



# The European Strategic Safety Initiative

*The key partnership to enhance Commercial aviation, Helicopter and General Aviation safety in Europe*

Overview in 45 Slides

**John Vincent**

Head of Safety Analysis & Research, EASA

**Michel Masson**

Safety Action Coordinator, EASA

**Clement Audard**

Safety Team Support Officer, EASA

# Overview of ESSI in 45 slides


---

- **ESSI General introduction**
  - ✦ **ICAO Global Aviation Safety Roadmap**
  - ✦ **ESSI in the world**
- **ECAST**
  - ✦ **Introduction, process and work priorities**
  - ✦ **SMS Working Group**
  - ✦ **Ground Safety Working Group**
- **EHEST**
  - ✦ **Setting the scene**
  - ✦ **Methodology**
  - ✦ **Results**
- **EGAST**
  - ✦ **Introduction**
  - ✦ **Work directions**
- **Contact details and list of abbreviations**

# European Strategic Safety Initiative (ESSI)

- 10 year programme (2006-2016) aimed at improving aviation safety in Europe, and for the European citizen worldwide
- Partnership, with more than 150 organisations
- Powered by industry and facilitated by EASA
- In line with the ICAO Global Aviation Safety Road Map

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



**Welcome to the minisite of the European Strategic Safety Initiative!**

The European Strategic Safety Initiative (ESSI) is an aviation safety partnership between EASA, other regulators and the industry. The initiative's objective is to further enhance safety for citizens in Europe and worldwide through safety analysis, implementation of cost effective action plans, and coordination with other safety initiatives worldwide. Participants are drawn from the EASA Member States, the ECAC countries, manufacturers, operators and professional unions, research organisations, the EAA and international organisations such as EUROCONTROL and ICAO.

ESSI was launched by EASA as a ten year programme on 20 June 2006 and has three components:

- ECASST: European Commercial Aviation Safety Team
- EHLSST: European Helicopter Safety Team
- EGASST: European General Aviation Safety Team

In total, more than one hundred fifty civil and military organisations are participating to date in the (ESSI).

More detailed information can be found in the [ESSI presentation](#), attached, and in the [ICAO Information Paper A36-WP/195-TE/25](#) and the [EASA Annual Safety Review 2006](#) published in 2007.

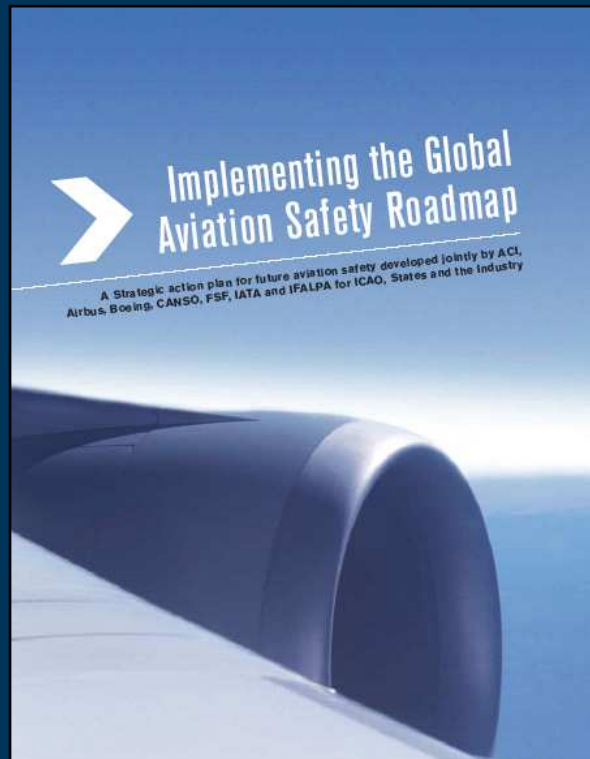
For further information, or if your organisation wishes to join the ESSI, please contact Michel Masson, ESSI Secretary, at the following email address: [essi@easa.europa.eu](mailto:essi@easa.europa.eu)

2007 © ESSI

*the partnership to enhance  
Commercial aviation,  
Helicopter and General  
Aviation safety in Europe*

