

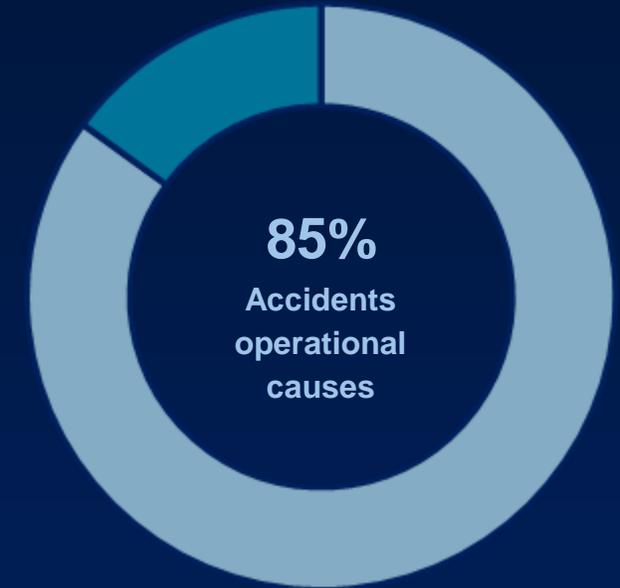
# Building smart automation together



EASA VTOL Symposium 2024

Caroline CANIVET  
Thierry VANDENDORPE

# Aviation safety, our chief priority for today and tomorrow



Already lots of safety improvements in the past years

Next levers are about ways of piloting & **automation**

# Rotorcraft Automation today and tomorrow

- + Flight Control
- + External Environment
- + Vehicle Management
- + Mission Management

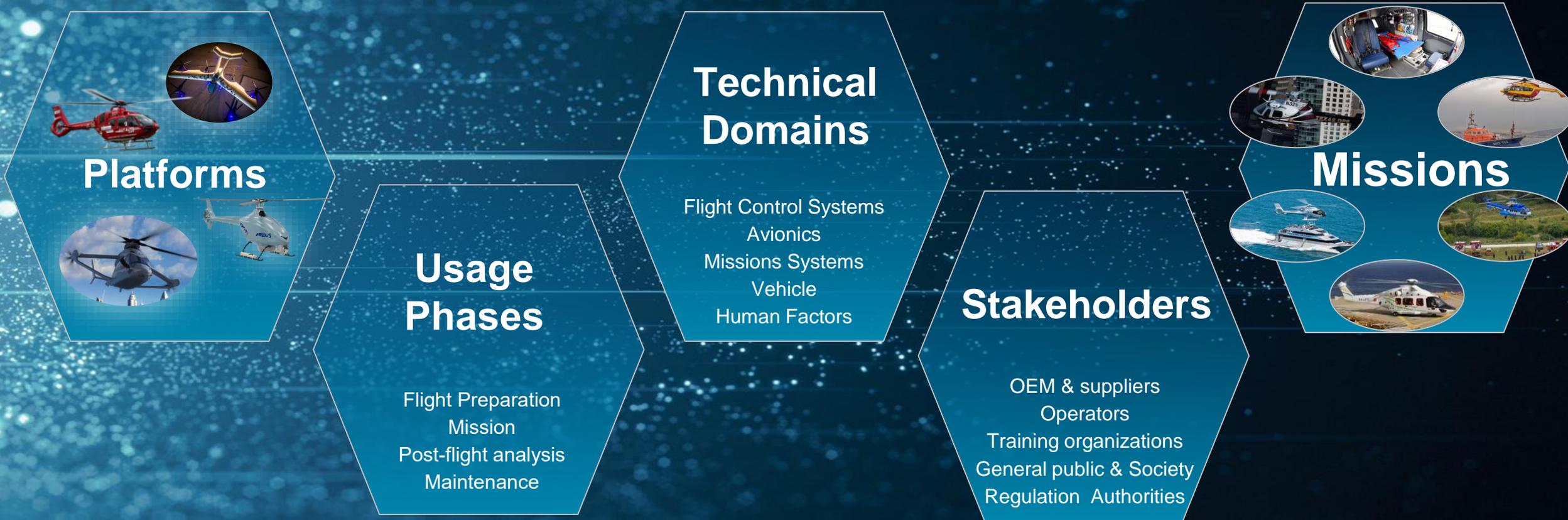
- 😊 Autopilot assistance
- ⚡ Continuous Pilot monitoring
- Degraded modes
- Failure management



