalRunway
impactSeverityIndicator
inBlockTime
minimumTurnaroundTime
registrationMark
scheduledInBlockTime
flightStatusInbound

G-API Benefits Assessment

- G-API allow NM to improve linkage between arrival and inbound flow. Their attributes are source of information for ETFMS to improve the flight profiles and for other NM tools/services. Predictability is improved.

- G-API data is used for information sharing with all Stakeholders. For example, Airlines use it for getting more accurate data on actual landing time of their aircraft for post-ops analysis.

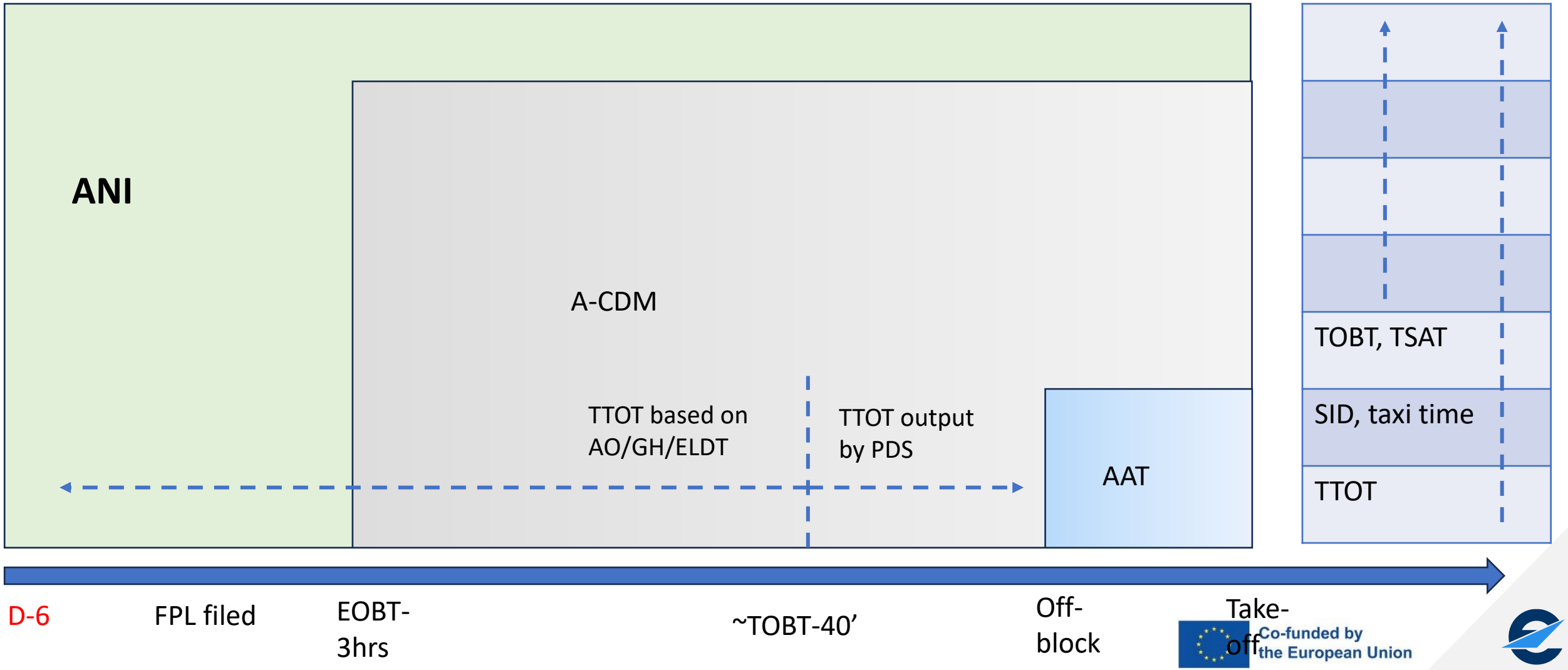
- With G-API Airports can share Terminal information for each aircraft. In case of severe disruptions, Airports are able to request ATFCM regulations only for part of the ground infrastructure that is impacted by the disruption and keep operating flights for terminals with spare capacity. Reduction in ATFM delays, less flights cancellations.

