DRONE INTEREST GROUP MEETING #27

Wednesday 11th Dec 2019

GSMA Anti-Trust Policy

- Anti-trust law prohibits (i) agreements (written or implicit) between competitors which may negatively impact consumers or competitors and (ii) sharing of confidential information

- All GSMA participants **must** abide by the following rules:

  ✓DO clearly identify the positive purpose of each project and follow it

  ✓DO consult with legal in areas where you are unsure

  XDON'T enter into agreements that restrict other parties' actions or creates barriers to market entry

  XDON'T discuss or exchange information on pricing, business plans, or any other confidential or commercially sensitive data

GSMA position regarding US Entity List

The US government has revised its “Entity List”, restricting the transfer of non-public US technology in a private forum to affected companies. The GSMA does not consider that it would be affected by these restrictions as:

(i) Companies generally do not submit non-public technology
(ii) Relevant GSMA information is public, either through industry specifications or PRDs
(iii) any interested party can join GSMA projects, making them open fora

To address some Member concerns of inadvertent breach, **the GSMA will put the relevant group minutes and contributions on a public website** at https://www.gsma.com/

Some matters may not be suitable for a public website. We ask participants to identify:

(i) If this is the case and why; and
(ii) is there a risk of the transfer of US private technology in those circumstances

Once we have established if this is an issue we will revert with more guidance

Agenda

- British Telecom presentation – Counter Drone Solution
- Regulatory update
- Remote ID update
- GUTMA & GSMA collaboration
- Connected Skies – MWC Barcelona
- AOB

British Telecom presentation – Counter Drone Solution

Neil Brady

Counter Drone Solutions

Detect and respond to rogue drones before they become a threat

Neil Brady

Head of Propositions and GTM

How safe are your skies?

7.8 million

Number of consumer drones taking flight worldwide by 2020.

76,000

Commercial drones expected to be operating in UK skies by 2030.

5,000

Active commercial drone licenses in the UK, up 52% year-on-year.

£50 million

Estimated financial damage caused by unauthorised drone activity at Gatwick Airport.

125

Near-misses between aircraft and drones in 2018, a twenty-fold increase in four years.

90 per cent

Estimated number of drone drop-offs into prisons that go undetected.

DoD UAS Group Descriptions

UAS Groups	Maximum Weight (lbs)	Normal Operating Altitude (ft.)	Speed (kts)	Representative UAS	
Group 1	0-20	<1200 AGL	<100	Consumer and Commercial UAS, Raven (RQ-11), WASP	
Group 2	21-55	<3500 AGL	<250	ScanEagle	
Group 3	<1320	<FL 180		Shadow (RQ-7B), Tier II/STUAS	
Group 4	>1320		Any airspeed	Fire Scout (MQ-8B, RQ-8B), Predator (MQ-1A/B), Sky Warrior ERMP (MQ-1C)	
Group 5		>FL 180		Reaper (MQ-9A), Global Hawk (RQ-4), BAMS (RQ-4N)	

Basic threat categories that drones pose

Payload delivery

- Carrying a dangerous payload (in addition to camera)
- Difficult to confirm until after payload release
- Examples: bombs/CBRN or smuggling contraband to a prison

Intelligence, Surveillance, and Reconnaissance (ISR)

- Used to gather intelligence of any kind
- Identify time and location, or capture images
- Includes espionage, hacking or pirate broadcasting

Nuisance

- In the wrong place at the wrong time
- Can create major disruptions, such as at Gatwick Airport

Response actions

Detect

Know when something unexpected is flying in your airspace

Track

Follow the drone's location and understand where it might be going

Identify

Confirm what it is and whether it's hostile

Defeat

Reduce and eliminate the risk with active countermeasures

What are the threat areas?

Government and military
- Guard strategic sites
- Defend personnel
- Tackle threats with countermeasures

Events and commercial venues
- Keep spectators and stars safe
- Prevent pirate broadcasts
- Make sure events aren't interrupted

Airports
- Protect passenger safety
- Prevent travel disruption
- Reduce runway closures

Businesses
- Keep sensitive data secure
- Spot airborne surveillance
- Protect people and premises

Prisons
- Crack down on contraband smuggling
- Secure your facilities
- Protect prisoners and personnel

Critical infrastructure
- Keep the services we all rely on running
- Protect intellectual property
- Detect threats at a distance

BT and DroneShield

Powered by DRONESHIELD

BT have joined forces with **DroneShield, a world leader in drone detection and disruption technology** that aids security teams.