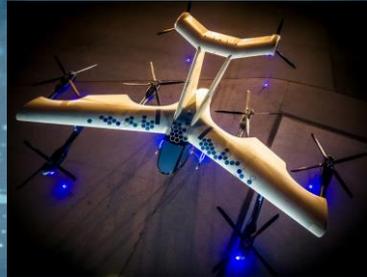
TODAY, the crew workload is still high

TOMORROW, we'll progress towards an enhanced human/machine teaming

# Automation as transverse topic



# New challenges : a changing environment

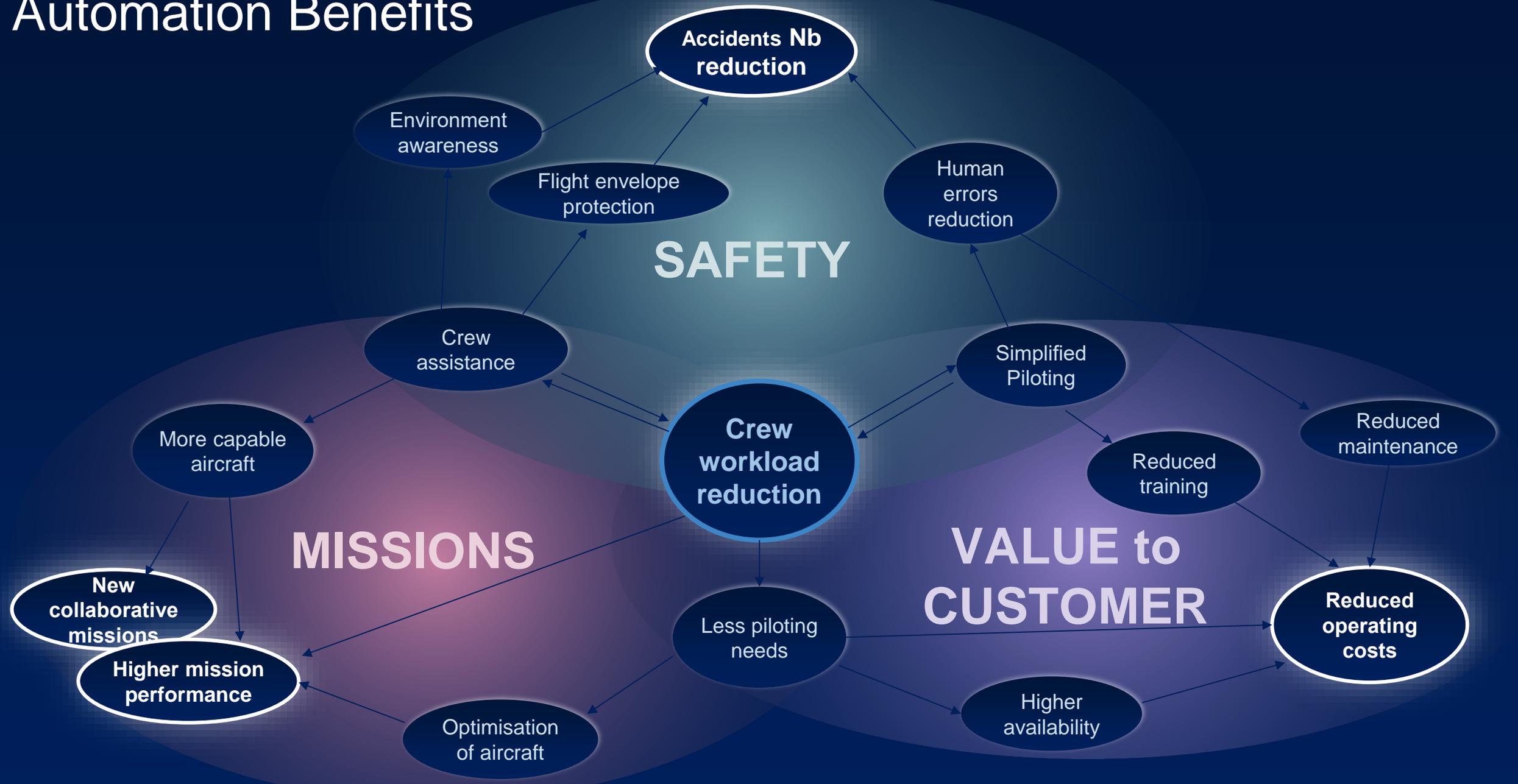


New missions  
and increasing mission complexity

Simplify and secure  
pilot qualification  
in an evolving context

Increased Safety  
expectations

# Automation Benefits



# Focus on Training Opportunities



To reduce trainings footprint on manual skills



To reduce high risk training operations



To create room for new contents (safety, mission, ...)



