

# FAA Roadmap on Artificial Intelligence Safety

**Dr. Trung Pham**

**Chief Scientist & Technical Advisor in AI/ML**

**Presentation to REDAC-NAS**

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**Federal Aviation  
Administration**

**STEP** SENIOR TECHNICAL  
EXPERTS PROGRAM  
ADVANCING SAFETY THROUGH SCIENCE

# Outline



- **Introduction**
- **FAA's Roadmap on AI Safety**
- **Relationship to Other Policies**
- **Supporting Research**
- **Conclusion**





- The proliferation of AI/ML applications for aviation has triggered an urgent need to address the *safety* of this new technology in the path to certification



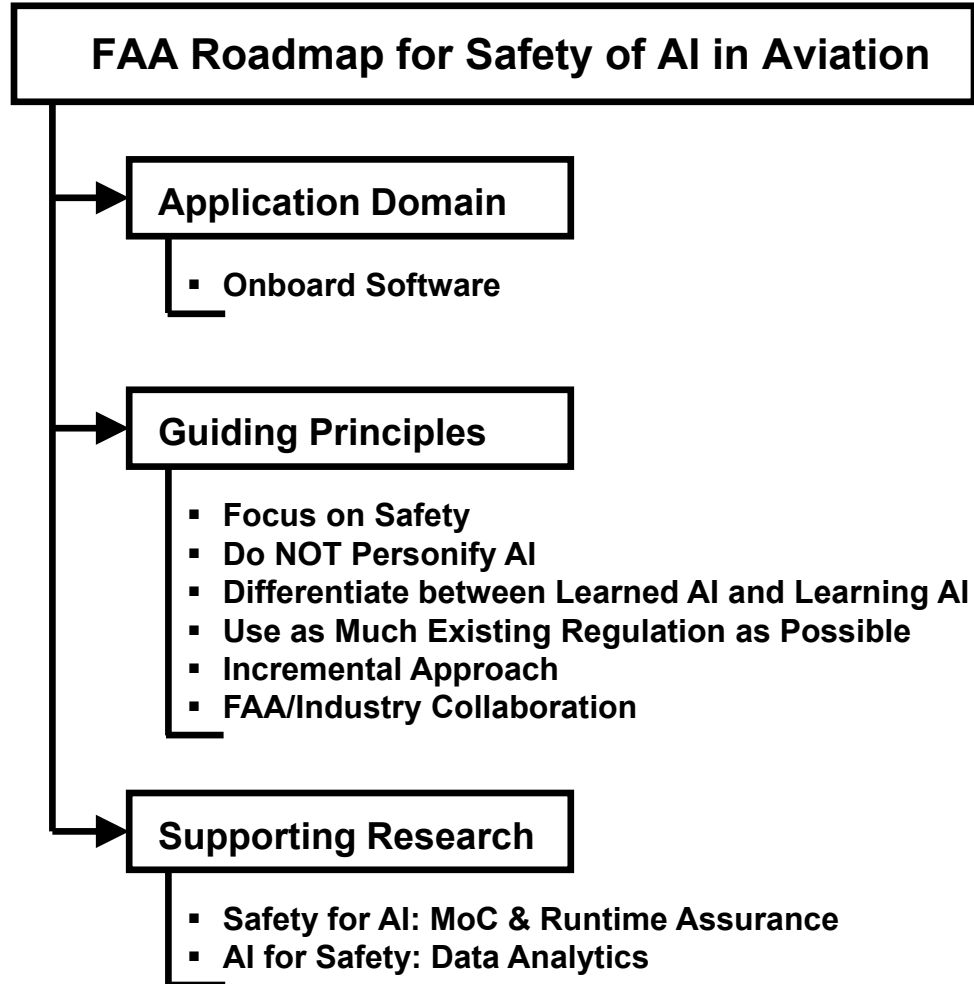
