DRONES, STATE OF PLAY

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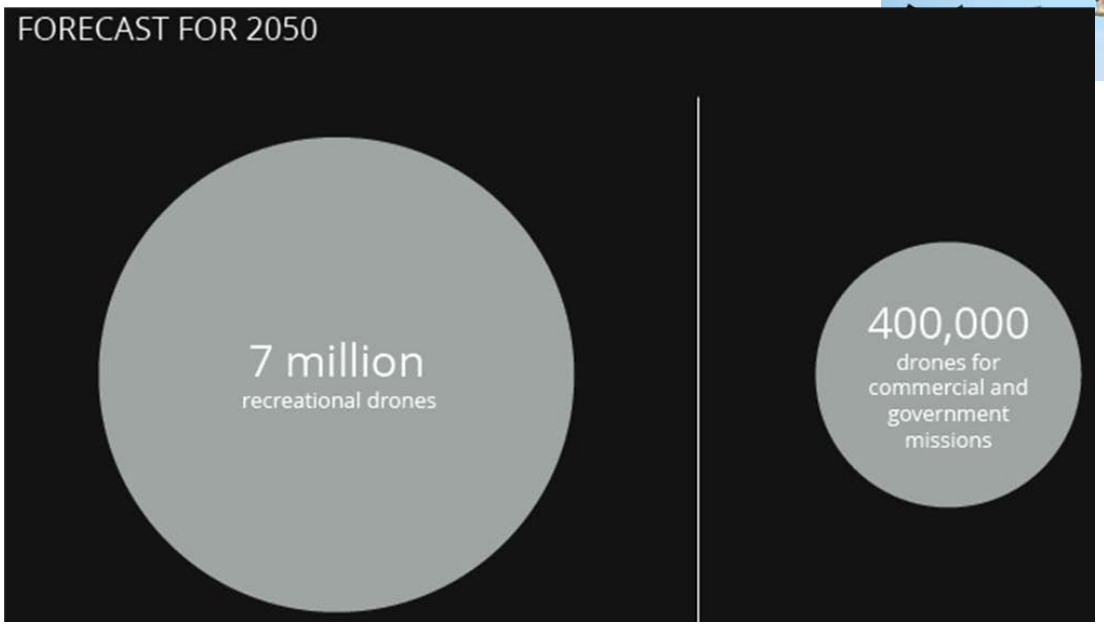
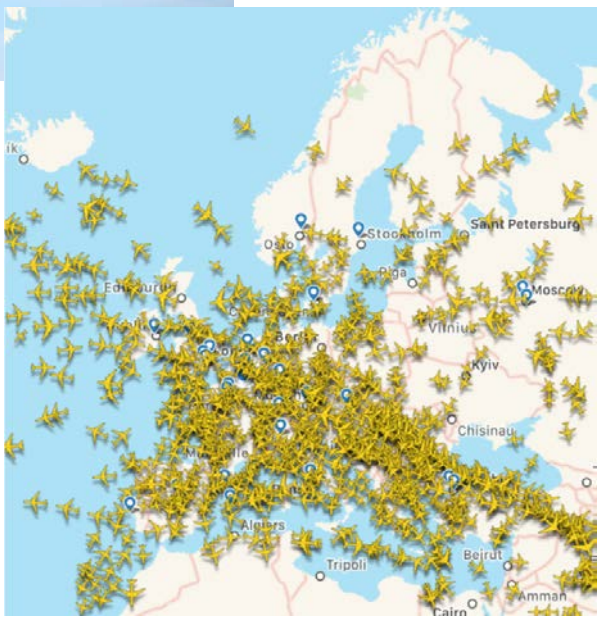
INTRODUCTION

- **Airspace or « Their-space » in the early days…**

INTRODUCTION

- **Tomorrow…..**





> Airspace users will have to co-exist even more
> Drones market booming
> Risks & opportunities (ACI EUROPE position paper – Jan 2018).
  - Potential for (serious) disruption of airports ops.
  - Before opportunities: **solve their safe integration in a controlled manner**

