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InfoSec World

Conference & Expo 2018

SEND IN THE DRONES

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IT'LL NEVER FLY

OUTLINE

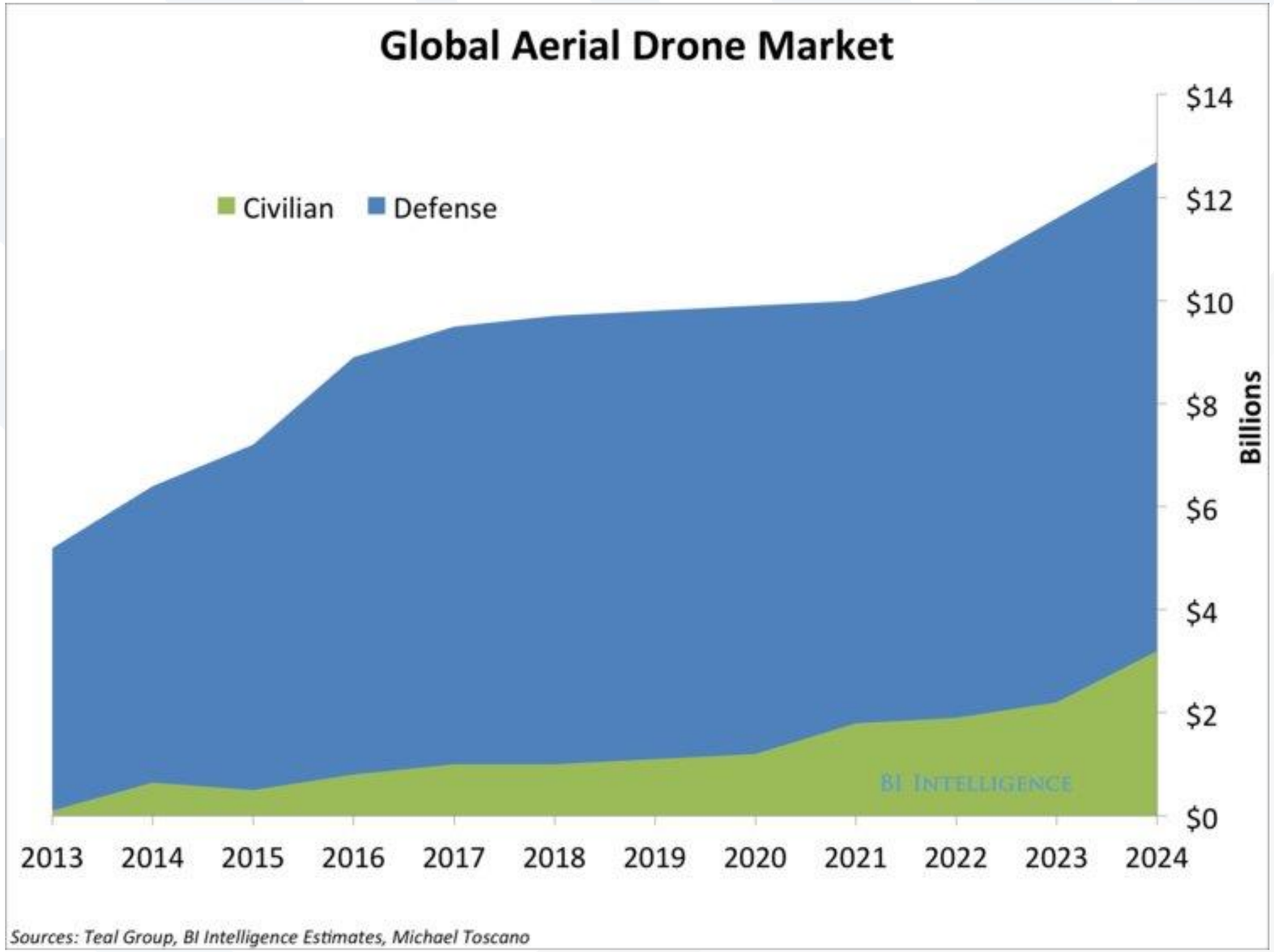
- Introduction and Welcome
- What is a “drone”?
- Types of Drones
- Personal/Professional Use Cases
- Drone Systems and Capabilities
- What You Need to Get Started
- FAA and the Law (Pilots and Drones)
- A Short Intro to Airspace and Flying
- Safety and Insurance
- An Enterprise Drone Program
- Live Demo
- Q&A

