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The Commercial-Regulatory Dimensions of Unmanned Aerial Systems (UAS)

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Dueling Definitions

RPAS (Remote Piloted Aircraft Systems) – Emphasizes that a pilot is in command, is responsible for the flight, & relies on command and control links.

UAVs (Unmanned Air Vehicle) – A UAV is a “power driven aircraft, other than a model aircraft, that is designed to fly without a human operator on board.”

UAS (Unmanned Air Systems) – A UAS is an unmanned aircraft (UA) and all of the associated support equipment, control station, data links, telemetry, communications and navigation equipment, etc., necessary to operate the unmanned aircraft.

Model Aircraft -- An aircraft, the total weight of which doesn’t exceed a certain weight – 35 kilos (77.2 pounds) in Canada and 25 kilos (55 pounds) in the United States – that’s mechanically driven or launched into flight for recreational (not commercial) purposes.

The International Civil Aviation Organization (ICAO) – Recommends RPAS as the preferred term.

One Set of Projections

50+ countries are current users.

Currently -- $6.4 Billion annual investment (almost all military)

A $11.5 Billion annual investment in 10 years?

A cummulative $91 Billion investment over the next 10 years? (86% military & 14% civil?)

Worldwide RDT&E spending over next 10 years = 65% USA; procurement will = 41% USA

70K near-term jobs in the US alone?

Some Non-Security/Military Applications

The value of AUS': Save money, improve safety, faster responses, greater ease of effort

1. Public safety

1. Insurance underwriting, claims adjustment, rapid site inspections.

2. Utilities – Aerial inspections/targeted maintenance, etc.

3. Farm management/agriculture – Precise watering/spraying, yield analysis, etc.

4. Commercial applications/deliveries (Amazon, etc.)

Some Non-Security/Military Applications

5. Wildlife/human population analysis & management
6. Visual media
7. Exploration – Mineral detection, oil & gas, etc.
8. Disaster/risk management (medical emergencies)
9. Property marketing/management
10. Personal/recreational

Pandora's Box

*__Regulatory oversight__ (it's currently synonymous with AUS commercialization & it's lagging)

Safety (Both aerial & destruction of property/physical damage)

Privacy (including aerial forms of tresspassing, stalking/harassment, wiretapping)

Law enforcement abuse (warrants; unreasonable search & seizure)

THE US Regulation Example: 'Normalizing' Airspace

Problem #1: The US Federal Aviation Administration (FAA)

1938 – The Civil Aeronautics Act = airspace is subject to federal control

1958 – Creation of the FAA = 'No gray areas' culture; regulation is by definition necessary

1981 – FAA Model AUS GUIDELINES (AC 91-57 – Under 400'; visual line of sight, etc.)

2005 – FAA AUS Policy 05-01. (ID's permission/waiver requirements)

2008 – FAA Interim Operations Approval GUIDANCE 08-01

The bottom line: FAA has a 'go slow' attitude towards drone commercialization. Safety/privacy/regulation trumps business, but regulation is also lagging 1

THE US Regulation Example: 'Normalizing' Airspace

Problem #1: The US Federal Aviation Administration (FAA)

March 2014 – Huerta v. Pirker (Reckless operation? Model AUS used for commercial use? Result: An invalid attempt at rule making)

18 November 2014 – National Transportation Safety Board ruling (supports FAA position)

The problems =

- Definitions (What's a Model UAS?)
- Safety
- Privacy
- Technologies too immature to regulate properly?
- Risk cultures? (How much risk will you accept or not?)
- Jurisdiction: Federal government vs. states?

THE US Regulation Example: 'Normalizing' Airspace

Parallel Problem #2: The US Congress' 2012 FAA Modernization & Reform Act (it's more pro-business than pro-regulation)

Sections 336 A&C – three criteria for UNRGULATED Model AUS's

BUT . . . Section 336B – Safety must be regulated

June 2014 – FAA GUIDANCE Document = 336B + a Model AUS must meet 7 criteria

The bottom line: Problems #1 & 2 mean commercial AUS' aren't going to fly in the US at least until September 2015, but realistically as late as 2020 (long lead times for development are required)

Businesses still need certifications of waiver or authority, including special 'airworthiness' certifications from an organization that is also lagging in its regulatory role