

FlyAI - Data & AI from regulation to implementation

AI Standards in Aviation



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Brussels, 20 April 2023



EUROCAE - Driving the Standard for Aviation

Address aviation stakeholder needs by developing high-quality standards

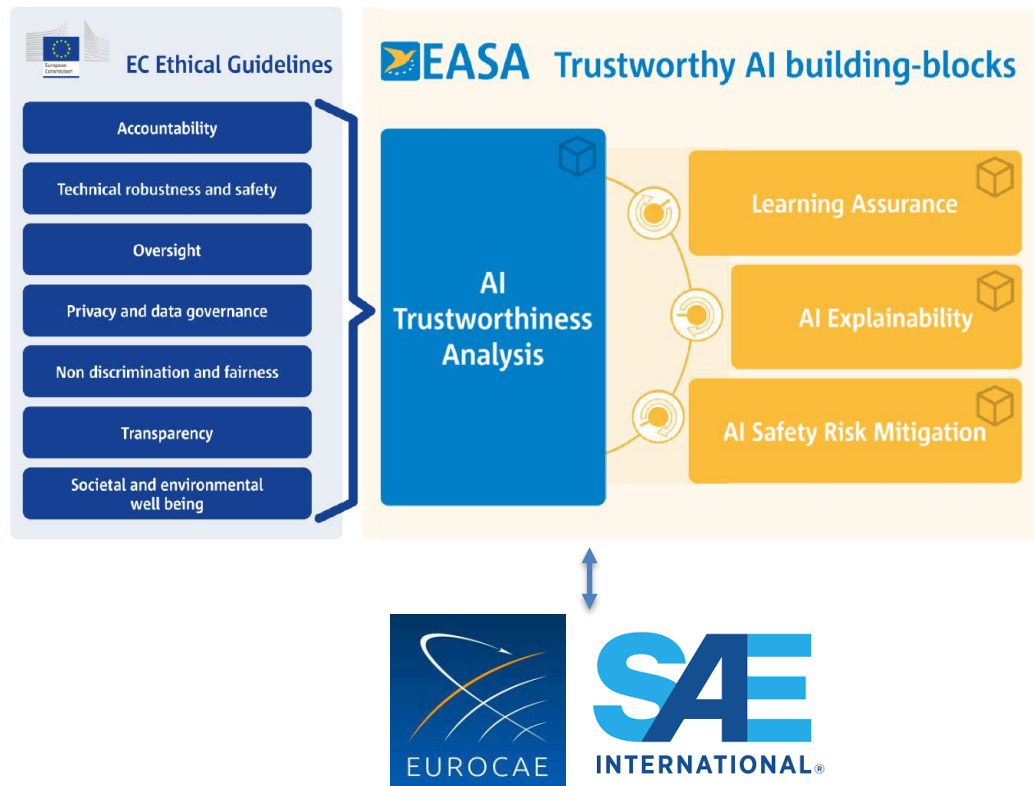
- Built upon state-of-the-art expertise
- Fit for purpose to be adopted internationally
- Support operations, development, and regulations
- Address emerging global aviation challenges