INTRODUCTION AND WELCOME

- Drones – unmanned aerial systems – rapidly pushing into mainstream global use!
- Increased capability, power, and ease of use
- Concerns about security and privacy too often overlooked
- Challenge in avoiding the “novelty” over real business/commercial use
- Consumer/Prosumer/Professional use cases overlap
- Best way to evaluate and implement a drone program in the workplace (focusing on small drones)

Ready for takeoff…

THE MARKET IS GROWING



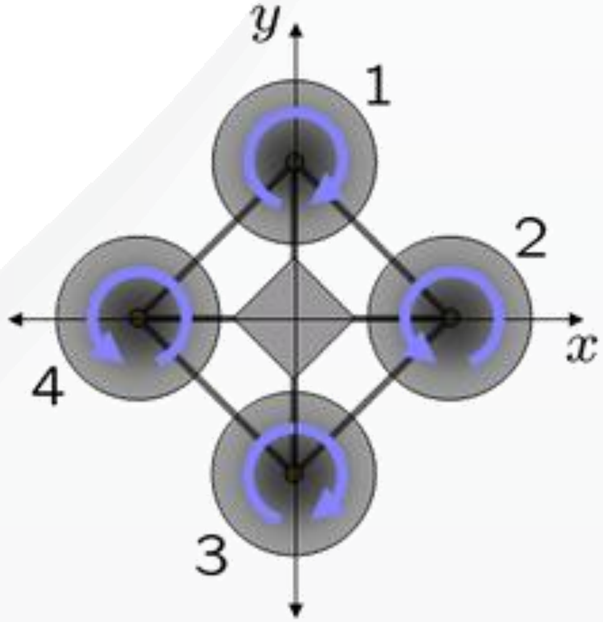
WHAT IS A DRONE?

- Unmanned Aerial System (UAS)
  - No human pilot onboard
  - Operated remotely from the ground
  - Sometimes referred to as UAV (vehicle)
  - Remote Pilot-in-Command (PIC)
- Regulated by the Federal Aviation Administration (FAA)
  - Hobby/Recreation – Section 336
  - Commercial/Professional – Part 107
  - Enforces drone registry and pilot licensing

TYPES OF DRONES

TYPES OF DRONES

- Size of Drone
  - Micro/Nano (indoor)
  - Mini (indoor)
  - Small (indoor/outdoor)
  - Full Size/sUAS (.55lbs. to < 55 lbs.)
  - Anything bigger…
- Number and Configuration of Rotors
  - Single
  - Coaxial (CW vs. CCW)
  - Multi-rotor
- Onboard capabilities
  - Photo/Video
  - Payloads



TYPES OF DRONES

- Government / Large-Scale

PERSONAL/PROFESSIONAL USE CASES

- Hobbyist Flying
- Racing/Stunt Flying
- Aerial Photo/Videography
- 3D/Topographic Site Scanning
- Surveillance/Monitoring
- Payload Delivery
- Interdiction/Interception

- First Aid and Disaster Response
- Agriculture
- Journalism, Media, and Communications
- Urban Planning, Architecture, Engineering
- Environmental Management
- Security Services

DRONE SYSTEMS AND CAPABILITIES

- Battery systems/Flight Time
- Radio System
  - FCC-Authorized spectrum
  - Amateur Radio (need license)
  - Traditional WiFi vs. 3G/4G
- First-Person Video (FPV)
  - Goggles vs. Tablet/Monitor
- Flight Control System
  - Headless Mode
  - Automatic Stabilization
  - Normal vs. Sport Modes
  - Automatic Hover
- Navigational Systems
  - GPS
  - Computerized Flight Tracking

