



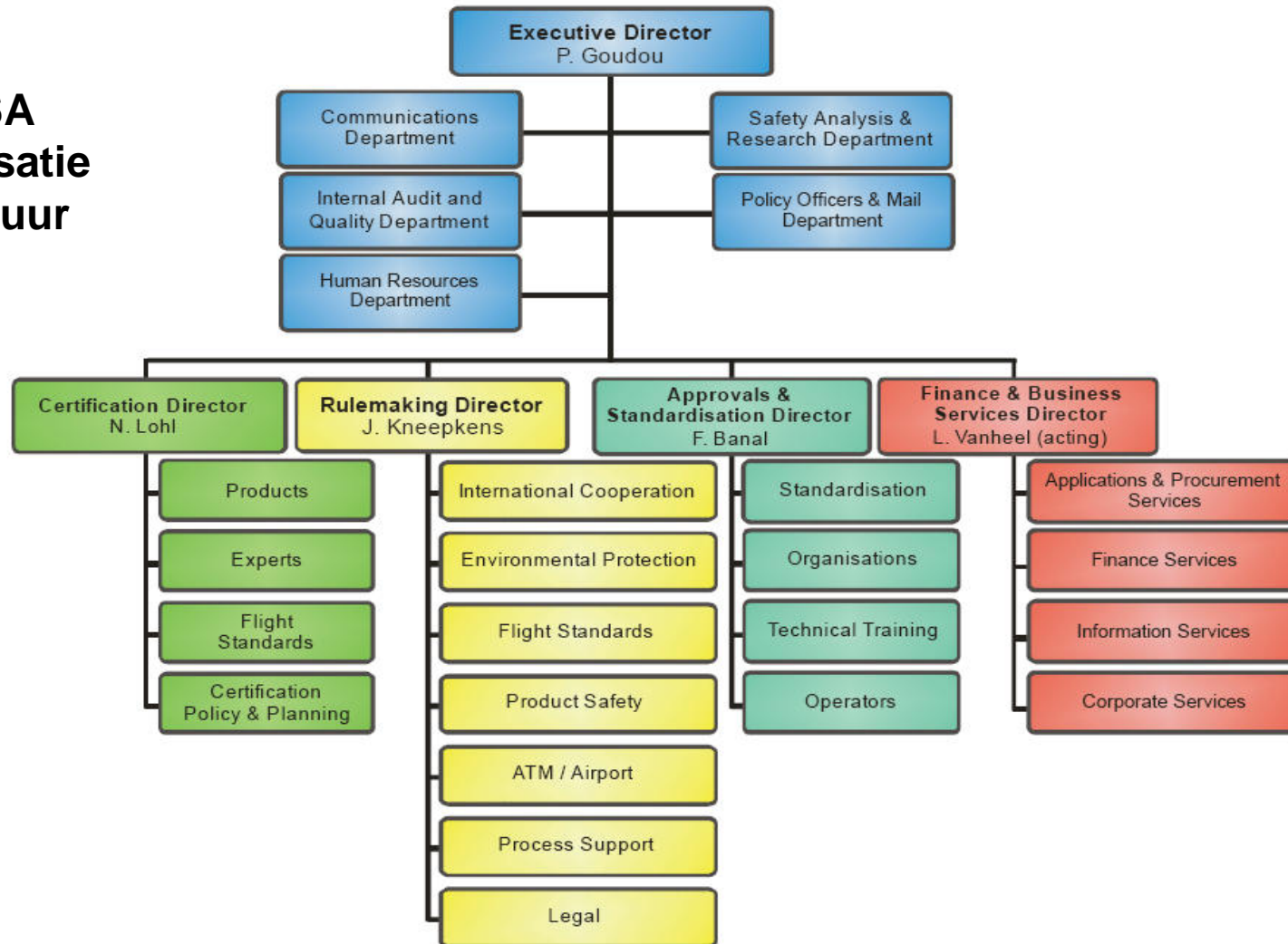
# *European Helicopter Safety Team:* Samen sterk voor helikopter veiligheid