In recent years, DroneShield's products have been used at a variety of sites and events, including the **2018 Winter Olympics** in South Korea. And by a number of high-profile defence organisations, including the **British Army** and the **US Department of Defense**.

DroneShield - validation through Orders and Deployments.

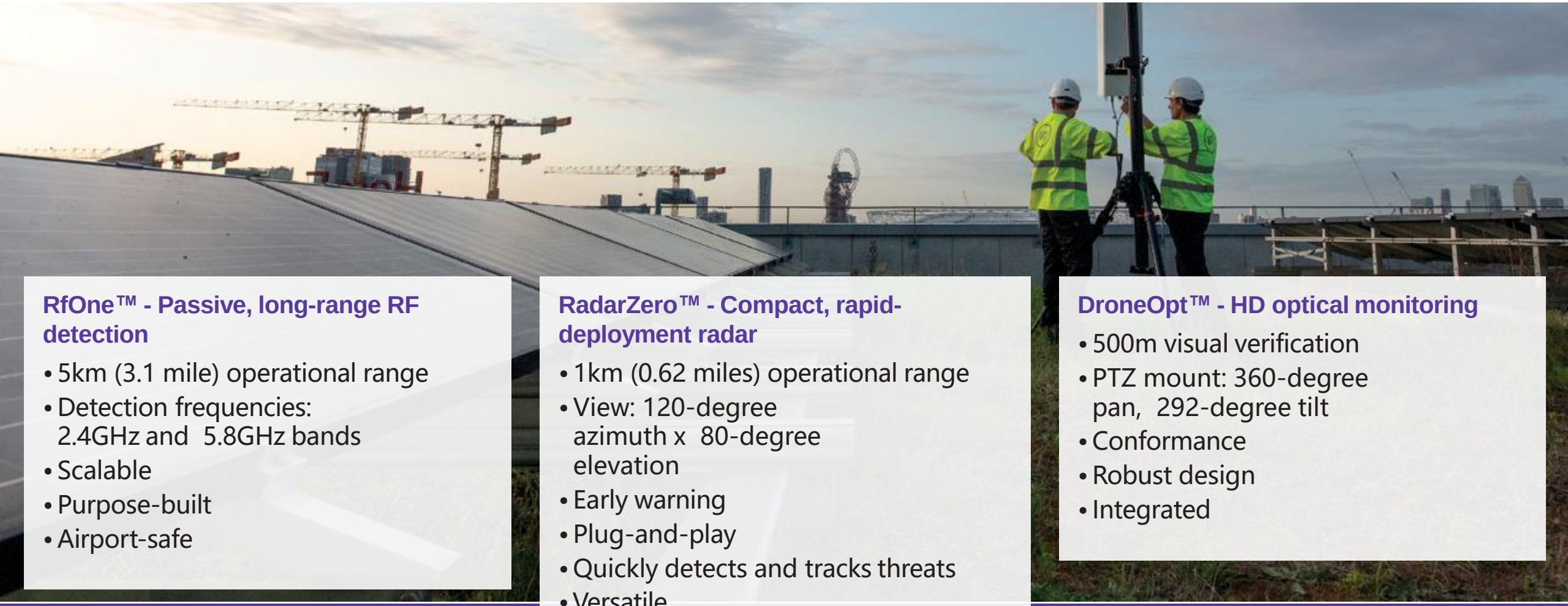
Examples only - most of the orders and deployments are confidential in nature and customers cannot be disclosed

BREAKING NEWS

CPNI rated product: - DroneSentinel

Accessed by the CPNI Counter Unmanned Aerial Systems DTI Testing and Evaluation Standard, v1.0 – January 2019

Our integrated multi-sensor technology (Fixed)



RfOne™ - Passive, long-range RF detection

- 5km (3.1 mile) operational range
- Detection frequencies: 2.4GHz and 5.8GHz bands
- Scalable
- Purpose-built
- Airport-safe

RadarZero™ - Compact, rapid-deployment radar

- 1km (0.62 miles) operational range
- View: 120-degree azimuth x 80-degree elevation
- Early warning
- Plug-and-play
- Quickly detects and tracks threats
- Versatile

DroneOpt™ - HD optical monitoring

- 500m visual verification
- PTZ mount: 360-degree pan, 292-degree tilt
- Conformance
- Robust design
- Integrated

Drone detection on the move (Tactical)

RfPatrol™ is a highly versatile, wearable drone detection device offering users real situational awareness on the move.