WHAT YOU NEED TO GET STARTED

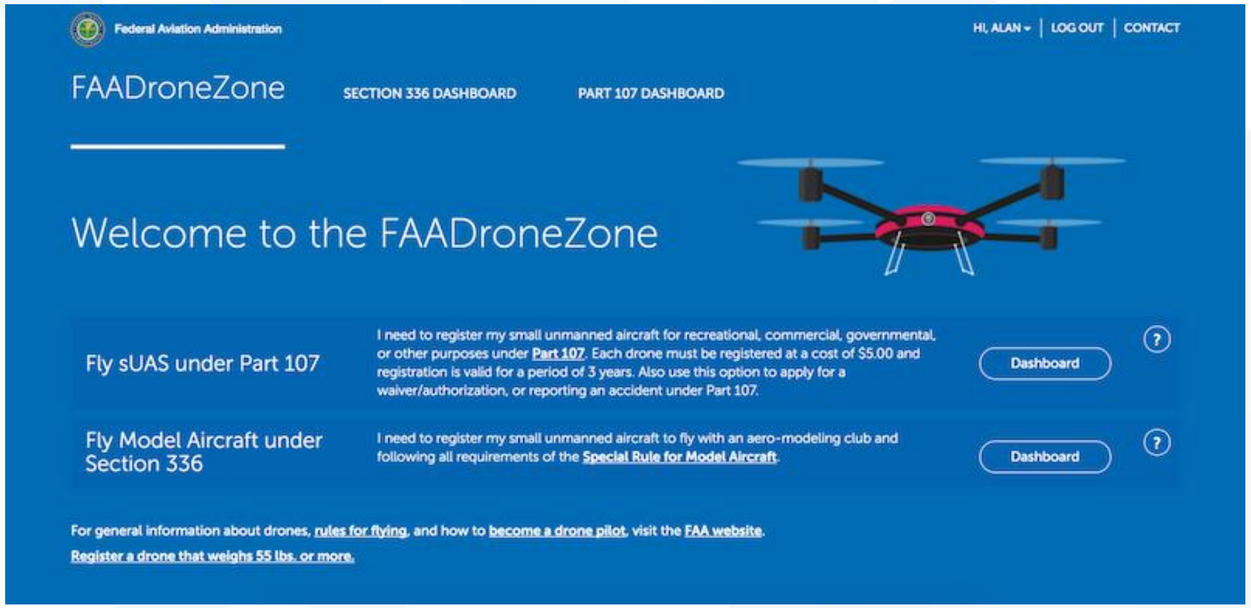
- Determine why you want to fly?
  - Hobbyist
  - Enterprise/Professional
- Budget (drone + supplies + licensing + insurance)
- Study for and obtain appropriate license
  - Learn the FAA rules
- Get a good trainer drone system
  - Inexpensive but not a toy
  - Availability of parts (you WILL crash)
  - Phone/Tablet link capability
- PRACTICE!!!
  - Start with small indoor drone
  - Open field outdoor flying
- Simulators are NOT the same!!!

A NOTE ON INDOOR FLYING

- Great way to practice and hone skills!
- GPS-aided obstacle avoidance may not work
- Spinning propellers HURT if they hit you!
- Fly clear of any people, inhabited office areas
- Be mindful of privacy concerns when flying in an office or industrial area
- Small drones can’t react to changes in wind very well (think A/C, fans, etc.)
- Even micro drones can do damage
- Use propeller guards!

FAA AND THE LAW

- All sUAS MUST be registered (both hobbyist and commercial)!
- Registration $5 via https://faadronezone.faa.gov/#/
- FAA Part 107 Remote Pilot Certification
  - Required for Commercial/Professional Flying
  - Requires passing knowledge test (24 months)
  - Existing pilot can obtain via online training course



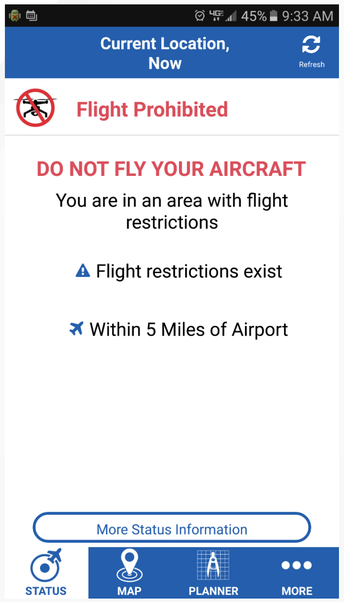
FAA AND THE LAW

- All professional/commercial sUAS pilots must be certified by FAA!
- Two paths to gain certification, both require FAA background checks
  - Pass aeronautical knowledge test (FAA/CATS) every 24 months
  - Complete online sUAS training *IF* you currently maintain a Sport pilot or higher pilot's license
- Must maintain no criminal record
- Drug/Alcohol waiting period of one year
- Remote PIC license is for US only; no global standards exist today