Nederlandse helikopter veiligheidsdag  
10 september 2010, NLR, Amsterdam

**Marieke van Hijum, EASA**  
**Michel Masson, EASA**  
**John Vincent, EASA**



## EASA organisatie structuur





# Inhoud

**Introductie**  
**Methodologie**  
**Resultaten**  
**En verder...**



Photo AgustaWestland



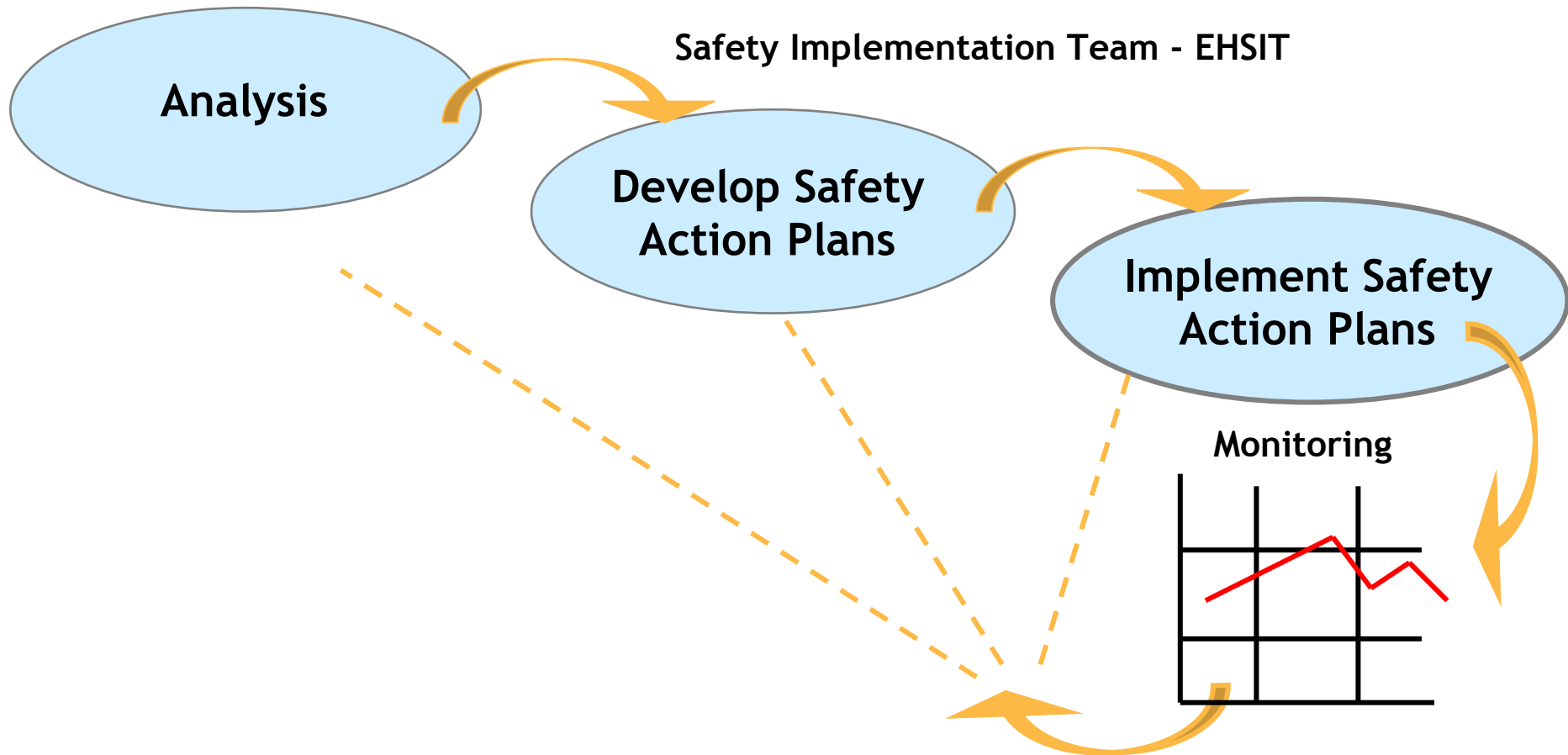


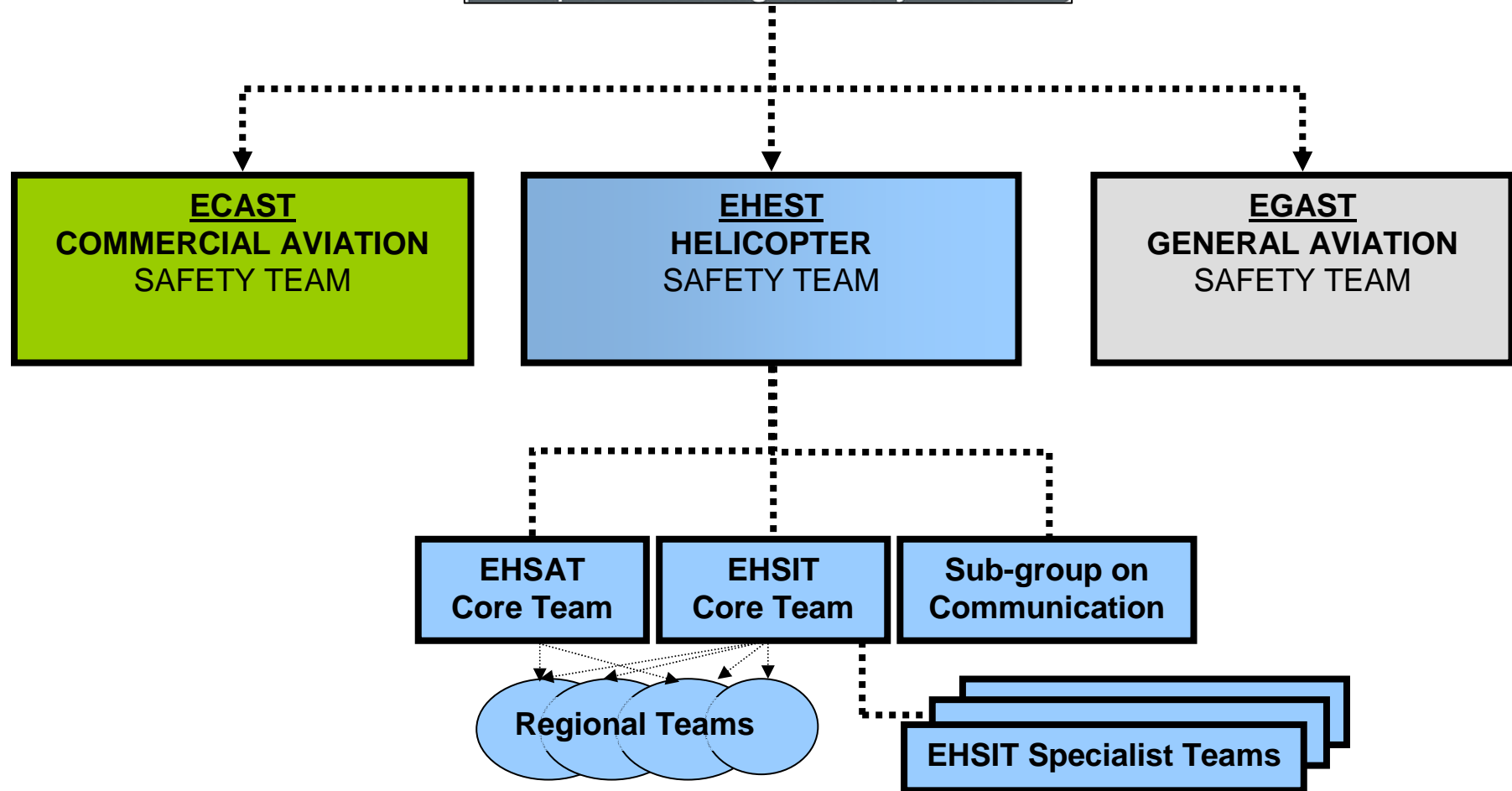
*Goal: To reduce the helicopter accident rate by 80% in 2016*

