



Focus on Aviation Safety & Quality – looking at the right places

ASA Rotorcraft and VTOL Symposium 2021 -
Cologne

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Airbus Helicopters
November 16th, 2021

Aviation Safety: a concern of every day



Flight Tests



Training



Aerial work



Search & Rescue



Military & Police



Personnel transportation



Emergency Medical Services



Business, VIP & Leisure

All customers & passengers expect safety

Why do we need a different approach?

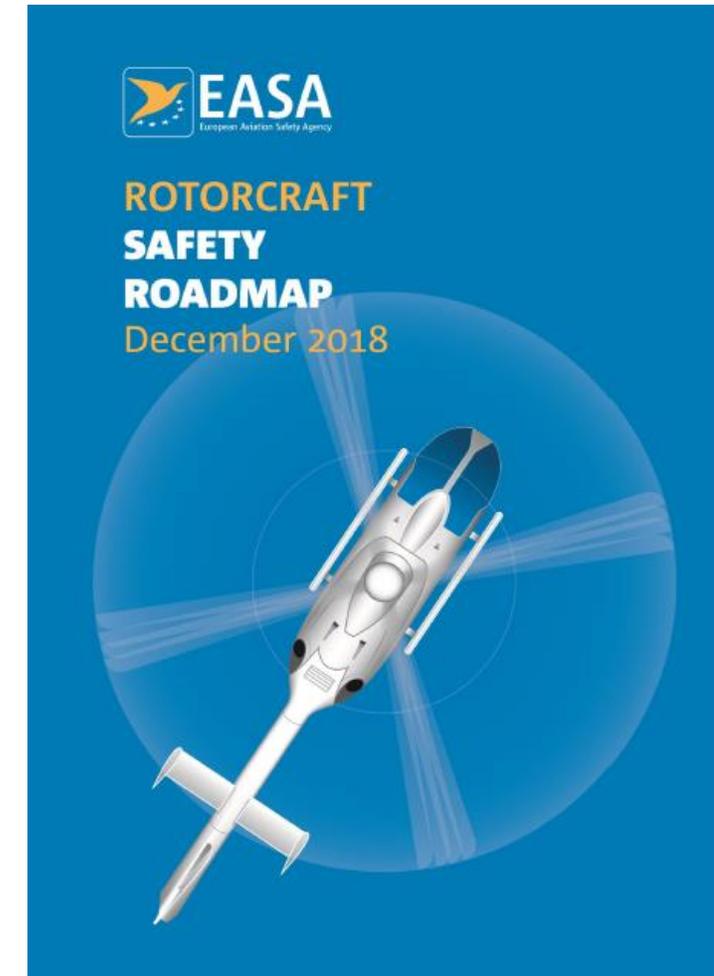


EASA ROTORCRAFT ROADMAP

Vision:

Achieving **significant safety improvement** for Rotorcraft with a growing and evolving aviation industry

- EASA tasked a Group of external experts supported by EASA to propose actions
- Roadmap endorsed by EASA in Nov. 2018
- Presented in the EASA Rotorcraft Symposium Dec. 2018



Product Safety

Airworthiness



Product Safety Enhancement

Product is **designed** without causing **unacceptable risk** of harm to persons or damage to property

Aviation Safety

Operational Aviation Safety

of flight operations under AH



contribution to Aviation Safety of the



State in which **risks** associated with **aviation activities**, related to, or in direct support of the **Operation of aircraft**, are reduced & controlled to an acceptable level (ICAO Annex 19)