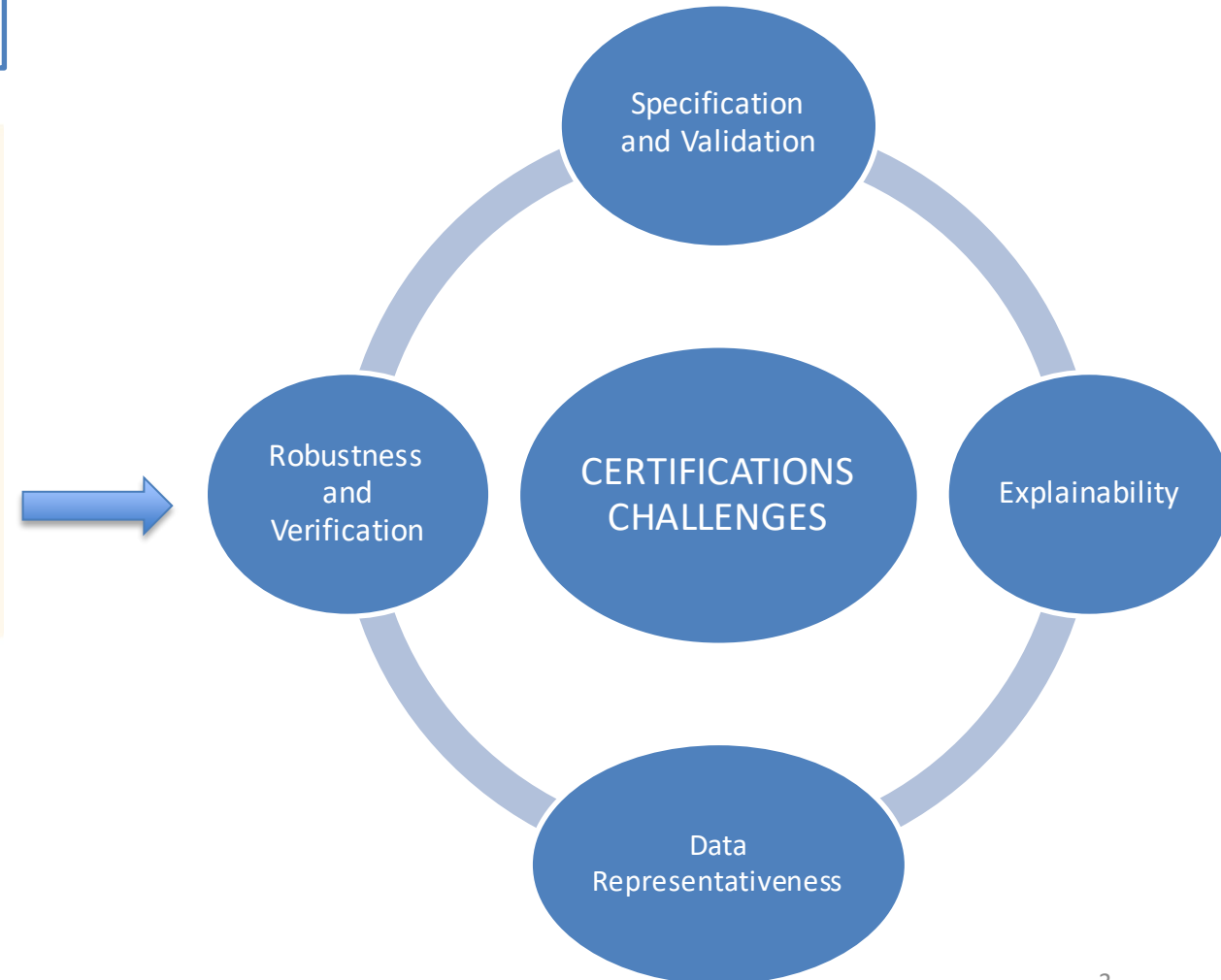


The importance of AI standards

EC/EASA => High-level objectives for Machine Learning (ML) development and approval



WG-114/G-34 => detailed technical industry standards for ML development and approval





WG-114/G-34

✈ **Objectives**

- ✈ Develop and publish a comprehensive statement of concerns
- ✈ Develop standards and reports for selecting, implementing, and certifying AI technology embedded into for use with aeronautical systems in both aerial vehicles and ground systems
- ✈ Act as a key forum for enabling the global adoption and implementation of AI technologies
- ✈ Enable aerospace manufacturers and regulatory agencies to consider and implement to the certification of AI systems