- Internationaal initiatief voor verbeteren van helikopter veiligheid
- Samenwerkingsverbanden op regionaal niveau



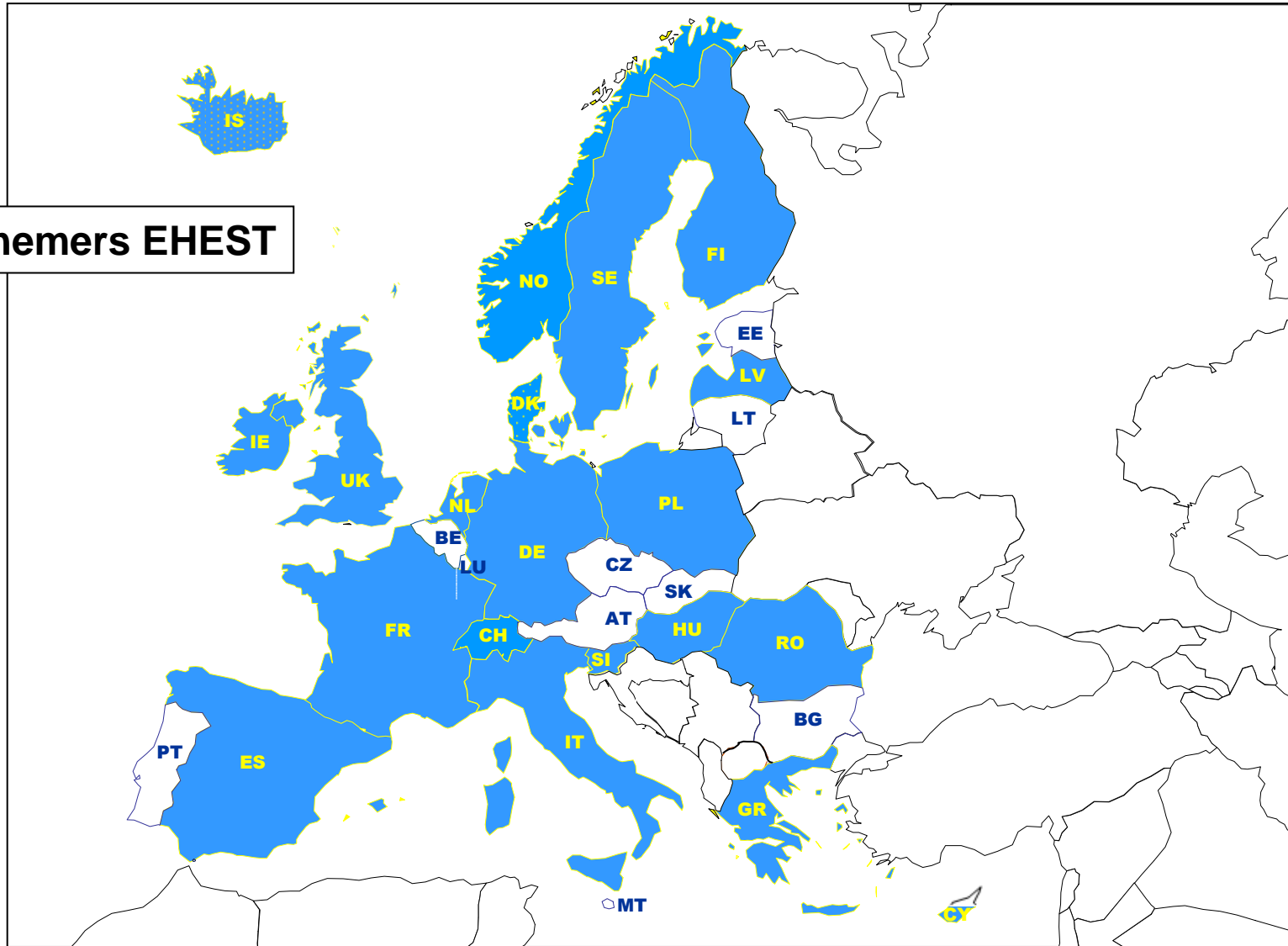
## Safety Analysis Team - EHSAT







**Deelnemers EHEST**





Introductie

Methodologie

Resultaten

En verder...

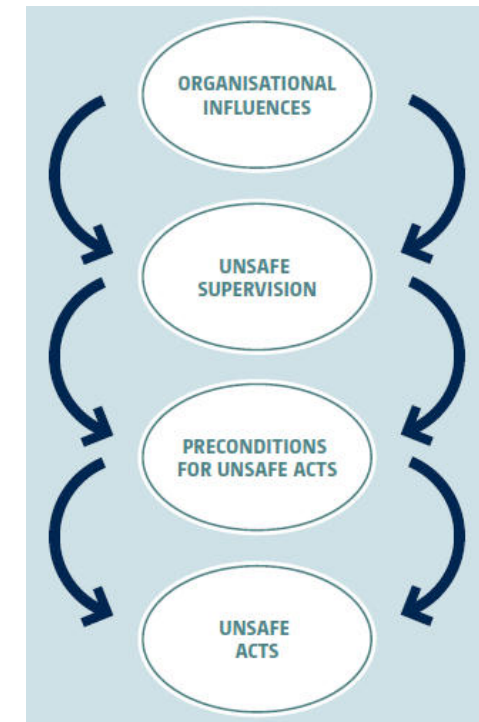


Photo Eurocopter



# Methodologie

- Analyse van helicopter ongevallen aan de hand van gestandaardiseerde IHST methode
  - Methode ook toegepast door helicopter teams in onder andere Verenigde Staten, Brazilië en Canada
- EHEST heeft HFACS analyse (door Wiegmann and Shappell) toegevoegd, om een beter beeld van human factors te krijgen





# Analyse - *Standard Problem Statements*

Analysis / Whg / Contributing factors	SPS nr.	level 1	level 2	level 3
The commander inadvertently entered IMC and probably became spatially disoriented	701005	Pilot situation awareness	Visibility/ Weather	Inadvertent entry into IMC



# Analyse - HFACS

Analysis/Whg/ Contributing factors	HF ACS nr.	level 1	level 2	level 3
The commander inadvertently entered IMC and probably became spatially disoriented	5305100	Preconditions – Condition of Individuals	Perceptual Factors	Spacial Disorientation 3 Incapacitating
	5001040	Unsafe Acts – Errors	Skill-based Errors	Overcontrol/ Undercontrol
	5501030	Supervision	Inadequate Supervision	Local Training Issue/Programs
	5603020	Organizational Influences	Organizational Process	Program and Policy Risk Assessment

- Voor beide analyse methoden geldt dat de diepgang afhangt van de informatie in het ongevalsrapport



Introductie

Methodologie

**Resultaten**

En verder...

