AERO SAFETY ANALYTICS

Drones & Safety Risk Management

Forthcoming Challenges

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Drones (UAS) in INDUSTRIES

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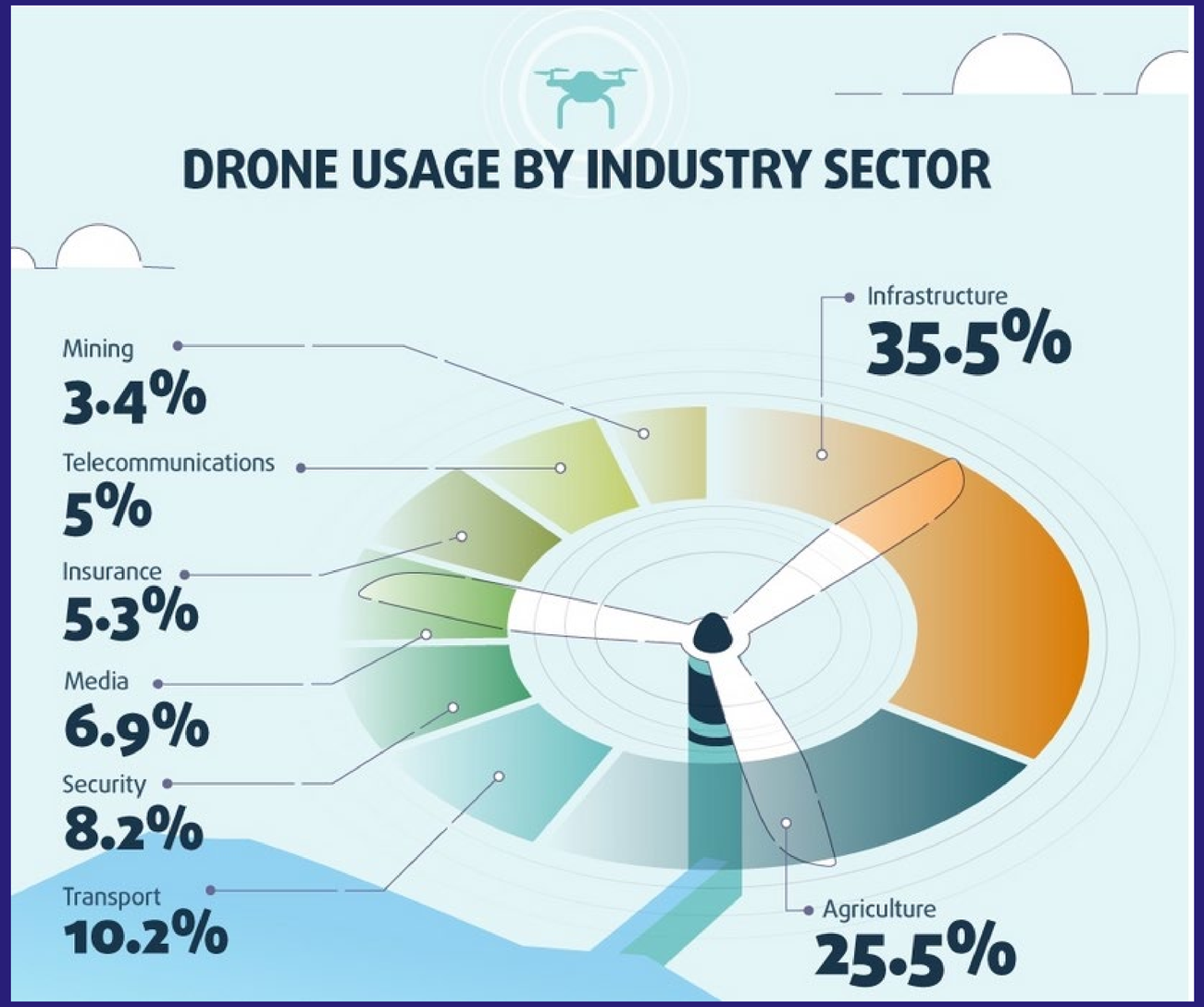
Micro-Air Vehicle for Search and Rescue service

Photography & Video service

Monitor & map Urban Landscape

Monitor & map Public Safety



Year 2021

source of photos: National Geographic

“2017” ……Drones in the Airspace..... “2040”