Our Vision / Ambition 2028

-50%
accident rate
reduction of
fleet-in-service

0 accident /
serious incident
in flight operations
under AH
responsibility



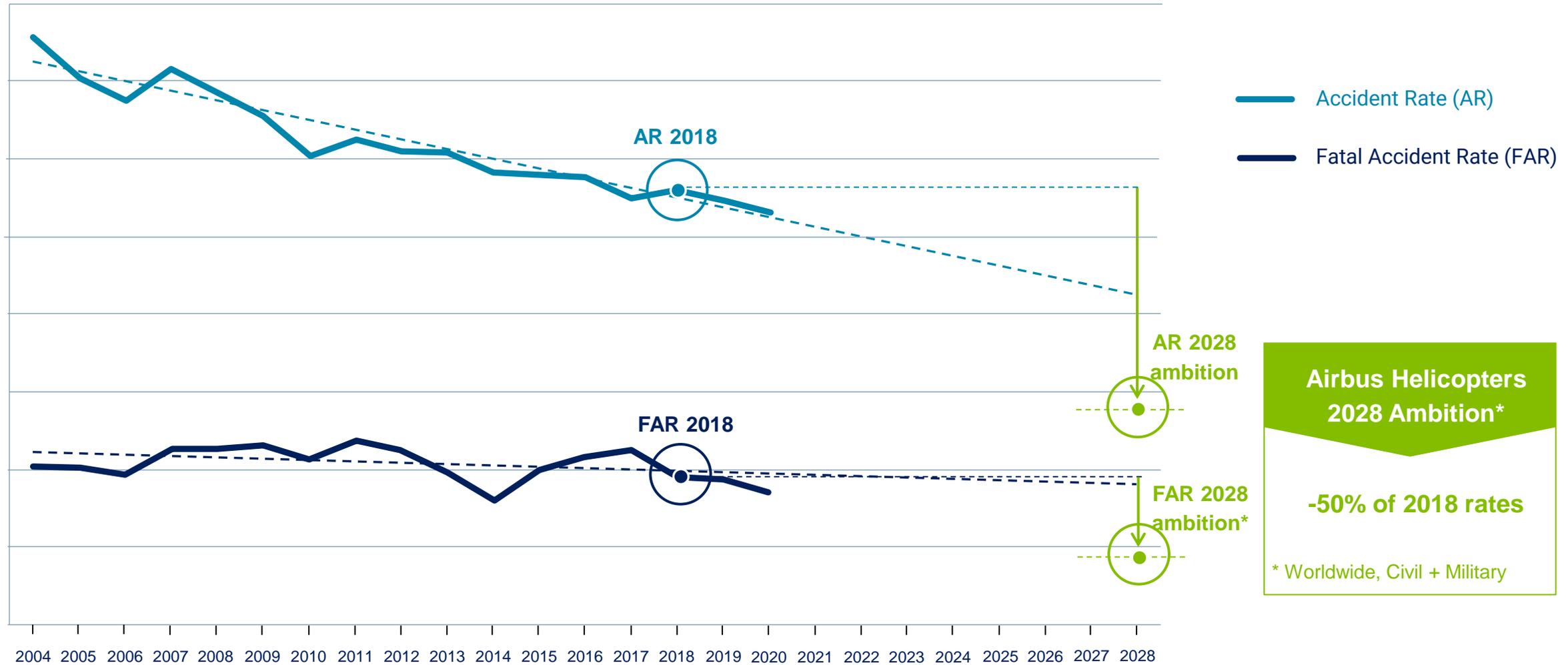
- Airbus Helicopters as a **worldwide leader in Rotorcraft \ VTOL Aviation Safety**

0 technical
contribution
to accidents
(technical
contribution / root
causes)

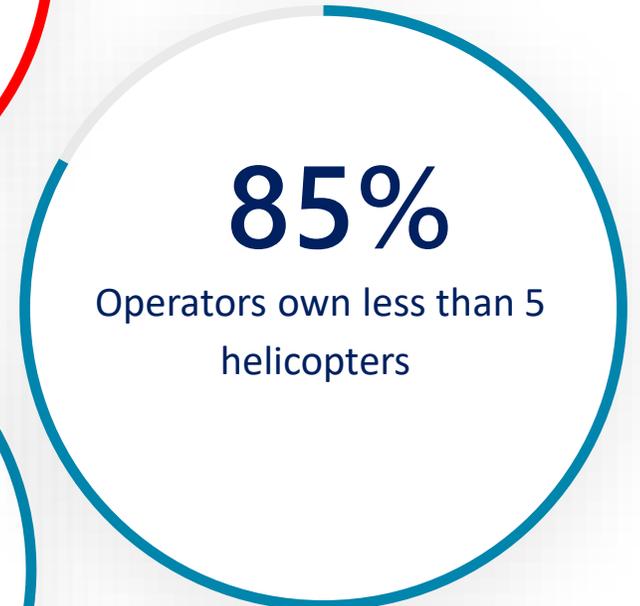
0 fatality /
serious injury
in survivable
accidents



