Artificial Intelligence and Regulatory Compliance

Keeping pace with the evolutions of rules and standards

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Compliance by design for AI in aviation

Our research statement

AI promises to transform the world of aviation but raises new serious compliance issues.

DBL has been working on a methodology to foster **future-proof compliance since the early stage of the AI systems design**

The HAIKU project elaborated a **comprehensive mapping of the applicable regulatory requirements for AI applications in aviation**

An overview

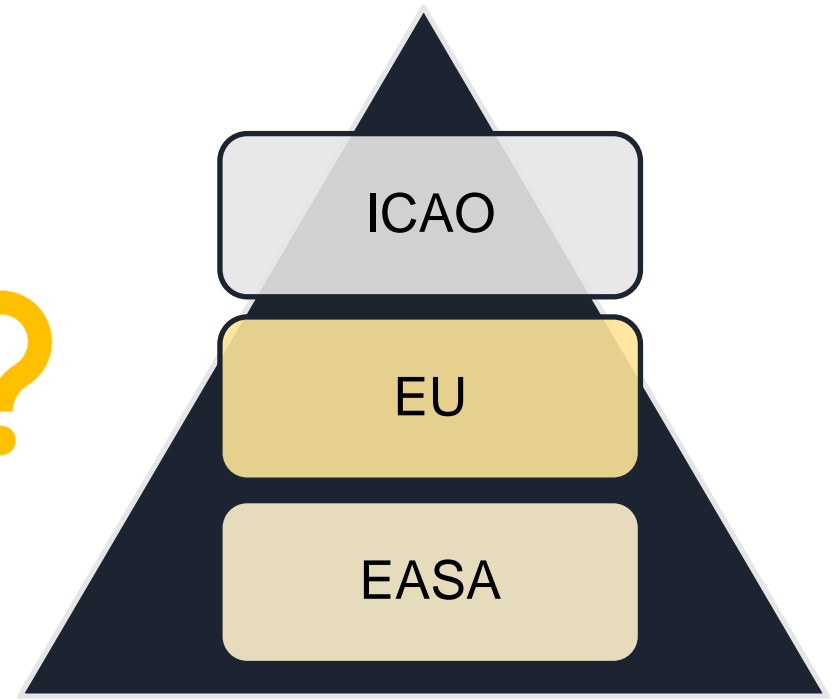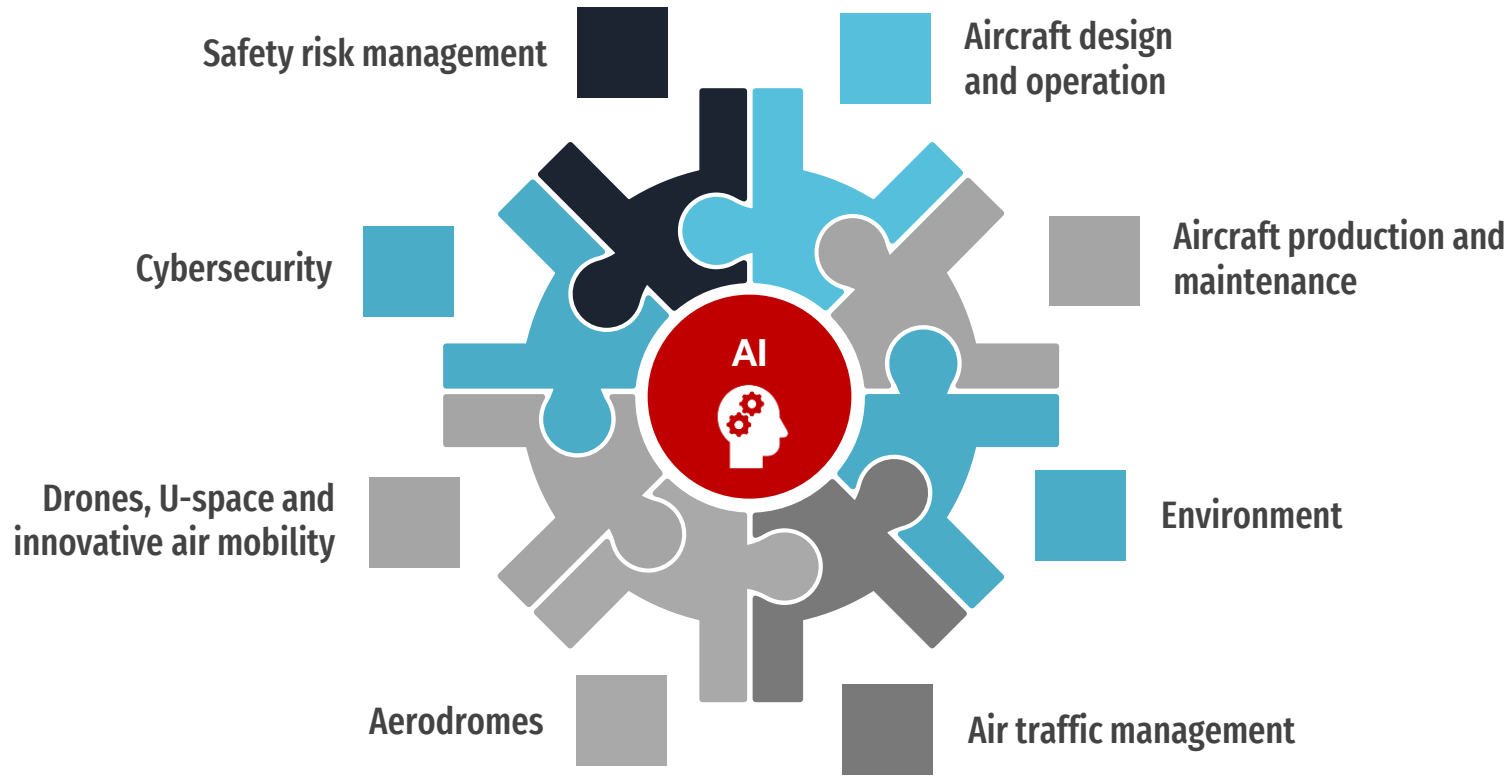## The steps of this presentation

