The African Drone Forum and Lessons Learned from Frontier Use Cases

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• with Edward Anderson, senior DRM Specialist (co-TTL)
Economists calculate the total Africa needs to spend to sustain current development.

- **US$38 Billion a year on Transport Infrastructure**
- **US$37 Billion on Operations and Maintenance**

**Only 34% of Africans** live within 2 km of an all-weather road in rural areas compared to over 90% in East Asia.

The current gaps in road transport infrastructure in Sub-Saharan Africa more broadly are vast, amounting to billions of U.S. dollars annually.
These flying robots have the potential to unlock the lower skies as a highly resilient mobility resource and as an enabler of new applications.

Traditional understanding of “resilient transport” has often ignored the enormous potential of the lower skies as a resilient resource for surveying and mobility.

UNMANNED AIRCRAFT SYSTEMS (UAS)

Drones, are a prime example of “low cost” resilient emerging technologies of this new industrial era.

These flying robots have the potential to unlock the lower skies as a highly resilient mobility resource and as an enabler of new applications.
The opportunity is to rethink the infrastructure needs for a new kind of supply chain, bringing greater reach and resilience.

Lower capital requirements: Drone ports are expected to cost about as much as a petrol station.

The immediate opportunity: speed up deliveries and connect the excluded.

The medium to long term potential: enable a greener transportation sector with universal reach.

1 cent per kg / km with Zero emissions
Lives can be saved by getting essential medical goods and blood for transfusion to patients who would otherwise die;

Drones provide quality benefits and time savings compared to satellite imagery while building local technical capacity;

They provide human safety benefits when used in infrastructure inspection and infrastructure works supervision in FCV contexts.

... while delivering significant human and societal benefits
The potential cost and flexibility advantages of drones are magnified in the context of COVID-19.

The COVID-19 global health and economic crisis shows that essential supply chains are highly vulnerable not only to climatic events but also to health pandemics.

Covid-19: 23 Tanzanian truck drivers denied entry into Kenya after testing positive.
Drones have already been deployed in fighting the pandemic

14 countries have deployed drones during COVID-19
+ Delivering essential medicine
+ Collect Patience Samples

Most Countries had drone services in place prior to the pandemic

Some non-effective applications include
+ Spraying Drones
+ Fever-Detecting Drones
+ Surveillance Drones
Most African adults now have a mobile phone - and in some countries the adoption rates are above **80 and 90%** already.

The “moonshot” opportunity here is to accelerate eCommerce and the Digital Economy

- **1 Billion** SIM card connections
- **Over 620 million** unique subscriptions

Source: QUARTZ AFRICA article By Wiza Jalakasi

- **Today:**
  - Digital network contributes over **3.5 million jobs** in Africa, and **8.6% of GDP**.

- **By 2023:**
  - The mobile services share of GDP will **increase to 9.1%**.

- **In Africa by 2025:**
  - **1 Billion** SIM card connections
  - **Over 620 million** unique subscriptions
The cargo and supply chain drones can serve businesses and communities that are digitally online, but physically isolated.

This massive network of connected people and business is an opportunity.
The African Drone Forum aims to be a multi-year and multi-stakeholder engagement program connecting new drone technology with emerging African market opportunities.

The ADF focuses on the enabling environment for creating economically and socially beneficial drone services in Africa. This means working with regulators, users, local startups, investors and new technology pioneers.

The ADF also aims to inspire, connect and train key stakeholders involved in advancing drone industry policies, investment roadmaps and updating regulations.
The Showcase

A three-day *Symposium and Regulator’s Summit* to discuss the future of the African drone ecosystem.

The *Lake Kivu Challenge flying competitions* to address critical supply chain needs in the Lake region and drive innovations.

An *Expo* to showcase curated drone innovations relevant to African use cases.

Demonstration of *UTM services* to facilitate discussions between civil Aviation Authorities and Industry.