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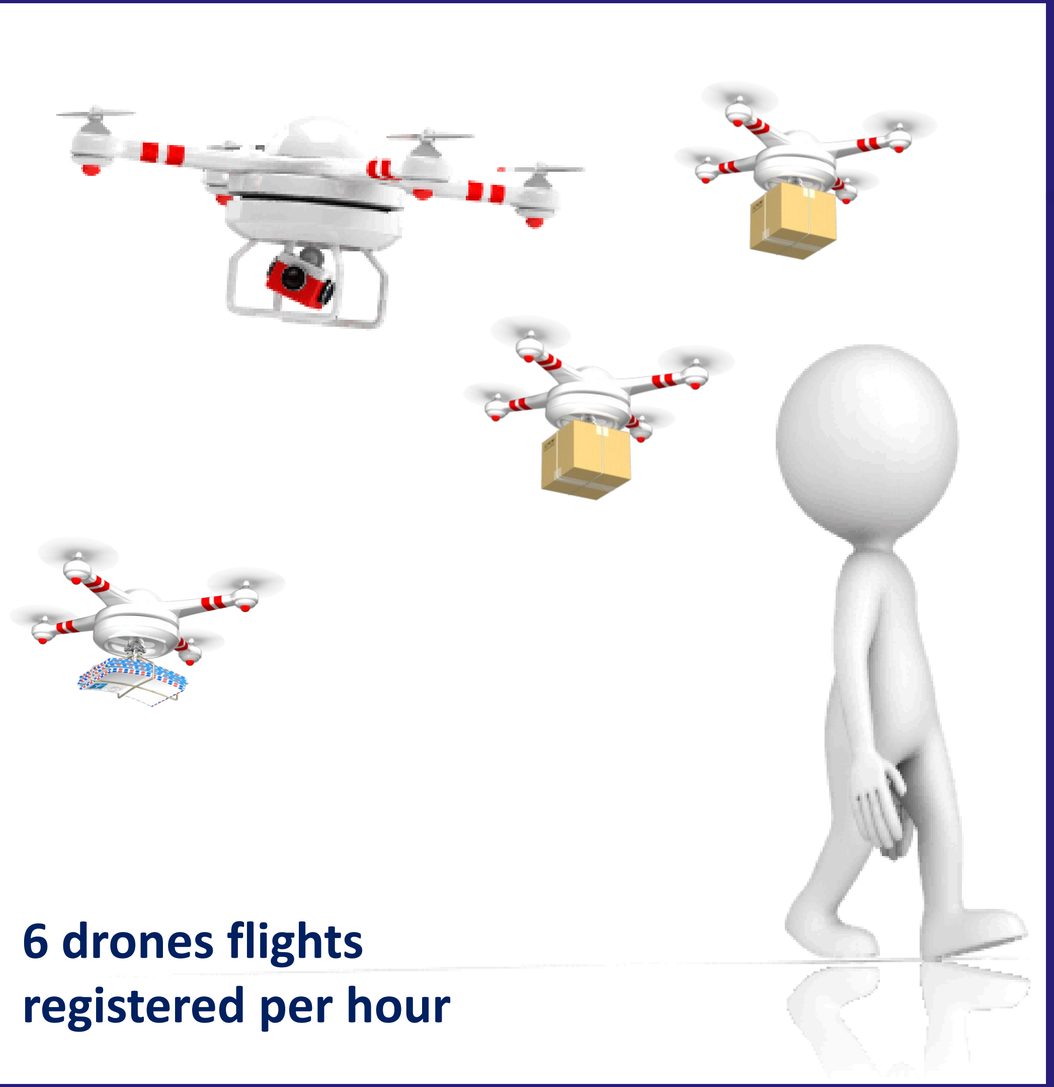

6 drones flights registered per hour

40 drones registered / hour

Drones – new type of risk?

Daily Mail

FRIDAY, DECEMBER 21, 2018 www.dailymail.co.uk 70p

20 TV hits of 2018 — and how you can still see them

IT'S FRIDAY STARTS PAGE 42

■ Chaos as drone cripples Gatwick ■ Police won't shoot it ...and can't find culprit ■ Fury over security measures they ignored

How COULD this speck in the sky ruin Christmas for 350,000?

