



Annex to presentation:

Drones, Vertical Lift Technology, VLT

*Wings of change:
UAVs and sustainable
transportation*

(Reference Sources)

Gli UAV e il
trasporto
sostenibile

Napoli

26 Gen. '24



Gli UAV e il trasporto sostenibile

Riferimenti presentazione J. Halpin

Slide 1

<https://evtol.news/news/forum-79-civil-and-military-air-mobility-innovations>

Slide 4 – E-VTOL Stability and Control

<https://www.youtube.com/watch?v=GYPQe8DpZQs>

Slide 5 Guardian SC1

- [Guardian Agriculture receives FAA approval for its Guardian SC1 eVTOL in US \(interestingengineering.com\)](https://interestingengineering.com)
- <https://www.guardian.ag/evtol>
- <https://www.dtnpf.com/agriculture/web/ag/equipment/article/2023/05/24/cnh-reveals-advanced-spraying-sc1>

Slide 6 – Volocopter drone

<https://www.volocopter.com/en/solutions/volodrone>

Slide 7 – Beta Technology

<https://youtu.be/kDyX6zRUDTM>

Slide 8 – Joby tilt-rotor

- <https://www.jobyaviation.com/>
- [Aerodynamically efficient lightweight vertical take-off and landing aircraft with pivoting rotors and stowing rotor blades](#)



Gli UAV e il trasporto sostenibile

Slide 10 – Helicopter lift dissymmetry

<https://youtu.be/GYPQe8DpZQs>

Slide 11 – OSPREY Tilt Rotor

<https://www.airforcetimes.com/news/your-military/2023/11/29/us-air-force-osprey-crashes-off-southern-japan-at-least-1-dead/>

7 downed airmen's locations unknown days after Osprey crash near Japan

<https://www.airforcetimes.com/news/your-air-force/2023/12/01/7-downed-airmens-locations-unknown-days-after-osprey-crash-near-japan/>

<https://www.airforcetimes.com/news/your-air-force/2023/11/30/what-is-the-osprey-the-aircraft-at-the-center-of-multiple-tragedies/>

What is the Osprey, the aircraft at the center of multiple tragedies?

<https://www.reuters.com/world/asia-pacific/remains-five-crew-found-after-us-osprey-aircraft-crashes-off-japan-us-air-force-2023-12-04/>

<https://fox59.com/news/politics/ap-politics/ap-ospreys-had-safety-issues-long-before-they-were-grounded-a-look-at-the-aircrafts-history/>

<https://www.wsj.com/video/series/shelby-holliday/how-the-us-osprey-grounding-could-affect-readiness-against-china/2DDE5DA3-81C2-47EC-83B3-EEAD07FD8694>

<https://www.thedefensepost.com/2023/12/28/darpa-vtol-faster-osprey/>



Slide 13

- <https://www.engineersgarage.com/understanding-battery-management-systems/>
- <https://www.orovel.net/orovel-cards/battery>
(Scheda illustrative BMS)
- <https://www.mpoweruk.com/protection.htm>
(Riferimento ai grafici SOF-SOA)

Slide 15

- [https://eprints.soton.ac.uk/171853/1/AFM TR 11-07.pdf](https://eprints.soton.ac.uk/171853/1/AFM_TR_11-07.pdf)
- [Momentum Theory — Fundamentals of Helicopter Aerodynamics \(kumar-sumeet.github.io\)](https://kumar-sumeet.github.io)

Slide 18

<https://www.colorado.edu/mechanical/team-20-flight-management-system-unmanned-aerial-vehicles>

Slide 19

<https://doi.org/10.1177/1045389X20953613>

Slide 20

<https://dronebelow.com/2018/12/06/drone-classification-applications-and-challenges/>



Per approfondire gli aspetti aerodinamici e della meccanica del volo dei velivoli VTOL richiamati nella presentazione.

Disponibili agli indirizzi web su elencati:

- Helicopter_Flight_Physics, ed_2018
- Momentum Theory — Fundamentals of Helicopter Aerodynamics
- Computation of Helicopter Performances - AFM_TR_11-07
- Il pilotaggio dei velivoli plurimotori in condizioni di motore inoperativo (par. 17.2):
<http://utenti.quipo.it/volare/multi.htm#sec-multi-engine-out>