Accident Rate (AR) & Fatal Accident Rate (FAR)



Fleet situation / distribution

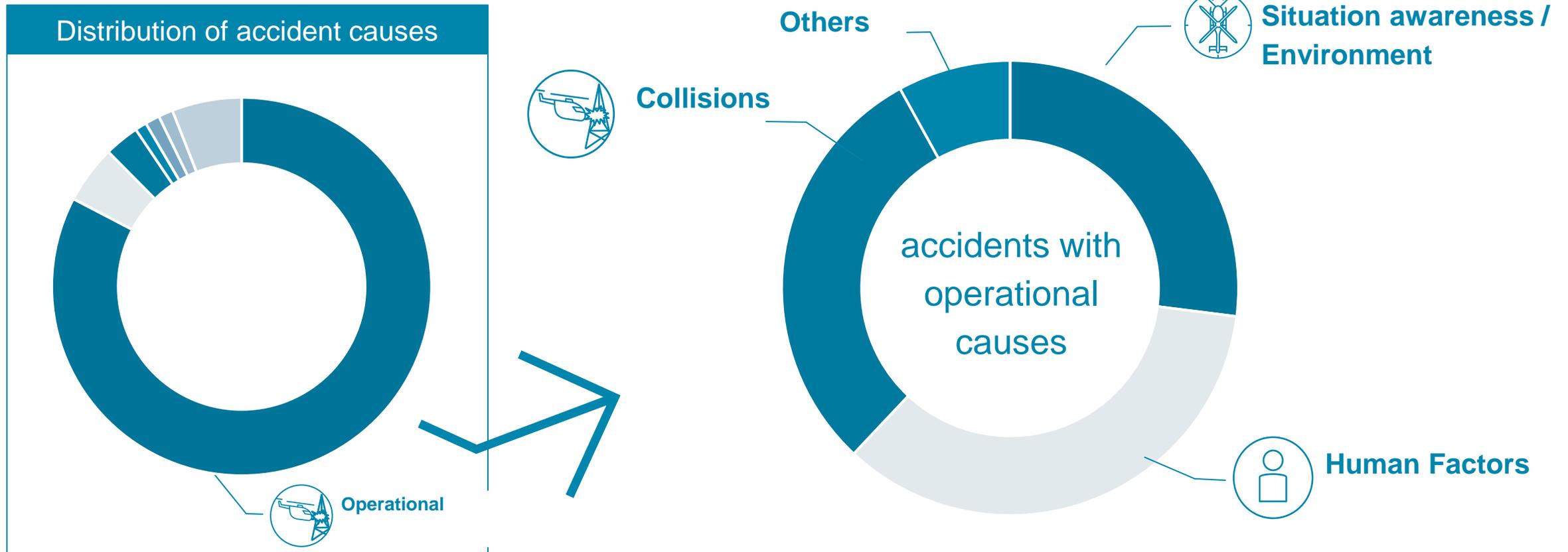


Inadvertent - Instrument Meteorological Conditions (I-IMC) Challenge

Airbus Amber



Accidents statistics - Distribution of operational causes



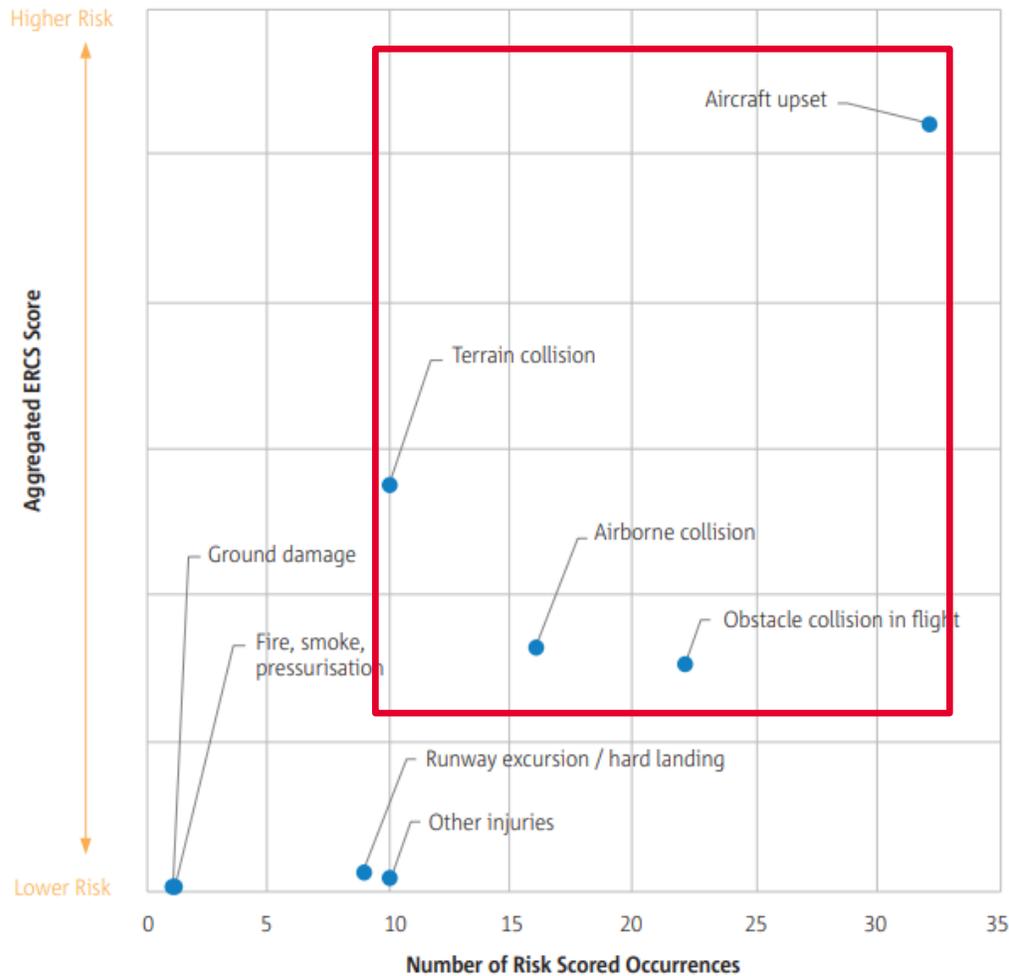
Product Safety

- System and structure designed to a higher standard than required by certification requirement
- Systems designed or added to
 - Increase survivability
 - Increase Situational Awareness
 - Reduce pilot's work load
 - Preventing by design human errors in flight operations and maintenance



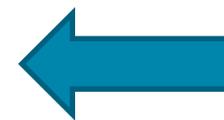
Accident classification – Scored Risk in EASA Area

Figure 69 Key risk areas by aggregated ERCS score and number of risk-scored occurrences, involving commercial air transport helicopters



ERCS high score (CAT):

- Aircraft Upset
- Terrain Collision
- Obstacle collision in flight
- Airborne collision



CUSTOMER

AIRBUS HELICOPTERS

As is
for
CIVIL

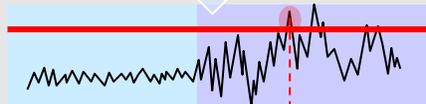


DATA SET
(HUMS / HFDM / FAILURE)