By Rebecca Camber
Crime Correspondent

UP TO 350,000 passengers had their Christmas holiday plans ruined yesterday as a rogue drone operator single-handedly brought our second largest airport to its knees.

On an extraordinary day at Gatwick, the military descended on the scene, a row broke out over the failure to protect Britain's skies from the menace of drones. Ministers were blasted

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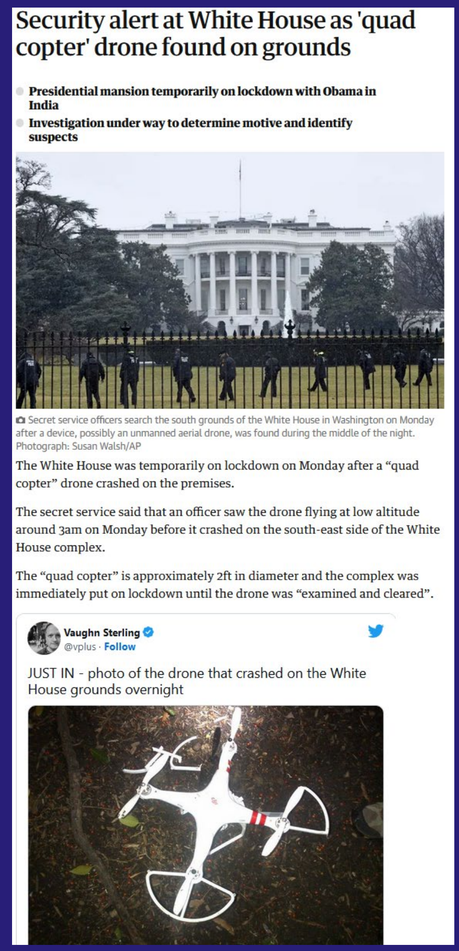

Security alert at White House as 'quad copter' drone found on grounds

- Presidential mansion temporarily on lockdown with Obama in India
- Investigation under way to determine motive and identify suspects

Secret service officers search the south grounds of the White House in Washington on Monday after a device, possibly an unmanned aerial drone, was found during the middle of the night. Photograph: Susan Walsh/AP

The White House was temporarily on lockdown on Monday after a "quad copter" drone crashed on the premises.

The secret service said that an officer saw the drone flying at low altitude around 3am on Monday before it crashed on the south-east side of the White House complex.

The "quad copter" is approximately 2ft in diameter and the complex was immediately put on lockdown until the drone was "examined and cleared".

Vaughn Sterling
@vplus · Follow

JUST IN - photo of the drone that crashed on the White House grounds overnight

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www.aerosafety.eu

Important Aspects for safety risk management

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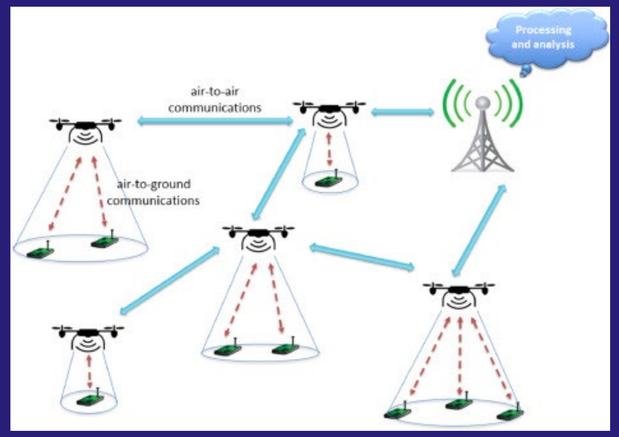
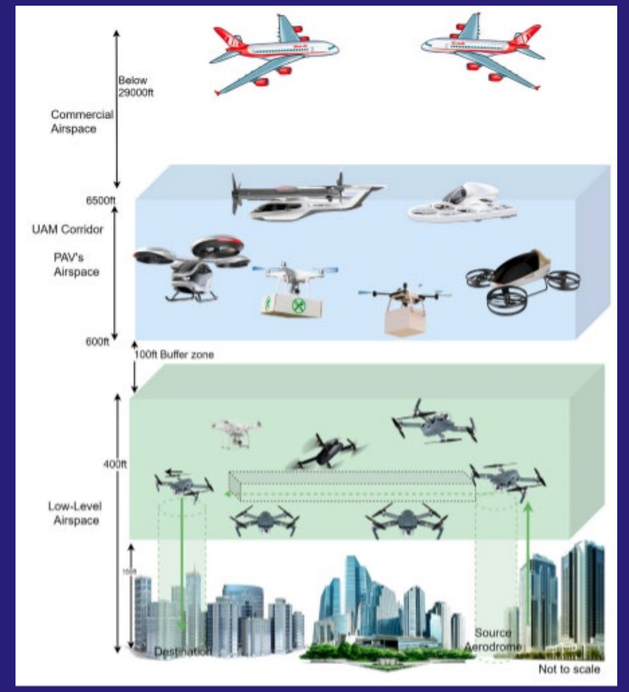


