Slido: #IAM2024

SCAN ME

EASA Innovative Air Mobility Implementation Forum

In cooperation with:

Alliance for New Mobility Europe · ASD · Drone Alliance Europe · Global UTM Association · JEDA

Highly automated UAS operations: lessons learnt and challenges

Moderator

NATALE DI RUBBO

Drone project manager, EASA

GIOVANNI BARRACO

Director of Regulation and Research Innovative Mobility Department, ENAC

STEFAN RONIG

Drone certification section manager, EASA

DIEGO FERNÁNDEZ VARELA

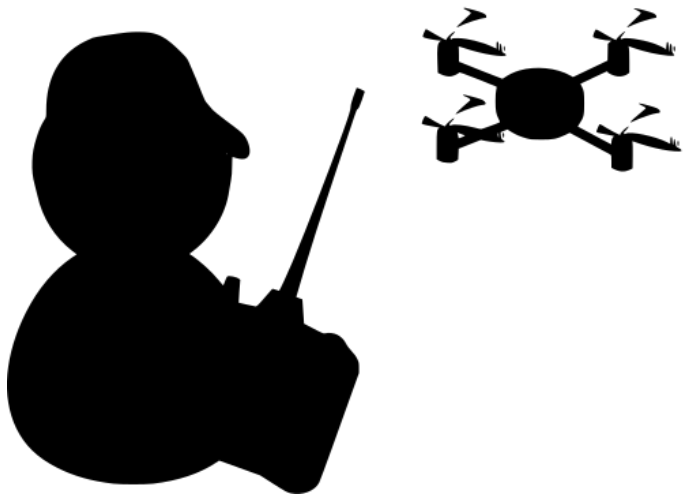
Regulatory compliance & certification manager – Europe, Wing

Workshop title:

Highly automated UAS operations: lessons learnt and challenges

Slido: #IAM2024

Goal: understand when automation can reduce the remote pilot authority and how to make automated operations safe



Which operations are we considering?

EASA Innovative Air Mobility Implementation Forum

Slido: #IAM2024

Drone in a box

Credit https://droniq.de/en/produkte/drone-in-a-box-system/dji-dock-2/

At least prefight, take off, landing and post flight phases are conducted with no human intervention

Multiple drones controlled by a single command and control unit

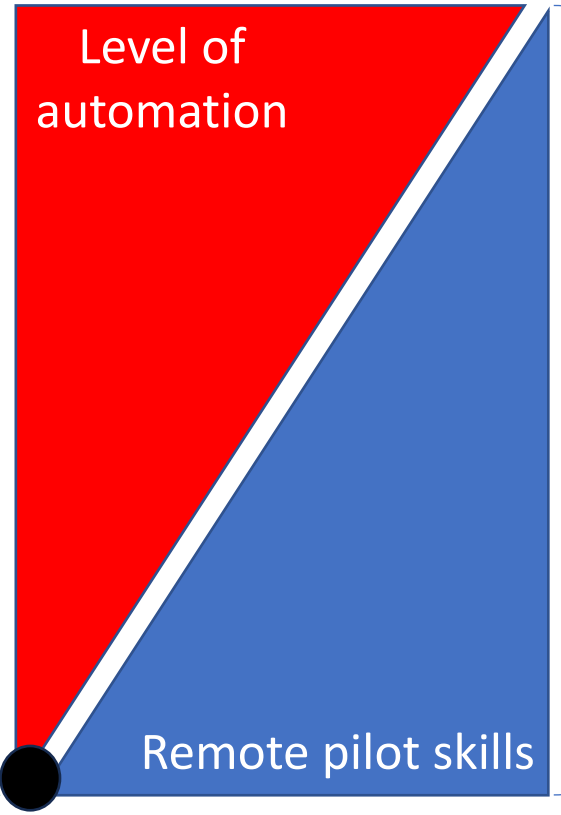
Credit https://meshmerize.net/drone-network-powered-by-meshmerize-revolutionizing-autonomous-uav-swarms/

Cruise/aerial work phase phase is conducted with reduced human intervention

Level of automation

Slido: #IAM2024

Fully autonomous: responsibility on the UAS operator and designer



Current operations do not reach the full autonomous yet

Automatic functions

Direct control: remote pilot fully responsible for all phases of the flight

Questions for the workshop

- How UAS operators and designers should manage automation?
- What are the skills required to the UAS operator personnel?

Automatic flight = *the flight path is pre-loaded before flight.*
Autonomous flight = *the UAS determines the best trajectory by analysing the flight parameters. AI may be used.* ***Not part of this workshop***

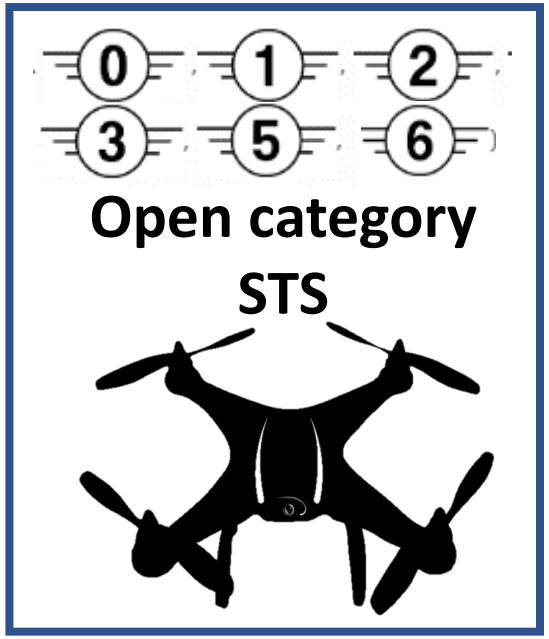
Levels of automation

Automation levels proposed by JARUS

Levels	Functions	Human-Machine Teaming	Aircraft Manoeuvre Control
0	Manual operation	Human led	Remote pilot controls flight surfaces
1	Assisted operation	Human-in-the-loop	Automated functions supporting the remote pilot
2	Task reduction	Human-in-the-loop	Drone capable to complete a flight however the remote pilot is able to take back control
3	Supervised automation	Human-in/on the-loop	Machine performs some functions (supervised by human)
4	High automation	Human-on-the-loop	Machine performs most functions (very limited human intervention)
5	Full autonomy	Human-off-the-loop	No human intervention possible

EASA Innovative Air Mobility Implementation Forum

Slido: #IAM2024



Focus of this panel

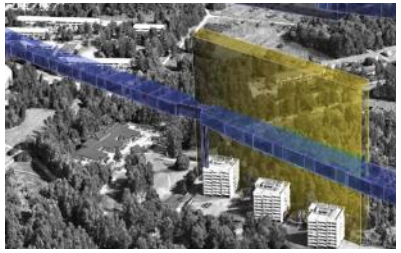
How Wing's operations look like today

– Highly automated BVLOS operations with aircraft behaving and reacting in a predictable way

– Flights below 120 m AGL, strategically deconflicted from other known aircraft through planning

– 10 km range; 6.5 kg MTOM (including payload)

1. Order and preparation



2. Planning and assignment

3. Automated checks and takeoff

4. Pickup (~7 m above ground)

5. Cruise (~30-40 m above obstacles)

6. Delivery (~7 m above ground)

Wing