



Developing Smart Regulations

Ways to Succeed or Fail

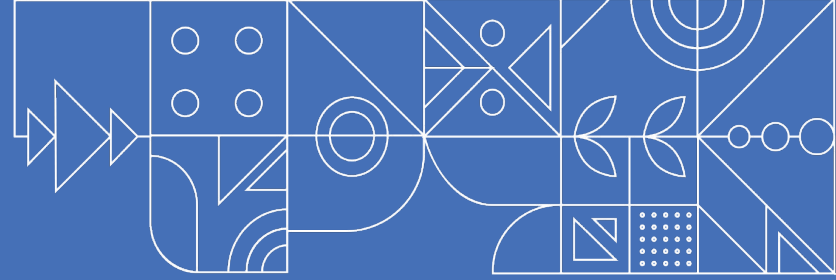
AN INITIATIVE
OF:



DRONES
DOING
GOOD
ALLIANCE

WITH SUPPORT
FROM:





A brief history of drone regulations



A brief history of drone regulations

In the early days of drone development and usage (2000 - 2011), there were no specific laws or regulations governing their operation.

As a result, early adopters had to find legal avenues to use them. Since laws and regulations for model aircraft existed, the initial drone users adapted these regulations to work with drones.

Typically, they had to follow these steps:

- Obtain permits from local authorities for the operation.
- Notify the police and airport towers when flying.
- Obtain permission from landowners to fly over their properties.

However, obtaining permits to fly was unpredictable. The process varied from town to town or state to state, creating an unreliable environment for building a business.

Therefore, it was necessary to develop general, transparent drone regulations



Responding to the need for drone regulations

- Around 2014, as the use of drones became increasingly common in Europe and numerous small manufacturers entered the market.
- Different countries began implementing their own drone regulations, some of which were overly restrictive and hindered the growth of the drone industry within their countries.
 - For example, Austria introduced a regulation known as "no single point of failure," which imposed significant constraints on drone operations.
- It became evident that there was a need for comprehensive and harmonized regulations governing drone usage.
- To address this issue and establish meaningful regulations across multiple countries, the **Joint Authorities for Rulemaking on Unmanned Systems (JARUS)** was established.



JARUS - Joint Authorities for Rulemaking on Unmanned Systems

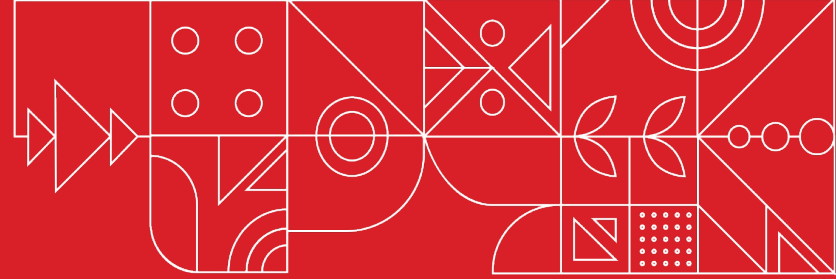
The initial concept of JARUS was promising, but several issues have arisen that now pose significant challenges for the drone industry:

- Majority of participants in JARUS were individuals from manned aviation backgrounds, including lawyers, administrative staff, and engineers.
- Very few drone operators, with those present often representing the interests of larger corporations.
- Focus of discussions leaned heavily towards prioritizing high levels of safety, treating drones similarly to manned aircraft.
- Noticeable absence of consideration for practicality and affordability, particularly from the perspectives of drone operators and small-scale manufacturers.
- Implementation of regulations varied significantly among member countries, resulting in inconsistencies across jurisdictions.



Developing Smart Regulations

- Given the challenges and limitations currently associated with European drone regulations, it does not make sense for African CAAs to copy and paste these regulations.
- This is particularly evident as many companies, frustrated with existing European regulations, have sought to relocate their operations to Africa where there are more permissive and conducive regulations.
- Copying European regulations will likely produce a similar outcome in Africa – the severe restriction of drone operations.
- Instead, African CAA can focus on developing smart, future-fit regulations that make sense in their local contexts.
- To support the development of smart regulations, we've compiled a list of pitfalls to avoid and best practices to embrace, drawing from historical observations and operational feedback.