✈ **Scope**

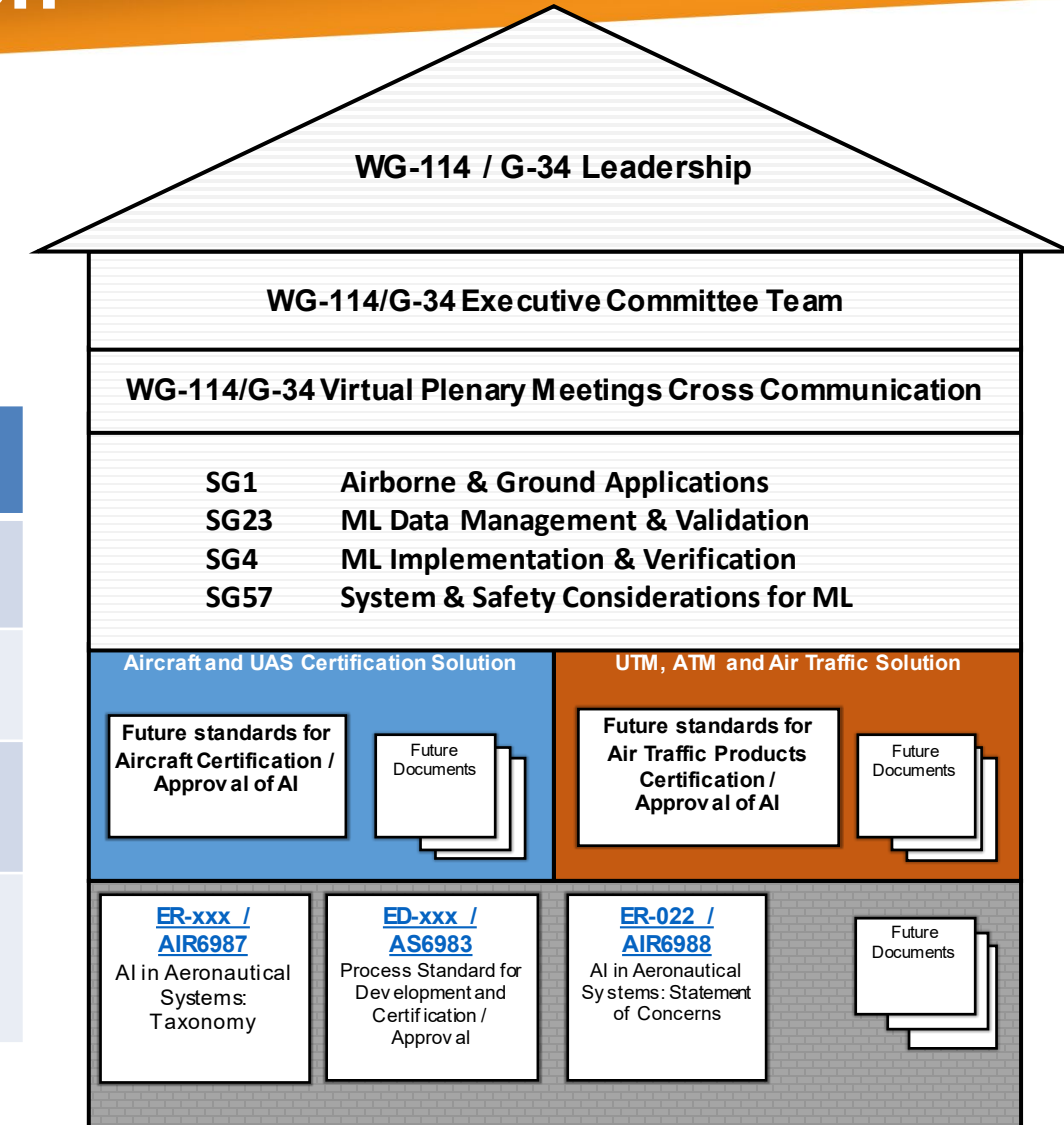
- ✈ Airborne (Aircraft, UAS) & Ground (ATM, UTM)



