

# Determining the Insurability of Remotely Piloted Aircraft Operators: Technical and Operational Aspects

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## Purpose

- Discuss the economic and technical bases for evaluating the insurability of commercial remotely piloted aircraft (RPA) operators.
- Caveats:
  - I know little about insurance
  - I've never stayed at a Holliday Inn Express.
  - So, we'll be learning from each other.



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## Plan

- Background
- Likely direction of the industry
- Elements of Viability



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## Background

- Not all RPAs are created equal; and their “taxonomy” is shaped by several criteria and remains fluid conceptually;
  - Category—airplane, rotorcraft, lighter-than-air
  - Size – nano/micro/very small/small/medium/large/OMG
  - Control regime –line-of-sight (LOS) and beyond line-of-sight (BLOS) with terrestrial or satellite repeating
  - Purpose – moving electrons or stuff



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## Background



- A large, illegal, and self-insured RPA industry exists already.
  - Substantive beginnings in early 1990s as miniature controls, sensors became available
  - Begun by people innocent or dismissive of national air space regulations and FAA



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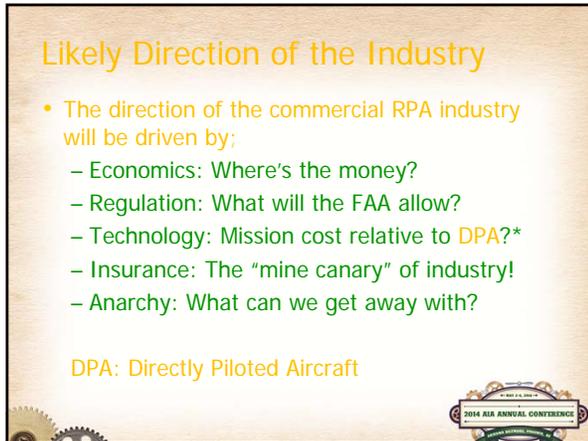
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## Likely Direction of the Industry

- The direction of the commercial RPA industry will be driven by;
  - Economics: Where's the money?
  - Regulation: What will the FAA allow?
  - Technology: Mission cost relative to DPA?\*
  - Insurance: The “mine canary” of industry!
  - Anarchy: What can we get away with?

DPA: Directly Piloted Aircraft



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## Likely Direction of the Industry

- Economics speak for an industry dominated by small or smaller systems under LOS control.
  - The systems are relatively inexpensive
  - Adjunct pilots are cheap
  - Least likely to cause harm
  - Unlikely to cause “three-mile-island” event
  - More practical for automated (drone) flight
  - Evidence: The industry exists already



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## Likely Direction of the Industry

- Economics do *not* favor large systems flying BLOS to move *stuff*
  - Cost same as directly piloted aircraft (DPA)
  - Bandwidth currently costs more than pilots
  - Least likely to gain, keep “social permission”
  - The insurance case seems weak



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## Likely Direction of the Industry

- But, the *regulatory process* has focused on getting larger systems into the national air space (NAS).
  - Fixating on remote sense and avoid
  - Classing by weight, not probability of harm
  - Unwillingness to apply model aircraft standards to small and smaller RPA
  - Requiring certificates of authorization and airworthiness for all commercial operations



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## Likely Direction of the Industry

- Summary: direction obscured by focus and ironies
  - Focus on secondary rather than proven market.
  - Regulatory definition of “small” as 0-55 pounds



- Also this  is virtually unregulated

while this  requires certificates, pilots, scanners, etc., if used in public or civil operations.



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## Elements of Viability

- Determinations of corporate viability must consider the usual host of factors
  - Sophistication, integrity of leaders
  - Origins of the aircraft
  - Sophistication of planning process
    - Money (how much, when, and why)
    - People (number, timing, skills, etc.)
    - Infrastructure (aircraft, facilities, etc.)
    - Context (environment, law, politics, etc.)
    - Operations (efficient, sustainable, etc.)



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## Elements of Viability

- But, insurability challenge more complex for RPA
  - Limited base of experience
  - Multitude of applications
  - Ease of market entry = unpredictable leaders
  - Aircraft sourced from *hundreds* of builders
    - Some will be serious and disciplined
    - Many will be opportunistic and slapdash
  - Airworthiness Certificates will tell only part of the story of aircraft and operator viability.



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### Elements of Viability

- Example;
  - This? 
  - Or this? 
  - This?  For seaborne anti-poacher patrols?

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### Elements of Viability

- Example;
  - Who builds best; and so what? 
  - Useful test; "show me the manuals." 

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### Concluding Thoughts

- So, most of your RPA customer base will consist of the would-be operators of;
  - Large, high altitude RPAs moving electrons (few)
  - Medium systems in remote areas moving stuff (some)
  - Small to tiny systems moving electrons (lots, maybe)
  - Quacks, geeks, dreamers and serious thinkers wanting to expand the envelope (bazillions)

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## Concluding Thoughts

- What might this mean to the AIA?
  - Need to develop or partner with experts at evaluating operators in all their facets
  - Need to develop probability of harm and other actuarial tools
  - Will need to decide how to insure
    - Hulls—what's the cutline for self-insurance
    - Liability—and for individuals and groups?



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## Questions?

Oh I guess so...go ahead.

Successful people ask better questions  
and, as a result, they get better answers.

Tony Robbins



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