# FAA's Roadmap on AI Safety



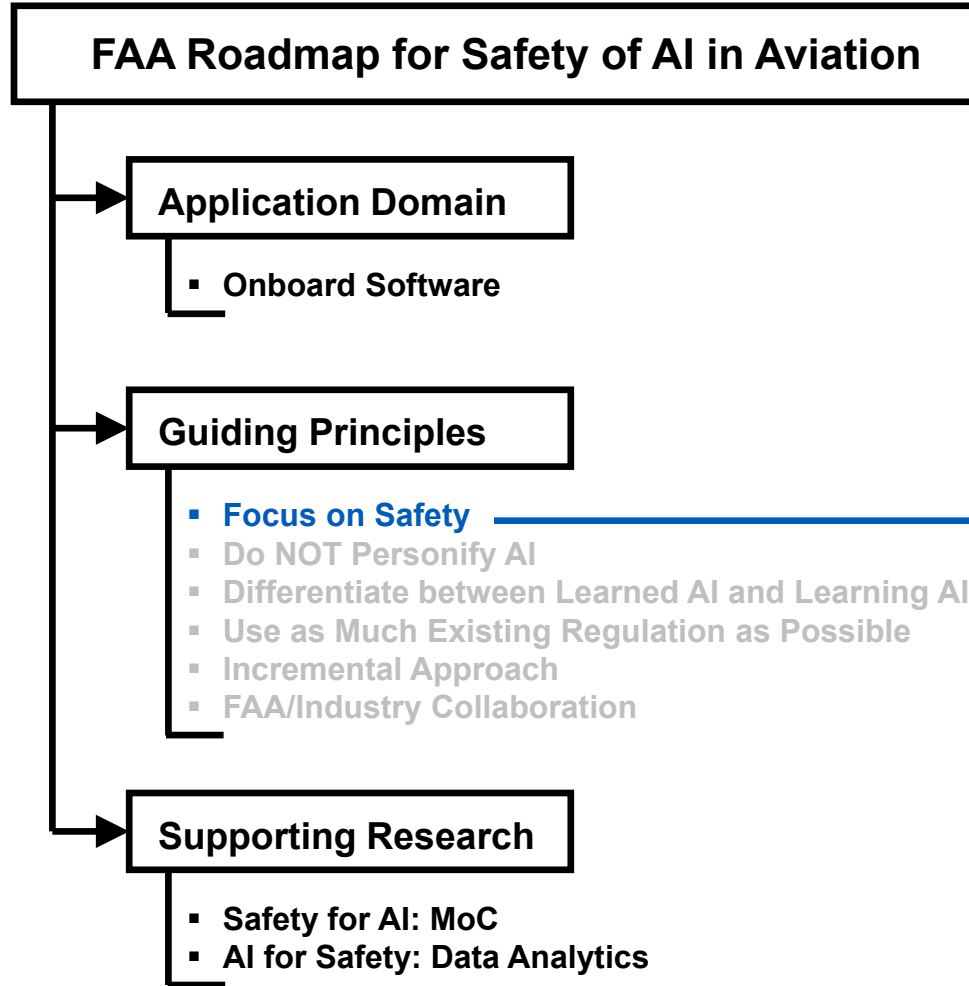
- In 2022, the **REDAC** (Research, Engineering, & Development Advisory Committee) recommended that the FAA start working on AI Assurance
  - hiring of a CSTA in AI/ML in June 2022
  - planning the Roadmap on AI Safety in January 2023
  - starting (to write) the Roadmap on AI Safety in May 2023
    - first FAA internal review September 2023
    - first industry discussion October 2023
    - second FAA internal review in January 2024
    - second industry discussion in March 2024
    - final FAA internal review in April 2024
    - final draft of Roadmap on AI Safety in June 2024
    - first official release in August 2024



