Remotely Piloted Aircraft Systems (RPAS)

Enabling Operations – Opportunities and Future Directions of Unmanned Aviation

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By: Rasheed Oluwaseun Mosuro
(Workgroup Leader, Nigeria Remotely Piloted Aircraft Systems (NRPAS)}
OVERVIEW

1. Background
2. Birth of NRPAS.
3. Opportunities / Challenges
4. Lessons Learnt in Planning Operations
5. Enabling Operations / Future Directions
6. The Future of NRPAS
7. Duty of Care on RPAS Safety
8. Research and Development
9. RPAS Registration.
BACKGROUND

- **Disruptive Technology:** Technological advancements that change the way things are done (Webster) e.g. Fire (food), perfect circle (Transport), electricity (machines), telephone (communicate), computer (think), TV (entertainment), internet (study),

- **Autonomy** (ability to operate a machine without direct contact (transport, agriculture, aviation, internet)

- **RPAS** were used in WWI, WWII and the Vietnam and gulf wars, we are at this point at this time because GPS navigational hardware got small and cheap enough to mass produce.
BIRTH OF NRPAS

- A Student’s Quest
- “Seek help...Provide help”
- The culmination of a strategic opportunity (21st November, 2016)
- Fellow help seekers form an alliance! (19 December 2016)
- Achievements so far.
- Gazing into a bright future...
OPPORTUNITIES

COMMERCIAL OPERATION OPPORTUNITIES AND...

FILMING | FLARE TIP INSPECTION | COMMUNICATIONS EQUIPMENT INSPECTION | PARCEL / CARGO DELIVERY | POWER LINE INSPECTION | PRECISION AGRICULTURE
OPPORTUNITIES

- Environmental monitoring
- Improved security
- Reduced exposure of people to risks (dull, dirty dangerous...working at heights)
- Maintenance Inspection (roads, drainage, pipeline, powerline, aircraft etc.)
- Disaster relief
- Accurate trending of data
- Accuracy of Geo-informatics (mapping)
CHALLENGES

- Inadequate public awareness concerning the risks to manned aviation and lives / property on the ground.
- Shortage of skilled manpower and academically trained professionals.
- RPAS and parts’ standardization / certification.
- Difficulty in monitoring illegal RPAS operations due to its small footprint and cost of automated monitoring solutions.
- Operating in a region with security risks
- Identifying the boundaries of a well balanced “risk based” regulation.
LESSONS LEARNT IN PLANNING OPERATIONS

- Basic Aviation knowledge is a must, and pilots periodically tested and recertified to ensure the safety of other airspace users and the general public.

- Need for liaison with RPAS manufacturers for enhanced operational efficiency and safety. (e.g. DJI geo-fencing & “return to base”)

- Understanding the risk and consequences of operations that go wrong (the reason we need regulations).
ENABLING OPERATIONS

- Registration criteria for commercial operations and leisure activities.
- Integration with Manned Aviation with Safety and Security considerations.
- Rules can simplify or complicate operations.
- ICAO policies...global trend may not exactly apply locally!
- Air traffic density is much less (Compare “busy” Lagos to Heathrow, JF. Kennedy or Dubai)

- Ban Cars or Mobiles?
FUTURE DIRECTIONS

• Training and education on the operations, maintenance and economic benefits of RPAS.
• Use of backup crew of remote pilots to operate aircraft during airborne emergencies and ground operations.
• 5G internet provision to remote locations. (e.g. Facebook: Aquila and Google: Sky-bender)
• Planning for new developments.
• Research and Development of RPAS.
THE FUTURE OF NRPAS

- RPAS Education
- Public Awareness
- Training
- RPAS registration
- Insurance assessment
- Setup of UAS airspace integration test and research site(s).
DUTY OF CARE ON RPAS SAFETY

• Operator responsibilities.

• Client responsibilities - ensuring RPAS contractor is fully registered, insured and compliant.

• Government responsibilities.

• General Public Responsibilities.
RESEARCH AND DEVELOPMENT

• Nigerian Assembly Plant / manufacture for the ECOWAS and African Region.
• Design standards
• Type certification
• Allied Industry development and Investment Opportunities.
• Space Travel and Technology.
RPAS REGISTRATION

- Applies to **RPAS less than 25kg flown outdoors. For larger RPAS, please contact NCAA for eligibility requirements.**
- **Owners 16 years and over must provide:**
  - Name, address, email
  - **Recreational:** Same registration for multiple a/c per user.
  - **Non-Recreational:** Single a/c and must provide make, model, and serial number (if available) of each RPAS to be registered.
THANK YOU!