To standardize operations for all H/C

# Success Criteria

**End to End**

solutions operator really uses

right level of Automation

**Availability**

**Simplify**

rather than complexify

**Secure**

complex decisions making

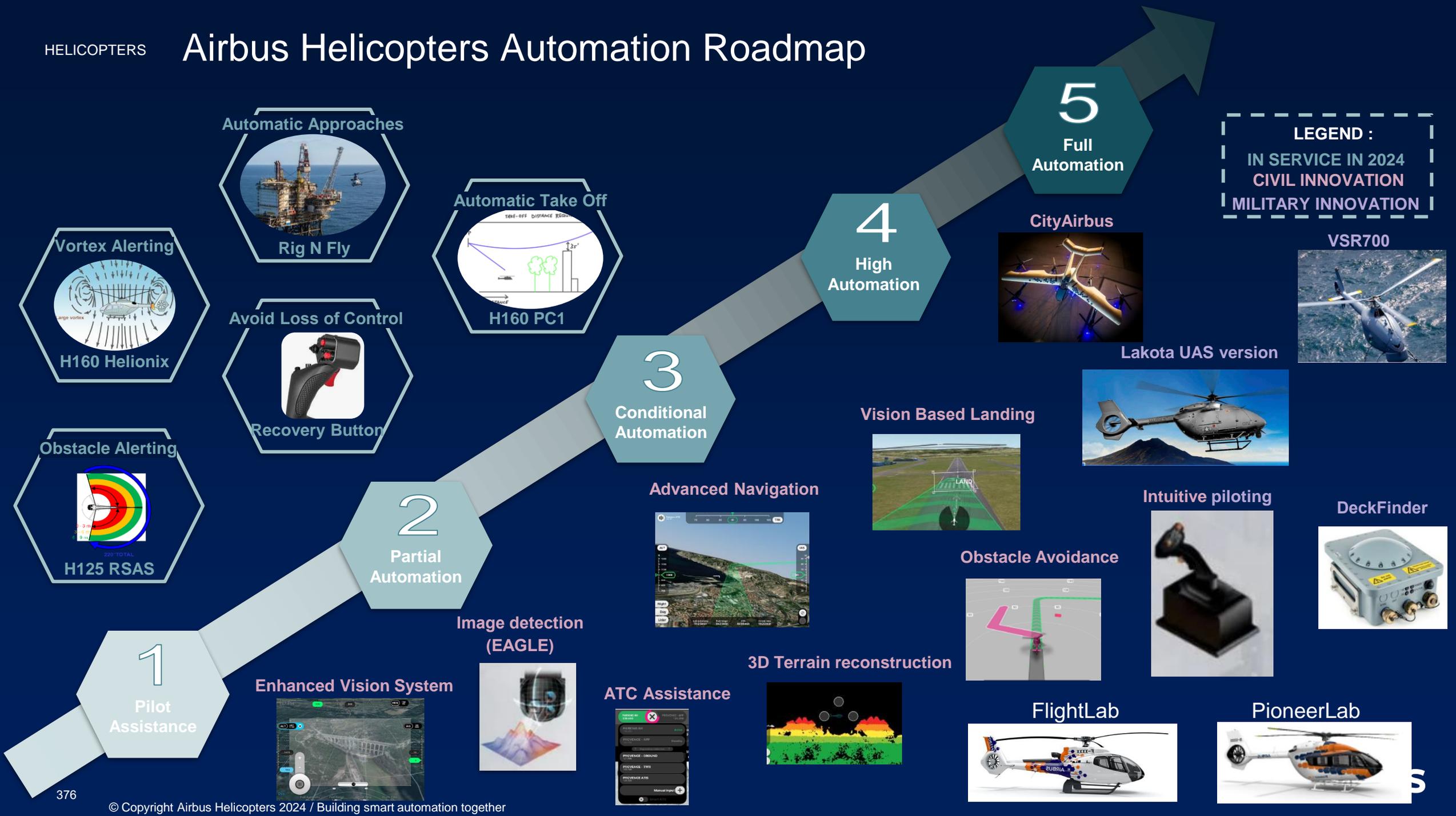


**Fleet concept**

ensuring operators acceptance

**SMART AUTOMATION**

# Airbus Helicopters Automation Roadmap



**LEGEND :**  
 IN SERVICE IN 2024  
 CIVIL INNOVATION  
 MILITARY INNOVATION

**5**  
Full Automation



CityAirbus



VSR700



Lakota UAS version

**4**  
High Automation

Vision Based Landing



Intuitive piloting



DeckFinder



**3**  
Conditional Automation

Advanced Navigation



Obstacle Avoidance



3D Terrain reconstruction



ATC Assistance



**2**  
Partial Automation

Image detection (EAGLE)



