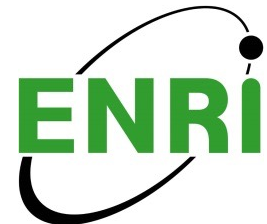




FF-ICE/R1 Scenario for SWIM over CRV Demonstration



Agenda



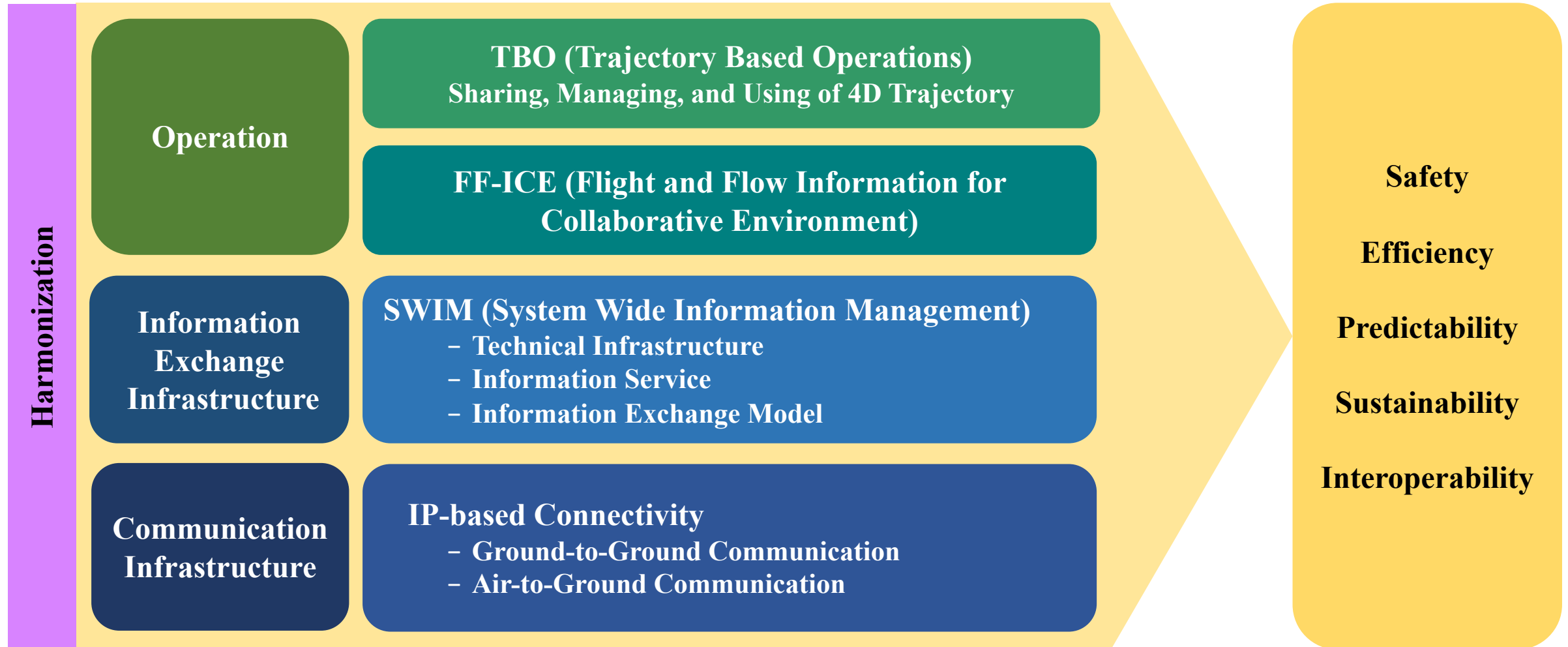
1. Background

2. FF-ICE/R1 Scenario

3. Demonstration

4. Summary