# FAA's Roadmap on AI Safety

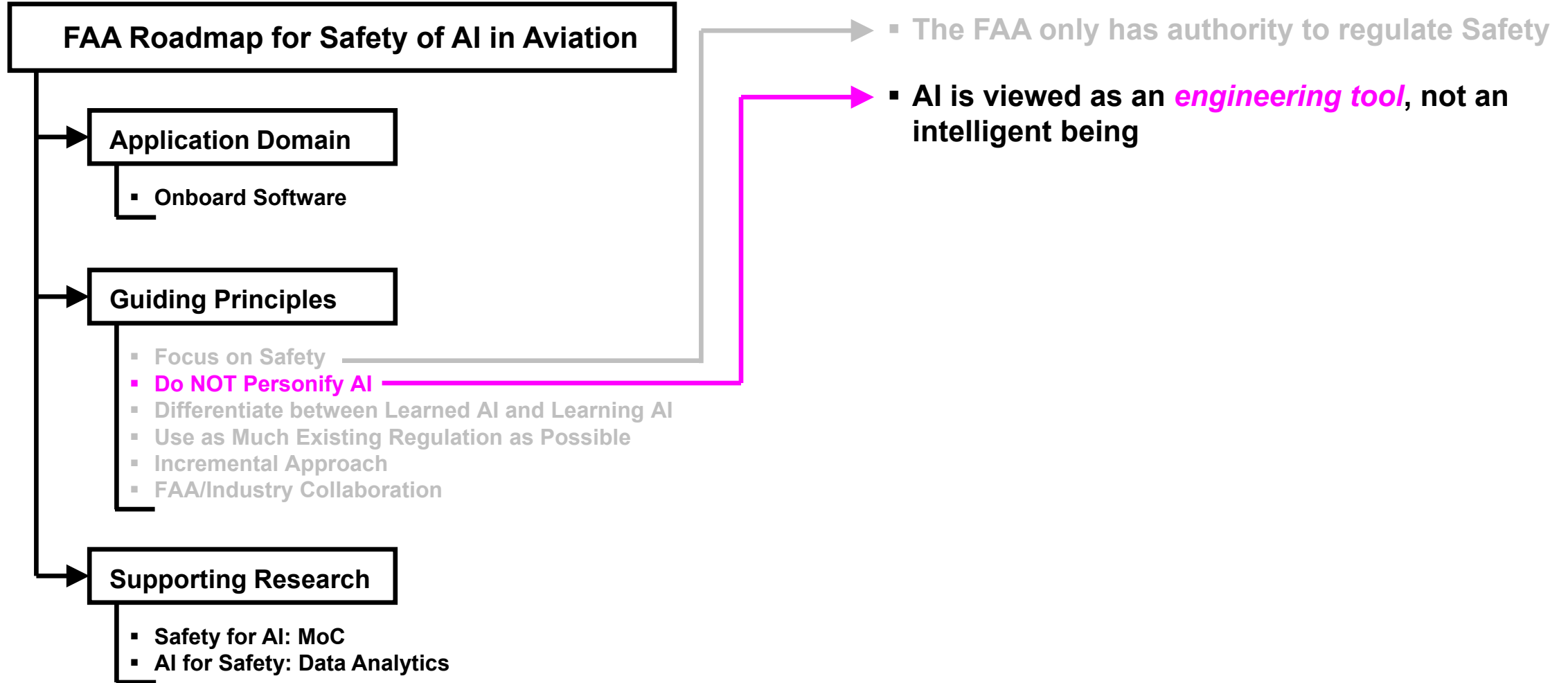