Datacom & Spectrum Issues

Detect & Avoid

Security & Cyber Resilience



UAS & Air Traffic Management

Human factors & Training

Validation & demonstration

Research Findings – EU & USA Differences

EUROPE

7 classes of drone’s traffic (EASA regulation)

Drone weight above 250 g – need of min. age 16 years, drone has to be registered, need for remote pilot qualification

Design of U-Space for drones' operation

Classification of the incidents with drones involvement

US

Each drone has to be registered

Visual line of sight

Small drones for recreational use (below 250 g) – only registration

Operation above people and specific areas – need for « drone pilot certification » & registration ID of drone

UTM ConOps

Analysis of safety reports – drones involved

Overview of reported occurrences

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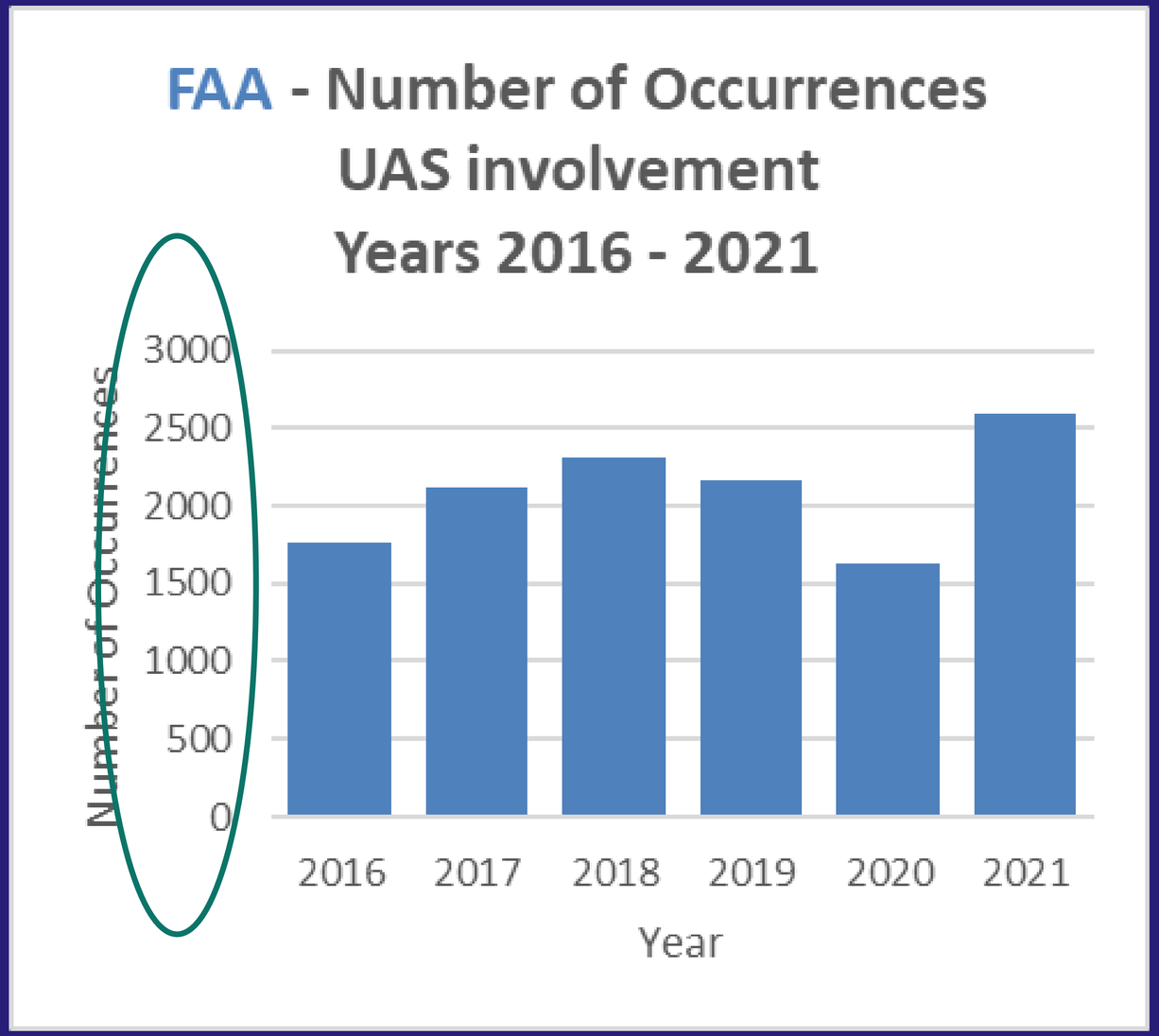
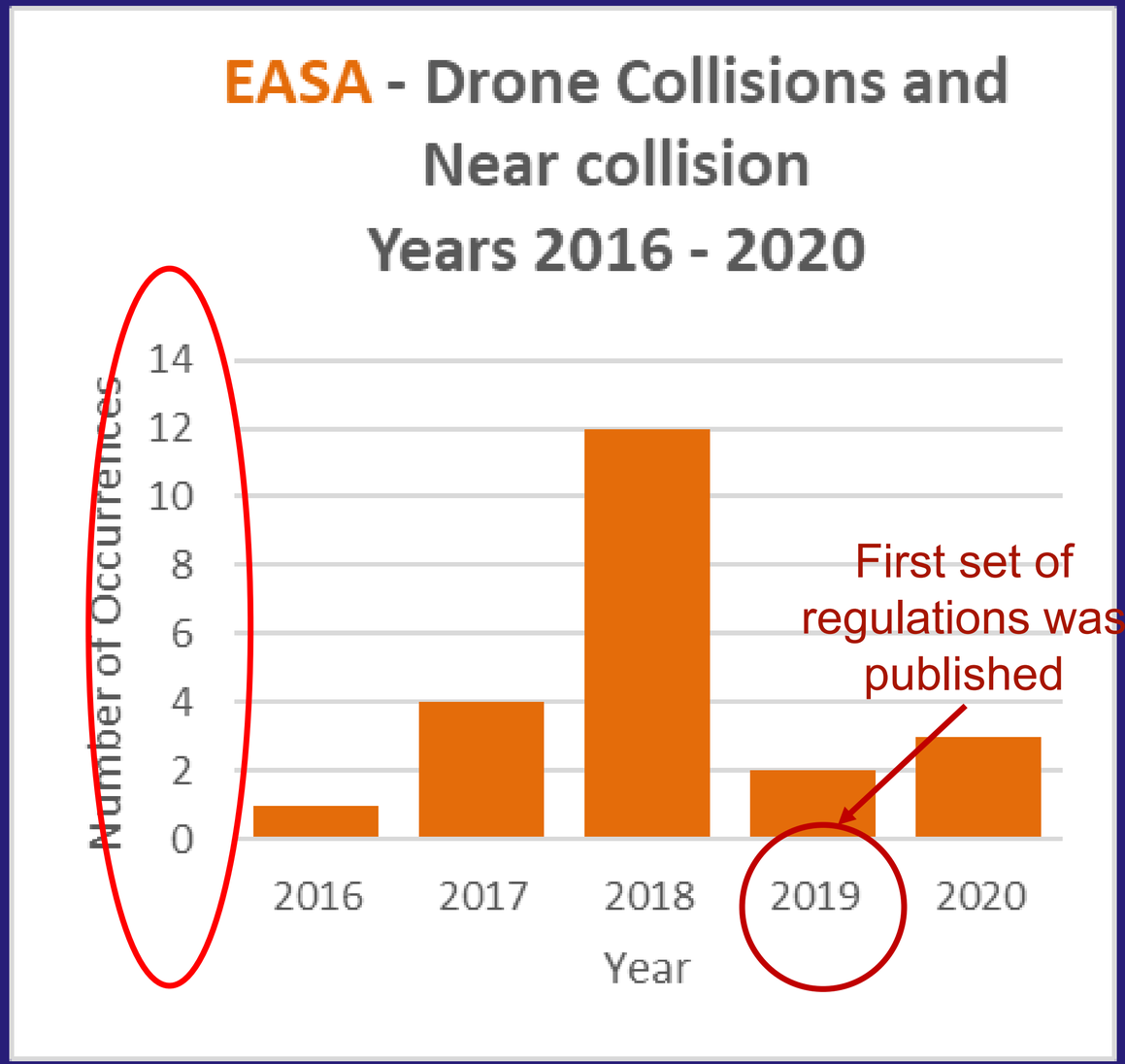


