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Q Frequentis has recently completed 75th Anniversary. Can you discuss about the origins of the company and how it has developed over the years?

A Frequentis, is headquartered in Vienna, Austria, and began its work in high-frequency technology to support the country's reconstruction after the end of the second world war. But it wasn't until the 1980's that we began a rapid rise to a communication technology market-leader, after its purchase by Hannes Bardach in 1986. This is when the family-owned company changed its focus to air traffic control technology and expanded beyond Austria.

Since 2019 Frequentis is a stock listed company with Hannes Bardach as majority shareholder and chairman of the Executive Board.

Q Given the success that Frequentis already had in the Air Traffic Space, why did the company to decide to diversify into Uncrewed Traffic space?

A Technology must support changing needs and we champion the research, development, and advancement of innovative solutions to solve industry challenges. Our experience in Air Traffic Management (ATM), understanding airspace regulations, standards, and systems, of course made it a

Drones World Editor Kartikeya in Conversation with

Mr. Thomas Pils

Frequentis Vice President, New Market Solutions

natural step to support the integration of uncrewed traffic management (UTM). We also have long relationships with air navigation customers who trust and value our technology, as a market-leader in communication and provider of safety-critical solutions.

Q What would you say are the key differences between ATM & UTM?

A ATM is long established with strict regulations and standards whereas the UTM space is just maturing but growing rapidly. However, many of the principles of current ATM systems apply to UTM services, including safety and operational standards, flight planning, data sharing, separation requirements, and contingency planning. Both the aviation industry and drone users must adopt innovative technologies to ensure safe and fair access to the skies.

Q What has been your biggest UTM Contract so far? What are the challenges you have faced while implementing them? How do you overcome them?

A the Nordics and Baltics we have the biggest footprint of projects including Estonia, Norway, Lithuania, as well as work since 2018 on two SESAR Gulf of Finland (GOF) U-space research projects. Our launching project for Avinor in 2020 in Norway is nationwide, 17 airports while our more recent project in Austria for Austro Control will span 10-years. From our very first project we realised the



importance of clearly defined regulatory requirements at the beginning to avoid needing to be iteratively shaped and developed during project execution

Q Can you brief us on the solutions provided by Frequentis related to UTM?

A The Frequentis UTM suite is available as a user-

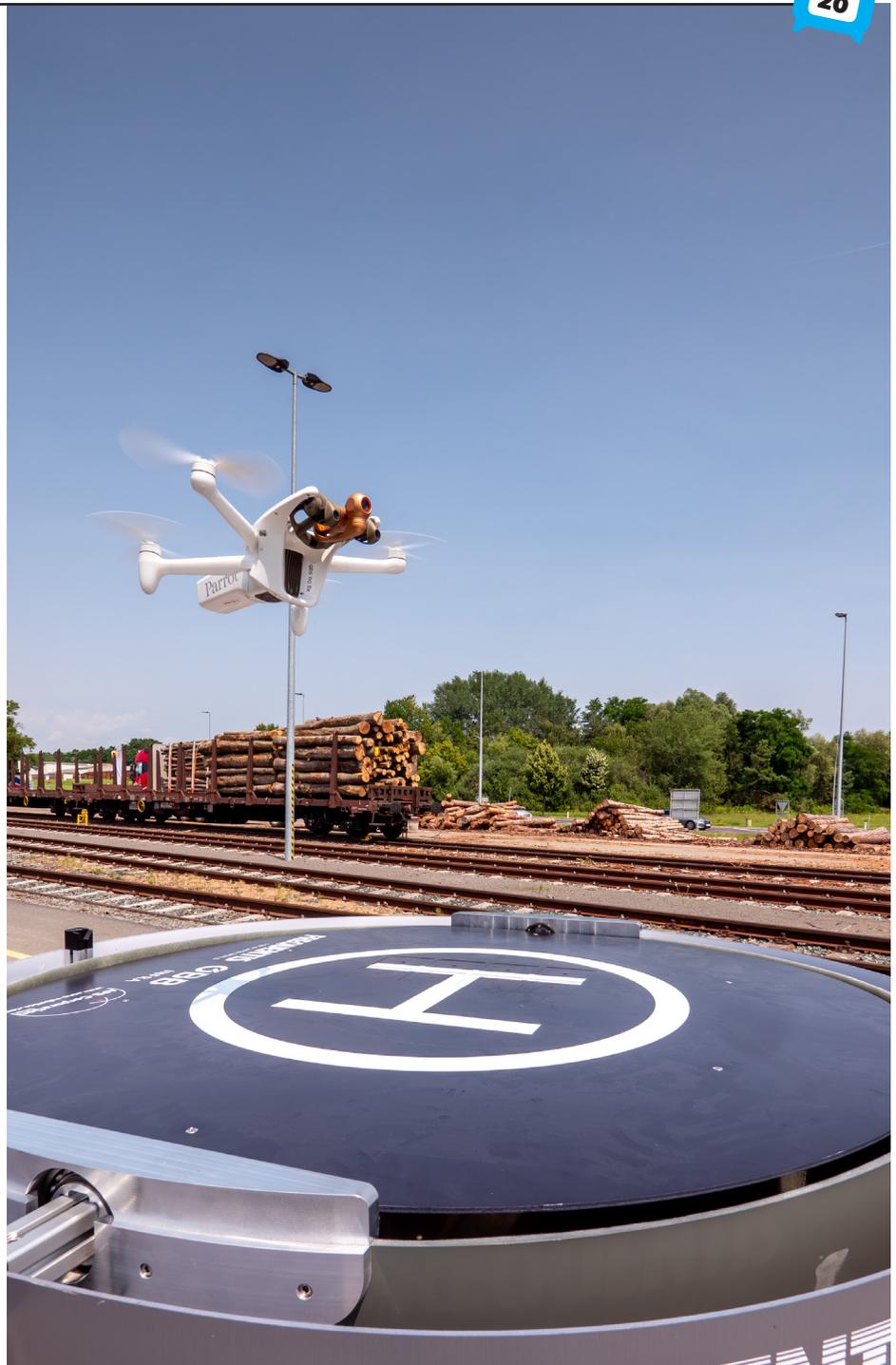
friendly and interactive mobile app and web portal, consisting of the UTM Operation Manager and the UTM Airspace Manager applications. UTM Operation Manager caters to both business and private drone operators, providing a comprehensive suite of features designed to enhance airspace safety, and efficiency. The UTM Airspace Manager is