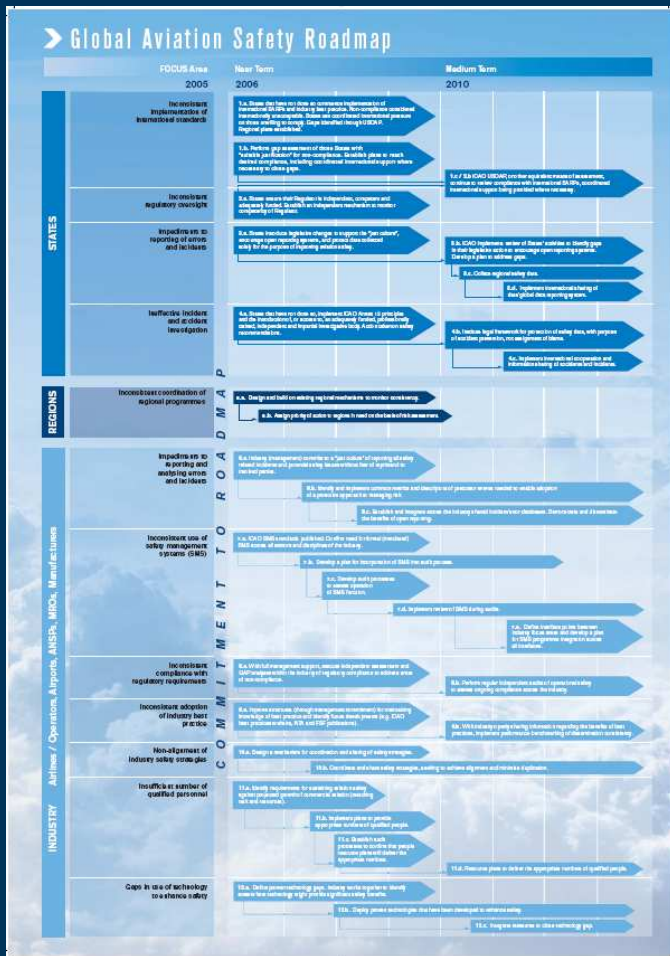
# ICAO Global Aviation Safety Roadmap

---



- developed for ICAO in 2006 by the Industry Safety Strategy Group (ISSG) under the leadership of IATA
- Frame of reference for stakeholders, including States, regulators, airline operators, airports, aircraft manufacturers, pilot associations, safety organisations and air traffic service providers

# ICAO Global Aviation Safety Roadmap



## Key messages:

- ★ A proactive approach to aviation safety requires that all concerned stakeholders are involved
- ★ Launch Regional initiatives
- ★ Need coordination and data-sharing
- ★ Minimise duplication of efforts