2013 – public starts to be aware of drones
2014 – FAA started to collect safety occurrences with drone involvement



2014/2015 – public starts to be aware of drones
2010 – first incident with drones' involvement in UK
2016 – EASA Annual Safety Report – drone was mentioned

Focus on Safety – EU & USA difference

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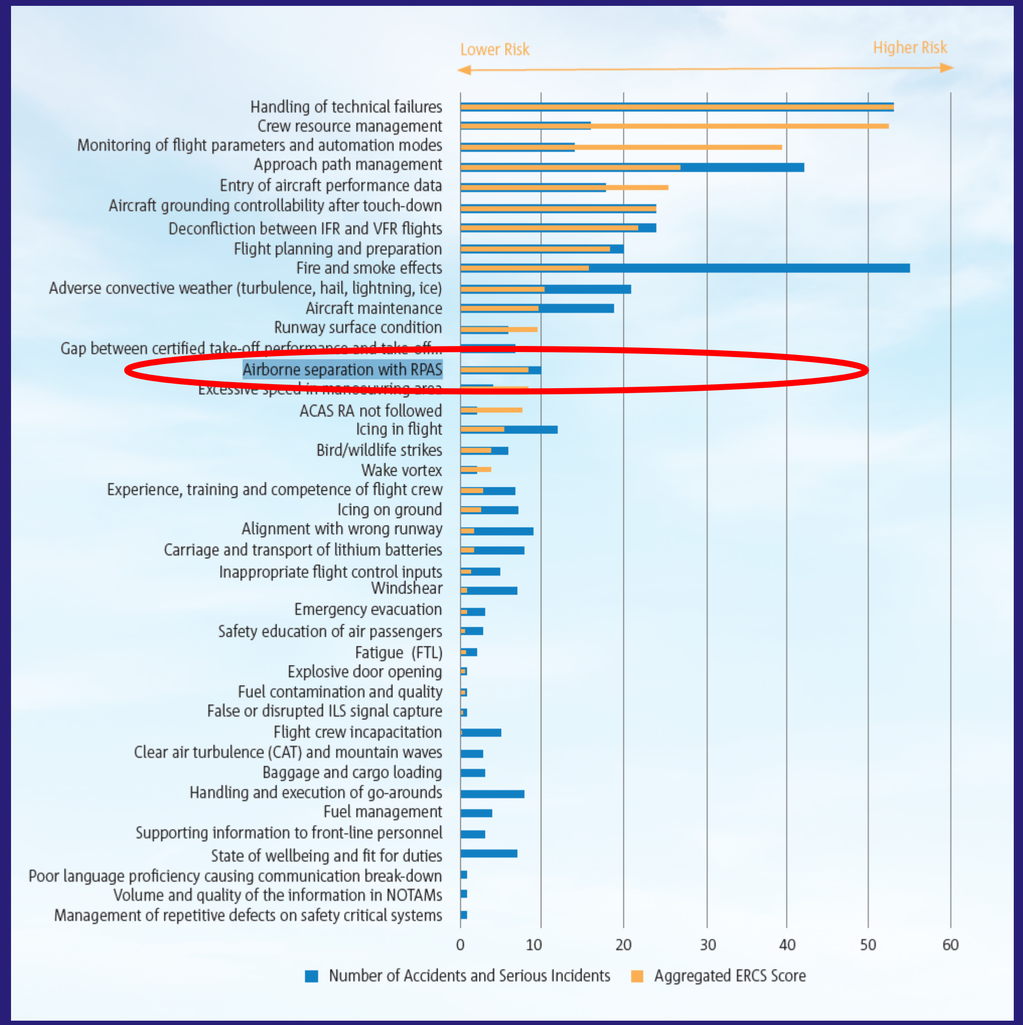