RISK CONSEQUENCES

- **Gatwick (Dec 2018) …**
  - > 115 sight seeing
  - > Interruption of flight ops between 19 & 21 Dec,
  - > Direct impact:
    - 909 flights cancelled
    - 164 000 pax affected
    - 3.5M£ of means invested at the time of crisis to contain it and resume ops
    - Other direct & indirect losses estimated in Million £

  - > **<u>Lessons identified</u>**: In such situations, procedures aren't enough. Urgent need of authorities to:
    - Establish (& enforce) "no drone flying zones" for higher risks airports (meant not to forbid totally drones ops but to provide strict rules for allowing them)
    - European rules for safety (pilot skills, training, hobbyist awareness, CE marking, drones categories pending on usage and performance, rules related to intended use, safety by design).
    - Legal arsenal (ensure "wrong-doing" is criminalized, + legislation deterrence)
    - Evaluate-certify technology that can be used in an aerodrome environment, provide resources and training for users (law enforcement in charge of responding)

What does ACI ?

- ACI EUROPE position (Jan 2018)
- Two workshops conducted to build capacity, inform and demystify the subject (Sep & Dec 2018)
- Collaboration with SESAR (info on operational trials, proof of concept…)
- ACI WORLD "*bulletin*" in the aftermath of the Gatwick incident (Jan 2019)
- ACI EUROPE Drones Task Force launched in Sep 2018
  - > 14 members to date, balanced representation of safety-ops and security experts
  - > Objectives:
    - GENERAL:
      - Drone developments - continuous monitoring
      - Panel of professionals & experts interfacing with regulators / authorities when needed
      - Knowledge sharing with member airports (+ with ACI EUROPE Committees & WGs)
      - Development of guidance material for members (ConOps)
    - RISK:
      - Interface role with regulators and inputs to EU rulemaking activities for drones (mainly safety so far)
      - Follow-up on C-UAS technologies and its complexity (points to consider…etc), messages to authorities
    - OPPORTUNITIES
      - Foresight, use cases of interest, outlook on future Uspace/UTM services provision as opportunities for airports
      - Facilitation of drone operations where airports benefitting (e.g. standard scenarios for EASA)

DRONES & SECURITY ?

- **RISK CONTEXT:**

> Drones as weapons: not hypothetical (ISIS Syria & Iraq, Venezuelan President killing attempt, Use of drone as a weapon in Beirut in Sep 2019…). Using drones to smuggle items (e.g. prisons).

> European Commission view is: "*risk likely to grow since the UAS technology becomes more and more affordable, available and capable in term of performance*"

> Are all airports equally affected….? What if airlines start asking airports …?

> Risk is not only about security, but safety and business continuity: a holistic approach to safety & security and operations continuity in relation to drones-in-the-airport-environment is necessary.

DRONES & SECURITY ?

- **Security considerations:**

> Disrupt some of the core pillars of today AVSEC (e.g. perimeter surveillance? screening to avoid prohibited items to enter SRA).

> EU agenda currently driven by aviation safety (EASA). Can this help? Synergies?

> The risk of UAS (WGTR ICAO global risk context statement) was updated recently

> ACI EUROPE has received no indication of threat nor imminence of security risks as far as European aviation is concerned…

> Efficient C-UAS technology coverage requires heavy investments and expertise to set up, operate and maintain

> What about home-made craft / drones ?

BUT WHAT IS THE SECURITY RIKS ?
WHAT IS THE URGENCY FROM A SECURITY PERSPECTIVE ?

DRONES & SECURITY ?

- **Possible answers:**

> Regardless of any measures or resources, the security risk cannot be eliminated, only managed.

> C-UAS technology isn't the silver bullet (must come in combination and tailored to local needs & to each specific environment / needs)

> Airports not equally affected …5 flights a day v. 300 flights a day

> Solutions implemented for safety or operational continuity can have security benefits-purposes (e.g. detection technology).

> Airports cannot implement mitigation measures without a clear understanding of the security risks : airports need appropriate threat intelligence

> Similarities with landside security regarding the attribution of roles and responsibilities (multi-stakeholder issue and collective challenge as to who should be responsible of what, where and when).

DRONES & SECURITY ?

