IoT WebTalk

REACHING NEW HEIGHTS
The Future Role of Mobile Networks in Aviation and Drones

Tuesday, 15 December 2020 | 10:00 EST | 15:00 GMT | 16:00 CET
## Agenda

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<th>Duration</th>
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<tr>
<td>5 min</td>
<td><strong>Introduction: The Future Role of Mobile Networks in Aviation and Drones</strong></td>
<td>Barbara Pareglio, Senior Director, IoT Technology, <strong>GSMA</strong></td>
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<td>1 min</td>
<td><strong>Keynote: Commercial Drone Market Insights, Trends and the Evolution of Drone Connectivity</strong></td>
<td>Hendrik Bödecker, Founder and CFO, <strong>Drone Industry Insights</strong></td>
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| 35 min   | **Interactive Panel Discussion and Live Audience Q&A**                   | Moderator: Barbara Pareglio, Senior Director, IoT Technology, **GSMA**
Hendrik Bödecker, Founder and CFO, **Drone Industry Insights**
Andreas Perotti, Chief Marketing Officer, Europe, **EHang**
Daan van Dijk, Innovation Consultant, **KPN**
Jef Geudens, Head of Technology & Flight Ops, **Skyports** |
About the GSMA

The GSMA was founded in 1987.

12 offices worldwide

UNITING 750+ MOBILE OPERATORS

WITH 350+ MOBILE COMPANIES in the broader mobile ecosystem

The GSMA represents the interests of mobile operators worldwide.

The world’s leading mobile industry events, Mobile World Congress, Mobile World Congress Shanghai, and Mobile World Congress Americas, together attract 192,000+ people from across the globe each year.

8.8+ billion mobile connections worldwide

Internet of Things

2018 9.1bn Total Connections 2025 25.2bn

SIM CONNECTIONS

2018 7.9bn

- Excluding cellular IoT
- Penetration rate (1% of population)
- CAGR 2018-25 2.2%

Connecting Everyone and Everything to a Better Future
The GSMA Connectivity for Aviation project

Drones Interest Group (DIG)
Over 50 organisations participating from the mobile and aviation industry, focused on mobile connectivity deployment to support commercial UAVs

Aerial Connectivity Joint Activity (ACJA)
An initiative between the GSMA and GUTMA to build communication and cooperation between the aviation and mobile industries

www.gsma.com/aviation
Ground-to-Air LTE Communication Services for Industrial Drone Applications

Search and rescue supported by drones on a cellular network

How Cellular Technology Enables Anti-Forest Fire Drones

Beyond Visual Line Of Sight Platform by KPN and TEOCO

AI-enabled Drones for Object Recognition in Multiple Settings

Dynamic No Fly Zones
Commercial drone market insights, trends and the evolution of drone connectivity

Hendrik Bödecker
Co-Founder of Drone Industry Insights
hendrik.boedecker@droneii.com
Product & Service Portfolio

“The value I've received from the reports is incredible.“
– Matt Dunlevy, CEO SkySkopes

Publications & Products
- Industry White-Papers
- Drone Market Reports
- Databases and Lists
- Company Rankings
- Free Blogs

Services
- On-demand Market Research
- Business and Regulatory Advisory
- Go-to Market Strategies
- Commercial Due Diligence
- Competitive Intelligence
Drone Market Size & Forecast 2020-2025

CAGR: 13.8%

Revenue in bn. US dollars

Source: Drone Market Report 2020 (c) by Drone Industry Insights
Drone Market Size & Forecast per Region

**NORTH AMERICA**
- USA
  - 2020: 6.89
  - 2025: 11.82
- Canada

**SOUTH AMERICA**
- 2020: 0.59
  - 2025: 1.11

**EUROPE**
- Germany
  - 2020: 0.65
  - 2025: 1.09
- France
  - 2020: 0.53
  - 2025: 1.08
- UK
  - 2020: 0.65
  - 2025: 1.09
- Italy
  - 2020: 0.53
  - 2025: 1.08

**OCEANIA**
- Australia
  - 2020: 5.19
  - 2025: 9.86

**MEA**
- 2020: 0.67
  - 2025: 1.11

**ASIA**
- China
  - 2020: 8.62
  - 2025: 17.89
- Japan
  - 2020: 0.67
  - 2025: 1.11
- India

Source: Drone Market Report 2020 (c) by Drone Industry Insights
Market Dynamics and Trends

CORONAVIRUS CRISIS
- Lockdowns
- New use cases

GENERAL
- Increasing Degrees of Automation
- Increasing Connectivity
- Cross Vertical Technology Transfer

REGULATION
- Applicability
- Foreign rules

INDUSTRIES
- Adoption
- Standards

SOFTWARE
- AI
- Computer Vision

HARDWARE
- Technology
- Product Lifecycle

SERVICES
- Regulation
- End2End solution

Source: Drone Market Report 2020 (c) by Drone Industry Insights
How much was invested?