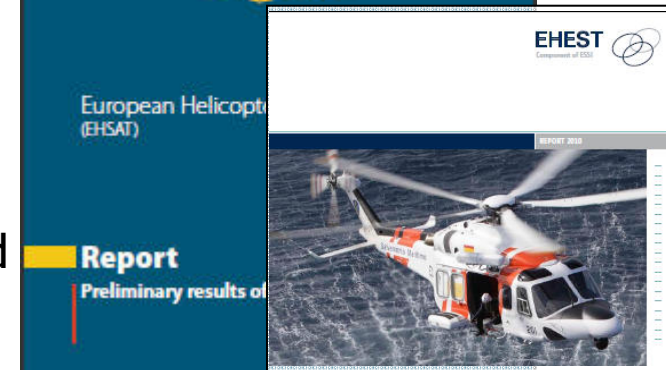


Photo Vasco Morao



# Scope

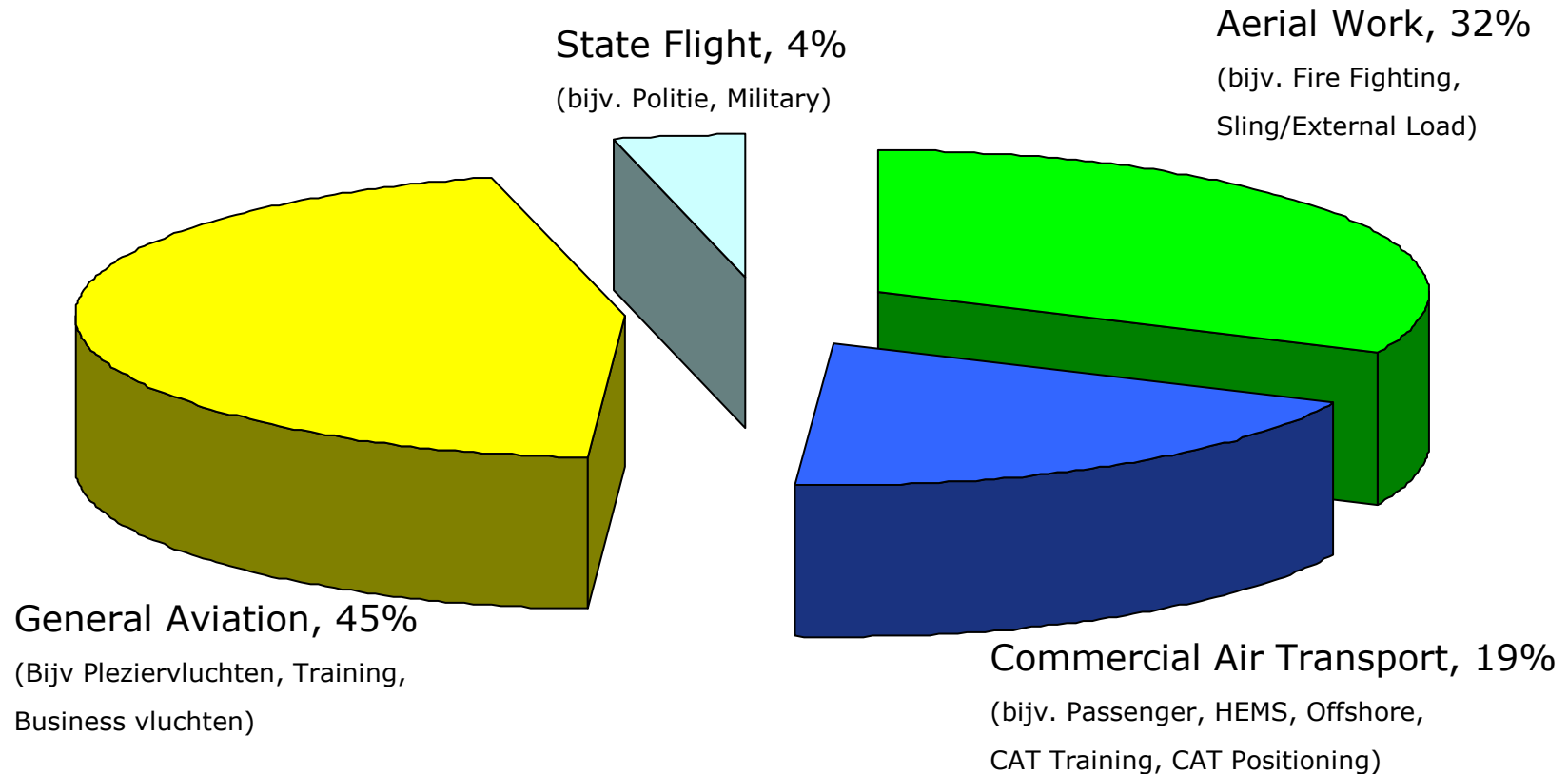
- Dataset
  - Ongevallen (definitie ICAO Annex 13)
  - Periode: 2000 - 2005
  - Lokatie: EASA Member States
  - Eindrapport van ongevallenonderzoeksraad aanwezig
- EHEST voorlopige resultaten gepresenteerd in oktober 2008 (186 ongevallen)
- EHEST eindrapport analyse 2000-2005 in oktober 2008 verwacht (311 ongevallen)
- Volgende slides zijn gebaseerd op 303 ongevallen (goede indicatie voor eindrapport)



