

To Certify or Qualify AI: Insights from Aviation

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In collaboration with

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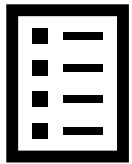
My Background

- 8 years as a Blackhawk pilot for US Army, FAA licensed for commercial rotary wing
- Assistant Professor of Systems Engineering at the United States Military Academy for 3 years
- Currently Designing Trustworthy AI Systems Fellow

Certification of Aircraft

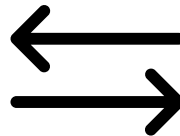
“An aircraft, aircraft engine, propeller, or article must conform to its approved design and is in a condition for safe operation.”

- 14 CFR § 21.1: Certification Procedures for Products and Articles



Concept

- Must be tested in every potential operating environment with the expectation that operators will remain within the performance envelope



Change

- Certification includes establishing maintenance procedures
- Needs new approval after major alteration (14 CFR 43)



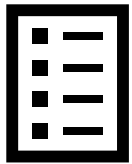
Time

- No need to “renew”
- Remains valid as long as maintenance is performed (14 CFR parts 21, 43, and 91)

Qualification of Pilots

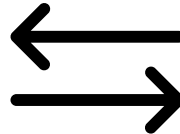
“A pilot in command means the person who has final authority and responsibility for the operation and safety of the flight.”

- 14 CFR § 1.1



Concept

- Must challenge pilot in a sample of the infinite possible scenarios they could face to probe their judgement and crew management skills to maintain safety of the flight



Change

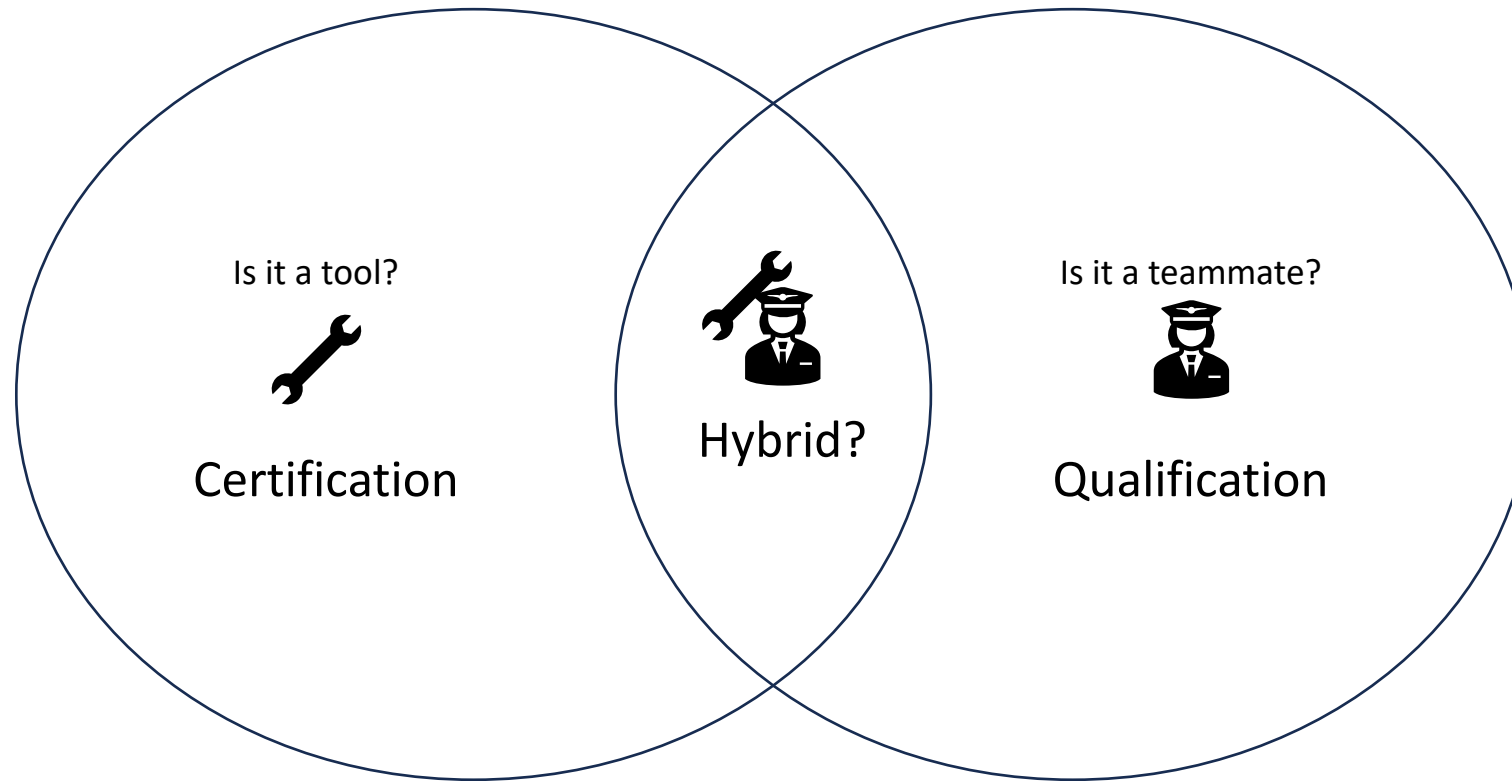
- Change in role
- No ability to objectively know if a pilot “changed”



Time

- Annual tests

Where does each AI fit?



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