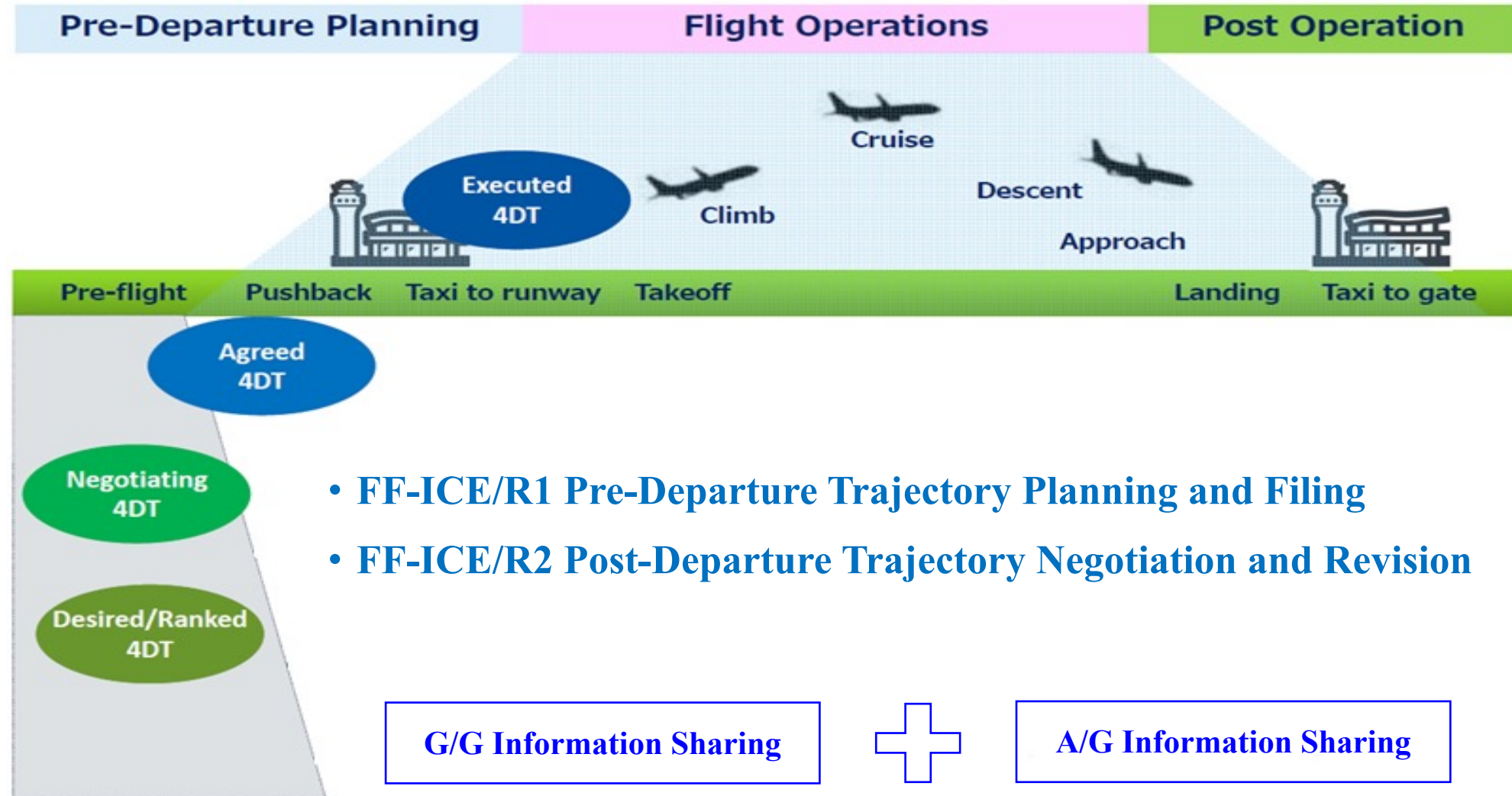
Background



Background



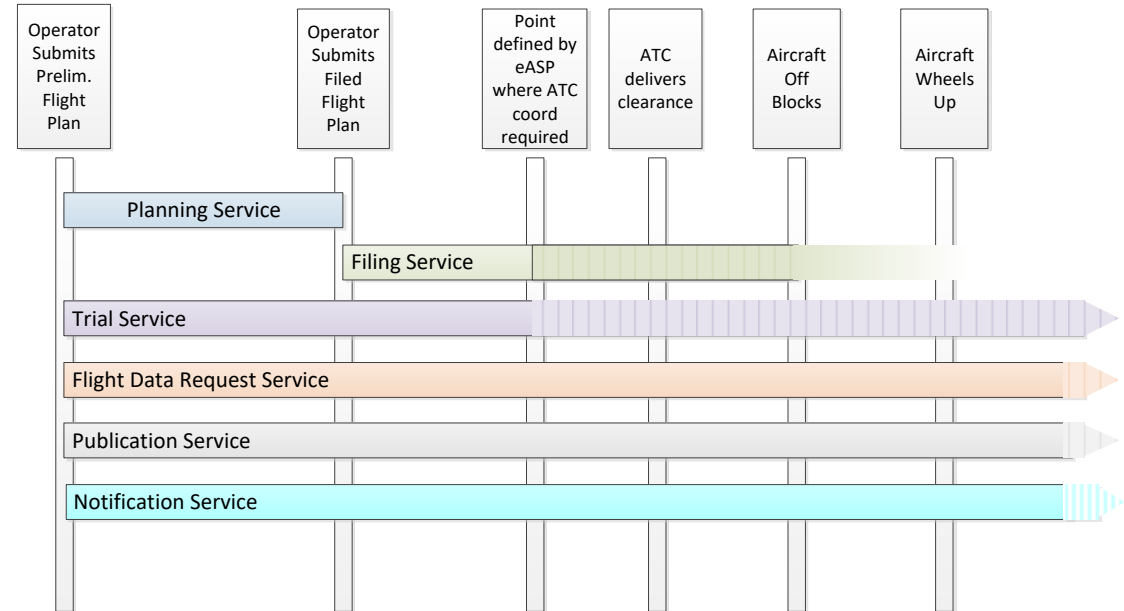
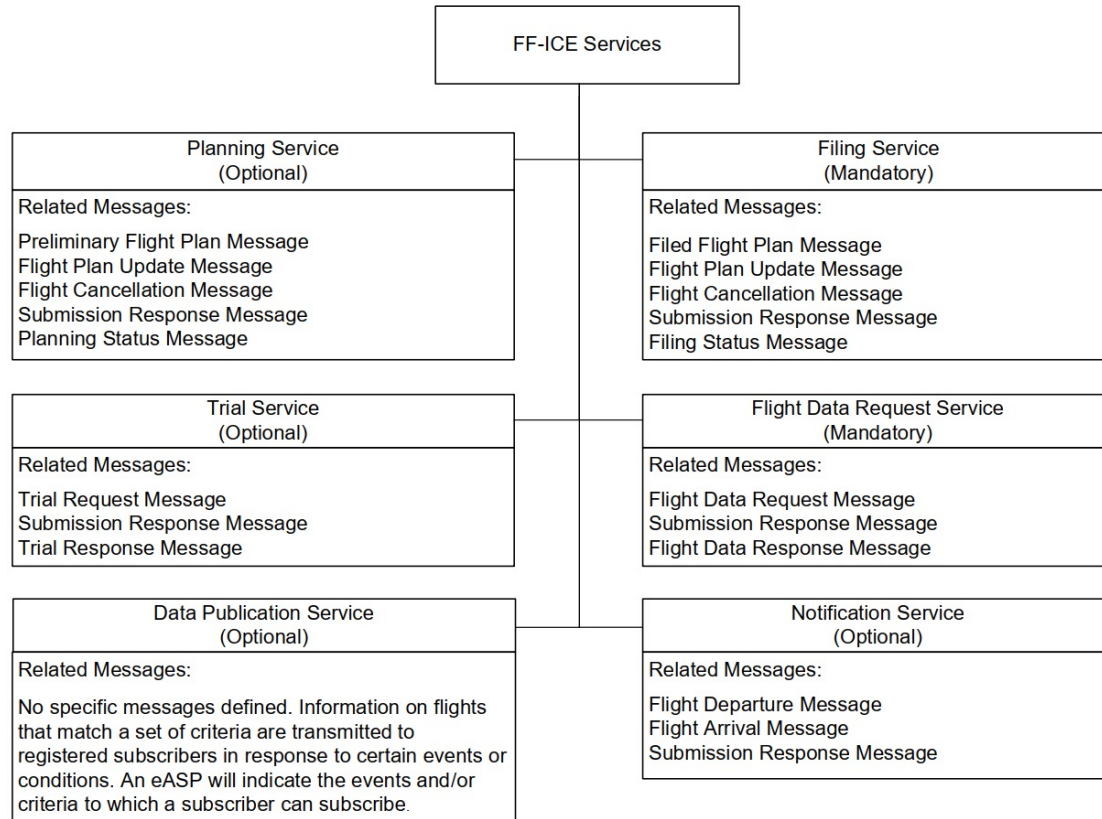
Flight and Flow Information for Collaborative Environment (FF-ICE)