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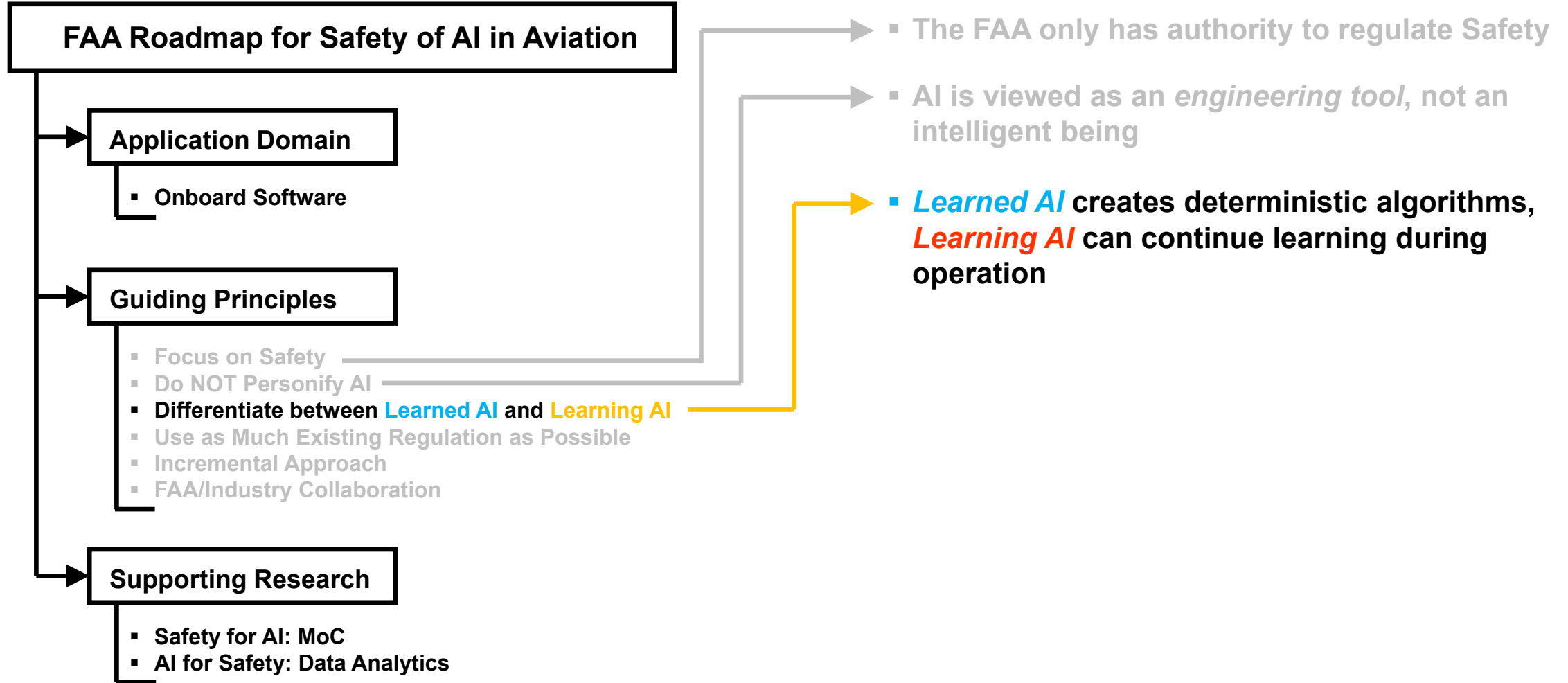