Groundstation

VIBRATION ANALYSIS



RE ACTIVE

data transfer

Today

- 030 A/C
- 031 A/C
- 032 A/C
- 033 A/C
- 034 A/C
- 035 A/C
- 036 A/C
- 037 A/C
- 038 A/C
- 039 A/C
- 040 A/C

Total number of simulated flying hours: 434 594 Hours
Total size of files collected: 1 437 252 Mb

With HUMS Support Contract: 1.5-10 min, 7.5-20 min

Without HUMS Support Contract: 2.5-10 min, 5.0-10 min

VIBRATION ANALYSIS

- Behavior detection algorithm
- Fault Case matching

Anticipate Maintenance Action
Increase A/C availability

PRO ACTIVE



'Periodic'
Feedback

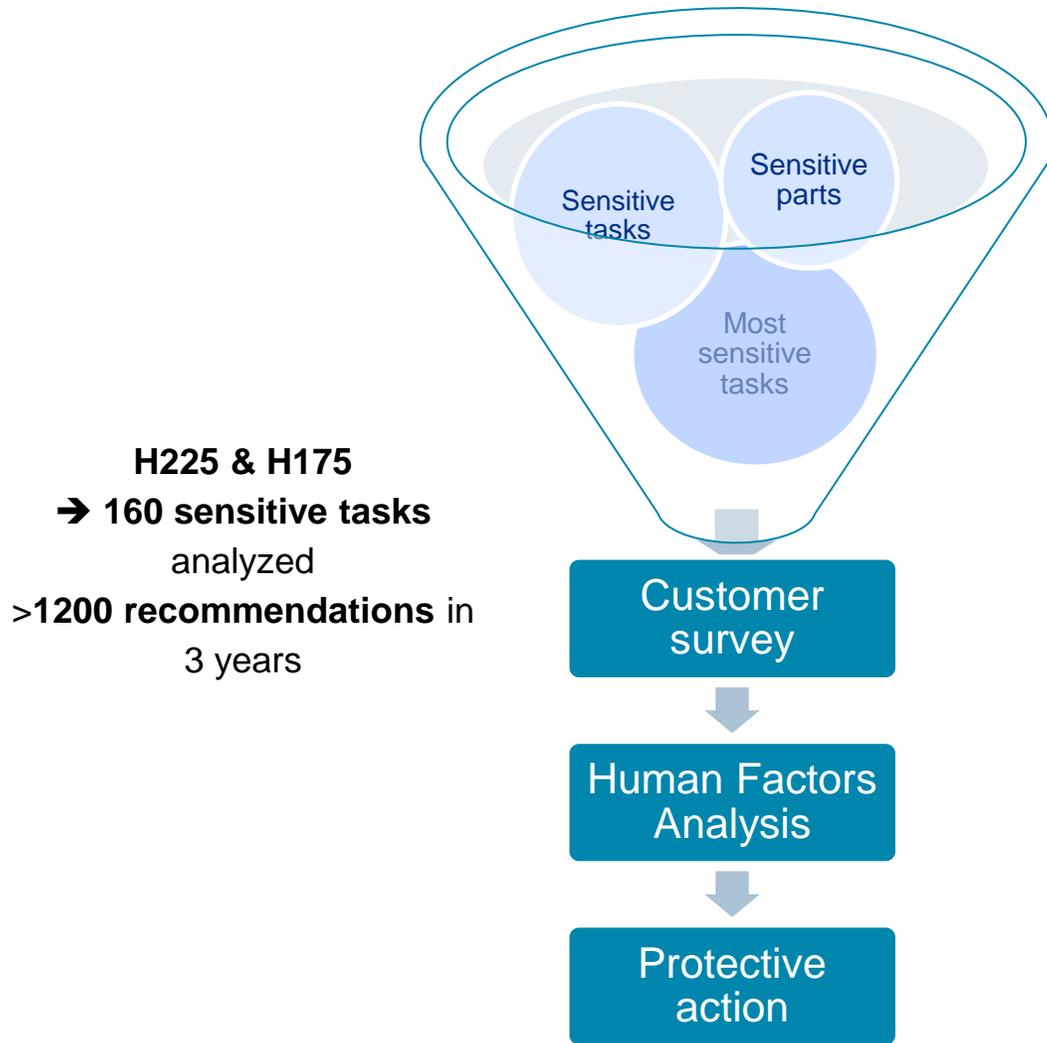
HUMS

 Services (*)