FAA AND THE LAW

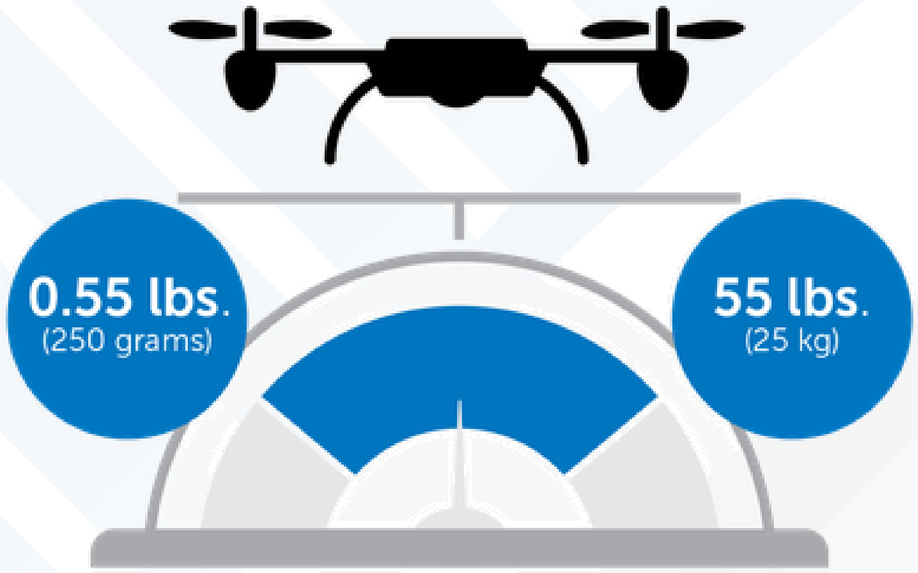
- Know the rules for drones and pilots!
  - Recreational vs. commercial flights
- Always do a pre-flight check before you fly
  - Weather – flying outdoors
  - Control systems
  - Proper maintenance
  - Video system
  - Flight restrictions
- 1800WXBRIEF – free online briefing
  - Online weather briefing
  - Airman notifications
- B4UFLY Mobile App
  - Flight restrictions

WHEN IN DOUBT – DON’T FLY!



Do I need to register my Unmanned Aircraft?

You need to register your aircraft if it weighs between **0.55 lbs.** (250 grams) and up to **55 lbs.** (25 kg).



You will be subject to civil and criminal penalties if you meet the criteria to register an unmanned aircraft and do not register.


FAA Registered
FA12345678
IF FOUND CALL
999-999-9999
REWARD
IF FOUND GO TO
ReclaimDrone.com
REWARD
Federal Aviation Administration
Small UAS Certificate of Registration
CERTIFICATE HOLDER: John Drone
UAS CERTIFICATE NUMBER: FA12345678
ISSUED: 02/01/2016 EXPIRES: 02/01/2019

PRE-FLIGHT CHECKLIST

I FLY SAFE

knowbeforeyoufly.org | faa.gov/uas

FLY SMART, FLY SAFE, AND HAVE FUN!

Federal Aviation Administration

PRE-FLIGHT CHECKLIST

- I fly below 400 feet
- I always fly within visual line of sight
- I'm aware of FAA airspace requirements: ***faa.gov/go/uastfr***
- I never fly over groups of people
- I never fly over stadiums and sports events
- I never fly near other aircraft, especially near airports
- I never fly near emergency response efforts such as fires
- I never fly under the influence

