Drone = UAV
(Unmanned Aerial Vehicle)
Estimated Investment In Drone Hardware

Global

- Government
- Consumer
- Enterprise

Source: IHS Jane's Intelligence Review, 2015; BI Intelligence Estimates, 2016
Drone Types

- Military
  - $10,000-$100 Million
  - Older
  - Diverse
- Recreational
- Commercial
  - Growing Industry
  - Beginning Stages
  - Share Ethical Issues
Commercial/Recreational Drones

Uses: Data Collection, Agriculture, Delivery, Wildfires, Disaster Relief, Crime Fighting, Search % Rescue, 3D Mapping, Construction, Hurricane Hunting, Drug Trafficking, Research & Development, Border Protection, Filming Yourself, Filming Real Movies

- 3rd World Delivery
- Drug Trafficking
1. Inability to recognize and avoid other aircraft
2. Lack of operational standards
3. Vulnerability in command and control of UAV
4. Lack of Gov. regulations necessary to safely facilitate the accelerated integration of UAVs into the national airspace system
Ethical Issues of Commercial/Recreation

- **Invasion of Privacy**
  - Flying over houses
  - Collecting Data

- **Safety**
  - Failing = Falling
Military Drones

- Uses: Attacks, Surveillance, Remote Sensing
- Drone use is on the rise
  - Cheaper option than soldiers
  - Political Helper
  - Protect Soldiers
  - Diversity of Drone Types
  - Limitless Uses
- **Ethical Issue:** Does it really matter if humans kill our enemies or if machines kill our enemies as long as our enemies are eliminated
Ethical Survey

Use Drones to Kill Terrorist

- Approve: 76%
- Disapprove: 14%
- Not sure: 10%

Use Drones to Kill Terrorist even if it Harms Civilians

- Approve: 40%
- Disapprove: 34%
- Not sure: 17%
Ethical Issues Against Military Drone Use

- Do drones lower the threshold for lethal violence
  - Easy Option
  - Use too much
- Are they a substitute for capture
  - Easier to Use than Drone then to Capture
- Helps remove the responsibility of Killing from our Hands
  - Same as Firing Torpedo
  - Dot on Screen
For Military Drone Use

- Advantages in identifying targets and striking with precision
- Drones result in 4-20% of civilian casualties
- Pre Drone Usage; Civil deaths accounted for 40-80% of all deaths using other modes of warfare
- Can view target for hours/days
  - Pick best time to strike and can even divert missile after being fired
- Keeps soldiers out of harm
Video

https://autonomousweapons.org/slaughterbots/
Judgment of Issues

Recreational/Commercial

- Overall we aren't ready for commercial transition
  - Airspace regulations need to be set
- Minimum Flying Altitude
- Only Fly over Public Land

Military

- War is continuous
- Save lives when you can
- Save lives on both sides
- Continue to Use Drones with Caution
Ethical Theories

Commercial

- Social Contract Theory - Establishment of moral rules to govern relation among citizens
  - New Laws and regulations to help contain citizens right to privacy and safety
  - Good
- Utilitarianism - Focuses on the Consequences
  - Invasion of Privacy > Benefits of Drones
  - Bad

Military

- Utilitarianism - Focuses on the Consequences
  - Soldiers Lives > Machine Lives
  - Good
- Ethical Egoism - Each Person (country) should focus exclusively on their self-interest
  - Use to drones to exclusively better American Lives
  - Bad
Future

- Heavy Increase in Commercial Use
- Continued Expansion in Military
- Insurance Requirements
- More Laws and Regulations
- Artificial Intelligence
  - Already in the Works
Questions