▪ The FAA only has authority to regulate **Safety**

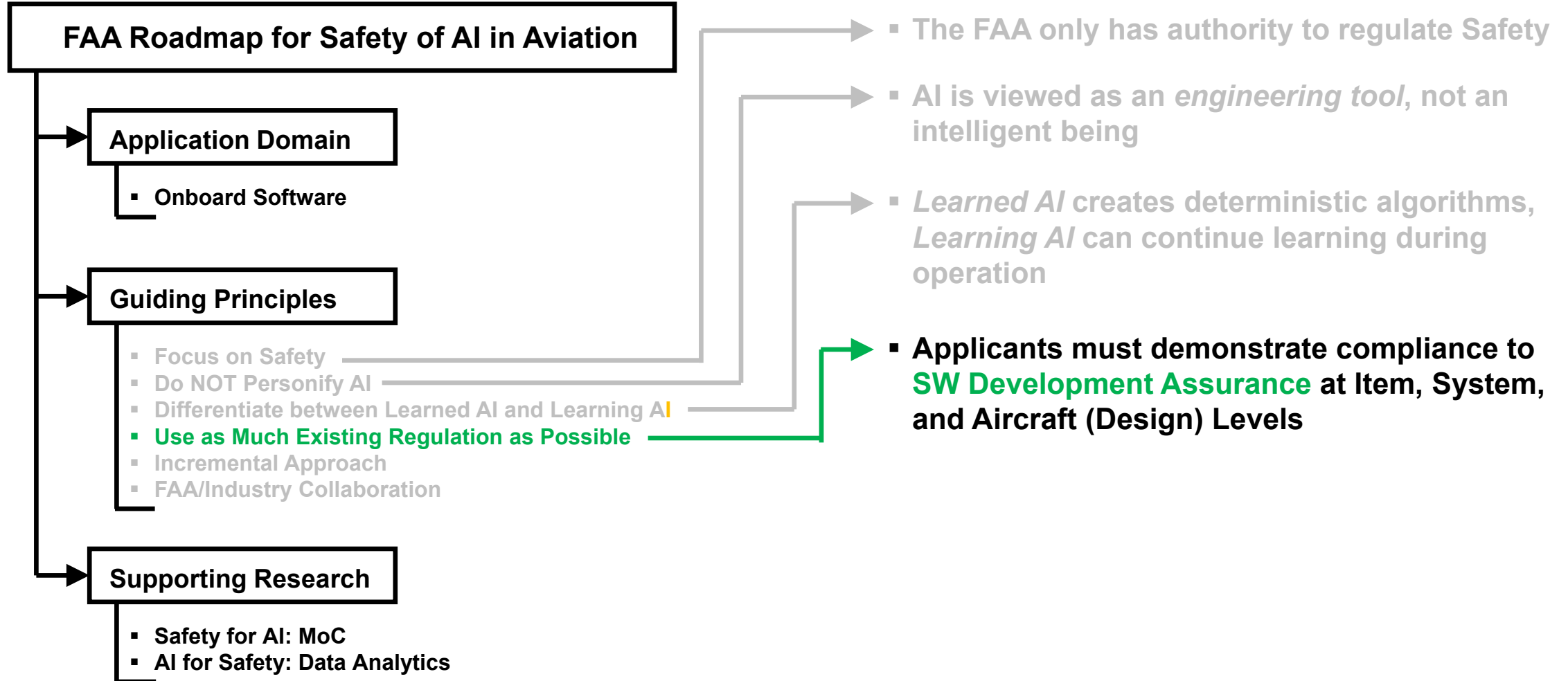
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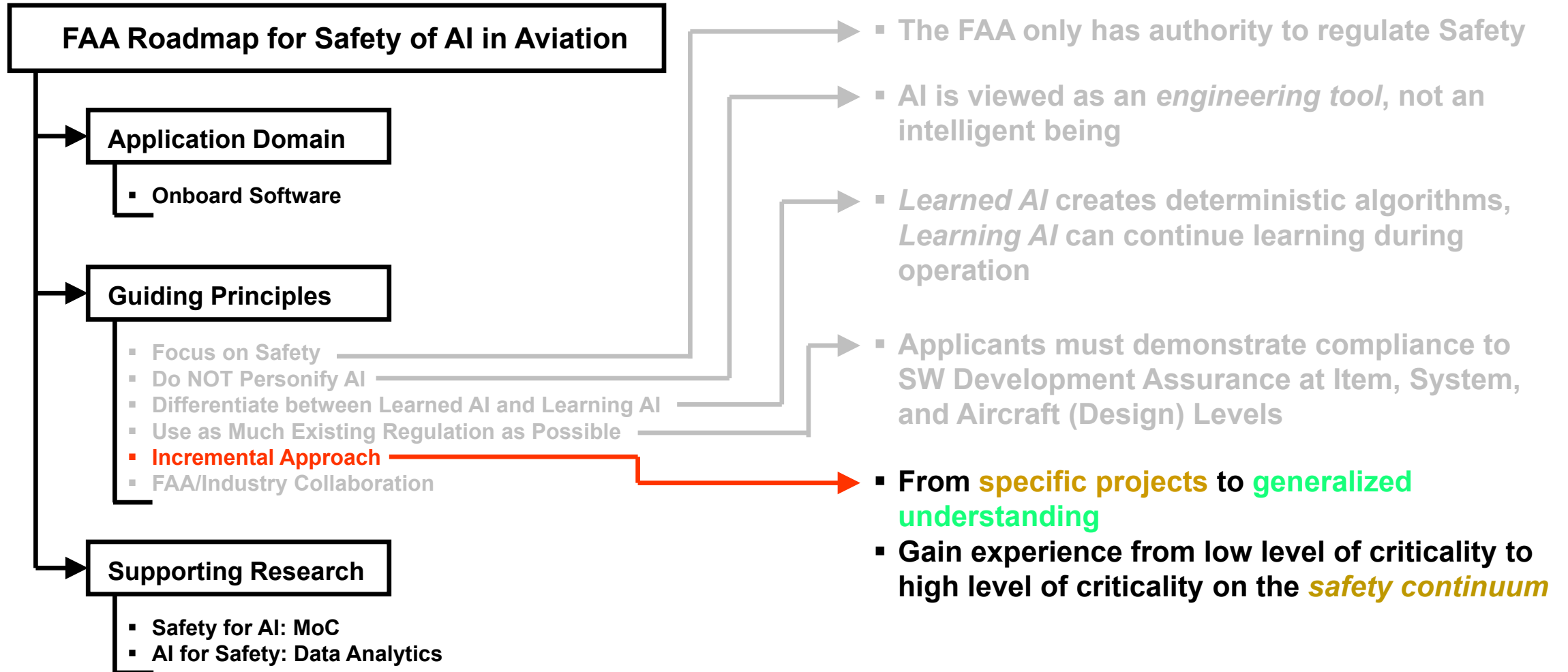