LEMD Airport arrival terminals defined for G-API:

T123 / T4 / T4S / FBO / CARGO.

Airport – Network connectivity eAOP-NOP

DPI + API messages



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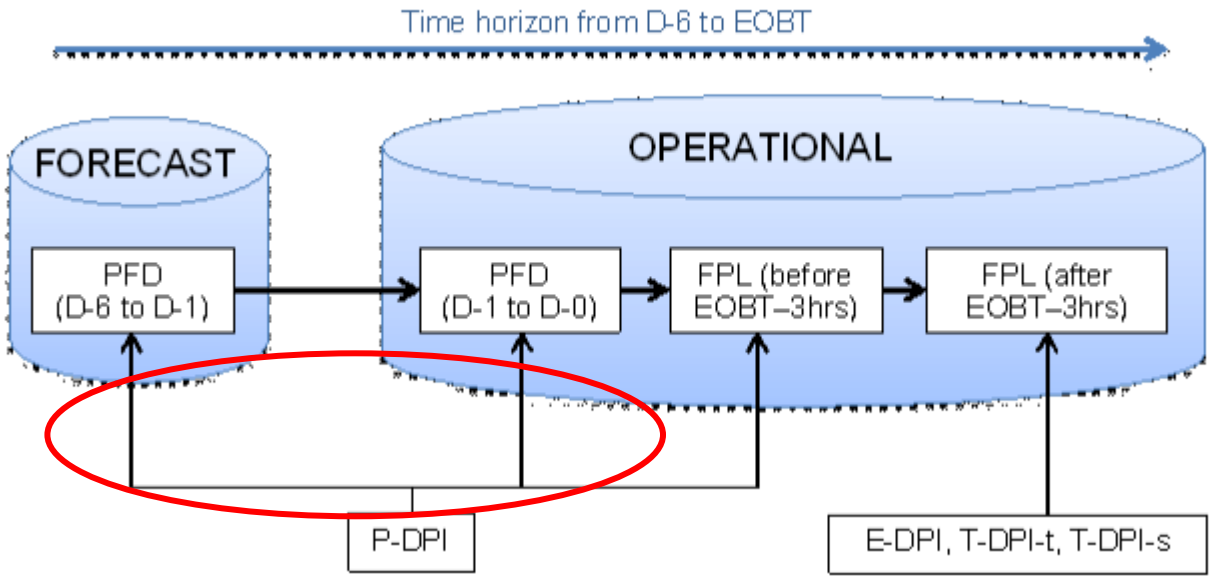
eAOP-NOP Integration



For the extended AOP-NOP the goal is to enhance the PREDICTABILITY, having a 1-1 mapping with the traffic demand of airport systems

eAOP-NOP - data from AOP to NOP

- Flight schedule alignment
  - The aim is to get rid of FPL constraints in NM systems and receive from Airports AODB the scheduled flight data (IATA format, including cancellations from airlines), several days in advance via P-DPI; allowing NM systems to have the same view on traffic as the Airports have.
- Curfew
  - NM systems want to put in place a harmonized databases of curfews and give possibility to airports to indicate to NM systems if aircraft are exempted from curfew.
- Regulations
  - More option for Airports (together with FMPs) to enable cherry pick regulations for local disruptions
- Automated integration with Airport Corner
  - Feed of events and other information directly from AOP
  - Curfew database

eAOP-NOP - data from NOP to AOP

- Alerting service
  - NM developed several tools to support Stakeholders in recent years (e.g. MIRROR, Regulation prediction, AF dashboard,..).
  - There was a clear need from Stakeholders to have alerting systems in place for their AOP rather than keeping those tools monitored on screen by Staff.

- NM predictions based on ML models
  - Stakeholders want to have an accessible and harmonized way to use those predictions (e.g. via NM B2B services)

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Thank you!

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