

Q&A

A threat from above

Drones are providing many industries with efficiency gains, however, they are also offering terrorists new capabilities including assisting Chemical, Biological, Radiological and Nuclear (CBRN)-related crimes. Michael Delueg, Frequentis head of Defence Product Portfolio, explains how organisations can stay ahead with the right technology

CAN YOU TELL US A LITTLE ABOUT FREQUENTIS AND YOUR ROLE?

Frequentis has over 70-years' experience of mission-critical communication, information and surveillance systems with cross-industry knowledge that spans civil aviation, defence, public safety, maritime and public transportation markets. One of our core products is our secure communication system, which is the fundamental piece of the puzzle for all safety-critical control rooms. Frequentis is acknowledged as the number one supplier of safety critical communication systems globally. As Head of the defence product portfolio I am responsible for managing the global defence product families, their roadmaps, and innovations, to provide best in class solutions for our defence customers.

WHAT ROLE DO COMMUNICATION SYSTEMS HAVE IN LIMITING THE THREAT OF TERRORISM IN EUROPEAN AIRSPACE?

Secure, resilient, and reliable communication is fundamental to ensuring critical information reaches the right people, at the right time for effective decision making. The starting point for managing any kind of incident is a communications system to link relevant stakeholders. You can find a Frequentis communication system in 35,000 controller working positions worldwide, from pilots to police dispatch personnel. In addition to that there would ideally be an incident management system in place to coordinate alarming, risk assessment and the intervention of procedures and communications.

The Frequentis Incident and Crisis Management (ICM) system provides a common operational picture based on a Geographical Information System (GIS), as well as interfaces to central data sources. A collaboration and decision support service with multi-user support based on role and rights assignment, an integrated link to the voice communication system (VCS) and legal recording functionality complete the solution. Key to mention is the mobile application, ensuring information can be received anywhere, at any time. We also promote cross-agency collaboration with our ICM system, which allows multiple agencies to work together on an incident in real-time.

IN THE GLOBAL DEFENCE AGAINST TERRORISM, ESPECIALLY IN THE EVENT THAN AN AIRCRAFT IS HIJACKED, HOW IMPORTANT IS INTERAGENCY COOPERATION? AND HOW HAS FREQUENTIS WORKED TO INCREASE COOPERATION WITHOUT INCREASING WORKLOADS FOR CUSTOMERS?

There are a multitude of command and control systems (C2) in use today with varying levels of functionality. Often these systems cannot interact with each other, and when they do, they can only do so on a very basic level. This challenge is faced today by both defence and locally-funded emergency services who procure their own independent systems.

The Frequentis ICM solution allows the seamless interconnection of all those independent systems, from multiple

agencies, enabling ordinarily siloed systems to work together to share information, reducing manual information sharing and speeding up reaction and resolution times.

Frequentis was commissioned by the German Armed Forces to equip the German National Air Policing Centre (NAPC) with an Air Policing system with this very aim. The system integrates numerous data sources from defence agencies, government and national local emergency services, even public buildings, allowing contact at the touch of a button with "click to dial" functionality. Information can be shared securely, and layered on top of existing systems, ensuring all required parties have a fused Civil-Military common operational picture in the event of a crisis.

The best way to manage any emergency is for all contributing agencies to work together to improve response times and coordinate resource allocation. By sharing information across the entire national network, linking assets and communicating in real time, a common operational picture is created, allowing real-time intelligence and tactical decision-making. Air policing, Joint Operations, Search and Rescue, Drone Detection and Cyber Defence are just some of the typical use cases which benefit.

WHAT IS YOUR EXPERIENCE WITH THE EMERGING DRONE MARKET? IT IS A CHALLENGE FOR DRONES AND CIVIL AVIATION TO COEXIST IN THE SHARED AIRSPACE, HOW DOES FREQUENTIS SEE THIS MARRIAGE BEST ESTABLISHED?

Frequentis has a long history supplying communication and surveillance systems for air traffic control and air defence so we have a deep understanding of aviation stakeholders, solutions, and air space regulations.

The primary concern with integrating drones, or unmanned traffic management (UTM), and air traffic management (ATM) is safety, and ensuring manned aviation, as well as individuals and property on the ground are not negatively impacted. The key to solving this challenge is to enable timely and high-quality information sharing between ATM and UTM, and, again, the ability to communicate in real-time.