Background



FF-ICE Services



***eASP: FF-ICE capable ATM Service Provider**

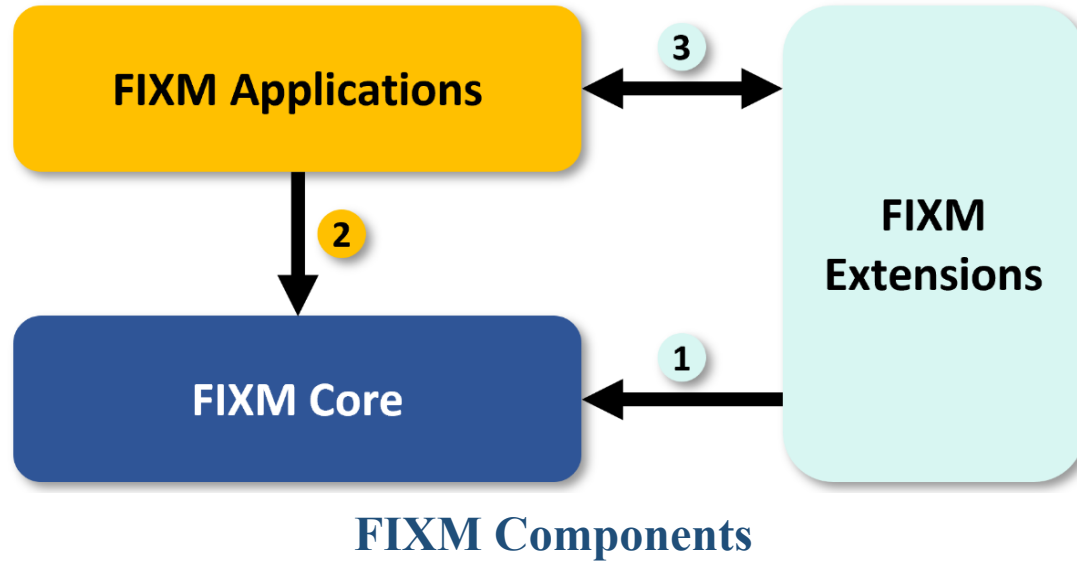
***eAU: FF-ICE capable Airspace User**

FF-ICE Services as defined in the ICAO FF-ICE Implementation Guidance

Background

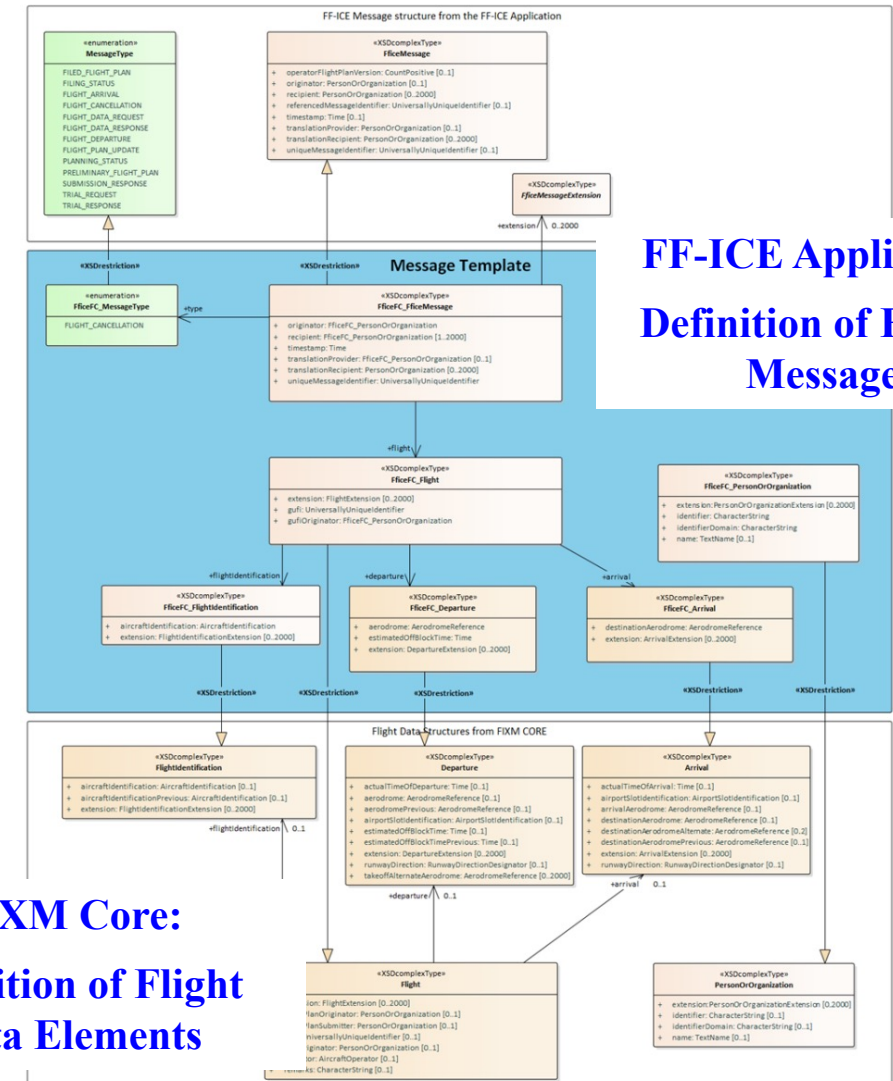
Flight Information Exchange Model (FIXM)

- **FIXM Components**
 - **FIXM Core: Flight and Base**
 - **FIXM Applications: Basic and FF-ICE**
 - **FIXM Extensions: US, EU and APAC**



FIXM Components

FIXM Core:
Definition of Flight
Data Elements



FIXM v4.2.0 Structure

FF-ICE Application:
Definition of FF-ICE
Messages

Agenda



1. Background

2. FF-ICE/R1 Scenario

3. Demonstration

4. Summary

Scenario Overview



➤ FF-ICE/R1 Pre-Departure Trajectory Planning and Filing

- ATM Service Providers: JCAB and AEROTHAI
- Airspace User: JAL
- Flight: JAL707X
- Departure Airport: RJAA
- Arrival Airport: VTBS



Scenario Overview



Agenda



1. Background

2. FF-ICE/R1 Scenario

3. Demonstration

4. Summary

Demonstration



JAL: PFP

JCAB: Concur

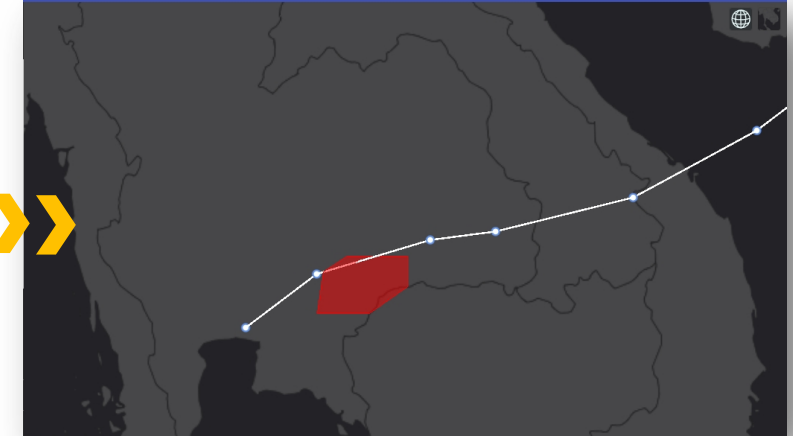
AEROTHAI: Concur



JAL: eFPL

JCAB: Acceptable

AEROTHAI: Acceptable



AEROTHAI:

- NOTAM
- Trajectory re-evaluation
- Not-acceptable



JAL: Trial request

JCAB: Concur

AEROTHAI: Concur



JAL: eFPL update

JCAB: Acceptable

AEROTHAI: Acceptable



JCAB: eDEP

AEROTHAI: ACK

Demonstration



➤ Step 1: Pre-departure flight plan planning

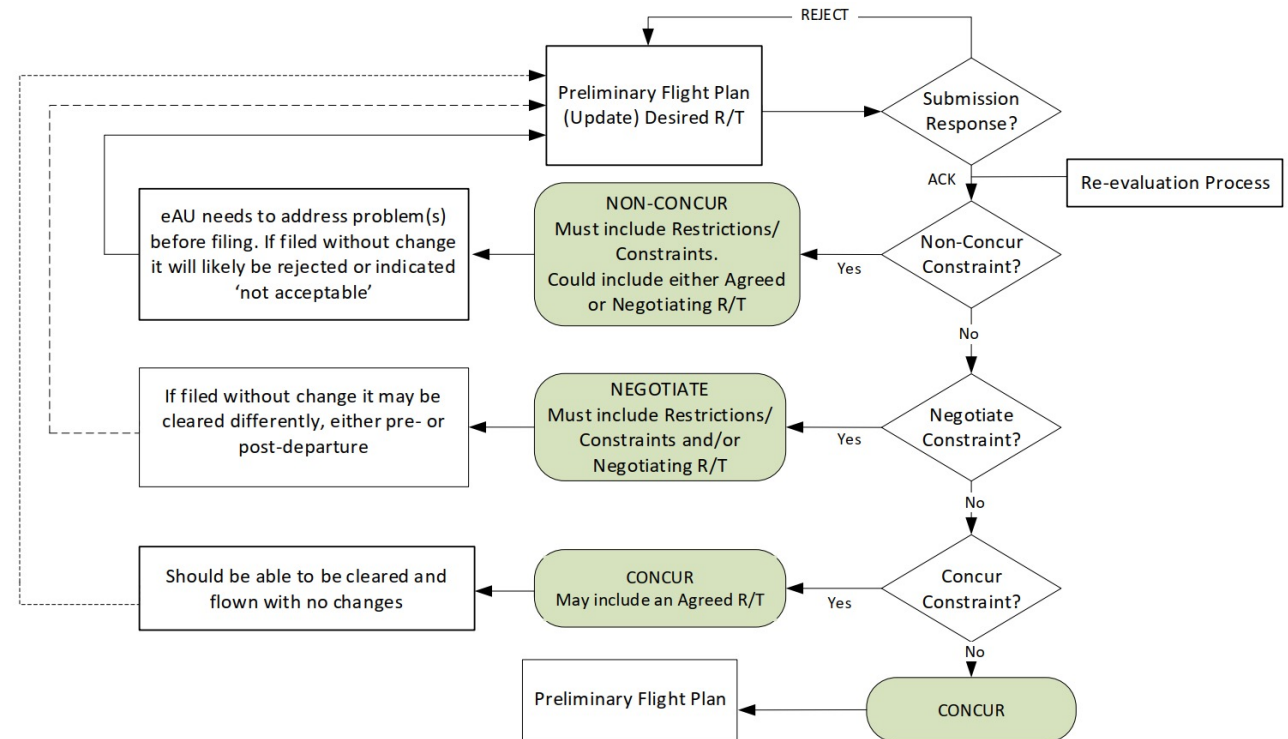
1-1. JAL generates a flight route for JAL707X according to updated situations