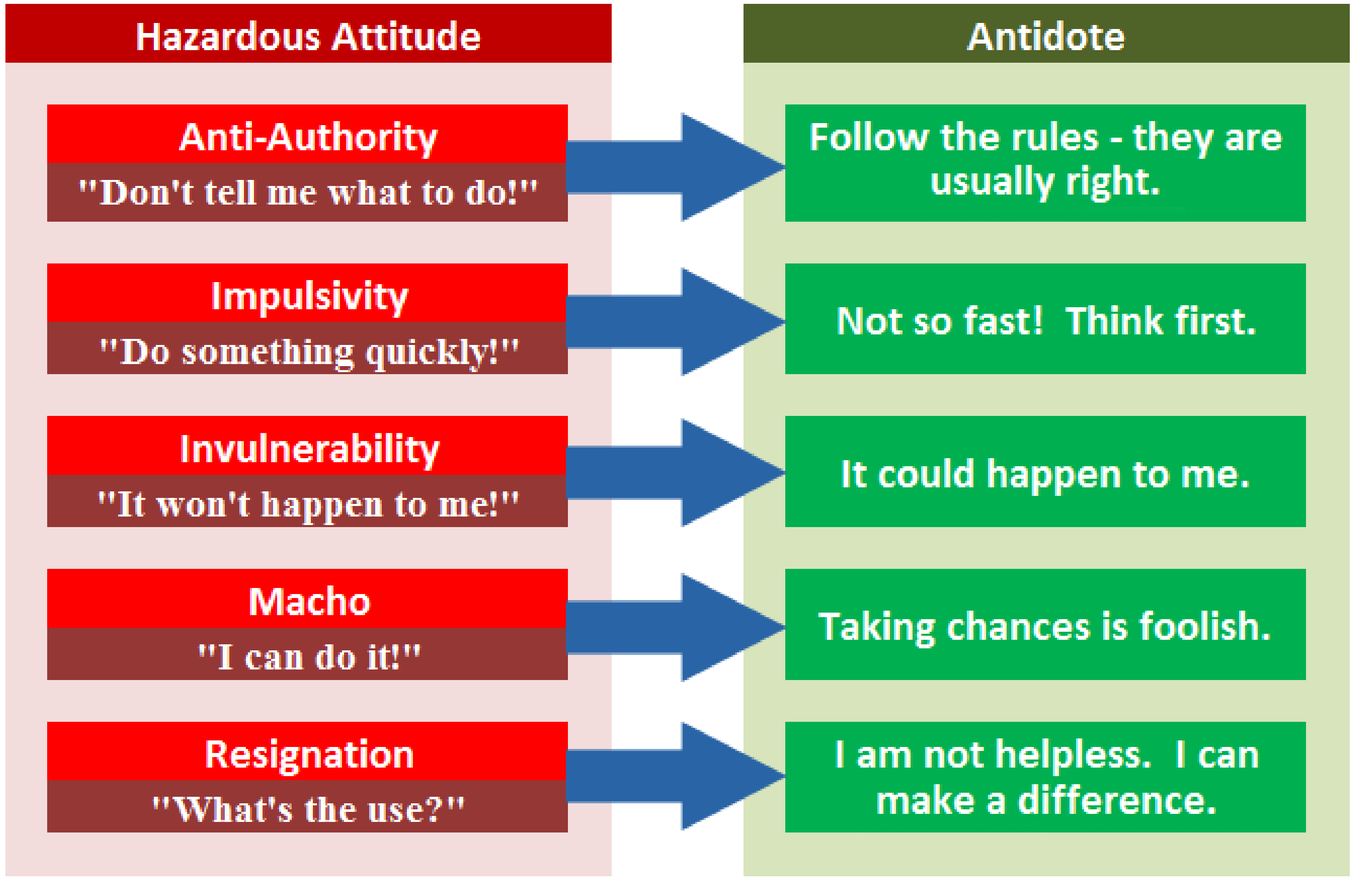
- FAA Waiver Process
  - Request exception to sUAS Flight Rules/Restrictions
  - Responsibility of Remote PIC to obtain waiver prior to flight operations
  - Indoor drone operations require special considerations outside scope of FAA regulations

Additional Considerations

- FUI (think DUI for flying) is illegal
- Recognize hazardous attitudes

A NOTE ON HAZARDOUS ATTITUDES

- Pilot training demands recognition of hazardous attitudes
- Hazardous attitudes can severely impact flights, cause damage and even death
- Remote PICs have an obligation to address these attitudes quickly