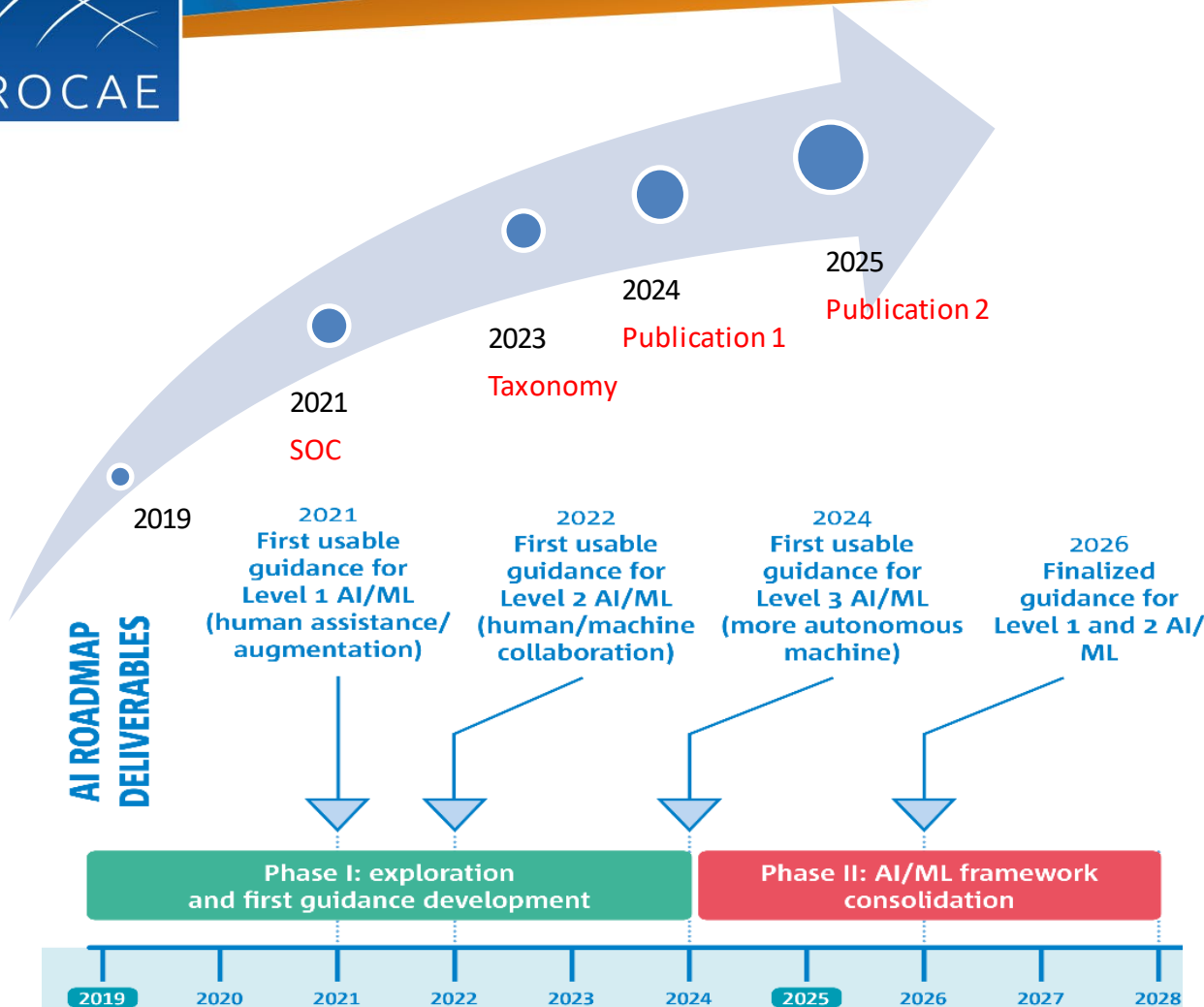
WG-114/G-34 Organisation

→ Standards and reports in the pipeline

ED/ER	Draft title	Date
ER-022	Statement of concerns	Published in 2021
ER-xxx	Taxonomy in Artificial Intelligence	Q2 2023
ER-xxx	Use Cases Considerations	Q4 2024
ED-xxx	Process Standard for Development and Certification/Approval of Aeronautical Products Implementing AI	Q4 2024



WG-114/G-34 Roadmap



WG-114/G-34 Deliverables

- ✈ SOC (Statement of Concerns)
- ✈ Taxonomy, and Use Cases
- ✈ Publication 1: ML (Offline Learning)
- ✈ Publication 2: Other AI Technologies

