EUROCONTROL
“The European Organisation for the Safety of Air Navigation”

Mission: To **harmonise** and **integrate** Air Navigation Services in Europe, aiming at the creation of a **uniform** Air Traffic Management System for **civil and military** users, in order to achieve the **safe, orderly, expeditious** and **economic** flow of traffic throughout Europe.
(Article 1 of the EUROCONTROL Revised Convention)
EUROCONTROL – A Civil/Military International Organisation
EUROCONTROL – A Civil/Military International Organisation

EUROCONTROL’s “4 Pillars”

- Regional ATC Services
- Pan-European Functions
- Support to Regulation
- ATM Network Design
Pillar 1 - Regional ATC Services

Upper Airspace – D, B, NL, L

1.6 million flights annually

Constant efficiency improvements

Excellent Safety Performance
Pillar 2 - Pan-European Functions

“Central Flow Management Unit”
- Since 1995
- 40% increase in traffic
- Delays below 2 min.

“Central Route Charges Office”
- Efficient cost recovery
- On behalf of 32 States
- Reduction of the Admin Unit Rate
Pillar 3 - Support to Regulation

“The Single European Sky”
14 Mandates from the EC
Implementing Rules
Inter-operability

ESARRs
European Community Law
UAS required Levels of Safety

Safety Regulation
Pillar 4 - ATM Network Design

- Co-operative Stakeholder Process
- Strategies, Concepts, Roadmaps
- Unmanned Aircraft Systems
- Institute Air Navigation Services
- EUROCONTROL Experimental Centre
Integration of UAS into the pan-European ATM Network

- Safety
- Security
- Environment
- Airspace Capacity
- Flight Efficiencies
- Airspace Access
Civil Aviation Today – Europe

Employed: 4,000,000 citizens

Economy: 220,000,000,000 €/yr.

(2005): 9,200,000 Flights
27% of global flights

(2025): 22,000,000 Flights (240% growth)

37% of European flights are international!
Role of EUROCONTROL

Ensure ATM meets requirements of all legitimate airspace users

“legitimate”: certification, equipment carriage, + operational approval

“certification”: for UAS, the missing element
EUROCONTROL Integration of UAS into the ATM Network

- UAS as legitimate airspace users
- Civil and Military UAS
- Optimum Use of the Airspace
- Further Segregation not an option
Flexible Use of Airspace
Illustration of Dynamic European Airspace use
ANT: EUROCONTROL “Airspace and Navigation Team”

GAT: “General Air Traffic” – Civil Aircraft and [Military]

Requirement: UAS as GAT shall perform at least as well as manned aircraft

Principle of ATM transparency

UAS certification as the basis for ATM transparency.

The pursuit of ATM transparency through certification……
Addressing civil UAS Certification

EUROCONTROL/EUROCAE Consultation

EUROCONTROL Lead/Chair of WG-73

Broad EUROCONTROL Participation

RTCA Coordination
Addressing civil UAS Certification

WG 73 as European UAS Expert Group

Partners in a “phased UAS Integration”

Permits to Fly

Restricted Certificates of Airworthiness
Addressing civil UAS Certification

- EUROCONTROL submissions to EANPG
- ICAO UAS Study Group (2007)
Achieving ATM Transparency

**EUROCAE/RTCA MASPS/MOPS**

- UAS Categorisation
- Establish Required Safety Levels – EUROCONTROL SRC
- ATM Transparency Shortcomings/Enhancements
- ATM mitigation or adaptation

**EASA**

- Airworthiness Codes
- Means of Compliance
- Restricted Certificates with ATM risk mitigation
Achieving ATM Transparency

ICAO
- Global UAS Policy and Guidance
- Global UAS SARPs
  - Global Inter-operability

EUROCONTROL
- UAS Airspace Impact Assessments
- ATM Security
- Environment
- Civil-Military Interoperability
ATM will evolve – UAS as Drivers for Change

UAS Systems can improve ATM for **all** airspace users

- Detect, Sense and Avoid
- Improved Air-Ground Communications Links
- Autonomous Flight

**Future ATM Concepts**

- SESAR - UAS to be fully considered
- EUROCONTROL Experimental Centre – UAS R+D
- ICAO ATM Operational Concept (2025) - UAS
Immediate UAS ATM Initiatives


- UAS airspace flight performance ATM integration assessments
- Human factors – UAS Ground Control Station
- ATC Interface

Support to Specific National Civil Applications – Civil UAS “First Steps”

- Promote and support civil UAS in non-segregated airspace
- ATM Integration
- Phased Integration - Permits to Fly
Establish Cross-Domain UAS Activity

Short-term - UAS phased Integration

UAS “Proof of Concept”

Medium term - UAS Full ATM Integration

Long term R+D – Enhanced ATM for all
EUROCONTROL UAS “Next Steps” (2/3)

- European UAS Market Outlooks
- EUROCONTROL/FAA MoC Action Plan 24
- Spectrum, Spectrum, Spectrum….. EUROCONTROL, FAA, EUROCAE, RTCA, ICAO, Industry
- SESAR
EUROCONTROL UAS “Next Steps” (3/3)

- UAS Required Levels of Safety
- Human Factors Studies
- EUROCAE, EASA, ICAO, Industry
- ATC UAS Real-Time Simulations
- Support to Specific National Civil Applications – Civil UAS “First Steps”
Conclusion

- UAS have arrived!
- They will be legitimate airspace users
- ATM will meet UAS airspace requirements
- EUROCONTROL will remain fully engaged
A “Turning Point” in Aviation

Thank-you!