(*): Maintenance recommendations proactively provided



Maintenance Human Hazard Analysis – Process description



H225 & H175
 → 160 sensitive tasks analyzed
 >1200 recommendations in 3 years

		CONSEQUENCE				
		No effect	Minor	Major	Hazardous	Catastrophic
LIKELIHOOD THAT CONTROL MEASURES COULD FAIL	very unlikely	1	1	1	2	2
	Unlikely	1	2	2	3	3
	Possible	1	2	3	3	4
	Likely	1	3	3	4	4
	Almost certain	1	3	4	4	5

Global score used for addressing the risk (Frequency & Occurrence)



International standard published in may 2021

*MT = Maintenance Task

CRASH RESISTANT FUEL SYSTEM

Airbus Amber

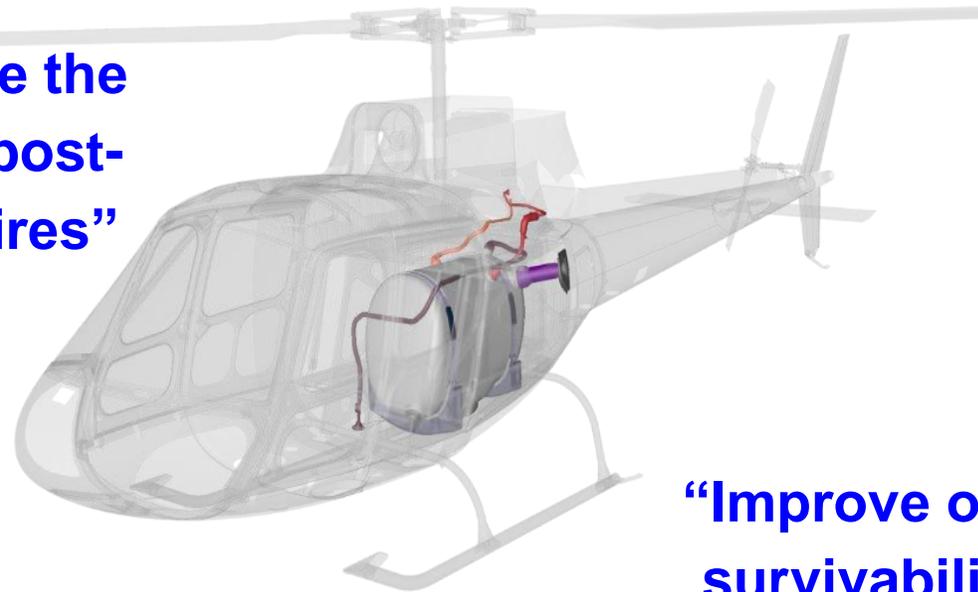


Installed on all new H125 and H130

Highly recommended for retrofit, available from Airbus and an STC from



“Reduce the risk of post-crash fires”



“Improve occupant survivability in an accident”

FAA SAIB SW-17-23: Installation of a Crash Resistant Fuel System compliant with FAR § 27.952 is not required to correct an unsafe condition, but such installation will reduce the risk of post-crash fires and improve occupant survivability in an accident”

AIRBUS

A complete new certified⁽¹⁾ crash resistant fuel tank

with a rubber bladder fitted inside an aluminium fairing

compliant FAR/CS

27.952

specification

Automation and Situational Awareness – focus on Light Helicopters

Available and mature flight deck technologies – prime additions to Light Helicopters as top safety enhancers:

- **Garmin G500H TXI display system:**
 - Data-derived terrain and obstacle detection systems*
 - Synthetic Vision Systems (SVS)*

