Weather Technology in the Cockpit Program Overview

Achieving NextGen through Applied R,E,&D

Presented to: AIXM/WXXM

By: Eldridge Frazier, Acting WTIC Program Manager

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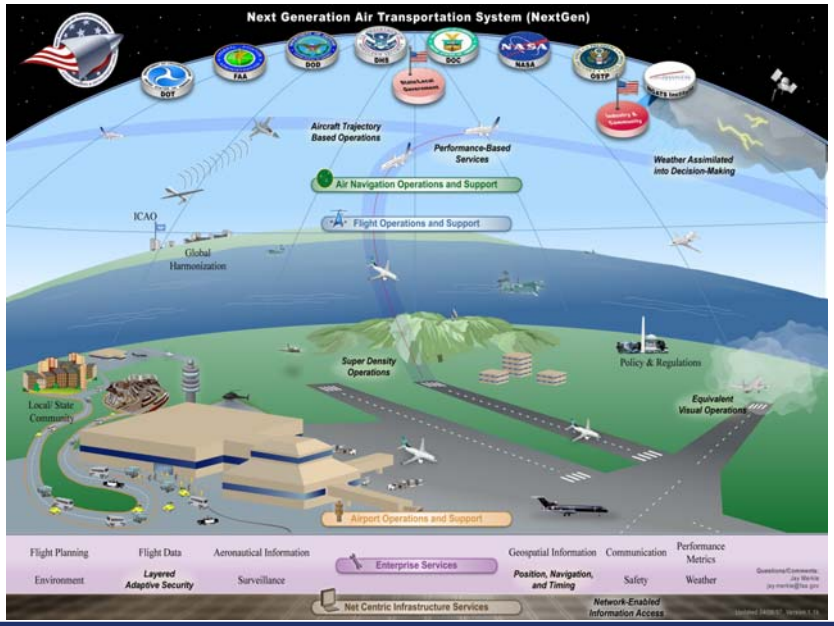
Federal Aviation Administration



Agenda

- **The WTIC Program Overview**
- **Program Objective**
- **Planned Activities**
- **Challenges/Assumptions**

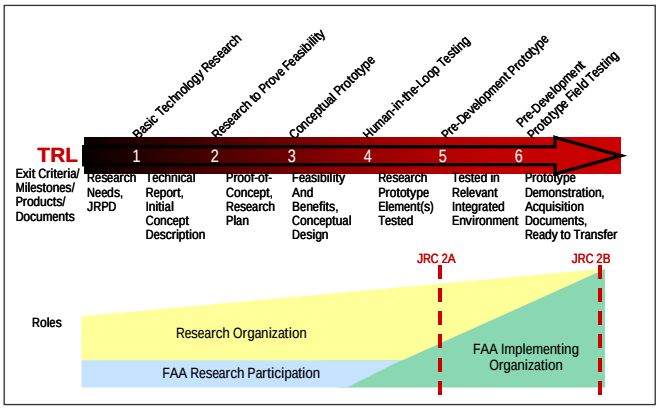
WTIC - Program Overview

- **Promote cockpit technologies for NextGen collaborative utilization of aviation weather information**
  - Identify NextGen requirements for airborne equipage, practices, and procedures to access and utilize the “common weather picture”
  - Research, prototype, and develop the certification standards for the airborne tools to exploit the “common weather picture”
    - Human Machine Interfaces
    - Decision tool algorithms to exploit the weather information
  - Develop and certify standardized symbology for the presentation of weather information in the cockpit
  - Develop and certify airborne weather sensors
  - Develop certification standards and prototype ground-to-air weather information transmission processes
  - Develop the data link bandwidth and reliability requirements

WTIC - Program Objective

Reduce weather delays and cancellations by providing the aircrew with on board weather information, cockpit technologies, and collaborative decision making tools to enable safe and efficient flight in all weather conditions

Research and Development Model



Planned Activities

- **Concepts and Requirements Development**
  - ***WTIC Concept of Operations in NextGen Environment*** (near, mid, and far terms)
  - ***Weather Information Needs***
  - ***Program Planning/Requirements Development***
  - ***Develop Comprehensive use cases***
- **Technology Assessment**
  - ***Assess and describe current and emerging flight deck technologies, related ground infrastructure and data link technologies relevant to program objectives***
- **Proof of Concept Demonstrations**
  - ***Weather in the Cockpit System Demonstrations***

Planned Activities

- **Weather Technology in the Cockpit High Fidelity Prototype**
  - ***Weather Information Integration Simulations and Prototypes***
  - ***Human Machine Research***
- **Policy, Standards, and Requirements**
  - ***Standards and Guidance***
  - ***Requirements***

Challenges/Assumptions

- Allocation of capabilities between the ground systems and the aircraft systems has yet to be determined for the near, mid, and far terms
- Standards development and avionics upgrade cycles allow only a small window of opportunity to identify priorities for aircraft equipage through 2018
- NextGen benefits depend heavily on aircraft avionics changes
- Initial operational improvements should be based on aircraft capabilities that are already available or are in development, with standards already completed or well along
- Avionics implementation timeframes will not be significantly shortened
- Implementation decision will be driven by a solid business case (ie, quantitative data)
- If operational concepts are not well defined very soon, they are unlikely to be implemented by 2018

QUESTIONS?