Scalable, automated services enable Norway's drone economy take-off

Unmanned aerial vehicles (UAVs) are set to bring transformative benefits to many industries, and the number of drone flights in Norwegian airspace is rising steeply year-on-year. To safely and cost-effectively manage 10,000 unmanned flights in controlled airspace per year, Avinor Air Navigation Services AS is partnering with Frequentis to deploy an unmanned traffic management (UTM) solution to 18 airport towers across Norway.

The new solution (Ninox Drone) allows drone operators to see airspace restrictions and flight rules, file flight plans, and receive updates from air traffic controllers in real time via an intuitive mobile portal. For controllers, the solution shows all pending, approved and active drone flights in a single digital view—reducing management workloads and laying the foundation for end-to-end UTM automation in the future.

Avinor ANS and Frequentis started the roll out of the first Nordic UTM system at two airport towers in Norway paving the way for its future tech-economy. The application was delivered fully cloud based during COVID-19 while meetings were held entirely virtually. The complete solution is operated from a cloud environment which allowed a deployment within eight months without any delay.

Client profile

Avinor Air Navigation Services AS provides aerodrome control and approach services at Norwegian airports, air traffic services in Norwegian airspace, and maintenance of air navigation infrastructure throughout the country.

Business situation

As the popularity of private and commercial drone flights grows, air navigation service providers (ANSPs) face the challenge of integrating a rising number of unmanned flights into already busy airspace.

Solution

Avinor ANS teamed up with Frequentis to implement an innovative UTM solution at 18 airport towers across Norway, to facilitate faster and more efficient decision-making. The scalable UTM solution is complimented with a drone operator interface from Altitude Angel.

Impact

- Enhancing the communication between drone pilots and Air Traffic Controllers
- Enabling Avinor ANS to support more than 10,000 drone flights per year in controlled airspace without significantly increasing ATC workloads
- Laying the foundation for full automation of the UTM process in the future

"The ability to implement real-time no-drone zones, provide geo-awareness, flight approvals, and easy access to drone operator contact information will improve safety for both Avinor ANS and all airspace users."

Axel Knutsen, VP Unmanned Traffic Management,
Avinor Air Navigation Services AS

Full automation of the UTM process offers full scalability

Drone traffic soars

From parcel deliveries and air taxis to aerial photography and policing, drones have the potential to transform many industries. In Norway, more than 10,000 drones flew in controlled airspace in 2019, and this volume is likely to grow sharply in the years to come. Inevitably, the rise in unmanned flights in busy Northern European airspace means that ANSPs like Avinor ANS face the challenge of safely integrating UAV traffic with existing civil and military airspace users. This is a particular concern for Avinor ANS, since many drone flights in Norway take place in urban areas adjacent to airports in controlled airspace.

Automation is key

Avinor ANS is responsible for delivering control, approach and en-route services for 18 airports. In the past, the organisation's controllers relied heavily on manual processes to manage drone traffic, which made it difficult to offer a service to UAV airspace users in controlled airspace. Axel Knutsen, VP Unmanned Traffic Management, Avinor Air Navigation Services AS, says, "Back in 2018, the typical drone mission was a real estate agent flying for ten minutes around a small area to take pictures of a property. Today, the volume, duration and complexity of UAV missions is growing, and we frequently receive complex requests that involve beyond-visual-line-of-sight [BVLOS] flight—for example, to inspect high-tension power lines. We decided to look for a way to manage this growing community of airspace users cost-effectively, while keeping our ATC headcount lean."

Strategic partnership

To achieve its goal of scalable UTM, Avinor ANS engaged Frequentis as their strategic partner to build, test and deploy an innovative digital solution for all its airport towers across Norway. Beginning with a proof-of-concept deployment at Bodø and Kristiansund airports, the solution surfaces critical safety information to pilots and controllers—streamlining communication between both stakeholder groups.

The solution (Ninox Drone) will enable automated processing of UAV flight plans, issuing of clearances and monitoring of drones flying in controlled airspace.

Ready for growth

For drone pilots, Ninox Drone offers a single, intuitive web portal to view airspace rules and restrictions, file flight plans and receive clearances from ATC. For controllers, the solution consolidates all pending, approved and active drone flights to a single pane of glass, enabling faster and more efficient movement of UAV traffic in controlled airspace. "In the future, we have the possibility to deploy fully automated UTM—helping us to support the next evolution of Norway's drone economy safely, effectively and cost-efficiently", concludes Knutsen.

"We are pleased to be working closely with Avinor ANS shaping the future of commercial UTM together. By providing an advanced drone management environment that integrates both manned and unmanned traffic, we ensure information flow between all relevant stakeholders in real-time."

Hannu Juurakko, Vice President ATM Civil and Chairman of the ATM Executive Team, Frequentis

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