The African *Drone Business Challenge* to identify new business models enabled through drone technology and data.
About the **Lake Kivu Challenge Flying Competitions**

**EMERGENCY DELIVERY**
Safely deliver an emergency package of at least 1kg from the mainland droneport to Bugarura Island in Lake Kivu and return to land safely at the starting point. The distance between the droneports is around 20km.

**SAMPLE PICK UP**
Teams must take off from the mainland droneport and safely pick up as many 250g modules as possible from the droneport on Bugarura Island on Lake Kivu and return them to the mainland droneport.

**FIND AND ASSESS**
Provide location coordinates of land- and water-based targets covering around 2km² of a search area that is 20km from a droneport on the mainland in Lake Kivu, then return and land safely at the starting point.
Drones today can cost-effectively bridge some of the gaps in current infrastructure by augmenting delivery networks and enhancing the resilience of rural communities.

Published Study –

"Unlocking the Lower Skies: The Costs and Benefits of Deploying Drones across Use Cases in East Africa“
(A. Stokenberga, C. Ochoa) 2020
Drones can reduce the number of deaths by almost 80% compared to traditional transport.

*Based on the information collected in healthcare facilities in the Ukerewe Islands*
More aircrafts than ever:
The skies of the near future will be much more crowded - and far more complex to manage – than they are today.
Currently Drafting new Regulations

“A systematic review of UAS regulations and rules in African Union member states” (2021)
WB with IFC + ICAO + DT4D

Completed Study

18 African Countries
(33% of those on the continent)

Have enacted drone regulations by April 2021

More than 50%

have no UAS regulations, rules, or guidance in place..

14 African countries
Currently Drafting new Regulations

Drone activity is currently limited by the slow pace of regulatory change globally and regionally.

Drone Governance
Harmonization streamlines compliance for entrepreneurs and helps drive innovation in the development of UAS products and their commercial applications.
Drone Strategy Roadmap

An end-to-end roadmap of elements that enable ecosystems for safe, sustainable and high-frequency drone operations
As a result of ADF we are seeing a surge in external and internal demand for preparation of drone activities. We are currently focusing our efforts on:

1. Deploying the playbook in **Selected Countries**
2. Supporting client countries and private sector to transition from pilots to operations – seizing opportunities to **scale up through integration with Bank lending**
3. Working with key partners to **tackle knowledge gaps** by developing a solid analytical base
4. Accelerating regional **Regulation harmonization dialogue**
5. Keeping the 1500+ member ADF community active and raising funds to continue supporting the **drone ecosystem** in Africa and beyond.
Thanks for your support!

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ADF Partners
Symposium & Expo

1000+ registered participants from 53 countries including 60+ regulators from 26 African countries

50 exhibitors incl. 2 Government (Rwanda and South Korea) 8 Development Partners 40 companies 40+ drone displays

Over a three-day program
100+ speakers on technology, regulations, business & applications

Live drone displays for 250+ participants to Zipline Muhanga operations & Doosan Mobility demonstration

4 breakout tracks:
Regulations, Technology, Logistics, Connected Skies
Skills & Opportunities

The African Drone Business Challenge
10 Finalists from 9 African Countries
(selected from 148 applications)

200+ Rwandan Youth delegates & World Bank African Drone Youth Scholarship
for 21 Scholars from 11 countries (selected from 400+ applications)

60 Regulators and 250+ students at Rwanda Integrated Polytechnic Regional College in Karongi received Introduction to Drones Hands-on-Training from African Flying Labs

Dronemasters Academy launched in Africa to introduce youth and adults to drone technology
Lake Kivu Challenge

10 teams from 7 countries

3 flying competitions based on African use cases

68 Automated Flights Beyond Visual Line of Sight Electric

3500+ Safety expert hours implementing state-of-the-art Concept of Operations

Live showcase of UTM technologies for Africa

400k USD in prizes + prequalification for pilot service contracts