

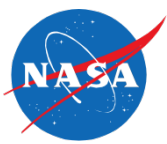


# T<sup>3</sup> Autonomous Systems

Enabling Autonomous Flight and Operations in the National Airspace Workshop 2

Vanessa Aubuchon

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# Autonomous Systems Scope



- NASA's aeronautics domain expertise *bridges the gap* between intelligent systems and civil aviation
  - Applies emerging machine intelligence technologies to aviation applications
  - Applies domain expertise in integrated human-machine operations, airspace management, and aviation safety

## T<sup>3</sup> Autonomous Systems Goal

Focus on capability gaps in assured autonomy for aviation with targeted, problem-driven R&D in an agile environment

...with an emphasis on enabling safe, efficient, autonomous Urban Air Mobility

## Operational Objectives for Aviation Autonomy (not exhaustive)

Remove the need for the current regulatory paradigm that requires a pilot for every passenger aircraft

Achieve an order of magnitude more vehicles than operators

Enable new emerging market pilots to receive certification with order-of-magnitude reductions in training



# Recent Accomplishments and Future Activities

FY20 Priority – Select a few targeted, collaborative problems to solve in FY21

– **Industry & FAA partnerships and collaborations will shape these problems**

## Autonomous UAM Mission Decomposition

Right-to-left thinking process to reveal the technology leaps to safely enable UAM

## Autonomous Air Traffic Management (ATM)

Developed a recommendations on Future ATM Autonomy Research Areas

## Human Autonomy Teaming

Addressing challenges associated with Simplified Vehicle Operations and Remote Supervisory Operations

## Resilient Autonomy

Developing certification standards for bounded autonomous system in partnership with FAA and DoD

## Intelligent Contingency Management

Using learning-enabled components to make contingency management decisions in unexpected situations

## Perception

Requirement & current capability spec, adaptive sensor fusion algorithms, FMEA

Look for a special session at Aviation 2020



# Collaborating to Transform Aviation



Diverse **teams** are needed to pull off the vision for autonomous aviation

