



Country Summary

Senegal

The Problem

Senegal's National Agency of Civil Aviation and Meteorology of Senegal (ANACIM) are responsible for safe and secure drone use. They had three ambitions when they joined the Wakanda Beyond Peer Action Group in March 2023: enable increased authorised drone traffic, tackle unauthorised drone use, and increase confidence in the overall management of Senegal's airspace amongst Government stakeholders.



There are multiple Government agencies with responsibilities related to the safe management of Senegal's airspace including ASECNA that is responsible for safety of aircraft and tracks all manned aircraft and the Military have a separate system for monitoring their aircraft. The lack of data about drone operations makes coordination difficult as confidence in drone safety and security is low.

Another challenge faced by the team is that the use of airspace is inflexible because the data isn't available to enable dynamic management. The ACACIM team hoped that a UTM system and specifically flight data will enable optimisation of airspace including, for example, more rapid approvals in an emergency.

There is also a need to identify unauthorised flights, particularly around sensitive or high risk locations, and flights that are outside of their approved parameters (locations, heights, times).

Solution

The team envisioned a shared system which meets the needs of all Government agencies with an active interest in safely managing the airspace.

Senegal's initial hypothesis, developed in June 2023, was:

If we can identify and outline the specifications for a tracking system across partners,

then we will have a shared understanding of the tracking system we need to build and how ANACIM will coordinate with ASECNA and others which will mean,

we will be able to monitor unauthorised use of airspace and reduce the number of safety incidents and improve the day to day safety of operations.



Initially the solution was conceptualised as a modular UTM including (live) tracking. The Senegal team wanted the ability to monitor and react to live data via a new system that would accommodate operators' needs without compromising safety nor security; enable identification of drones in or near sensitive and high risk areas; identify unauthorised flights; and that would not create or be impacted by interference e.g. airport systems by using a separate bandwidth.

Key activities and decisions

Initial discussion of the problem and possible solutions surfaced some critical first steps and key questions to be explored across three categories: UTM, registration and tracking.

- Take a thousand island approach to building a UTM system and start with priority modules e.g. registration.
- What data do we need to collect within the system? E.g. live data, post flight data, topography, meteorological, operator registration, pilots
- What tracking devices and systems are available and what are their functionalities?
- Can we integrate a drone UTM system with the manned aircraft system? What will be the additional data needs of integrating the systems?
- Are there suitable open source solutions available?

Above all, however, was the need to get input from other interested parties (ATC, ASCENA, Military and SEPA). The team began by inviting representatives of ATC, Military and Ministry of Interior to join a working group. At its first convening the working group validated the ANACIM's proposal that developing and rolling out of an online registration process should be prioritised.

The data collected during registration will be required for any tracking system so enhancing and taking the current system online was acknowledged as precursor for the envisioned tracking solution. You need to register drones before you can think about tracking them. Other modules of the UTM could be developed in parallel, or in the future and integrated in due course.

The team started their research by benchmarking their current registration system against that of other Wakanda Beyond participants in order to collect data to inform the requirements of the new online system. Rwanda and Cote d'Ivoire, for example, have online portals through which drone ownership, operations and flights can be certified or approved. The team arranged a discussion with Wakanda Beyond participants (Kenya and Cote d'Ivoire) to showcase to Senegal's Ministry of Interior, who currently manage operator approvals, how online registration processes can work in practice and secure their buy-in for implementing a similar process in Senegal. The conversation also served to inform Senegal ANACIM's set of requirements for their own online registration portal.

Although de-prioritised while the online registration system is realised the team are thinking about the needs of the tracking system. For example, the telecommunications approach, and have conducted some initial research on by comparing the system requirements for various solutions with bandwidths for drone communication in the current regulation.



This will inform which UTM and tracking solutions might be compatible with existing regulations. The team have also developed a detailed action plan for developing a tracking system following a similar approach to registration: benchmarking, engaging with counterparts in other countries to understand the benefits and challenges of different approaches; comparing Openskies, the open UTM system that the Malawi Civil Aviation Authority with the experience of Cote d'Ivoire who are building a system from scratch.

Outcome and Next Steps

Senegal ANACIM are in the process of designing their new regulation solution and will then seek feedback from stakeholders.

Next steps for the tracking solution include:

- Research the equipment needed for different tracking solutions;
- Explore possibilities of a solution that would enable remote interaction an authorised drone and the actions it would be possible to take (e.g. in an emergency);
- Design the specifications for the tracking system;
- Consider how ANACIM could enforce compliance in collaboration with other Government agencies;
- Test the chosen solution; and
- Communicate change in regulations and roll out to all drone users.