Active contribution

EASA Roadmap

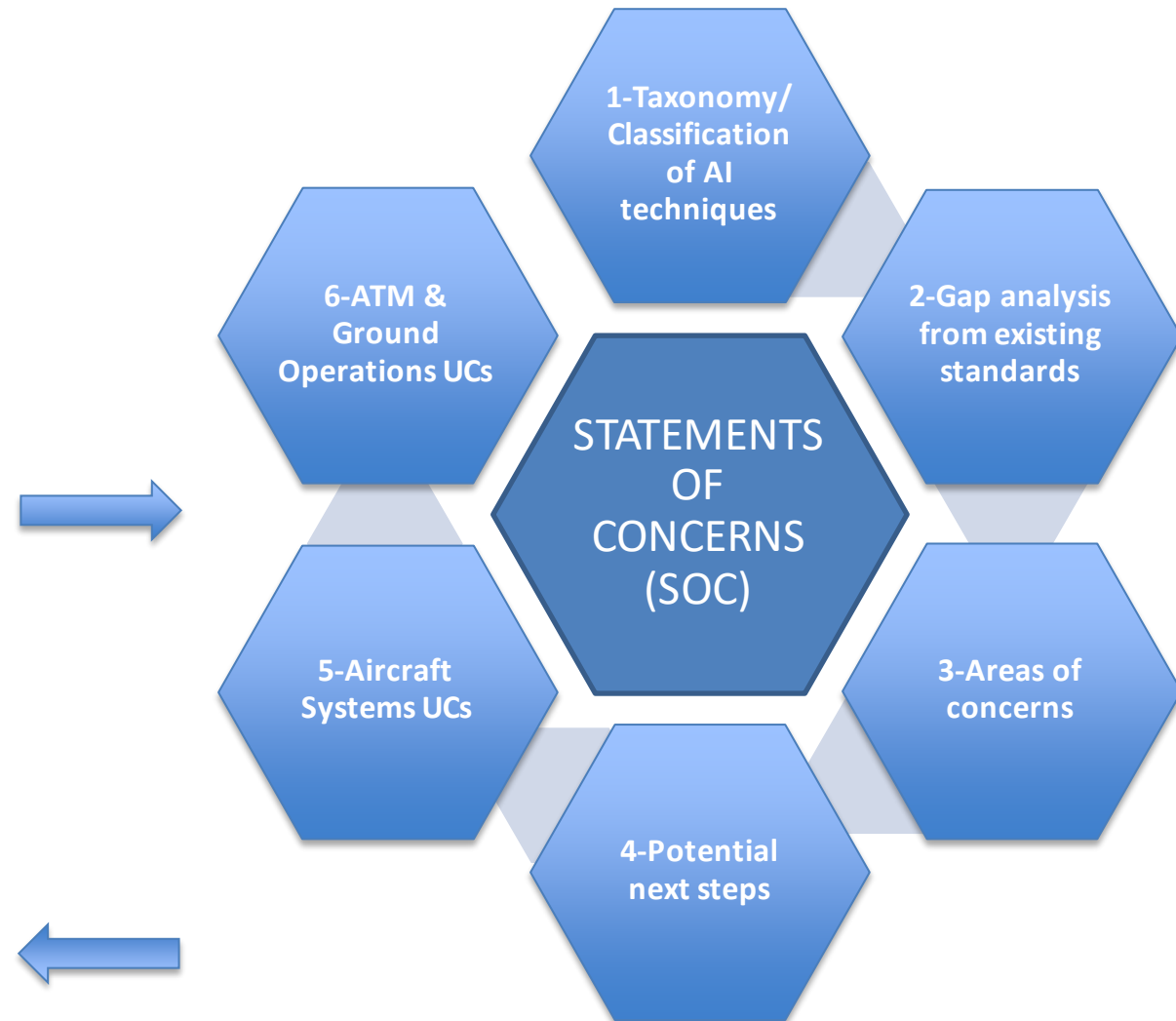
- ✈ EASA releases the concept paper (Issue 2) for open consultation
- ✈ Roadmap 1.0 and 2.0 (May 2023)