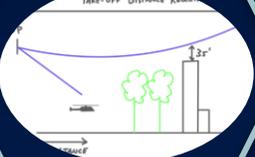
Enhanced Vision System



Avoid Loss of Control  
Recovery Button



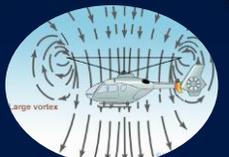
Automatic Take Off  
H160 PC1



Automatic Approaches  
Rig N Fly



Vortex Alerting  
H160 Helionix



Obstacle Alerting  
H125 RSAS



**1**  
Pilot Assistance

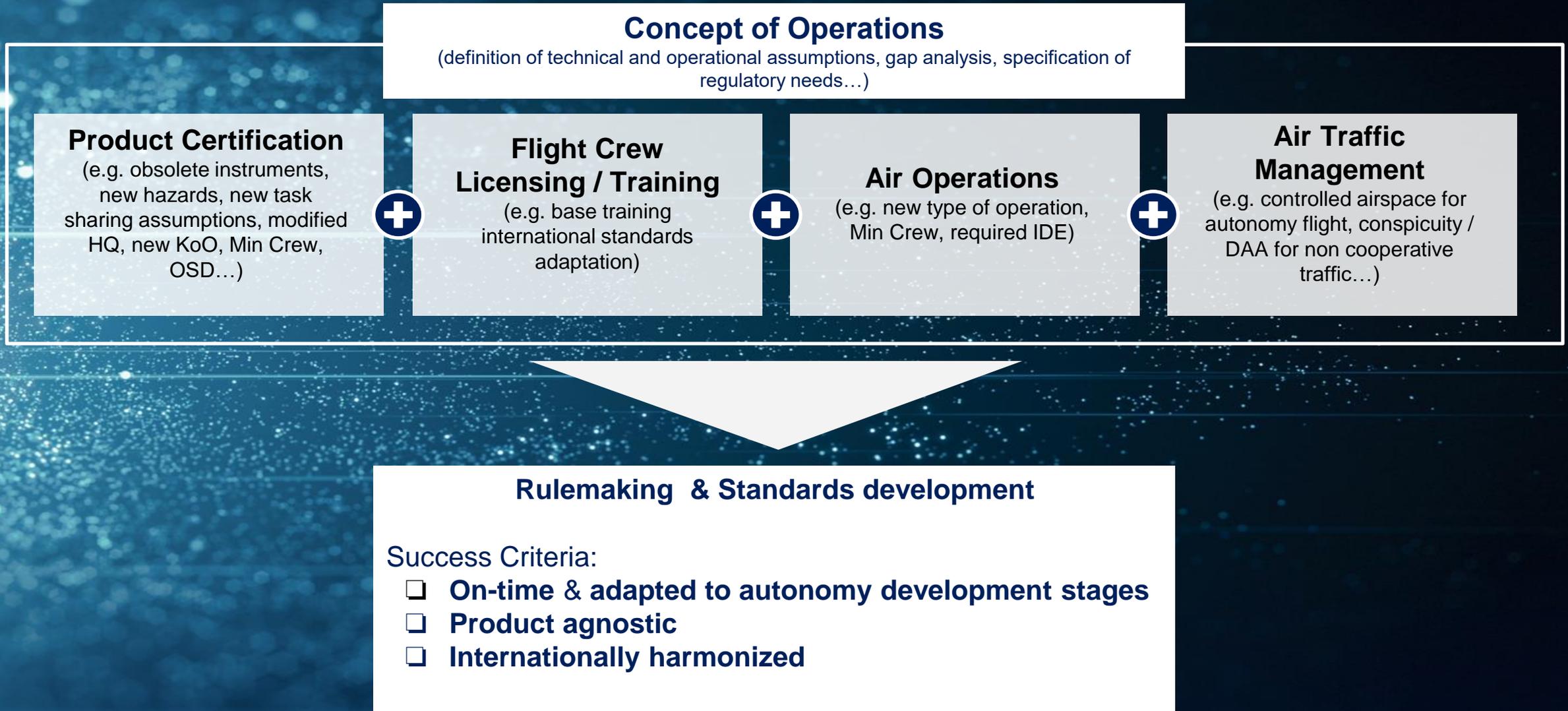


FlightLab



PioneerLab

# The regulations and standards challenge

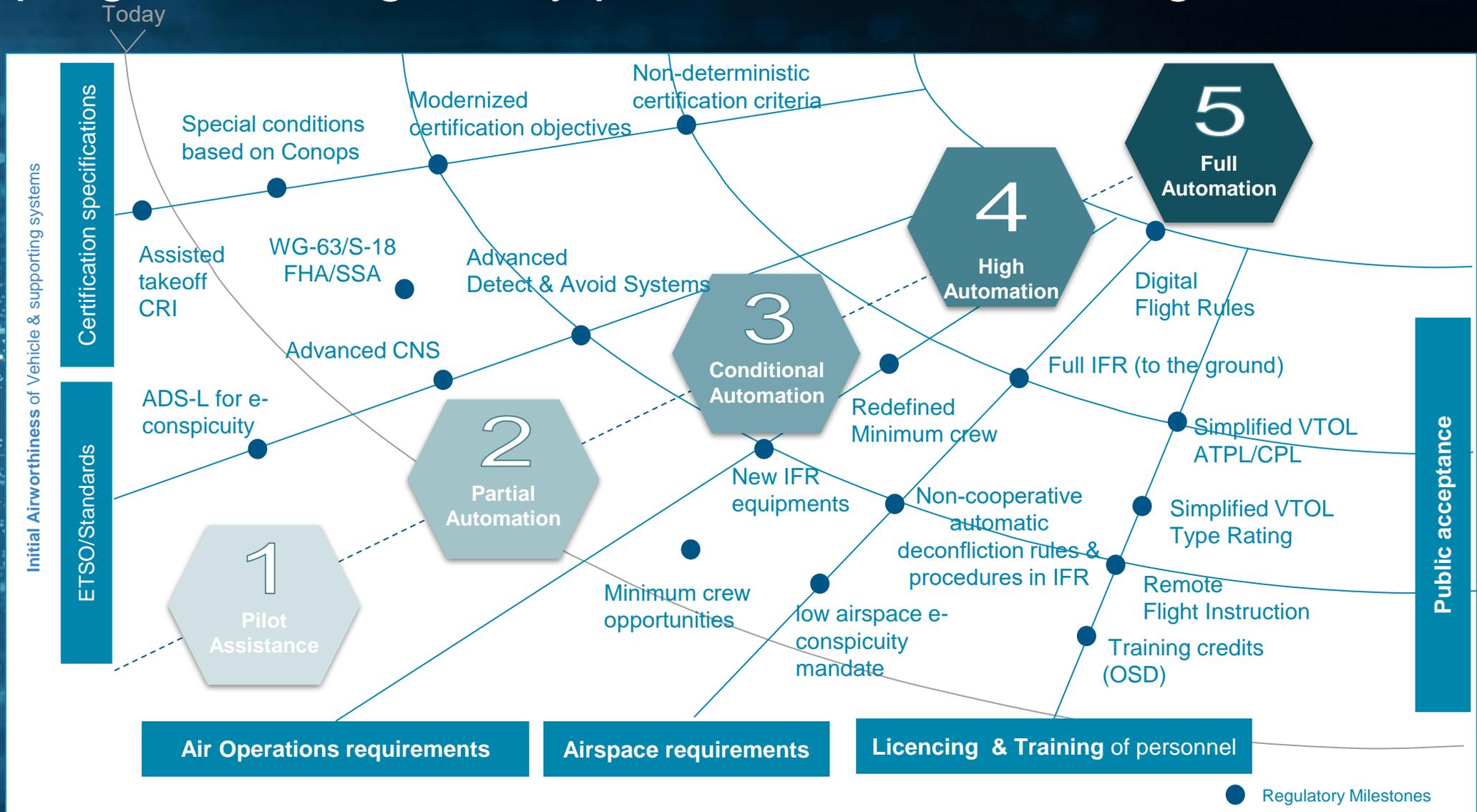