1-2. JAL generates a GUFU for JAL707X

1-3. JAL publishes PRELIMINARY_FLIGHT_PLAN for JAL707X to JCAB and AEROTHAI

1-4. Both JCAB and AEROTHAI respond SUBMISSION_RESPONSE with ACK

1-5. Both JCAB and AEROTHAI respond PLANNING_STATUS with CONCUR

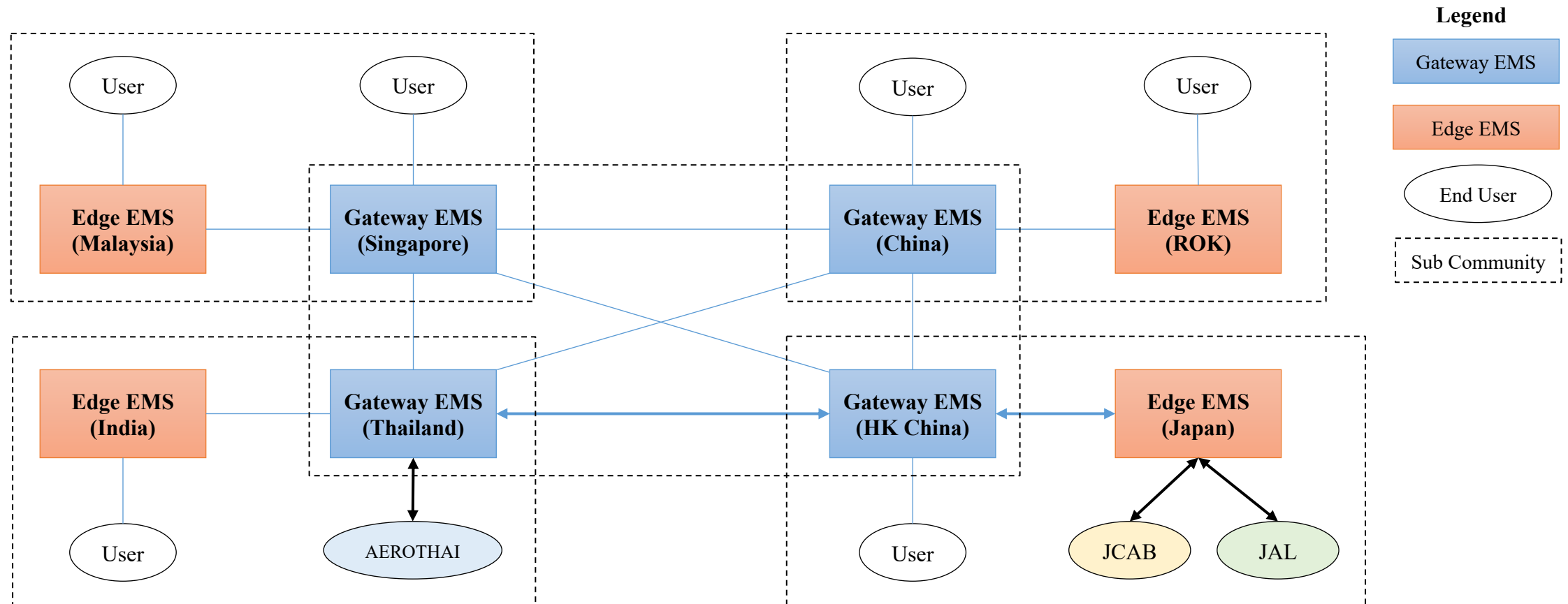


Planning Service

Demonstration



➤ SWIM Technical Infrastructure: Messaging service



Demonstration

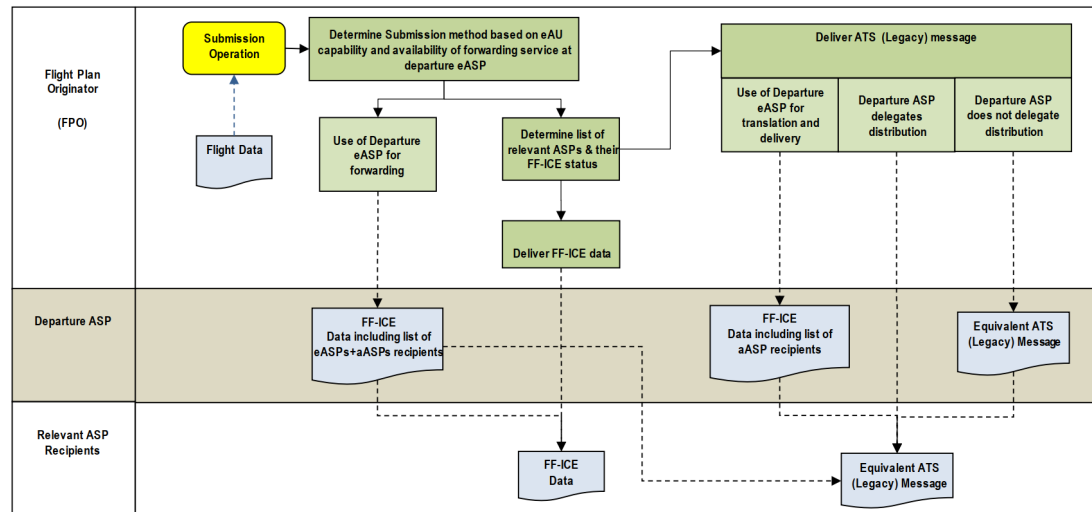


➤ Step 2: Pre-departure flight plan filing

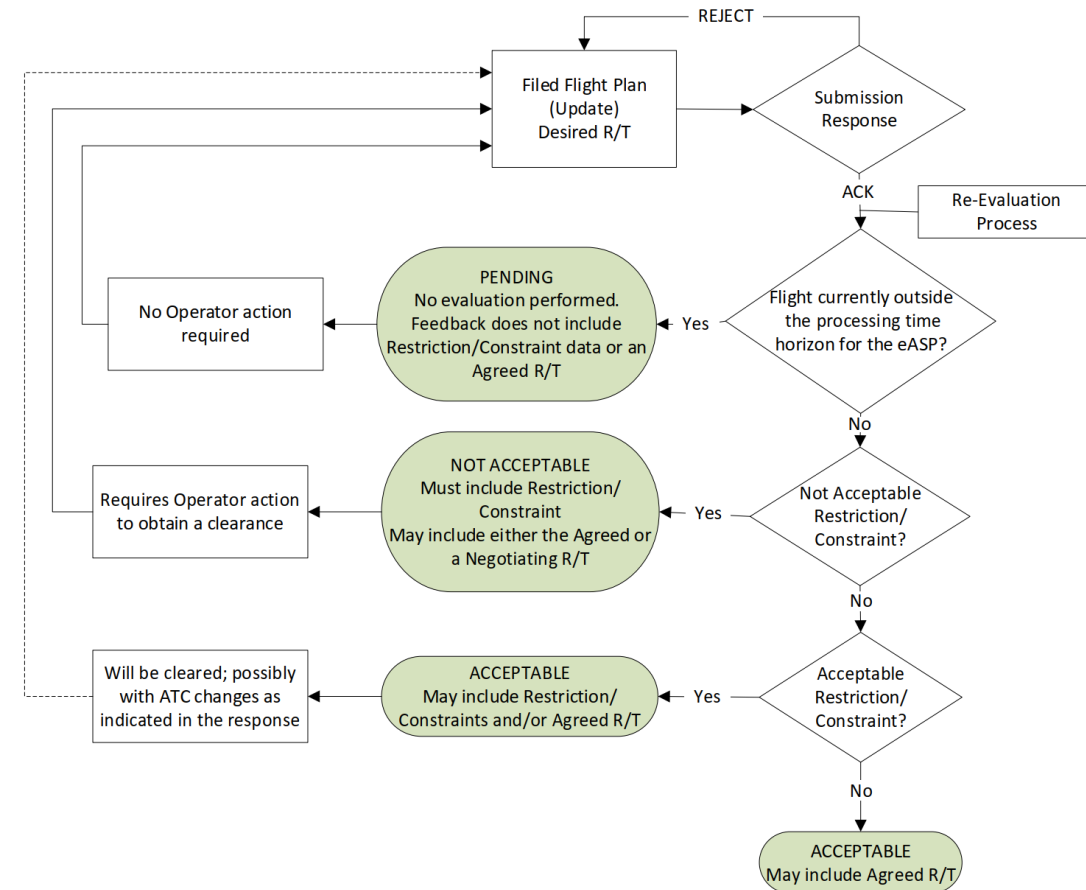
2-1. JAL publishes **FILED_FLIGHT_PLAN** to JCAB and AEROTHAI

2-2. Both JCAB and AEROTHAI respond **SUBMISSION_RESPONSE** with **ACK**

2-3. Both JCAB and AEROTHAI respond **FILING_STATUS** with **ACCEPTABLE**



Filed Flight Plan Submission Procedure



Filing Service

Demonstration



➤ Step 3: Constraint information sharing

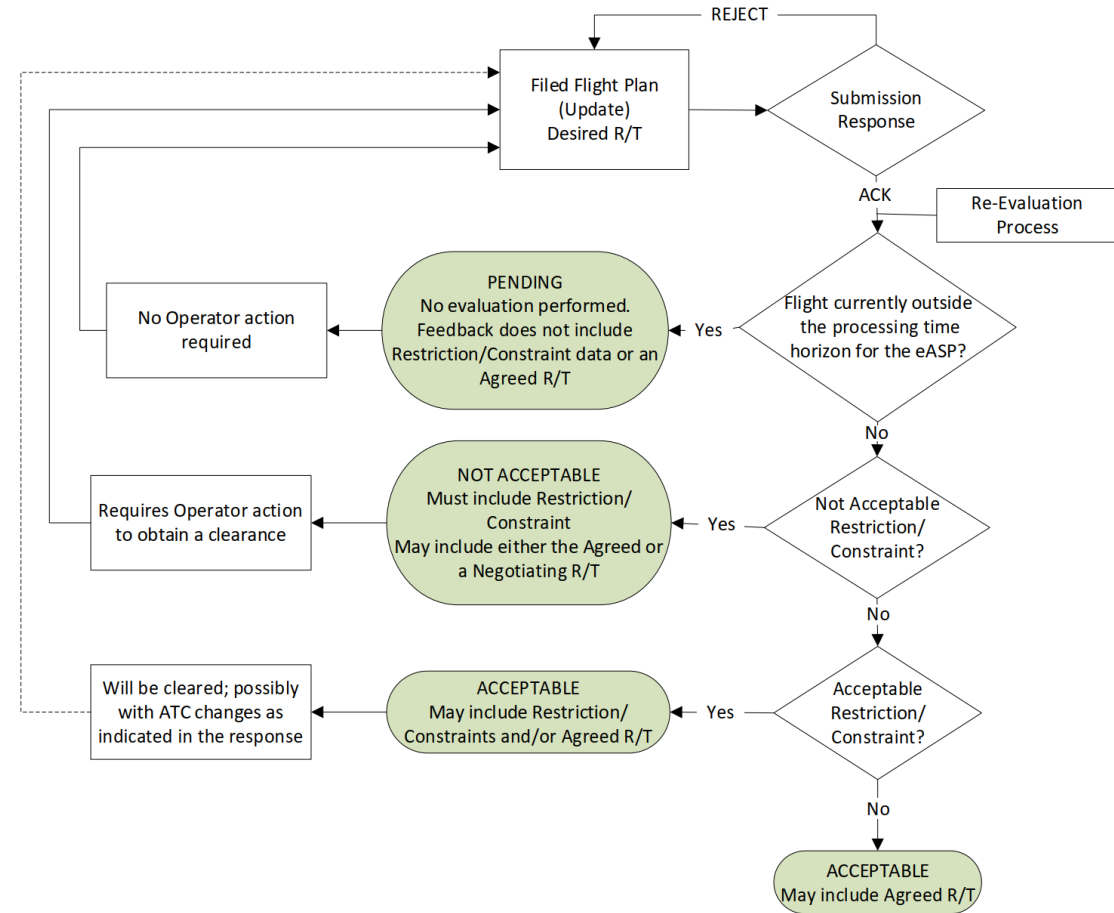
3-1. At 1.5 hours before EOBT, the danger area VTD-46 activated in Bangkok FIR

3-2. AEROTHAI publishes NOTAM in AIXM format to JCAB and JAL

➤ Step 4: Trajectory re-evaluation

4-1. AEROTHAI re-evaluates the trajectory of JAL707X according to the new constraint

4-2. As this danger area affects the current trajectory of JAL707X, AEROTHAI publishes FILING_STATUS with NOT_ACCEPTABLE