By integrating ATM and UTM on the same platform, situational awareness and safety will be enhanced, allowing increased use

of drones in everyday life. When both civil aviation and drone pilots can communicate in real time, will we see the most benefits in terms of safety and efficiency.

ONE CONCERN IS DRONES IN VICINITY OF AN AIRPORT. HOW DO YOU SUGGEST AIRPORTS OR AVIATION SERVICE PROVIDERS TAKE ACTION?

As drone traffic increases, airports, law enforcement, and air navigation service providers (ANSPs) face new safety and security challenges. The key is ensuring quick response times and appropriate action. A system that fuses ATM, UTM, Drone Detection, Visual Reports, and Blue Force Tracking into a common air / ground situation picture, ensures common situational awareness in complex drone incidents. With integrated communications and incident management, all organisations can work together on the same goal, focusing on the procedures, and minimising response times in the event of drone incursions.

Part of managing the incident is airspace deconfliction, where a data integration with ATM and UTM is a value add. With that integration, we can give automatic warnings to air traffic through ATC, deconflict UTM and counter-UAS operations, and can also differentiate between the good and the bad guys. Another element is managing countermeasures; this starts with coordinating law enforcement units to find the drone and drone operator.

We are currently working in partnership with the German Federal Police, German ANSPs and a large German airport on the Falke project, researching threat scenarios for airports and validating appropriate solutions to incidents. This puts us at the forefront of airport counter-UAS management. The findings will serve as a blueprint for all airports in Germany and potentially other European countries such as the Netherlands.

With integration of mitigation systems, law enforcement units can jam and disrupt drones. With blue force tracking integration, resources can better managed, asking airport staff to identify and follow the drone and coordinate with police forces who will have the means to take the drone down. Key to mention is also the use of a



mobile application; intelligence is collected by the incident manager and shared to mobile devices so that the right people can be notified at the right time, allowing them to take action wherever they are.

ARE THERE AIRSPACE RESTRICTIONS THAT NEED TO BE CONSIDERED WHEN DEPLOYING DRONES TO SUPPORT COUNTER TERROR OPERATIONS?

Frequentis is also working on other projects providing the common information services (CIS) function of the ATM/UTM airspace integration platform that allows ad hoc drone flight plans to be submitted and approved in real-time. The CIS can also differentiate between regulated and non-regulated drones to assess safety concerns and trigger automatic alerts. The system then allows communication with aerodromes to close the airspace and law enforcement agencies to locate the drone operator.

As mentioned, this is also available on the mobile client.

WHAT ABOUT THE THREAT OF DRONES BEING A POTENTIAL TOOL FOR TERRORISTS TO COMMIT CBRN ACTIVITIES?

A Frequentis subsidiary, CNS-Solutions and Support GmbH, is part of the European Defence Agency (EDA) CBRN Surveillance as a service project, which will utilise drones and unmanned ground vehicles (UGVs) to keep the European population safe from potential CBRN incidents. The project, led by the

Austrian Institute of Technology (AIT), is made up of a consortium of 12 partners from four countries with the aim of developing a rapidly deployable 24/7 CBRN surveillance capability. CNS will be providing the ICM software technology, mainly consisting of a CBRN Common Operational Picture (COP), integrating aggregated sensor data from UAVs (Unmanned Aerial Vehicles) and UGVs (Unmanned Ground Vehicles). Other incident-relevant information and a CBRN-specific Incident Management module will also be displayed.

The integration of this sensor data will allow operators to see threat locations and react accordingly, including deploying troops, supporting the decision-making processes. A direct video livestream from the UAVs and UGV will be integrated into the ICM suite to provide an even better on-scene perspective and optimise strategical planning. The objective is to have a fully functional technical demonstrator available by spring 2023.

Our experience in serving not only ANSPs but also military and blue-light customers, means we have the breadth of understanding and experience to deliver integrated cross-agency solutions that span the full requirements of a counter-UAV solution in an airport environment. ■

With a Masters in engineering from the technical university of Vienna, Michael Delueg has a background in software development and project management. He joined Frequentis in 2014 and is responsible for the Defence product portfolio, their inter-relationships, and the portfolio's role in the market, including profit and loss.



FURTHER INFORMATION
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