1. Aviation expectation about AI, and its regulation

2. EU AI regulation: from theory to practice

3. Towards proactive compliance by design

Aviation expectations about AI

- Safety risk management
- Aircraft design and operation
- Cybersecurity
- Aircraft production and maintenance
- Drones, U-space and innovative air mobility
- Environment
- Aerodromes
- Air traffic management

AI

?

- ICAO
- EU
- EASA

AI regulation for aviation

In a nutshell
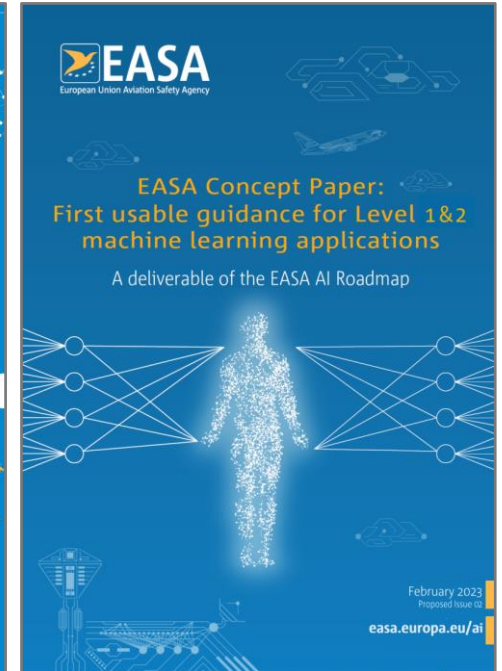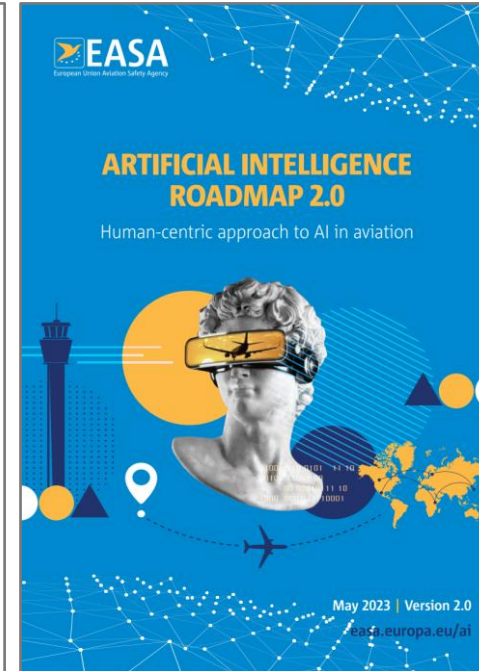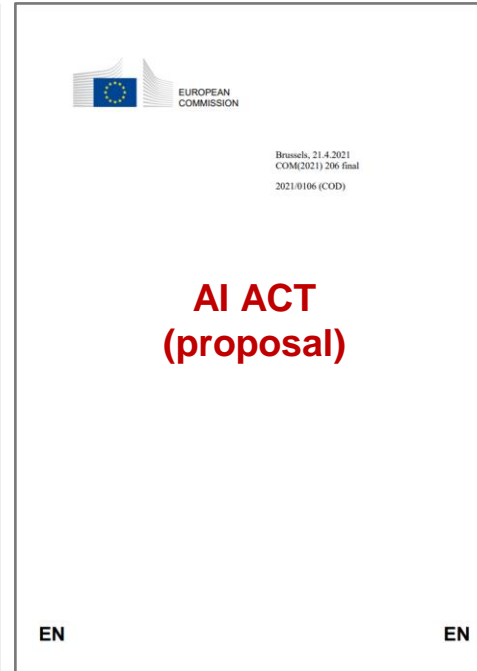
The HAIKU project