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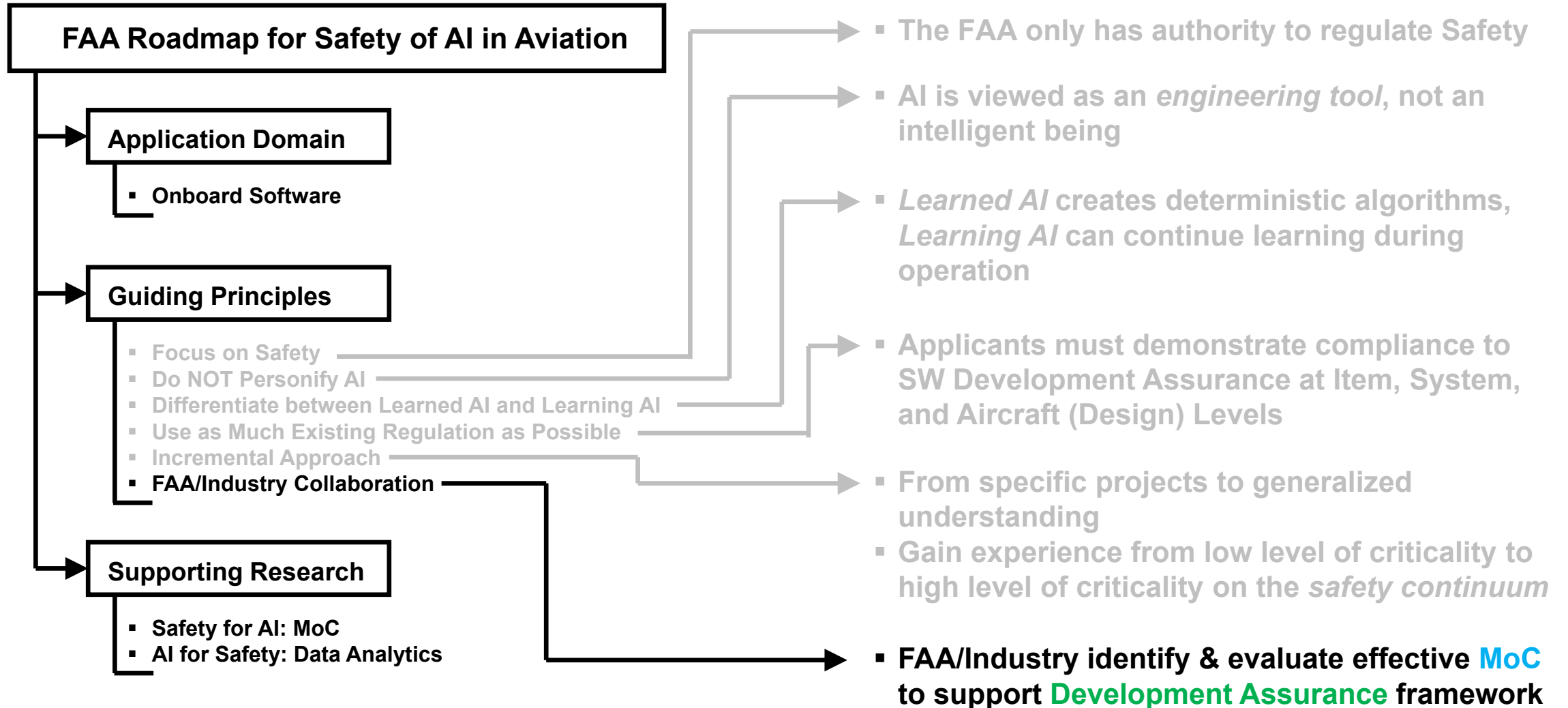
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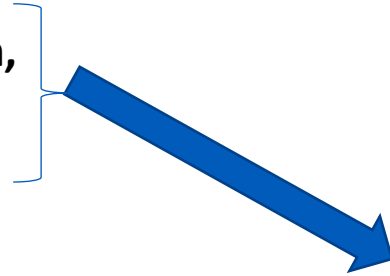