- **Stand-alone compact device** can be worn, deployed on the ground or in a vehicle
- **1-2 km** effective range
- Weighs just over **2 pounds**
- Completely **passive**
- Detect a drone on a known frequency in less **than 5 seconds**
- **Haptic, visual and audio alerts**, controlled by the operator

Defend your skies (Tactical)

Where lawful, we can provide a range of countermeasures to help you deter and defeat drones. From signal blockers that can jam drones up to **1.5 kilometres** away, to portable disruptors. So you can defend strategic sites, public gatherings and more.

- **DroneCannon RF™** – Bring drones to a standstill from up to 1.5km with this **integrated countermeasure**, providing an end-to-end detection and response capability.
- **DroneCannon RW™** – This lightweight, soft-kill drone-jamming system is designed for **remote weapon stations**. It lets you freeze targets mid- flight using DroneCannon, with a backup kinetic weapon if needed.
- **DroneGunTactical™** – This **portable**, **rifle-shaped drone disruptor** forces the drone to safely land, or fly back to the starting point – potentially identifying the pilot.
- **DroneNode™** – **Covertly disrupt drones** with this portable solution. It's designed to protect public gatherings and other similar events from rogue drones.

We'll support you every step of the way

1

Assessing the risks

We'll survey your site to design a scalable drone detection system based on the risks you face and your available budget.

2

Expert installation

Our approved and accredited engineers will install your tailored solution.

3

Multi-sensor detection

Our sensors offer live tracking to help determine if a drone is a threat and pinpoint its location.

4

Identify drone models

Our extensive radio frequency signature database helps you identify even the latest models.

5

Instant alerts

Instant alerts can be sent through on-screen notifications, SMS and email.

6

Defend your skies

Where lawful, we'll provide countermeasures to help you defeat drone threats.