**Eindrapport  
2000-2005  
Analyse**  
*Oktober 2010*



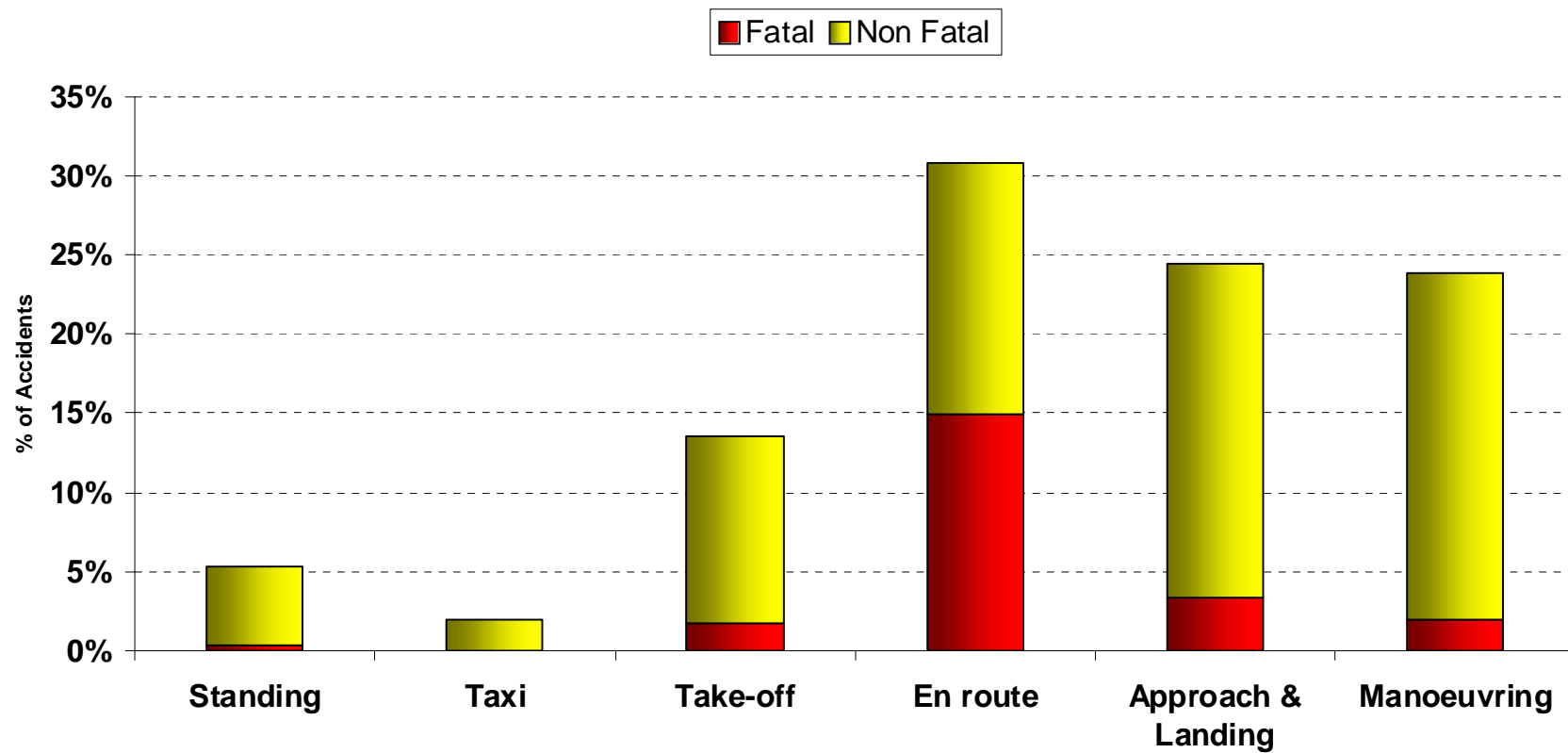
## Distributie van ongevallen over type operatie EHSAT Dataset





