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Aircraft decommissioning and dismantling: A global airline view

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Aging aircraft world fleet

- Steeply rising number of aircraft to be decommissioned
  - More than 3000 commercial aircraft over 25 years old and still in service
  - Average service time of an aircraft 25+ years
    - Significant variability – depending on business model
    - Recent trend to decommission aircraft at lower age
    - Many IATA airlines sell aircraft well prior to decommissioning
    - Specific target group of carriers with old aircraft (including numerous cargo airlines) – financial capacity usually low
  - 12000 aircraft expected to be decommissioned in the next 20 years

Aircraft storage

Duration	Back into service?	Maintenance	Storage type
Short-term	Planned	Minimum maintenance	Controlled
Medium-term	Potentially	Fluids drained Certification loss of some equipment	Controlled
Long-term	Never	e.g. failed D-check	Controlled/ uncontrolled

Needs for decommissioning

Storage	Aircraft	Dismantling facility	Estimated number
Controlled (e.g. Mojave desert) 	Flyable	Fixed	> 3000
	Immobilised	Mobile only	
Uncontrolled (at airfield edges) 	Immobilised	Mobile only	Unknown (Airports/ICAO to help?)

Aircraft end-of-life issues

- Safety
  - Re-use of parts/equipment that have lost certification (black market)
  - Aircraft cut up in questionable safety conditions
- Environment
  - Hazardous substances (e.g. hydraulic fluids, asbestos, depleted uranium ballast)
  - Soil and water contamination
  - Waste management regulations
- Operations
  - Obstruction of airport areas
  - Airport expansion inhibited
- Industry reputation
  - Aircraft wrecks around airports “welcoming” arriving passengers
  - Environmental risks becoming public

Short-term measures

- Example: Nigeria
  - Government initiative to move and scrap aircraft wrecks from airports – good progress achieved
  - Policy not to register any aircraft aged 20 years and above
- International situation
  - Similar age rules in various States
  - China and Russia: 10 – 15 years
  - Cape Town Convention eases purchase of newer aircraft

Economic aspects

- Airlines should be encouraged to controlled decommissioning
  - Avoid disincentivising costs (target group is financially weak)
  - Optimised re-use / recycling → maximise revenues from residual value
- Some airlines keep aircraft in the books as “assets” although no longer airworthy
  - Appropriate depreciation rules needed
  - Maybe irrational behaviour?
- Manufacturer’s and owner’s end-of-life liability
  - Already in other sectors (shipping, automotive, household appliances)
  - Future regulations for aviation? National / EU / ICAO?
  - First develop industry best practices → work started

Re-use and recycling

- Many pieces of equipment (engines, avionics, …) can be re-used
  - If type still in operation
  - Represents much higher value than metal structure
  - Rigorous safety control needed
  - Avoid equipment losing certification
- Various metallic alloys, mainly Al
  - Worth to be separated by type?
- Carbon-fibre composites (e.g. tailplanes)
  - Recycling methods under development
- For the future:
  - Increased use of recyclable materials in new aircraft
  - “Design for deconstruction”

IATA e-parts tracking project

- Be able to track an aircraft part (eventually the aircraft) throughout its lifetime
  - Based on RFID technology
- Agree on what information to track
  - Regulatory compliance
  - Contractual obligations
  - Protect asset value
  - Operational efficiency
- Agree on “Birth Record”
  - Cannot provide „Back-to-Birth“ Record when there is no „Birth“ Record...
- Independent of technology

Way forward

- Demonstrate and quantify advantages for airlines using controlled decommissioning
  - Best use of residual value
  - Reduce safety, environment and reputation risks
- Raise awareness at airlines
- Appropriate cost and risk sharing
- Make mobile decommissioning services accessible all over the world
- Cooperate with airports, governments and ICAO
  - Develop incentives for airlines
  - Anticipate product end-of-life regulations similar to other sectors and develop solutions appropriate for aviation
- IATA is ready to support

Thank you!

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