7

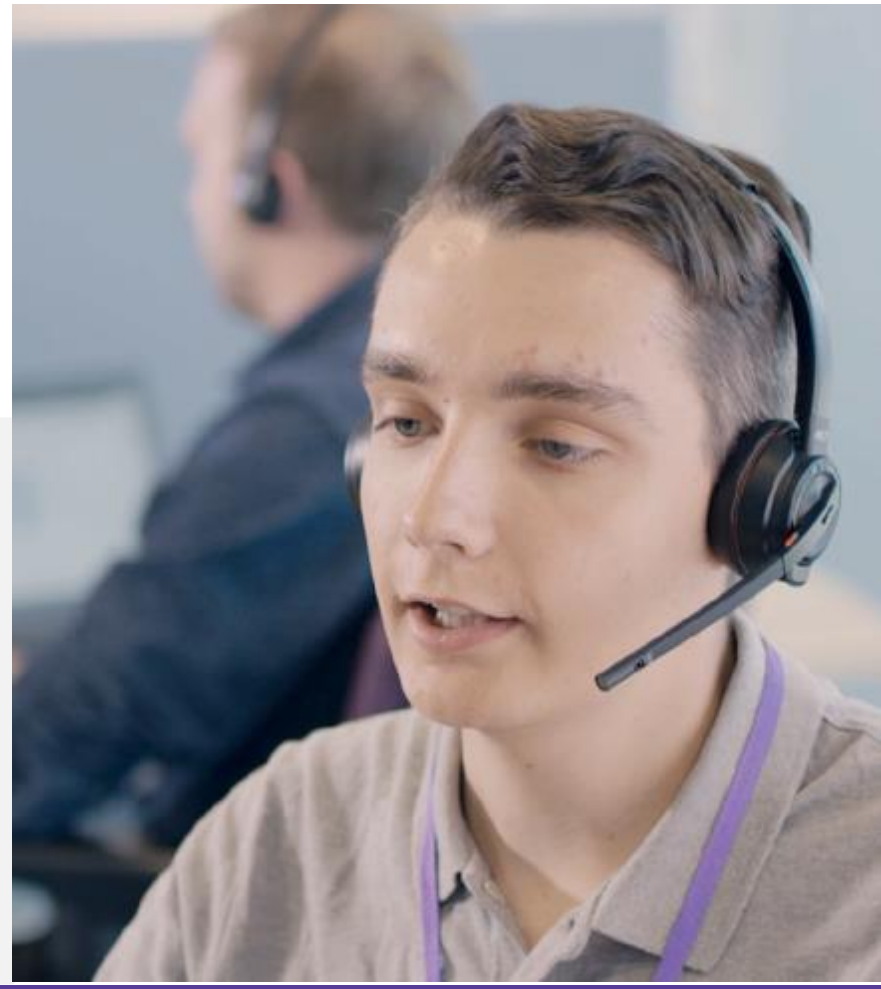
24/7 support

As well as offering round-the-clock customer care, our expert engineers can carry out on-site diagnostics and repairs.

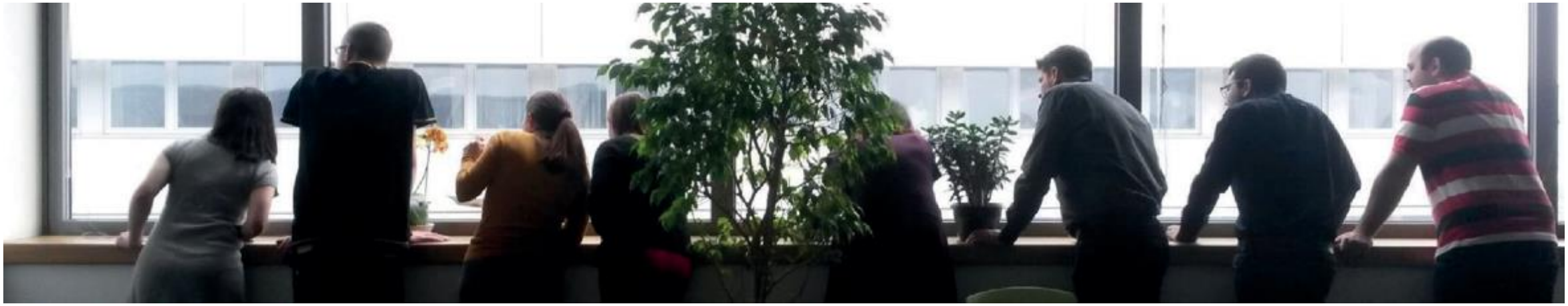
8

Takeaway thought

What we're facing is in essence a "mini arms race" type threat. Choose a partner who can work with you to continually mitigate.



Next steps



1

Experience it for yourself
See a live demonstration of our drone detection technology in action.

2

See how it could work for you
To understand your own threat landscape and the type of solutions you might need we can run a drone detection trial at your site.

3

Get started
We can offer a short-term solution to define the requirements and financial model, and deliver a full proposal based on a site survey.

Thank

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Regulatory Updates

Marina Solin

Regulatory Work Stream

JARUS 5 Paper ‘Cellular connectivity for drones’
Final draft due be released for external JARUS consultation

EASA opinion on standard scenarios in the ‘specific category’
To become ‘Implementing Rules’ in Q1 2020 – clearly open to broadcasting and network solution for remote identification of drones

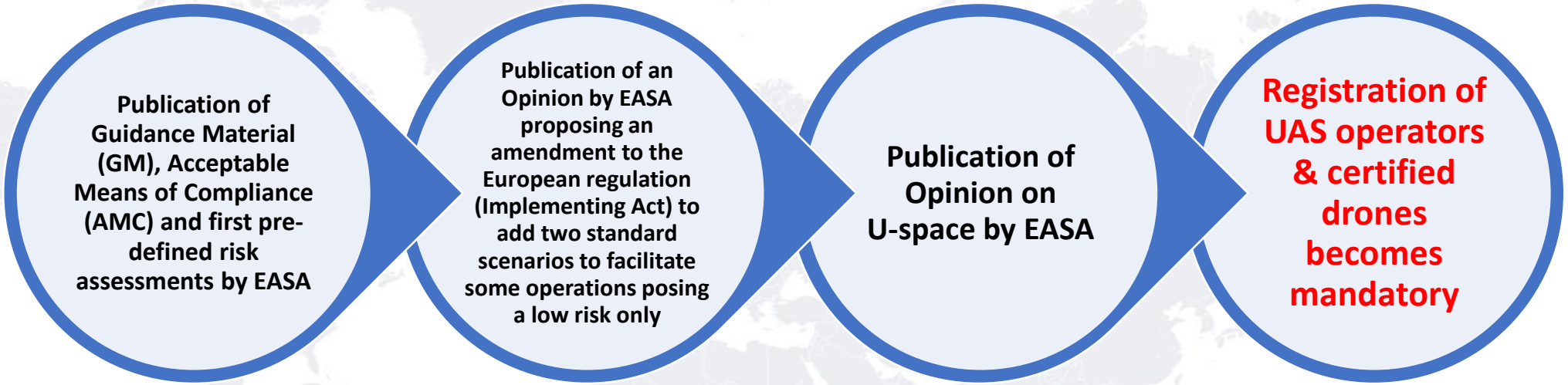
U-Space consultation
EASA opinion on U-Space will be sent to the EC Commission in March 2020 due to be adopted by the end of 2020.