2.2. Objective #2 - Prepare aerodromes to mitigate risk from unauthorised drones use

Preparation of aerodromes to mitigate potential misuse of drones in the vicinity of aerodromes includes the definition of roles and responsibilities for the following areas:

- information gathering (including detection methods),
- coordination of procedures,
- risk assessment,
- training.

EASA European Aviation Safety Agency

The objective of the proposed action #2 is to develop guidance on definition of roles and responsibilities when sightseeing are experienced in the vicinity of an aerodrome

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> Similarities with landside security regarding the attribution of roles and responsibilities (multi-stakeholder issue and collective challenge as to who should be responsible of what, where and when).

DRONES & SECURITY ?

- **Possible answers:**

> Authorities have various threat perceptions: some recognizing that make a drone as a weapon is not an easy task for perpetrators to carry-out.
Or that smugglers would require someone inside...

> Investing in detection technology is only one step of the journey (need identification and tracking means, but also means to respond for busy airports)

> Risk assessment: for drones requiring a manual pilot (not all), some similarities can be noted with the risk assessment factors considered for MANPADS

> Collaboration needed (ATC, airlines…etc.): should airports do this alone ?

> An EU framework under development will help in the integration of drones in the airspace with an array of new services (incl. automated de-confliction = traffic control services) and will enable drones to fly in the airspace in the medium term future ("*U-space*" and "*UTM*"): will this become part of the solution?

DRONES & SECURITY ?

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Objective #4 – Ensure that C-UAS measures are considered from a global safety perspective

While the responsibility for disrupting activity of misused or malicious drones is falling under national law enforcement regulations, the choice of disruption technologies is a challenge since they could create unintended safety hazards and unmitigated risks to other manned aircraft, authorized drones or aerodrome infrastructures.

For this reason it is proposed that EASA is following the European initiatives in the domain of counter drone disruption technologies and work closely with subject matter experts to make sure aviation safety objectives are preserved; it is expected that guidance material to reduce unintended impact on CNS equipment and NAV aids infrastructure are developed.

WHAT STRATEGY - LARGE BUSY AIRPORTS ?

What are the driving factors for large airports ?

RISK CATEGORY	RISK LEVEL	IMPACT TO AIRPORT	Can solutions available reduce risk? (procedural, technological, physical)
OPERATION CONTINUITY	HIGH ?	HIGH	REASONABLY
REPUTATION (« what did you do ?»)	HIGH ?	HIGH	YES (« you proved you did something no matter what »)
SAFETY (people being killed)	MEDIUM ? or HIGH ?	HIGH	PARTLY to REASONABLY
SECURITY (people being killed)	MEDIUM to LOW ?	HIGH	PARTLY

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Objective #3 – Support the assessment of the safety risk of drones to manned aircraft

Assessing the safety risk associated to the presence of an unauthorised malicious drone in the vicinity of an aerodrome, implies understanding the potential effect of a drone collision against manned aircraft. But currently there is a lack of conclusive scientific evidence, which led EASA to launch a research project to get understanding of the outcome of potential collision of mass market drones ("threat") with manned aircraft ("target") and identify and recommend drone design strategies to contain the risk that drone-aircraft collision may induce on the aircraft and its occupants.

Although EASA is expecting valuable outcomes of this research program, first deliverables will not be available before end of 2021. In the meantime, EASA proposes to organise a workshop with

WHAT STRATEGY - SMALLER AIRPORTS ?

Situation differs for smaller airports: what is the risk to them ?
What are the driving factors ? Need for solutions ?

RISK CATEGORY	RISK LEVEL	IMPACT TO AIRPORT	Can solutions available reduce risk? (procedural, technological, physical)
OPERATION CONTINUITY	LOW ?	MODERATE	REASONABLY
REPUTATION (« what did you do ?»)	HIGH ?	HIGH	YES (« you proved you did something no matter what »)
SAFETY (people being killed)	LOW to High ?	HIGH	PARTLY to REASONABLY
SECURITY (people being killed)	MEDIUM to LOW ?	HIGH	PARTLY

Use of drone to avoid risk: use case…

THANK YOU

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