Are integrated into the H125, baseline for new helicopters and available as retrofit
- **Garmin GFC 600H Autopilot:**
 - Automatic Flight Control Systems (AFCS)*, including automatic level mode ('Panic Button'), electronic stability protection and hover assist

Shortly before EASA STC certification, then available both for new H125 and retrofit



• Verbatim from : IHSF Compiles Technology List Focused on Reducing Helicopter Accidents, August 2020

VORTEX Indication - Certified on H160 and ongoing on other Helionix types

Pre-Vortex condition:

VORTEX

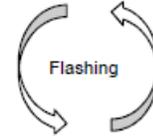
Constant amber msg



+ aural alert ,CHECK POWER' every 3s

Vortex condition:

VORTEX



VORTEX

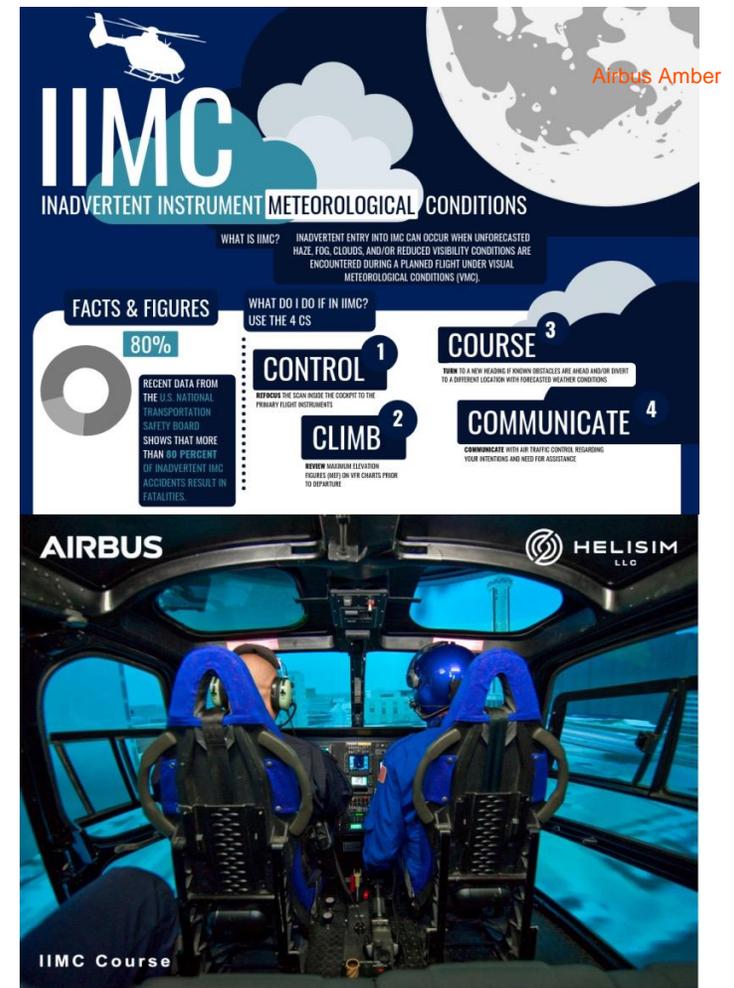
Flashing red msg



+ aural alert ,VORTEX' every 3s

Specialized Trainings

- Offering a dedicated **Inadvertent Instrument Meteorological Conditions (IIMC) training course**
- Preparing and offering **pre-entry courses**
- Offering **training and simulator centers around the world**
- Aviation Safety **Roadshows**
- **Ground Rescue Booklet & e-learning**



For reaching the Aviation Safety Ambition, we have together to:

- Follow a common consistent strategy / roadmap
Product Safety & Operational Aviation Safety
- Focus on all operational and technological aspects with improvement potential for Aviation Safety



To succeed all stakeholders (Operator, End-User, Authorities, Manufacturer,...)
need to pull in one direction!

Thank you