Filing Service

Demonstration



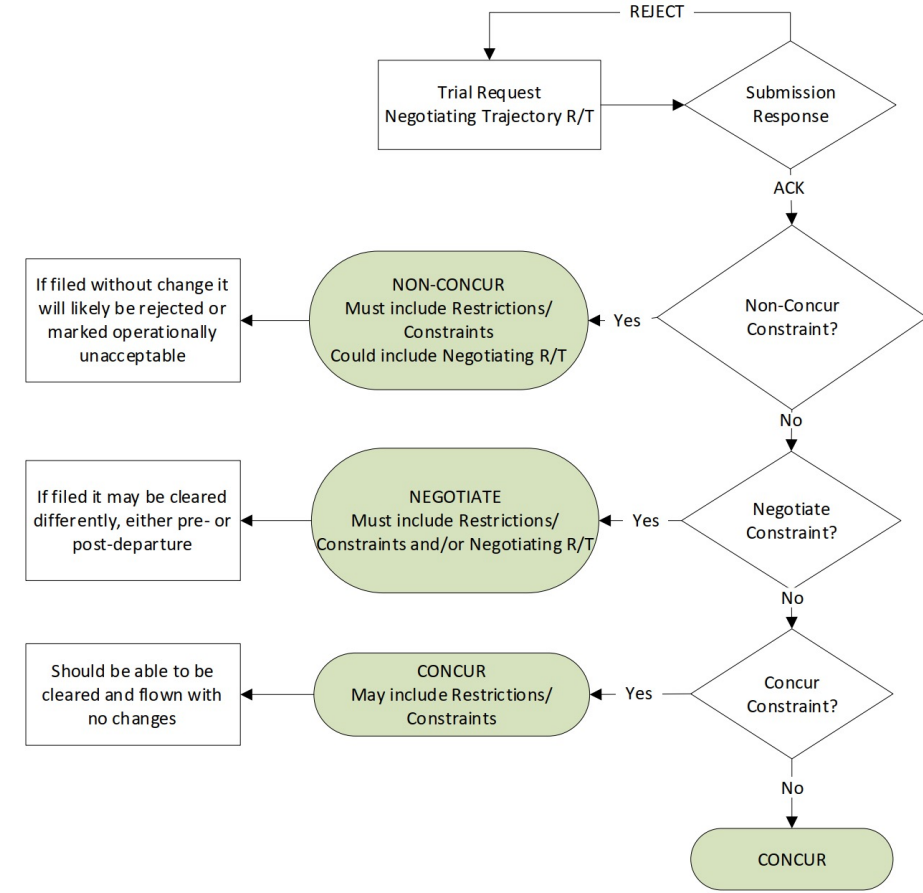
➤ Step 5: Trajectory negotiation using Trial Service

5-1. JAL revises the trajectory for JAL707X according to updated constraint

5-2. JAL publishes TRIAL_REQUEST with revised trajectory for JAL707X to AEROTHAI

5-3. AEROTHAI responds SUBMISSION_RESPONSE with ACK

5-4. AEROTHAI responds TRIAL_RESPONSE with CONCUR



Trial Service

Demonstration



➤ Step 6: Pre-departure flight plan updating

6-1. JAL publishes FLIGHT_PLAN_UPDATE to JCAB and AEROTHAI

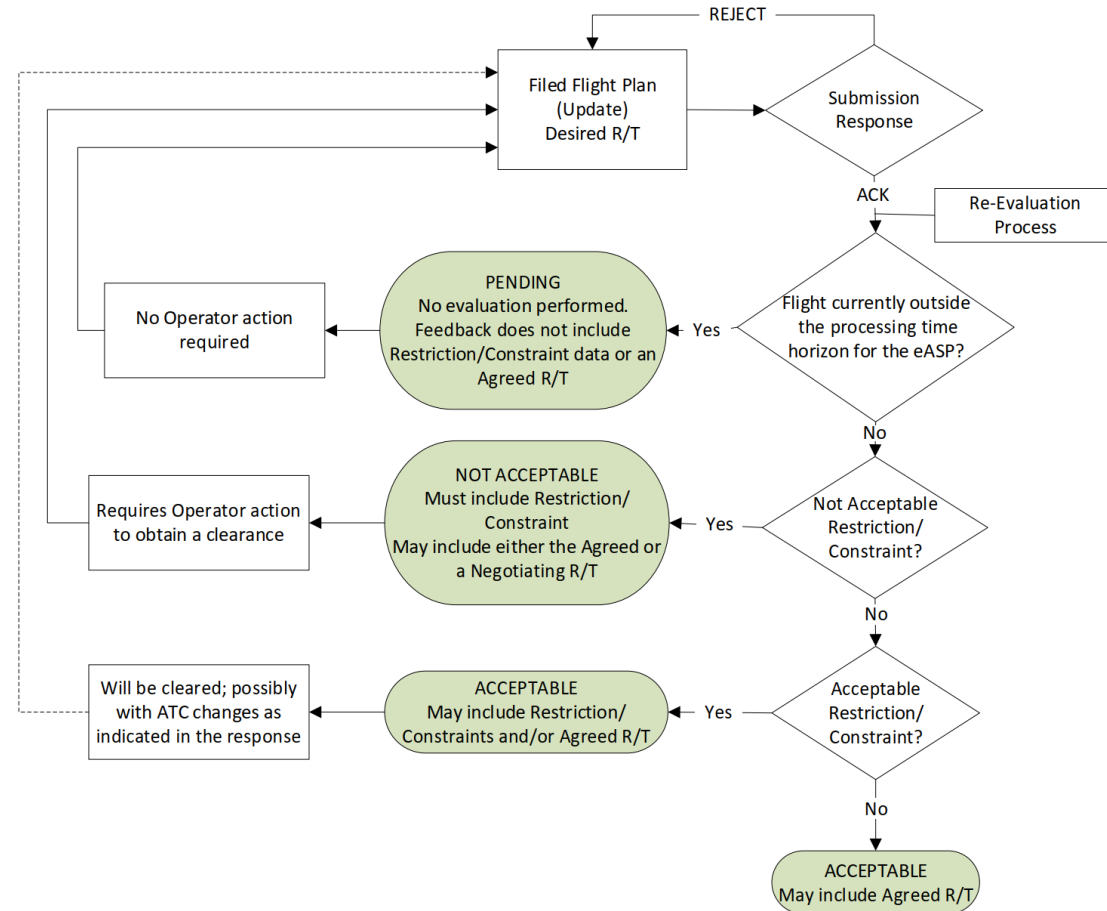
6-2. Both JCAB and AEROTHAI respond SUBMISSION_RESPONSE with ACK

