



## Network view of TBO & FF-ICE

Gérard Mavoian
EUROCONTROL PJ07-W2 project coordinator

SESAR 2020 SHOWCASE

# SESAR TBO overview & scope



#### **Pre-departure phase**

Extended Flight plan including detailed 4D trajectory

FF-ICE release 1

**Strategic execution\*** 

Trajectory revisions in airborne phase either on pilot, dispatcher or ATM initiative

\*tactical control not involved

FF-ICE release 2

NETWORK TBO

#### **Tactical execution**

Improved and anticipated vertical and lateral clearances using CPDLC and aircraft downlinked trajectory (EPP)

**ATC TBO** 

# NETWORK TBO – planning phase



Extended Flight Plan (2016-2019)

FF-ICE/FIXM standard FF-ICE/1 filing service

8 airlines

2 CFSPs

2 ANSPs

Airport CDM information in AU Flight planning (2020)

Requirements for CSFPs
Reduced gap between AU and NM 4DT

8 airlines 1 CFSP Airports

Enriched flow management information in Airline flight planning (2018-22)



B2B what-if service for Airspace users
deployed from 2019
Requirements for advanced FF-ICE/1 services

10 airlines

3 ANSPs

1 CFSP



## Trajectory revision in strategic execution



Aligned with FF-ICE release2 development

Initial phase of development

## TableTops:

- European tabletops
- Joint tabletops with FAA and NavCanada for interregional traffic





## Trajectory revision in strategic execution



#### **Initial tabletop in February 2022**

More than 30 operational experts involved: FMPs, ATC supervisors, flight dispatchers, NM operators, airport traffic managers,

Learning and sharing information on TBO/FF-ICE

Identify operational benefits & use-cases

Identify information/services needs (Flight/Flow/Others)

Provide input to CDM processes

Discuss role automation/human

Identify R&D Needs



ICAO NM



### Airborne trajectory revision (FF-ICE/2) -Scenario 1



Trajectory revision Trajectory revision on AU initiative due to Weather conditions change



- Original agreed Trajectory: Blue.
- 2. New Optimized Trajectory calculated by AU: **Black**
- Revised deviation proposed by NM: Green

#### General principles

- Process similar to the planning phase for flight plan changes
- Flight Operation Centre involved
- NM main interface for Airspace users
- FOC Pilot information exchanges through EFB

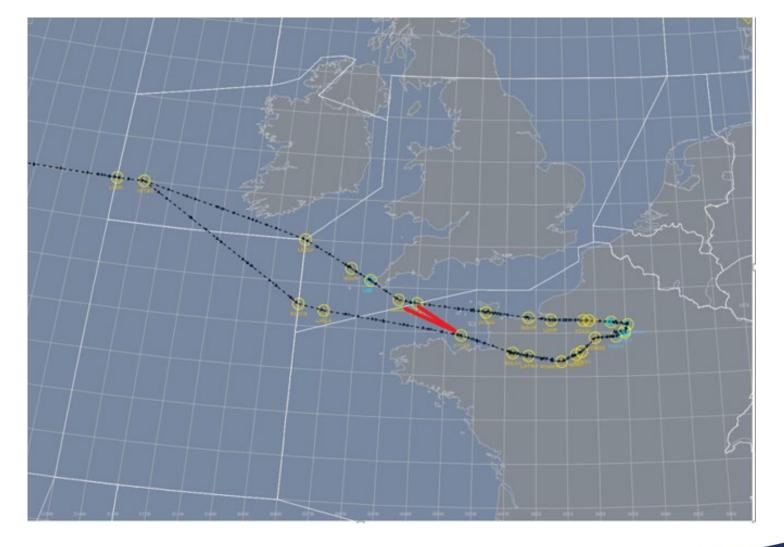
#### Main benefits:

- Trajectory optimisation
- Reduced workload
- Better manage network impact



### Trajectory revision on airport initiative - Scenario 2









### SESAR 3 – NETWORK TBO project solutions



NETWORK TBO-1 Pre-flight phase & FF-ICE/1	NETWORK TBO-2 Strategic execution & FF-ICE/2	NETWORK TBO-3 Inter-ACC coordination & network
Advanced FF-ICE1 services	Trajectory revisions in execution.	Inter-ACC coordination information exchanges involving the Network
Improved integration of ATC/airport information in planning phase AU trajectory	Focus on CDM processes involving all ATM actors and AU flight dispatch.	Manager
	Include inter-regional trajectory revisions	

Industrial Research project 2023 -2026 period