# The progressive regulatory path towards increasing automation

Inputs from Industry and **collaboration with the Regulators** is key for the development of the regulations necessary to reach full autonomy.

**Still in early stages** with uncertainties on both the regulatory items and timelines

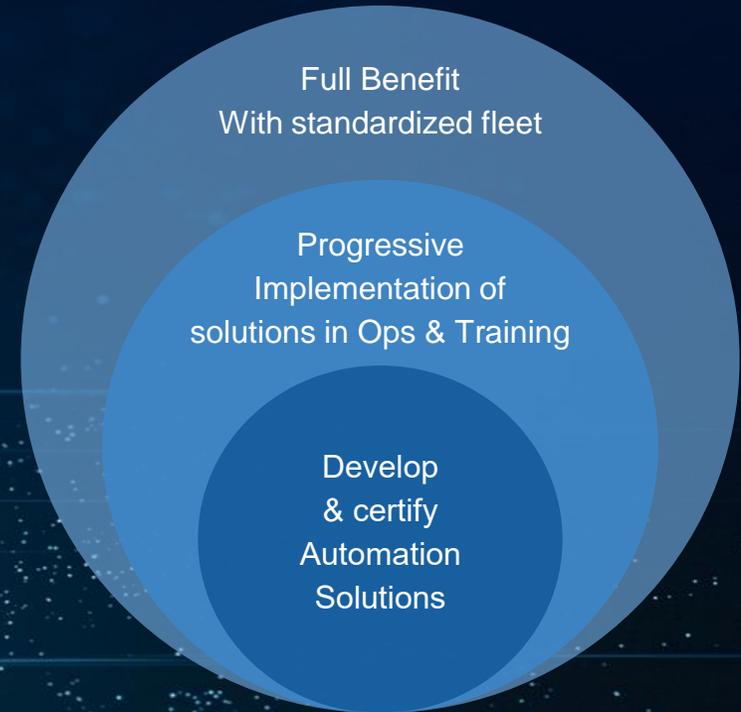
Advanced Air Mobility **UAS & eVTOL** developments to serve as a **catalyst**



CRI: Certification Review Item, WG-63 & S-18 are EUROCAE & SAE standardization working groups, ADS-L: Automatic Dependent Surveillance Light, CNS : Communication Navigation Surveillance, OSD = Operational Suitability Data, ATPL = Air Transport Pilot License, CPL = Commercial Pilot License.

● Regulatory Milestones

# Take Away



Rotorcraft smart automation designed as **safety enhancer**

**Stepwise** approach with **Tailored regulatory** framework

**Right balance** between:

- Safety & Operational Benefits
- Business sustainability

to **secure effective implementation**