A SHORT INTRO TO AIRSPACE AND FLYING

- The FAA classifies airspace based a variety of factors
- Certain airspace classes require ATC authorization prior to entering
  - Class A – generally 18,000’ MSL (mean sea level) to FL600 (60,000 feet)
  - Class B – generally surface to 10,000’ MSL surrounding nation’s busiest airports; ATC authorization required
  - Class C – generally surface to 4,000’ MSL around airports with an operational control tower, serviced by radar approach and have specific instrument landing paths; ATC authorization required
  - Class D – general surface to 2,500’ MSL around airports with an operational control tower; ATC authorization required
  - Class E – controlled airspace not classified as A, B, C or D; includes federal airways beginning at 700’ or 1,200’ AGL
  - Class G – uncontrolled airspace

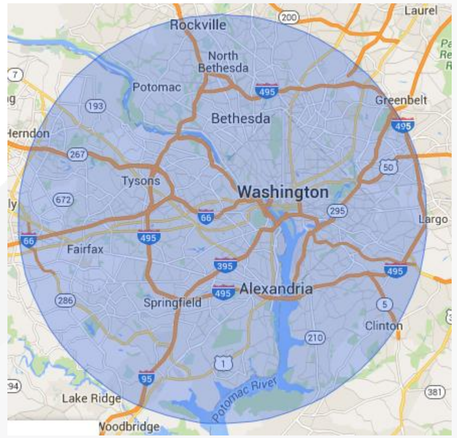
A SHORT INTRO TO AIRSPACE AND FLYING

AIRSPACE NO-NO'S

- Temporary Flight Restrictions
- IMPORTANT – pre-flight checks help to avoid unauthorized incursions
- Ignorance is not an excuse!

NO DRONE ZONES

- Stadiums, large crowded gatherings
- Major airports
- Special Flight Rules Area (SFRA)
  - Washington, D.C.
  - Walt Disney World
  - High profile locations



Flying drones in these areas is illegal and can get you arrested!

NO DRONE ZONE!

SAFETY AND INSURANCE

- Practice good risk management and crew risk management at all times
- Remote PIC is in charge
- Use of visual observer to maintain line-of-site with sUAS at all times
- Pre-flight communication to affected locations if possible (or required)
- Appropriate flight planning can save headaches (and fines/jail later)

- Insurance
  - Drone-specific insurance – protects your drone in case of loss, damage
  - Liability insurance – protects you (or your business) if damage occurs
    - FAA reportable damage for any loss to property valued > $500
    - Report required within 10 days to FAA Field Office
  - Understand what IS and ISN’T covered BEFORE YOU FLY!

DRONES IN THE ORGANIZATION

- Considerations for an enterprise drone program?
  - Goals/Objectives for the program (e.g., surveillance, site scans, etc.)
  - In-house or contract/outsource (ops, training, management)
  - Maintenance of certifications and training
  - Fleet management and maintenance
  - Insurance and liability
  - Airspace and flight restrictions
  - Operational control
- Identify key resources
  - Executive management “owner”
  - Chief Flight/Fleet Operations
- Avoid the “bolt-on syndrome”
- Treat DroneOps like InfoSec
  - Resources (Time, Money, Talent)

DRONES IN THE ORGANIZATION

- Fleet Management
  - What type of drone
  - Manufacturer
  - Qualifications and pilot currency
  - Safety program
  - Incident response plan

- Certificate of Authorization (COA) or Waiver
  - Allows operations in areas otherwise restricted by law
  - More intensive process than a Part 107 license
  - More flexibility in flying and longer duration
  - Issued by the FAA and the controlling airspace authority (ATC)

A STEP-BY-STEP APPROACH

1. Identify and Justify Need (Business Case)
2. Develop Proof of Concept (PoC) and Initial Budget
3. Execute restrictive PoC and evaluate results
4. Develop Enterprise Drone Program (EDP) plan
5. Implement initial program expanding upon PoC
6. Scale EDP in logical units
7. Continue Evaluation and Adjust Accordingly

Keys to a Successful Program

- Top-down Continual Support (financial, management, operational)
- Willingness to STOP or “Pull the Plug”
- Addressing Hazardous Attitudes early and often

SUMMARY

- Drone technology continues to advance, reducing cost and increasing capability.
- Introducing drones in the enterprise requires a carefully planned and executed strategy
- Enterprise drones introduce unique privacy, security, and operational challenges that must be addressed across the organization
- Don’t just do it for the novelty – make it support the organization’s mission!

NOW… LET'S FLY!

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THANK YOU

PLEASE FILL OUT YOUR EVALUATIONS!

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