# Relationship to Other Policies



## AI EO: Guiding Principles

- AI must be safe and secure
- Promote responsible innovation, competition and collaboration
- Support American workers
- Advance equity and civil rights
- Protect interests of those who use AI
- Privacy and civil liberties must be protected
- Manage risks of USG use of AI
- Federal government should lead



## FAA Safety Assurance Roadmap

### Guiding Principles (safety)

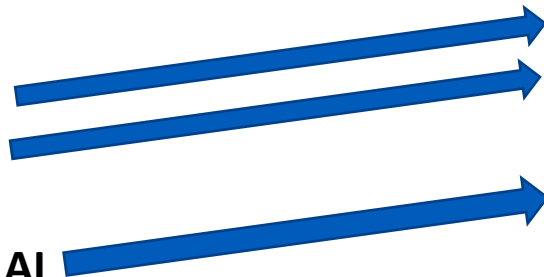
- Focus on safety
- Use as much existing regulation as possible
- Incremental approach – learn and apply experience
- Avoid personification
- Leverage the safety continuum
- Leverage industry standards

### Roadmap: Initiatives

- Use of AI for Safety
- FAA Workforce Readiness
- Collaboration
- Assuring the Safety of AI
- Aviation Safety Research

## FAA Strategy: GOALS

- Innovation
- Workforce Development
- Adoption and Support
- Governance and Trustworthy AI



# Supporting Research

## VISION

- **Artificial Intelligence (AI)** is a transformative technology that can accelerate innovation and enable computers to accomplish new tasks
- Understanding **how to assure the safety of AI** systems opens new opportunities to apply this rapidly-developing technology to the challenge of aviation safety.
- Can AI be used to assure the safety of AI systems?

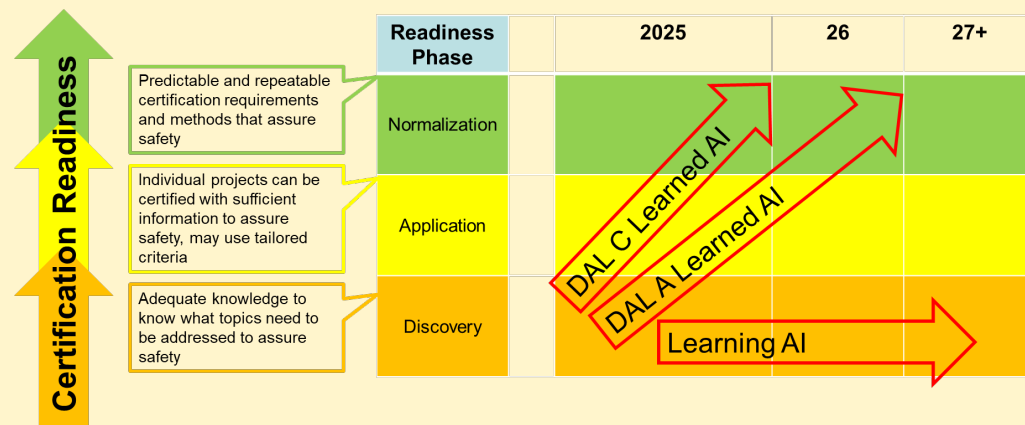
## OBJECTIVES

- To identify and evaluate the **effectiveness of methods** to assure the safety of AI systems
- To **use AI** to assure and improve safety of AI systems