## Distributie van ongevallen over vluchtfase

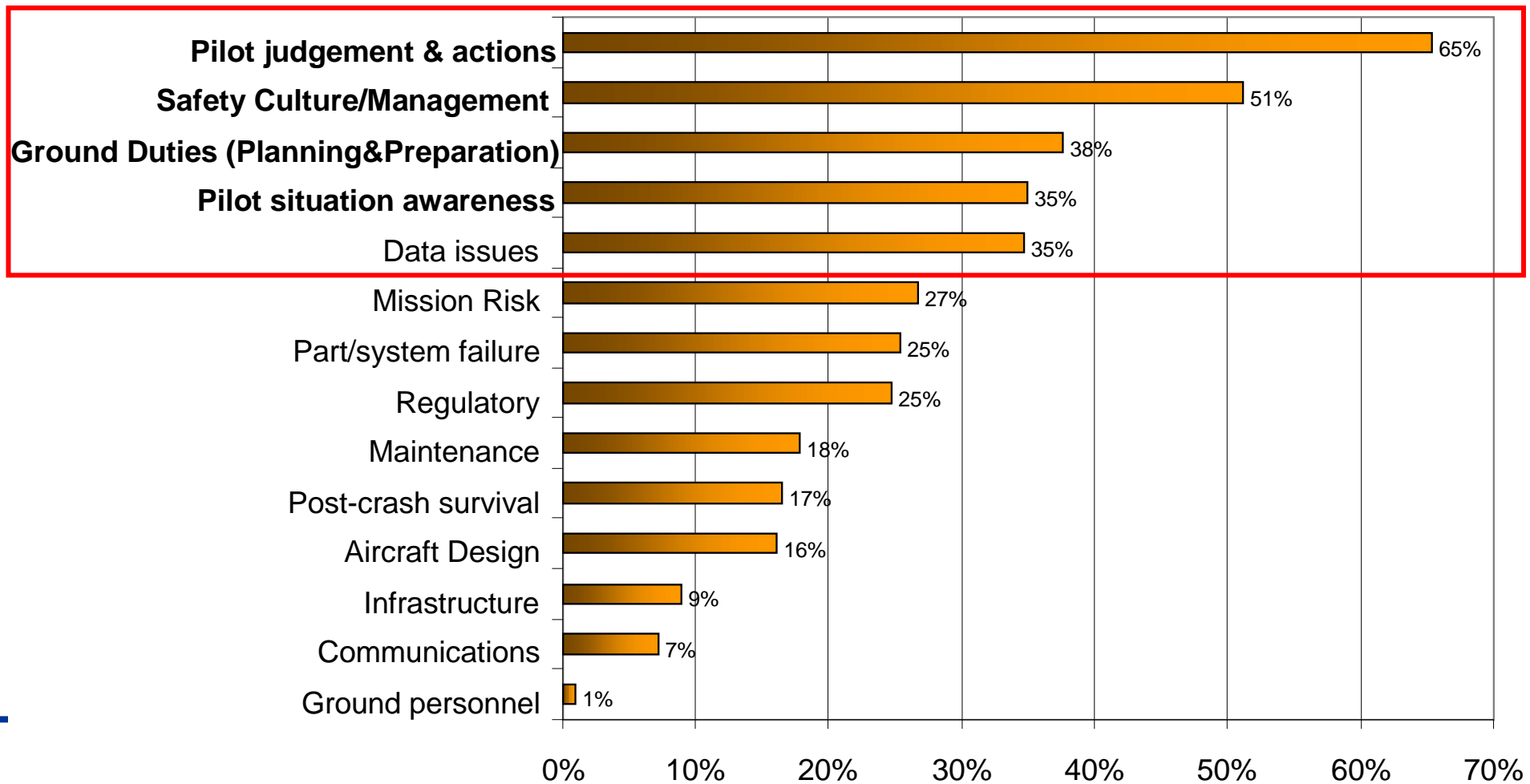
### EHSAT Dataset





# Standard Problem Statement analyse resultaten

**% of Accidents where SPS level 1 has been identified at least once  
EHSAT Dataset**





# Voorbeeld van Commercial Air Transport scenario

- During a HEMS mission after the patient had been loaded the helicopter crew decided to continue the mission in deteriorating weather conditions.
- The decision to continue was taken because an ambulance was waiting to transfer the patient to hospital.
- During the take-off in poor visibility and falling snow the right front skid of the helicopter struck the surface and as a result it nosed over uncontrollably and impacted the ground.



# Voorbeeld van Commercial Air Transport scenario

- During a HEMS mission a patient had been loaded the helicopter crew decided to continue the mission in deteriorating weather conditions.  
**Loss of Visual Reference**
- The decision to continue was taken because an **Inadequate decisions** transfer the patient to hospital.
- During the take-off in **Pilot felt pressure** now the right front skid of the helicopter struck the surface and as a result it nosed over uncontrollably and impacted the ground.



# Voorbeeld van Commercial Air Transport scenario

SPS	HFACS
Pilot decision making	Decision Making - Operation
Self induced pressure	Risk assessment - Operation
Failed to follow procedures	Skill-based errors
Flight profile unsafe	Whiteout/Vision restricted
Inadequate oversight	Channelized attention
Reduced visibility	Communication critical information/Planning
Selection of inappropriate landing site	Pressing
Management - Failure to enforce company SOPs	Procedural Guidelines



# Voorbeeld van General Aviation scenario

- The helicopter was on a Visual Flight Rules flight. En route, it entered an area of rising terrain and low cloud base.
- Radar tracking indicates that the helicopter slowed down, and then made a sharp turn before disappearing off the screen.
- Shortly after the loss of radar contact the helicopter suffered an in-flight collision with terrain.



# Voorbeeld van General Aviation scenario

**No weather forecast obtained** Flight Rules

flight. En route, it entered an area of rising terrain and low cloud base.

**No flight plan filed**

- Radar tracking indicates that the helicopter slowed down, and then made a sharp turn before disappearing off the screen.

**No contact established with ATC**

- **Inadvertent IMC** Loss of radar contact the helicopter suffered an in-flight collision with terrain.