ER-022 Statement of Concerns

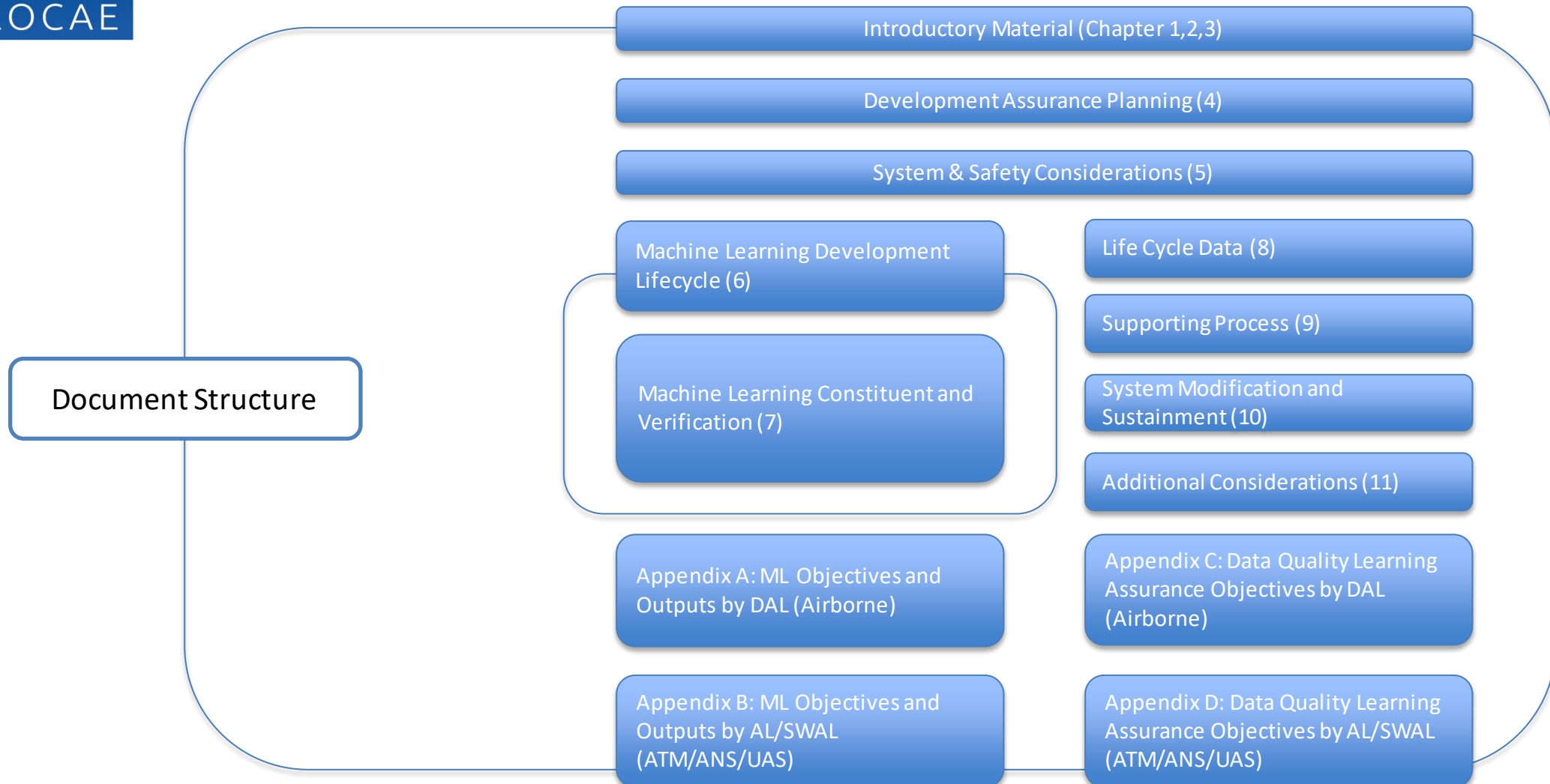
Objectives

- ✈ Align the group on a common understanding of AI techniques
- ✈ Outline the concerns that the use of such techniques
- ✈ Recommend an efficient roadmap and organization to develop a Means of Compliance for AI certification

