UAS Virtual Certification

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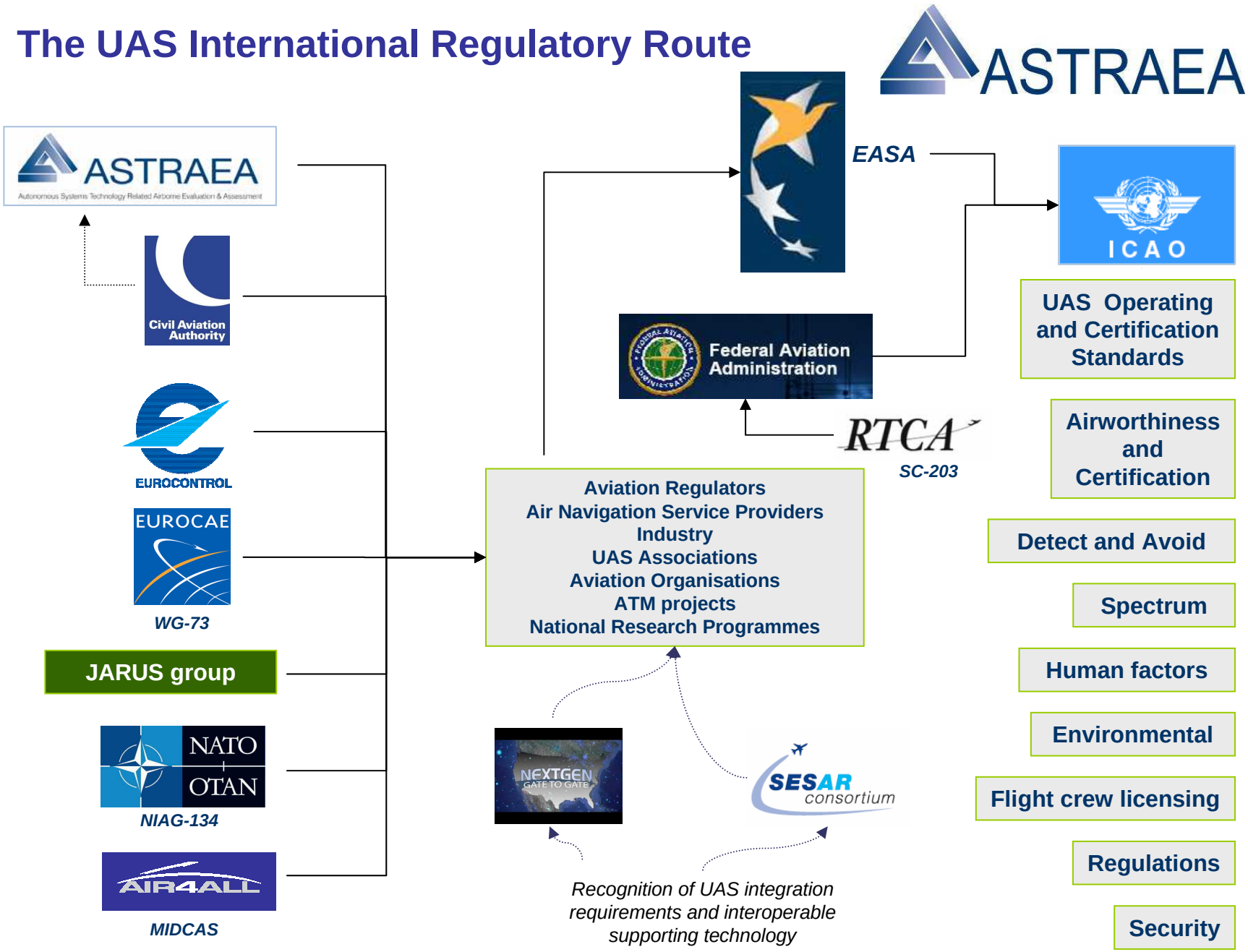
The UAS International Regulatory Route



The Virtual Certification Components

- **The aims of the ASTRAEA-CAA Virtual Certification Plan are;**
  - To reduce the risk of commercial development of a UAS capable of meeting civil airworthiness and certification requirements
  - Through a virtual process, to plot and document the route to UAS certification for a top level generic UAS platform and associated components relevant to the ASTRAEA partners
  - To enable a forum whereby the CAA will comment upon (without commitment) and provide guidance towards an acceptable technical and regulatory framework which will best lead to certifiable solutions

- **CAA and ASTRAEA have agreed that any consensus or agreed outcome emanating from this UAS Virtual Certification exercise will be considered as generic guidance only**
  - It will not be used as directly read across acceptance material or as an acceptable means of compliance without first demonstrating a full showing of compliance to the requirements of any real UAS certification programme

The Virtual Certification Process

Jetstream 31

UAS Architecture

CS23 certification

UAS CONOPS

High level functional hazard analysis

Determination of special conditions and identification of novel features

Virtual Certification Plan development

ASTRAEA

CAA International

Tailoring of requirements for CS23 and CS E codes

Determination of analogous CS 23 codes

ASTRAEA

Virtual Certification Plan and basis for certification

Autonomous systems

Ground operations and HSI

Communications and spectrum

Detect and Avoid

Outputs for ASTRAEA Technical Themes

Functional specification

CCL - Compliance Checklist

FHA - Functional Hazard Analysis

AMC - Acceptable means of compliance

UAS Virtual Certification components

- **Although EC Regulation 216/2008 Annex II states that unmanned aircraft of over 150 kg are within the remit of EASA, this programme is virtual, so it will remain as a national project**
  - **However the process will be in line with the EASA Policy Statement: *Airworthiness Certification of Unmanned Aircraft Systems (UAS)***
- **The ASTRAEA UAS (virtual) Architectural Overview Document will form the basis of the high level UAS components of the surrogate platform;**
  - **High level assumptions**
  - **System operation**
  - **Sub-system description**
  - **Concept of operations**
- **The baseline airworthiness code will be analogous CS23 and CS E with Special Conditions developed for;**
  - **Emergency recovery capability**
  - **Command and control link**
  - **Autonomy levels**
  - **GCS and human factors**
  - **Operational requirements**
  - **System safety assessment**

UAS Virtual Certification Deliverables

- **The key technologies for incorporation in the VC process are;**
  - **Detect and Avoid**
  - **Autonomy**
  - **Command, Control and Communications**
  - **Ground Operations and HSI**
- **Key Deliverables for each technology theme are;**