**Limited experience**



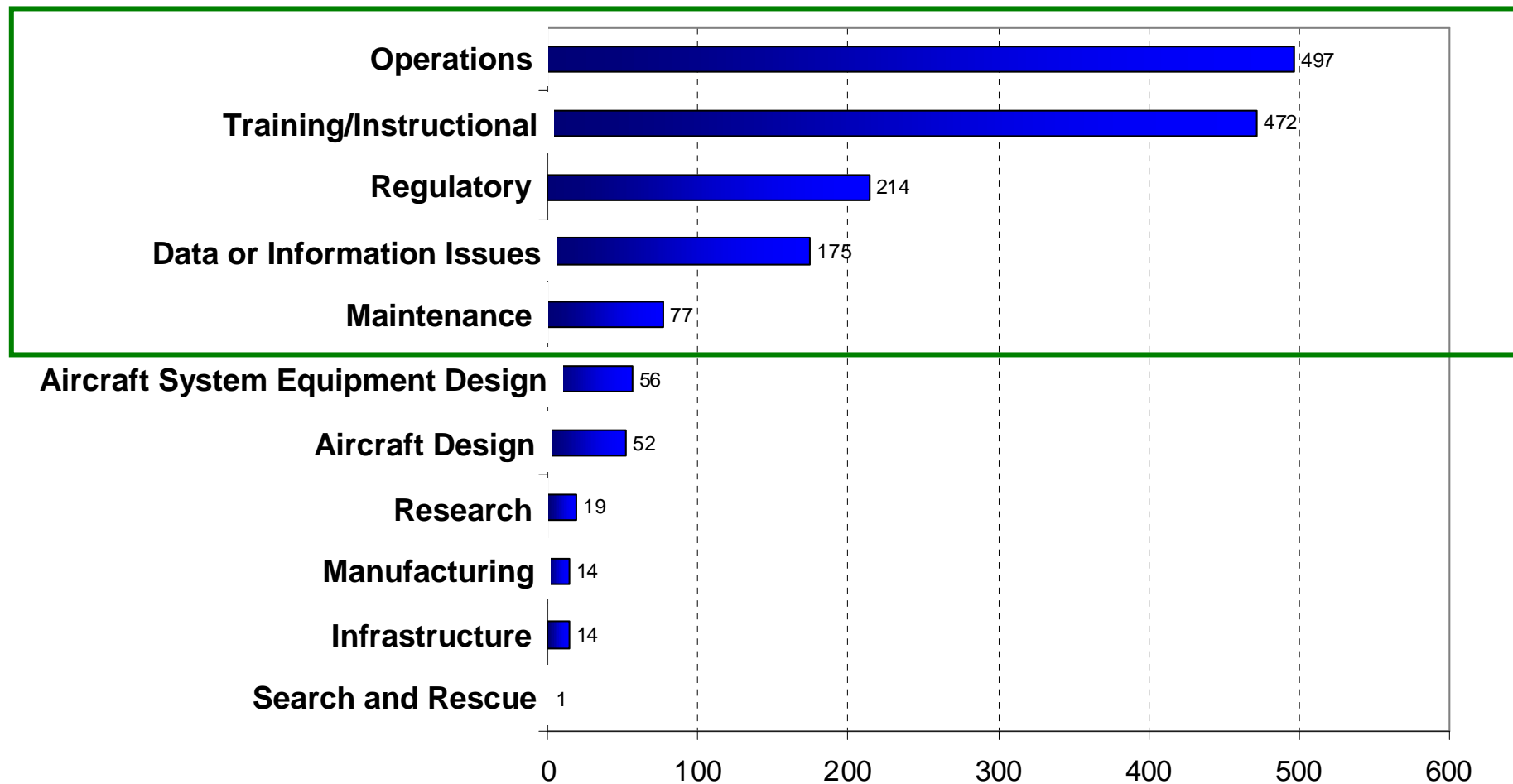
# Voorbeeld van General Aviation scenario

SPS
Pilot inexperienced
Mission planning
Pilot decision making
Inadequate standards and regulations
Wilful disregard for rules and SOPs
Inadvertent entry into IMC
Failed to recognise cues to terminate course of action

HFACS
Risk assessment - Operation
Overcontrol/Undercontrol
Procedural error
Violation - Lack of discipline
Mission planning
Overconfidence
Vision restricted by meteorological conditions
Limited total experience



## Aantal EHEST aanbevelingen voor interventies





Introductie

Methodologie

Resultaten

En verder...



Photo Agusta Westland



# Volgende stap is implementatie

- EHEST Communication Sub-Group  
Bereiken van all Europese stakeholders met een extra focus op General Aviation
- EHSIT Specialist Teams
  - Operations/SMS
  - Training
  - Regulation/Standards





# Huidige en geplande activiteiten (1)

- Veiligheidspromotie
  - Video
  - Folders
- *Best practice* materiaal
  - Ontwikkelen van een *pre-flight risk assessment checklist*
  - Voorbeeldlijst van *hazards*
  - Handleiding instructeur
  - *Maintenance toolkit*



## Huidige en geplande activiteiten (2)

- Actieplannen voor organisaties
- Eventueel voorstellen ontwikkelen voor regelgeving of standards richting autoriteiten
- *Toolkits* door IHST (SMS, Training, Flight Data Monitoring) [www.ihst.org](http://www.ihst.org)
- Bijdragen aan ontwikkelen van een helicopter versie van IS-BAO (standaard en accreditatie voor business aircraft operations)



# Tot slot...

- Al veel gedaan om ongevallen en veiligheidsissues beter te begrijpen
- De uitdaging ligt nu in het
  - ontwikkelen, implementeren en monitoren van effectieve maatregelen om reductie van ongevallen te bereiken
  - en het betrekken van de kleine operators en GA piloten bij EHEST en IHST.



# Evenementen

- **International Helicopter Safety Symposium**
  - 3 en 4 oktober 2010 in Cascais, Portugal.
  - Georganiseerd door IHST-US en EHEST
  - Verder informatie en registratie op [www.ihst.org](http://www.ihst.org)
- **EASA Rotorcraft Symposium**
  - 8 en 9 december 2010 in Köln, Duitsland
  - Verdere informatie en registratie op [www.easa.europa.eu](http://www.easa.europa.eu)



Bedankt voor uw aandacht

Deelnemen of meer informatie?

[ehest@easa.europa.eu](mailto:ehest@easa.europa.eu)

[www.easa.europa.eu/essi/ehestEN.html](http://www.easa.europa.eu/essi/ehestEN.html)