EASA Annual Safety Report
2021 (risk proportion in civil aviation)

EASA classification – Serious Incident & Incident – full report + recommendations

FAA + NTSB – analysis of drone occurrence – event/non-event – recommendations only in NTSB investigation – till 2020 0 occurrences investigated by NTSB

NONE of reported occurrences were issued by drone pilot or drone service operator

Different maturity of the safety and reporting culture in USA and Europe

Difference in safety data collection and analysis between USA and EU

Different approach to UAS classification, pilot certification & training

Different levels of UAS maturity level of operation – USA is the leader on the global market (2021)

Current mitigations for UAS safety risk management

Drone types classification

Drone safety related regulations

Drone pilot/service providers training requirement

Drone technology certification requirements

Awareness conferences, workshops, publications

UTM / U-Space ConOps – research studies

EU – drone main principles

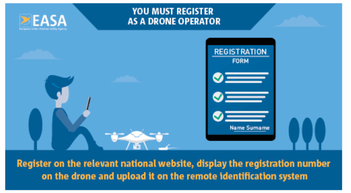
Drone operators' and pilots' main responsibilities

	Drone operator	Drone pilot
Insurance	The drone operator **needs to** have the right insurance in place, even if the drone is piloted by someone else. Check with your National Aviation Authority.	It would **be good** for pilots to check that insurance is in place before flying.
Registration	The drone operator **needs to** register with their National Aviation Authority. Drones that are in the open category are never registered in their own right, only the operator needs to register.	Before you fly the drone, it would **be good** to check whether the operator is registered.
Registration ID number	Once you have registered as a drone operator, you will receive a registration ID number. You **need to** fix the same ID number on the drone or drones you own.	The drone pilot is not responsible for this, but it would **be good** to check that the drone s/he is flying has the operator's ID number fixed.
Pilot's exam	Before handing over your drone, it would **be good** to check that the designated pilot/s have done the necessary online pilot training, have passed the online pilot exam and have a valid pilot certificate.	The drone pilot **needs to** complete the necessary online training, pass a pilot exam and get a valid remote pilot competency certificate (valid for 5 years). **NOTE:** Make sure that you follow an online training offered by your National Aviation Authority. It allows for the correct licence to be issued.

Source: EASA web-page

You are responsible for each flight

You must register as a drone operator



Complete the online training and tests

Stay away from airports, airfields and aircraft

Check where you are allowed to fly

Know how to fly your drone

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Always keep your drone in sight

Do not fly above 120M (400 FT)

Keep the right distance from people and property

Prepare your drone for every flight

Respect people's privacy

.....and enjoy flying your drone!

FUTURE FOCUS on safety matters

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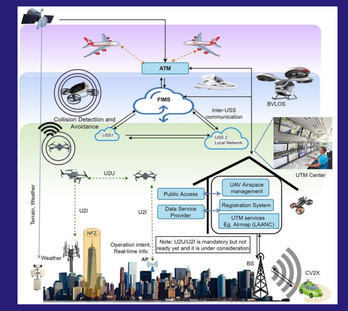
Improvement of safety culture and reporting culture btw. drone pilots/operators

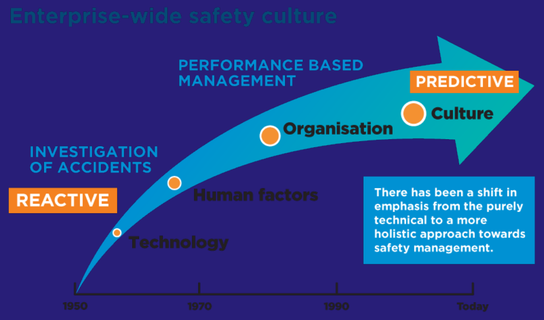
Close co-operation between ATM, UTM and regulators – traffic management (flight co-ordination, flow, network management, etc.)



Interface between all airspace users (controlled/uncontrolled airspace)

SMS evolution, implementation and management – experience sharing

UTM / U-Space ConOps – research studies – focus on safety risk management



Q & A