Source: Droneii.com Investment database (c) by Drone Industry Insights
How companies use drones?

Source: Drone Industry Barometer 2020 (c) by Drone Industry Insights
The Evolution of Drone Connectivity and the Role of 5G

- **Radio Frequency (uplink only)**
  - Manual controlled drone via RF (non-Wi-Fi)

- **Wi-Fi (up- & downlink)**
  - Drone control incl. video downlink (local Wi-Fi network)

- **4G/LTE**
  - Same as Wi-Fi-operated but via cellular network 4G/LTE

- **5G**
  - Same as 4G but via cellular network 5G
  - Up to 100 times higher bitrate at five times lower latency, compared to regular 4G/LTE

**Max. Download Speed per Technology**

Source: DRONEII.com
Coronavirus - more opportunity than threat

Will the coronavirus crisis have a positive or negative impact on the drone industry as a whole in the long-term?

- Positive: 54%
- Negative: 17%
- No opinion: 29%

What are the most important market driving roles?

- Providers of drone industry solutions (end-to-end solutions): 2020 - 50%, 2019 - 45%, 2018 - 52%
- Rule-making authorities: 2020 - 49%, 2019 - 43%
- Drone manufacturers: 2020 - 47%, 2019 - 47%
- Software manufacturers: 2020 - 42%, 2019 - 31%
- Providers of safety concepts for drones: 2020 - 28%, 2019 - 19%
- Other (please specify): 2020 - 8%, 2019 - 4%

Source: Drone Industry Barometer 2020 (c) by Drone Industry Insights
Andreas Perotti

Chief Marketing Officer, Europe

EHang
Thank you
#yeswefly
A SKY FULL OF DRONES

We support safe, efficient and integrated drone operations in Dutch lower airspace
CONNECTIVITY ENHANCES LOWER AIRSPACE

Bridging the gap between telecom and aviation through 5G connectivity

- Command and Control
- Remote ID and Positioning
- Drone Corridors
- Drone Detection
USE CASES

Remote ID & Positioning
Integration of unmanned aviation with manned aviation.
LVNL - Groningen Airport

Offshore operations
Recognizing drowning persons
TNO, KNRM - North sea

Drone2Go' challenge
Developing drone application to support RWS processes
RWS - Police, Fire brigade & NVWA

Medical Drone Service
Transport of medical supplies and goods through the air between medical locations.
ANWB - Meppel-Zwolle

Dutch Drone Delta - Drone delivery
Delivery flight over 4G/5G from mainland to offshore anchorage
Port of Rotterdam
develops, implements and operates end-to-end drone deliveries overcoming inefficiencies associated with traditional transportation methods within the medical, e-commerce and logistics sectors.
Skyports is a cargo delivery one stop shop service provider

Skyports covers all aspects of a drone end-to-end solution

Skyports is a drone operator not a manufacturer. We choose the right vehicle for the mission and take care of all aspects of the end-to-end drone solution.

We are committed to operating to the highest standards of safety.
NHS COVID-19 RESPONSE

Skyports executed on the UK’s first medical drone deliveries during the COVID-19 pandemic, transporting medical cargo between the Scottish mainland and an island 17km away.

- **Purpose** - provide a fast and frequent service for the NHS to assist in the COVID testing regime establishing feasibility for future NHS drone projects
- **Flights** - 17km BVLOS (Beyond Visual Line of Sight) flights operating in segregated airspace in rural Scotland between Oban Hospital and Isle of Mull Craigmure Hospital
- **Partners** - NHS end user. Thales provided SOARIZON mission planning tool and assisted with Operational Safety Case

- **Outcome**
  - 1 week project
  - 40 BVLOS flights
  - 900km travelled
  - 240kg of rapid payload capacity created
  - Data produced to move into phase 2 of project – 3 months of flying in Q3/Q4
Hendrik Bödecker  
Founder and CFO, Drone Industry Insights

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Chief Marketing Officer, Europe, EHang

Daan van Dijk  
Innovation Consultant, KPN

Jef Geudens  
Head of Technology & Flight Ops, Skyports

Barbara Pareglio  
Senior Director, IoT Technology, GSMA
To find out more about our Connectivity for Aviation project visit
www.gsma.com/aviation

Contact us at drones@gsma.com

Thank you!