Global Air Traffic Interoperability

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• Background
• Introduction
  – What is GATI?
  – Why GATI?
• Objectives
• Overview
• Concepts
• Schedule
• Summary of Benefits
– Increases in aviation traffic have focused the attention of the Airspace System to:
  • enhance capacity
  • enhance the efficiency
  • enhance safety
  • enhance security

– The U.S. Joint Planning and Development Office (JPDO) is developing the capability roadmaps necessary to implement the Next Generation Air Traffic System (NGATS).

– EuroControl and the European Commission have initiated the program Single European Sky ATM Research (SESAR, formerly known as SESAME).

– For these ATM initiatives to succeed, they both must consider the global interoperability issues for transformational concepts.
Introduction

• What is GATI?
  – The Global Air Traffic Interoperability (GATI) project is designed to help the FAA promote safe, affordable, and rapidly implemented innovations in next-generation ATM.
  – Suite of operational developments and flight trials that demonstrate and accelerate advances in global Air Traffic Management
  – GATI will be undertaken by teams of representatives from key stakeholder groups, including ANSPs, system developers, aircraft avionics manufacturers, airline operators, and selected airports.

• Why GATI?
  – Airlines and aircraft/avionics manufacturers must be able to develop systems and procedures that are globally accepted and domain independent in order to be affordably implemented.
    • Current technology already exist and is not being used.
    • Air Traffic procedures are based out of date as they are based on older systems.
GATI Objectives

• Foster international cooperation among United States, European, and AsiaPac air traffic service providers and airlines.

• Exercise the JPDO programmatic framework to demonstrate operational benefits of global ATM transformation.

• Demonstrate near-term improvements in ATM related to capacity, efficiency, noise and emissions.

• Apply system-wide information management to enable common procedures for oceanic and domestic air traffic.

• Identify and demonstrate future performance-based concepts that increase global airspace capacity.
Potential Global Air Traffic Interoperability Flight Trial Segments

- **Trajectory and ETA information reducing intermediate Level-offs optimum climb profile**
- **FANS/ATN communications gateways for seamless data link**
- **Climbs and Descents with In-Trail Procedure**
- **RNP arrivals with ETAs to top of descent**
- **Tailored arrivals with ETAs to final approach**

- **Tailored departure**
  - that uses best climb performance and noise procedures

**Departure Airport**: Terminal → En Route Domestic Climb and Cruise → Oceanic Routes → En Route Transition → Arrival Airport

**Arrival Airport**: Terminal
• Suite of operational developments and flight trials
  – Intersect all segments of flight
  – Emphasis on oceanic routes to foster collaboration on an international scale
• Accelerate new ATM procedures that leverage existing and emerging technologies
• Operational benefits from practical, low-risk, near-term implementation of concepts
• Near-term concepts designed to directly support system capabilities required to meet future capacity needs
Possible Locations for:
- Tailored Arrivals
- Low-noise Departures
- Advanced Terminal Operations
GATI is multiphase to showcase innovative ATM concepts in the Atlantic and Pacific oceanic and adjacent domestic airspaces over a 5-6 year period.

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Trials and concepts are selected by the steering committee.
• **Near-term:**
  - Directly support capabilities required to meet future capacity needs.
  - The operational benefits of GATI are derived from practical, low-risk, near-term implementation of concepts that utilize existing and expected future aircraft capabilities.
  - Operational benefits in capacity, flight efficiency, noise abatement, and emissions reduction

• **Long-term:**
  - Further evolve to demonstrate the benefits of international integrated next-generation air traffic management concepts and technologies.
  - Highlight international cooperation and interoperability among the United States, European, and Asia–Pacific air traffic service providers, system developers, and operators