Ways to Fail



Ways to fail

Treat drones as normal aircraft and apply the same safety standards

Principal difference

- When aircrafts crash → the chance of fatalities are high
- When drone crash → the chance of fatalities are much lower

Demanding that the drone have the same degree of safety as manned aircrafts, makes drone operations very expensive, making it very challenging to make a compelling business case.

Ways to fail

Demand technical compliance, which is not ready now.

Example:

Allowing drone operations only if a general UTM is established, in which all drone operations must be shown in real time.

- UTM's can be very useful, but are very complex to build and require robust software security, server infrastructure, and telecommunications capabilities.
- Currently, there are very few fully operational UTM systems worldwide capable of effectively managing all drones.
- Waiting for full implementation risks missing out on valuable opportunities.



Ways to fail

Demand technical compliance which is not ready now.

Example:

Require “sense and avoid” technology onboard drones, when this technology is not fully developed at this time.

- There are currently no sense and avoid systems for drones that will work with 100 % precision.
- At the moment this technology is expensive, heavy, and demands a significant amount of power
- There are a number of unsolved questions, such as how to change directions if multiple drones are coming simultaneously



Ways to fail

Make drone permits expensive.

Example:

If drone permits are too expensive (ex. \$20 USD) per flight, it makes it hard to develop a feasible business case.

This results in:

- People flying illegally and / or
- No drone operations



Ways to fail

Bureaucratic and slow processes to apply for and secure permits.

- If the process is too cumbersome, time-consuming, and slow it will adversely impact businesses.
- If it takes too long time to get a flight permit, some time-sensitive applications will not be possible (e.g. spraying locust swarms)

This will result in:

- Limited or no operations, and therefore missed opportunities and / or
- People fly illegal



Ways to fail

Sudden changes to regulations, without notice.

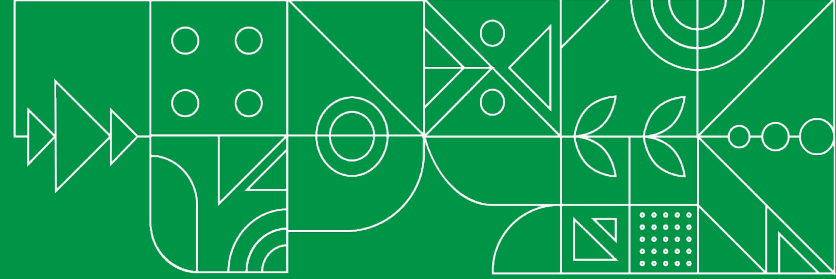
- Drone operators will have developed business cases on the basis of the existing regulations.
- Changes will impact operations and their business model might not be viable anymore.
- Investors must have security, which requires confidence that unexpected changes will not occur without notice and/or transitional periods.



Ways to fail

Treat all drones the same – everywhere.

- Different drone types and different use cases have different risks, so each operation must be treated differently.



Ways to Succeed



Ways to succeed

Clear, understandable, feasible, fast processes, well communicated

- Drone operators know exactly what is required and move through the process efficiently
- Drone operators can predict costs and develop their business case
- Investors have security and trust the system



Ways to succeed

Register drone companies

- Conduct background checks
 - Know who operators are
 - Make sure that operators are trained and know what they are doing



Ways to succeed

Register drones

- Every drone must have an identifier and a number plate
- All drones should be registered, linking them to an operator.
- If a crash occurs, the owner can be identified



Ways to succeed

Train drone pilots well

- Proper training can significantly reduce risks
- **Caution:** Drone pilot education ***should not*** be a “money making machine” for training institutes. The content should be appropriate and affordable for operators.



Ways to succeed

Require drone operators write flight protocols and provide flight logs.

- Gives CAA overview of all operations
- Helps identify irresponsible drone operations
- Provides legal security for the drone operators
- **Caution:** Data protection must be ensured by CAA



Ways to succeed

Separate crewed air traffic and drone operations.

- There should be designated airspace for drones (e.g. below 120 m – 300 feet) where no manned air traffic is allowed
- There should be drone corridors where no manned air traffic allowed



Ways to succeed

Effective communication

- Widely publicise no-fly zones and flight restrictions
- Enforce no-fly zones and flight restrictions through communication and sanctions