Country	Registration	Remote ID
Australia	Expected by mid 2020	Expected by mid 2020
European Union	Interoperable registration schemes to be implemented by July 2020	Both broadcasting and networked solution foreseen
France	Interoperable registration schemes to be implemented by July 2020	Pushing hard for WiFi solution to become mandatory for remote ID
Japan	Will start to work on relevant legislation in 2020	Will start to work on relevant legislation in 2020
Singapore	All drones above 250g have to be registered	No provisions on remote ID yet
United States	Registration required	FAA is due to publish a notice of proposed rule-making (NPRM) on remote identification of drones for public consultation. Allows for both Bluetooth and WiFi remote ID broadcast as well as networked remote ID

Remote ID

Barbara Pareglio

EASA timeline



MNOS remote ID solutions

- **Problem statement:** regulations on how to identify remotely drones are becoming a reality for different categories of drones. In some cases regulations require a broadcast solution and in other the network solution. Mobile networks are suitable network to fulfil the regulation.

- **Objective:** the mobile industry need to demonstrate how mobile network is able to support regulations, both for the open and specific categories (European version, US categories are quite similar). The objective is to describe how the identification can be achieved with the existing network technologies (e.g LTE, NB-IoT, 3G, etc.) and how it will evolve to 5G. In addition. The document will also highlight why to use cellular for the remote ID and it should cover existing result or standards like ASTM.

- **How:** create a dedicated task force to contribute to a guidelines or best practise document. The task force will define the actual details of the scope and timeline of the work. We are looking for a chair of the task force to drive the work.

RECEIVED CONTRIBUTIONS

- Initial contribution for regulation (GSMA)
- Contribution for Linked budget (Intel)

CONTENT of the paper

- **INTRO**
  - Problem statement
  - Objective
  - Audience
- **Regulatory requirements for remote identification**
- **UAS Landscape**
  - Existing examples of remote identifications
- **Remote identification through cellular network**
  - How does cellular can be used to fulfil the regulatory requirements?
  - Why is cellular suitable?
- **MNOs Demonstrations**

Please, let us know if you can **contribute** to any of the sections.
The document will be **distributed** with the new content soon.

GUTMA & GSMA collaboration

Eszter Kovacs

GSMA – GUTMA collaboration

Collaboration agreement has been signed.

AIM: building bridges to enable innovation

The two organizations have agreed to work together to explore the challenges, logistics and opportunities related to aerial connectivity that could see a series of recommendations that lead to the creation of new standards across the continent and the world.

Further details are coming soon.

Connected Skies

Eszter Kovacs

Connected Skies at MWC Barcelona – sponsored by GSMA

Global UTM Association

- Time, date: 9:00 – 19:00
- 26th February, MWC Barcelona hall8
- Attendance: only registered

Program:

- https://gutma.org/mwc-barcelona-2020/program/

50 % discount for GSMA members to attend.

Ministerial program session: who governs the drones

- Time, date: 16:15-17:45, 25th February, MWC Barcelona
- Opening Keynote: Mariah Scott from Skyward
- Panel discussion:
  - Moderator: GUTMA
  - Panellists: FAA, EU commission, Telstra, Swiss CAA, Finish CAA
- Closing Keynote: Zipline

Call for demo video!

Main Stage

This year MWC Program is featuring drones/aviation topics and speakers on the main stage in the track called **Industry X**.

Confirmed speakers from Airbus, AiRXOS, DT, Telstra, Vodafone, Google Loon to highlight how industries can collaborate and work together on innovative solutions.

AOB

www.gsma.com/drones