## STRATEGY

- To **collaborate** with other government agencies & industry stakeholders to conduct R&D for guidance for AI systems' assurance
- To explore **alternative framework** in SW Assurance for inclusion of AI
- To use **Computational Data Analytics** to support specific verification of OP's

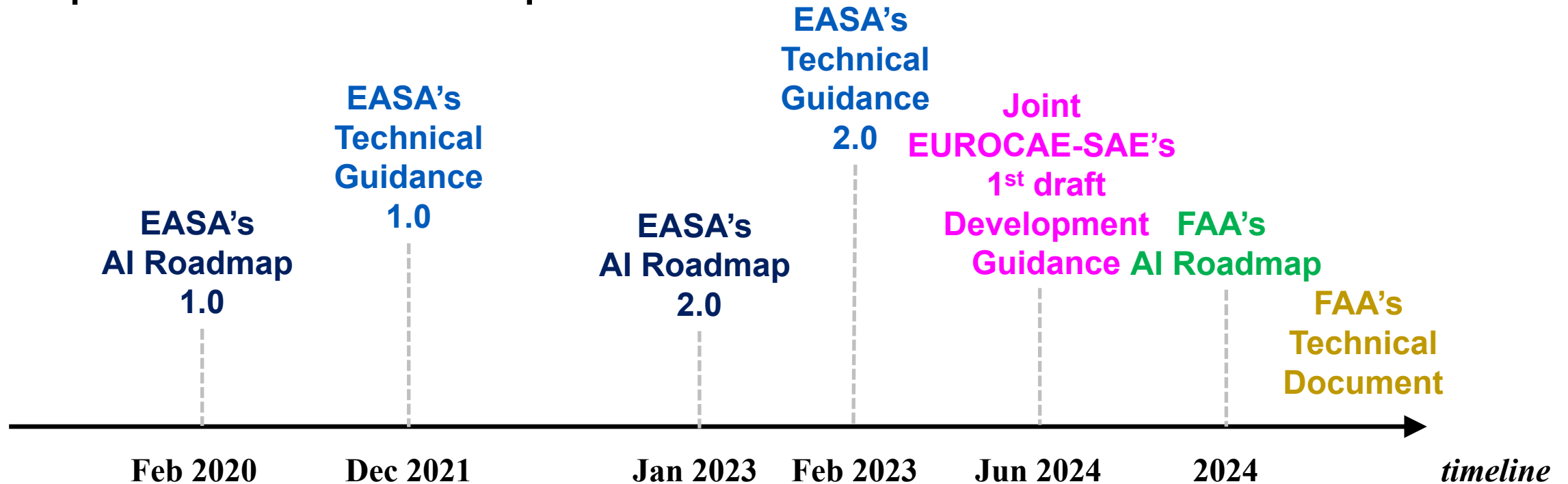
## EXPECTED OUTCOMES



# FAA's Roadmap on AI Safety Assurance



- **EASA's** pioneering effort and contribution in the areas of Artificial Intelligence and Machine Learning, and ensuing industry feedback and experience, helped inform the development of the FAA Roadmap



# Conclusion



- **The Roadmap will guide further FAA actions in research, policy development, standards priorities and workforce competence**
- **Feedback on the Roadmap is valuable: this is an evolving technology, and we expect to learn and evolve our strategy and plans**
  - **We will learn from the initial projects**
  - **We will learn from research**
  - **We will learn from each other**
- **FAA will work with EASA and other authorities with the goal of mutually-acceptance of design approvals**





# Thank you very much

Merci beaucoup

Muchas gracias

Cám ơn rất nhiều

非常感謝

Grazie mille

Muito obrigado

Moltes gràcies

आपका बहुत बहुत धन्यवाद