the application used by Air Traffic Controllers (ATCO) to manage drone traffic within their area of responsibility. The UTM suite includes Common Information Services (CIS) functionality for real-time, shared situational awareness and information exchange – a prerequisite for safe integration of drones. The UTM solution is fully compliant with the U-space regulation by covering the U-space services and an extended set of additional UTM services.

Users with the system have access to up-to-date drone flight information, can register themselves as operators and securely exchange data, monitor airspace conditions, file flight plans and even apply for take-off clearance. Important is also the system's ability to support police and military drone operations.

With a secure open protocol, seamless data exchange between all relevant stakeholders, including government authorities, entrepreneurs, ATCOs, and drone operators can be ensured. A standout feature of the system is the drone map, which provides valuable insights into permanent and temporary flight restriction zones, permitted flight altitudes, flight registrations, airspace monitoring, and the ability to request flight plan approvals and take-off clearance.

The interactive tools, accessible through the website and mobile app, ensure that drone operators have a comprehensive understanding of their operating environment,



further enhancing safety and situational awareness.

Q Can you share us details about the currently ongoing projects with different countries/ Airports? What's the expectation from Airports Perspective?

A We have worked with Nordics and Baltics stakeholders on the SESAR Gulf of Finland (GOF) U-space and GOF 2 projects since 2018, trialling and validating use cases in line with U-space regulatory framework.

In 2020, Norway's Avinor, the air navigation service provider (ANSP) for the country, selected the Frequentis UTM system for 17 airport towers nationwide. This was the launching customer for the Frequentis UTM system; it was also the first UTM system to go live in the Nordics. The system was later extended for an authorised third-party operator in Norway to support drone traffic around its offshore platforms. It was also extended to support common situational awareness for drones and emergency medical helicopters. This was successfully tested among selected users in June 2022, whereby our UTM system permits data sharing between drone and helicopter pilots, to ensure both parties could see the other and be alerted of potential collisions. In March 2023 this project was awarded the Overall Excellence ATM Award at Airspace World in Geneva.

Most recently, in June 2023, Oro Navigacija, the ANSP of Lithuania, procured our UTM suite. And in September 2023 our UTM suite was implemented and put into operation for Estonian Air Navigation Services (EANS) in just seven months. And with the ANSP of Austria, Austro Control we have also jointly developed and just launched (10 October 2023) Dronespace, to safely integrate drones into the Austrian airspace, with both desktop and mobile app. It allows flight plans to be filed, clearances to be approved, and air traffic control and drone pilots to see drones on the move. Since November 2022 in Austria we

have also been researching the operational feasibility of hangar-based automated drone flights for automated rail track maintenance checks with the Austrian national railway operator, OBB.

We are also working on the new SESAR operate anywhere project (OperA) to validate complex Innovative Air Mobility (IAM) - piloted air taxi and unmanned cargo - in order to accelerate it by addressing necessary standardisation, regulation and roadmaps.

Expectation at and around airports is visibility, and awareness, and minimum control. Restrictions should be in place only when necessary.

Q Which of the two sectors (Civilian/Defense) is more risk averse when it comes to the adoption of new technology? Who is your major targeted customers?

A The experience from our engagement with customers in these domains has shown that UTM solutions provide value to both civil and defence organisations. Especially in geographic areas where responsibility of an airspace is shared. Currently there are still more commercial contracts with civil customers, but we do see a constantly rising interest and demand from defence organisations.

Q Finally brief us about the importance of implementation of UTM in all Airports? How do you see the future of UTM in all

aspects?

A The uncrewed airspace is set to become more crowded than the crewed airspace, thanks to the rapid growth in drone use cases, from emergency or disaster intelligence to agriculture or industry monitoring, and parcel delivery. The primary concern is the safe integration of drones with civil airspace users. This is why it is so important that technology supports the safe integration, and that clear regulations and standards are set to enable interoperability.

The backbone for the integration of ATM and UTM is common information services (CIS). Important is the seamless information exchange between all stakeholders and procedures to ensure safe separation between drones and manned aircraft. For this, organisations must enhance their technological capabilities so that they can introduce drones both safely and efficiently.

The airspace is a limited resource and we see the future of UTM consisting of the convergence of ATM and UTM. Strict separation is not sustainable. We are assisting organisations in enhancing their technological capabilities as well as closing the gap between the well-established technologies and working practices of ATM and those that are emerging to support UTM. The UTM system will support air traffic controllers with the management of drones and drone requests in the vicinity of an airport.