Ambitions and concerns

▪**Systemic approach to human-centred AI for aviation**

▪6 use cases encompassing **all the aviation domains** *(airport, ATM, navigation and UAM)*

▪AI applications mapped covering the **whole EASA AI Roadmap 2.0 timeline** *(2025 – 2035 - 2050)*

Safety
Safer, ar at leat as safe as the previous one

Human Factors
Usable, trustworthy, retains human control & situation awareness

Liability
Liability issues clear to all parties for predictable scenarios

Security
Robust against cyber-attack; loss of integrity clear to human users

Legal Compliance
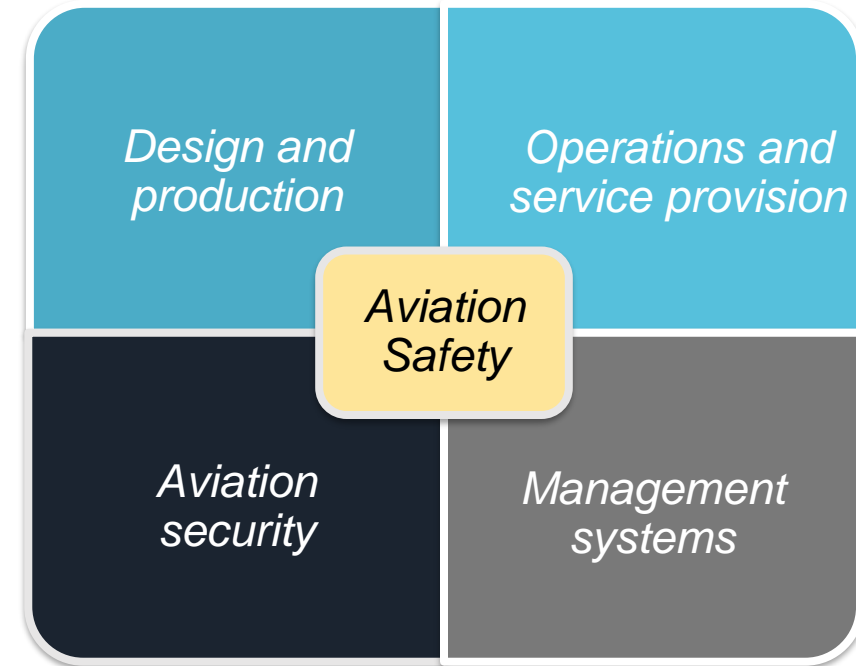Aligned with legal and regulatory requirements of performance and risk-based regulation

What is the applicable legal and regulatory framework to AI in aviation?

EU AI regulation in aviation

From theory…

AI ACT (proposal)

AI Liability (proposal)

+

Design and production	*Operations and service provision*
Aviation security	*Management systems*

Aviation Safety

ICAO and EU aviation law applicable to AI

EU AI regulation in aviation

…to practice

Annex F - Tables on EU Aviation Law Requirements for AI

1. AI in Articles of EASA Basic Regulation on aviation safety

Table F. 1 - AI in Articles of EASA Basic Regulation on aviation safety

Article	Title	Content	Applicability to AI
4(1)(e)	Principles for measures under this Regulation	lay down, where possible, requirements and procedures in a manner which is performance-based and focuses on objectives to be achieved, while allowing different means of achieving compliance with those performance-based objectives	The EU Legisla recommends EC and in the case of electric parts or of determi This would be even m for which prescriptive are most difficult to b
6(2)	European Plan for Aviation Safety (EPAS)	EASA, in close collaboration with Member States (MS) and relevant stakeholders, shall document in a dedicated safety risk portfolio the safety risks and monitor the implementation of related mitigation actions by the parties concerned, including, where appropriate, by setting safety performance indicators.	This means that ev implementation of allowed by the EU/EAS based rules, EASA emerging risks and, w propose appropriate r

Annex E - Tables on EU AI Legislative Initiative Requirements

1. AI Act Relevant Developments Requirements for the purposes of HAIKU

Table E. 1 - AI Act relevant development requirements (Risk management)