6-3. Both JCAB and AEROTHAI respond FILING_STATUS with ACCEPTABLE

6-4. JAL submits FLIGHT_DATA_REQUEST to JCAB to confirm the updated flight plan

6-5. JCAB responds SUBMISSION_RESPONSE with ACK

6-6. JCAB respond FLIGHT_DATA_RESPONSE with updated flight plan



Filing Service

Demonstration



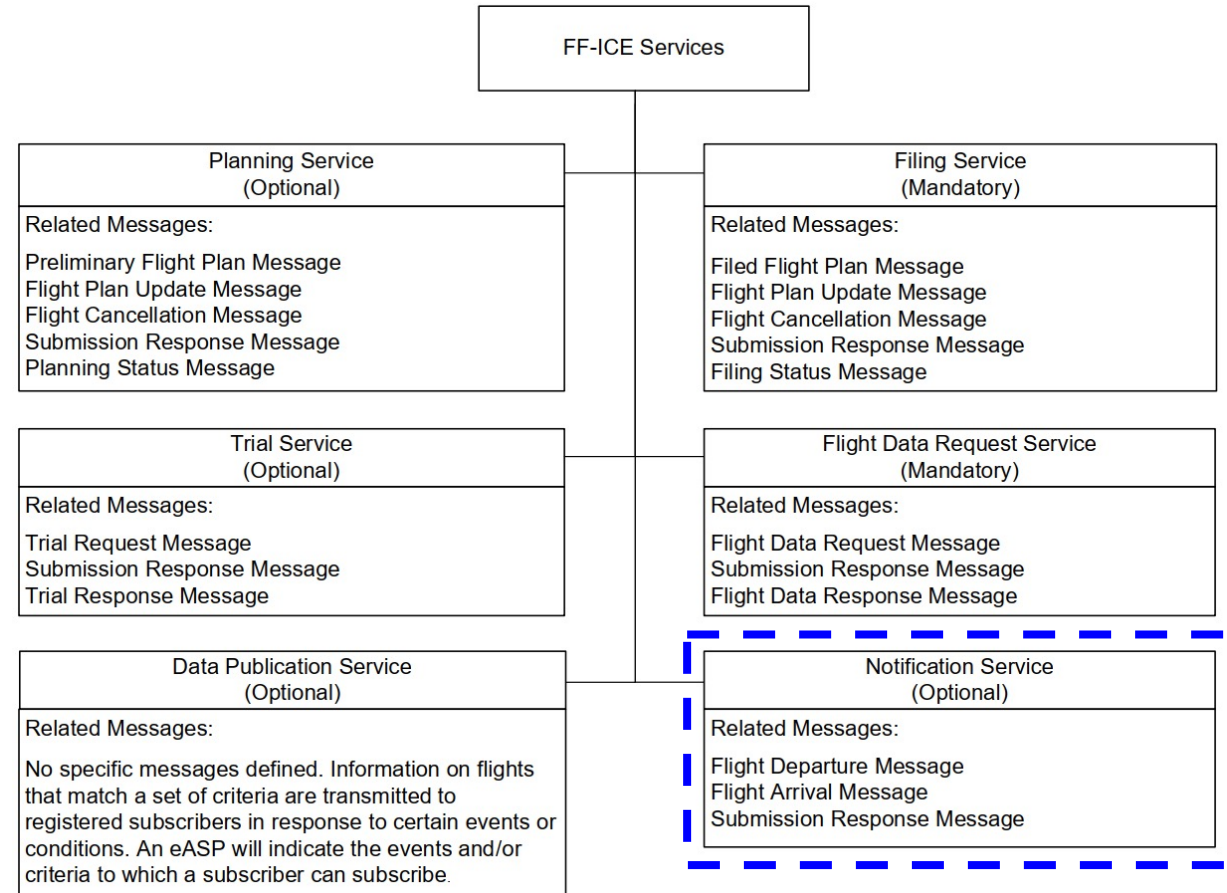
➤ Step 7: Departure information sharing

7-1. JAL707X receives DCL and takes off

7-2. JCAB publishes FLIGHT_DEPARTURE to AEROTHAI and JAL

7-3. AEROTHAI responds SUBMISSION_RESPONSE with ACK

7-4. JAL uses the actual departure time of JAL707X to update the initial point of trajectory



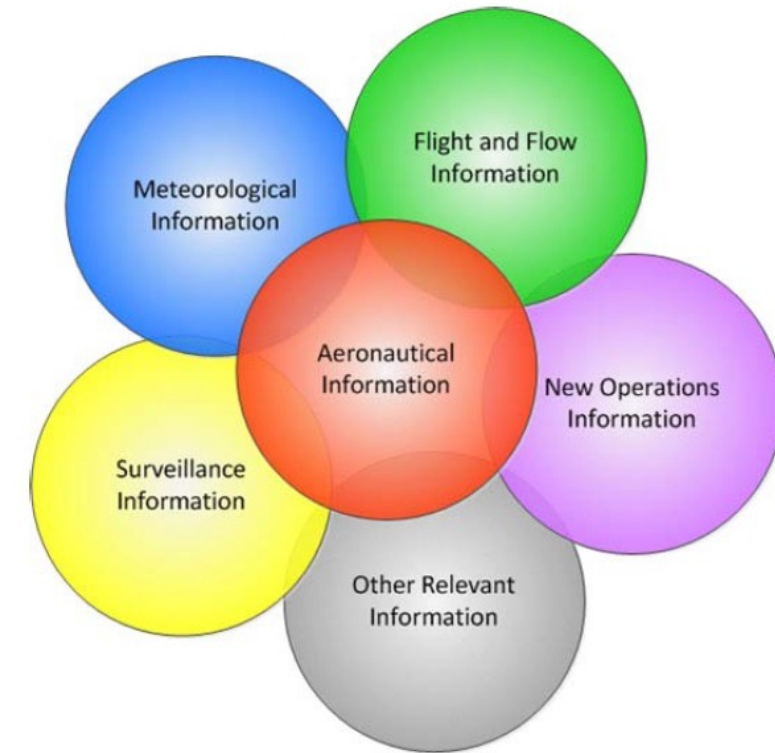
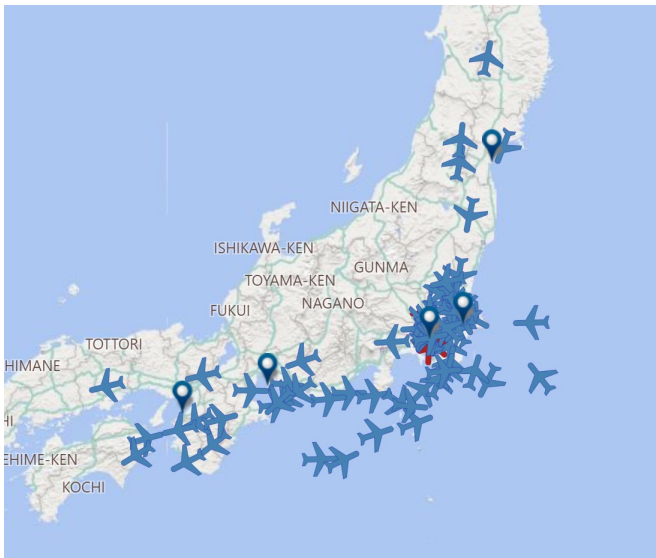
Demonstration