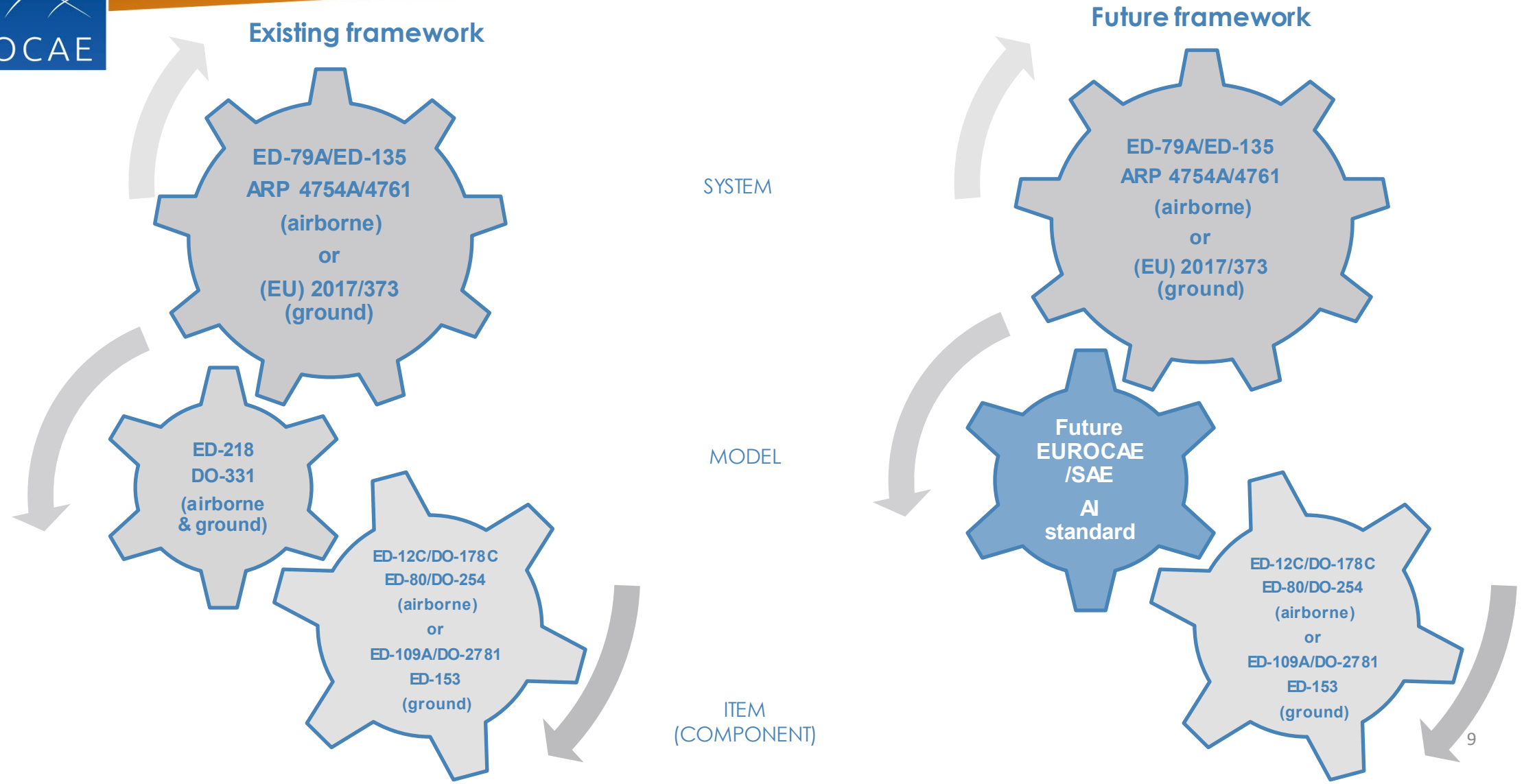
EUROCAE Standard (ED-xxx) covers all aspects of technical considerations



ED-XXX: Process Standard for Development and Certification/Approval of Aeronautical Products Implementing AI



Future of standardisation framework





European Aviation Framework

European Union

- European Parliament: Basic Regulation EC No 1139/2018
- European Commission: Commission Regulation No.748/2012 (Part21)

EASA

- Certification Specification (e.g CS25) + AMC + GM

Special Condition: SC-AI-01

EASA first usable guidance for level 1 Machine Learning

Currently level 1 and 2 for Open Consultation

EUROCAE

ED-79A/ARP4754A Aircraft & Airborne System

ED-135A/ARP4754A (Safety Assessment)

System-level

ED-xxx : AI/ML standard in aviation

Open Consultation: Q4/2023

Model-level

ER-22

ER-xxx: Taxonomy

ER-xxx: Use Cases

ED-12C/ DO-178C Airborne System Software

ED-109A/ DO-278A Ground Software

Item-level

ED-80/ DO-254 Airborne Hardware

ED-153 Ground Safety Assurance



Collaborative Standardisation

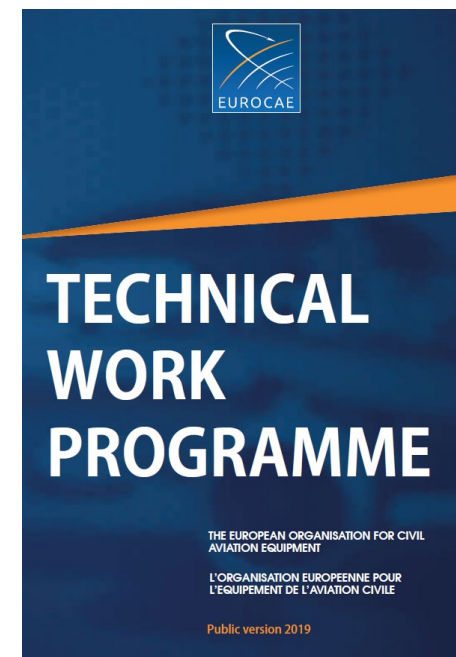
Cooperation R&D – Industry – Authority

- Mutual understanding and common success
- Timeliness
- Sustainable and safe design solutions
- Efficient compliance demonstration methods





For further information ...



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