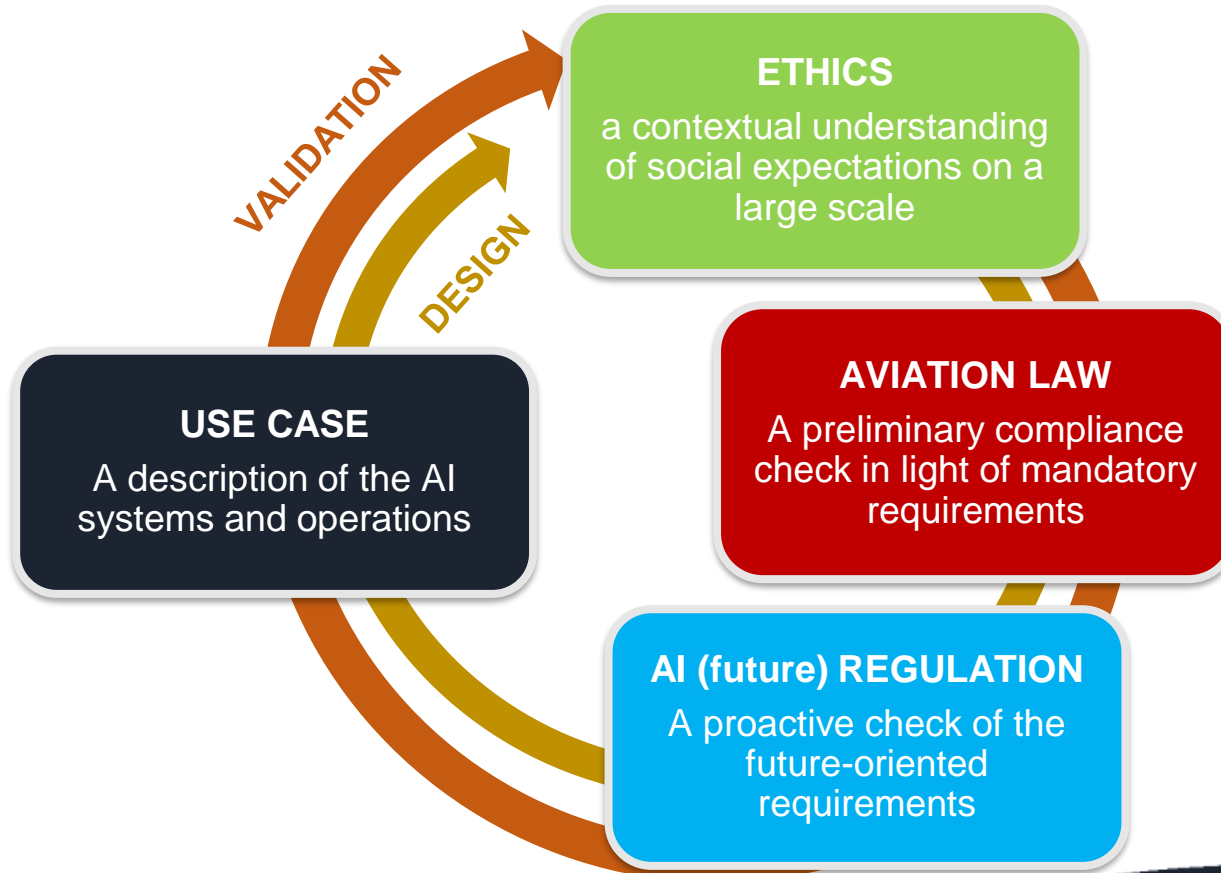| RISK MANAGEMENT		
Reference	Requirement	For the purposes of HAIKU
Article 8	**Compliance** «(1) High-risk system shall comply with the requirements established […] (2) The intended purpose of the high-risk Ai system and risk management system […] shall be taken into account when ensuring compliance with those requirements»	To have a clearer idea of the specific compliance burdens on the shoulder of the actors involved in each use case, it is advisable to preventively: • **Classify the AI system at issue according to the criteria provided by the AI Act** • If qualified as 'high-risk', assess how this qualification may inform the specific regime (if any) prescribed by

Towards a proactive approach to compliance

Ethics, rules and standards gradually embedded in the design

VALIDATION

DESIGN

ETHICS
a contextual understanding of social expectations on a large scale

USE CASE
A description of the AI systems and operations

AVIATION LAW
A preliminary compliance check in light of mandatory requirements

AI (future) REGULATION
A proactive check of the future-oriented requirements

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We are human factors specialists, designing systems and procedures for improved performance, ensuring rapid returns on economic and reputational investments.

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Human AI teaming Knowledge and Understanding for aviation safety

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