➤ Step 8: Surveillance information sharing

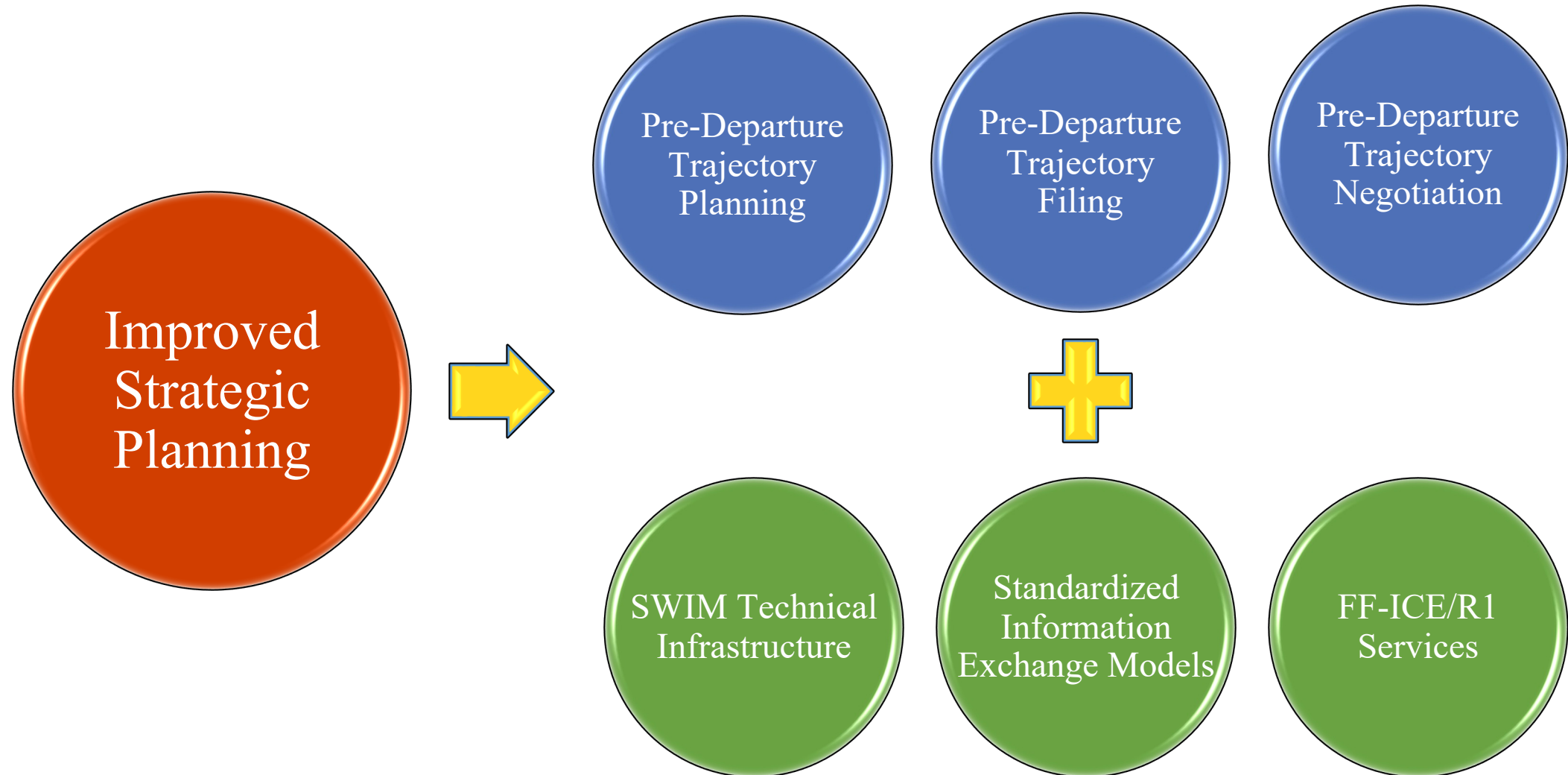
8-1. JCAB publishes TRACK in FIXM format to AEROTHAI and JAL

8-2. JAL uses surveillance information to ensure trajectory consistency of JAL707X with related stakeholders



Information integration
Service cooperation

Operational Value and Capability



Agenda



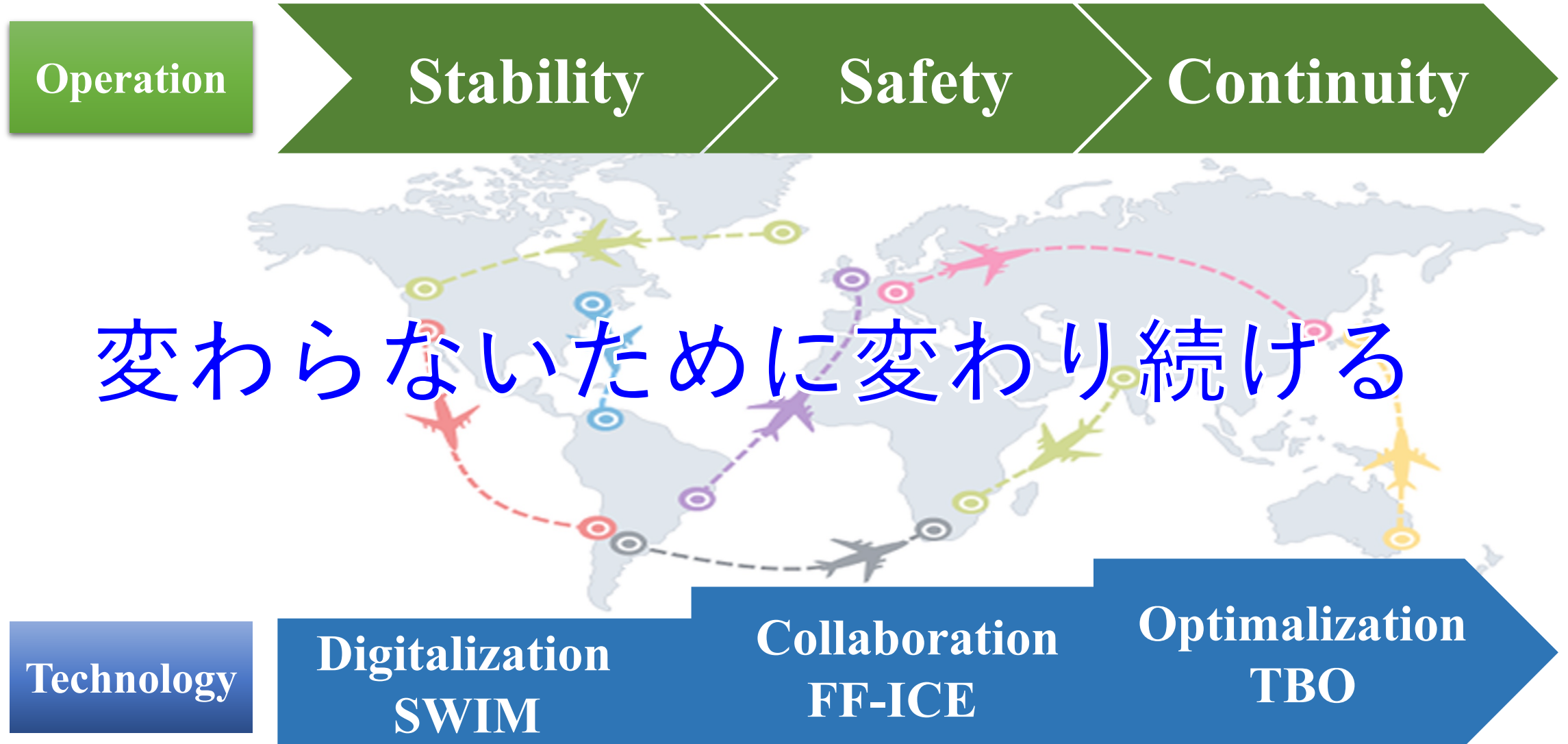
1. Background

2. FF-ICE/R1 Scenario

3. Demonstration

4. Summary

Summary





Thank You