# ESSI

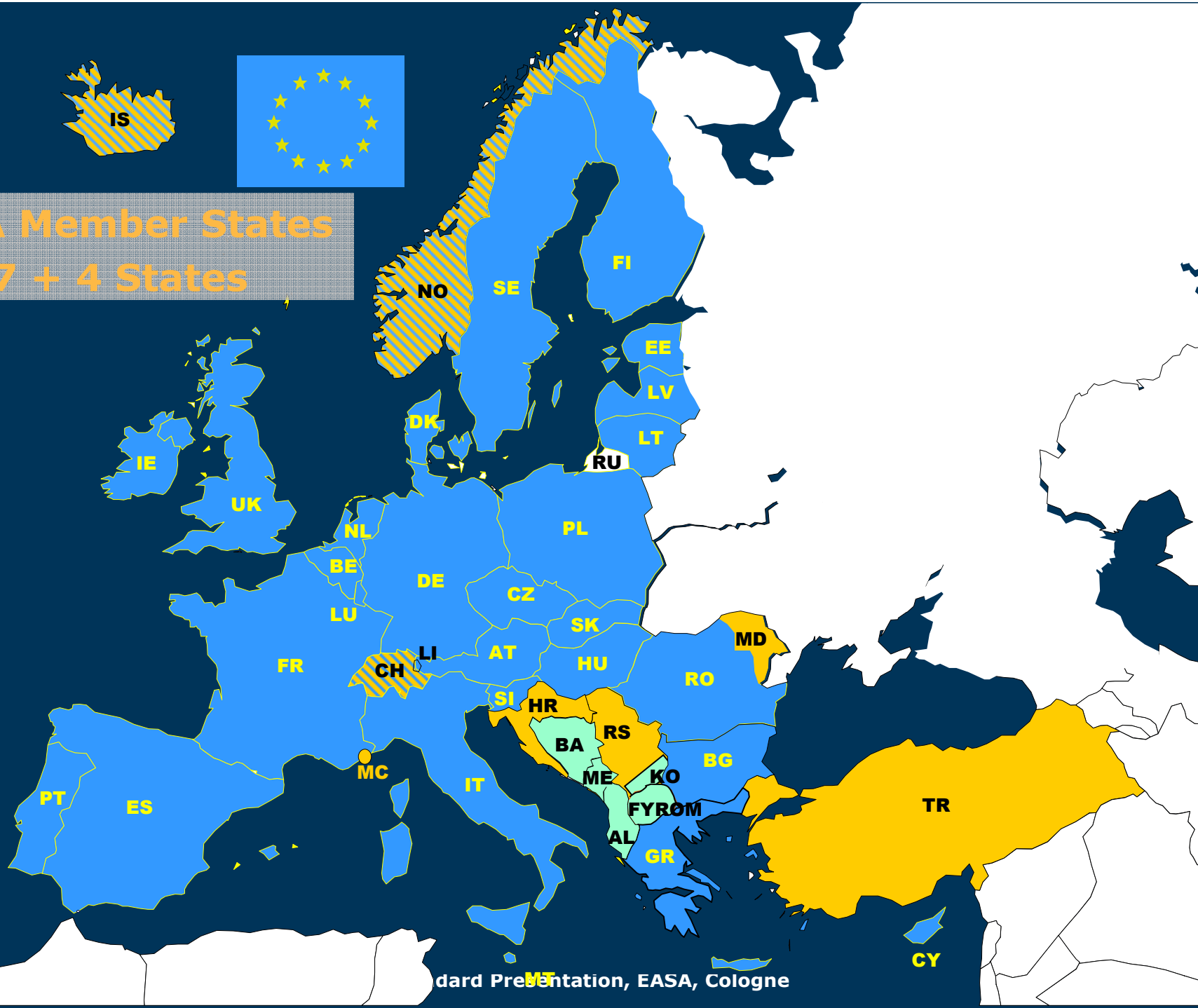
One of the Major Safety Teams worldwide

---





**EASA Member States**  
**EU 27 + 4 States**

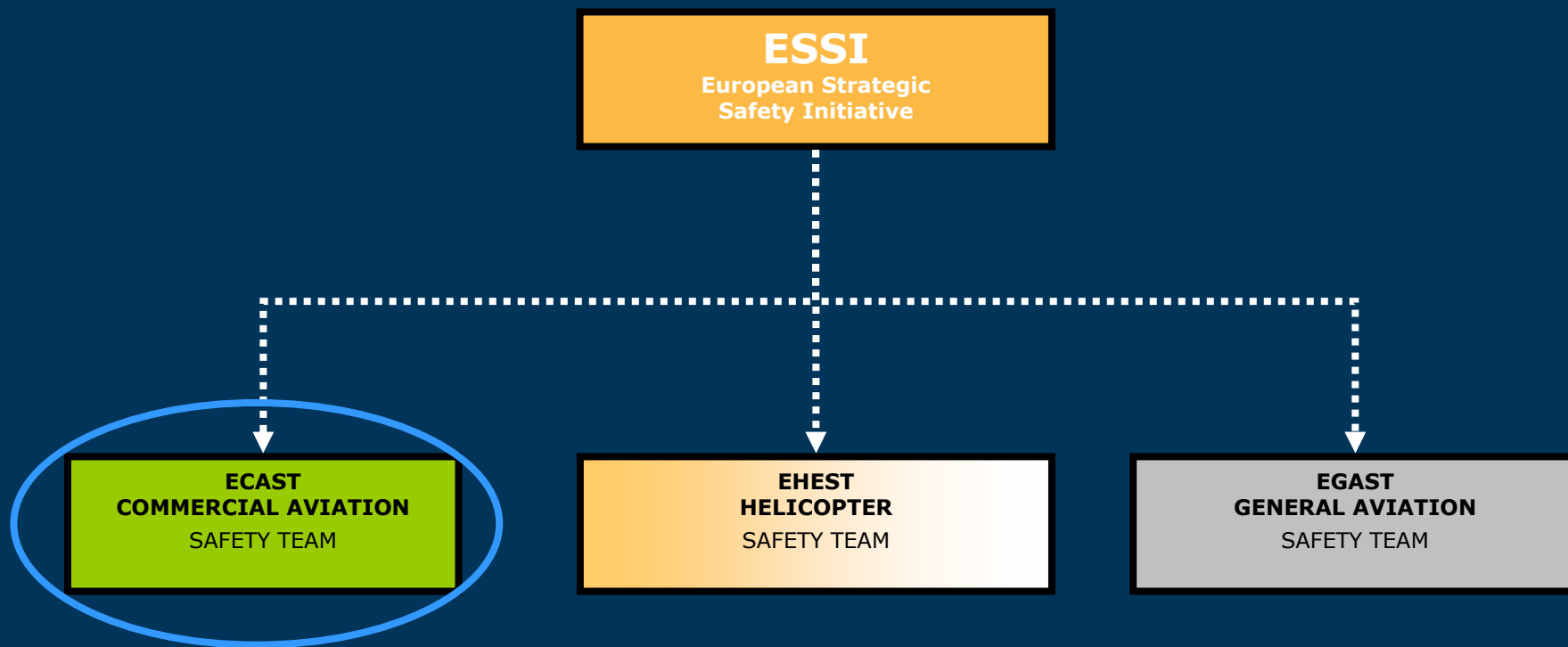


Jan

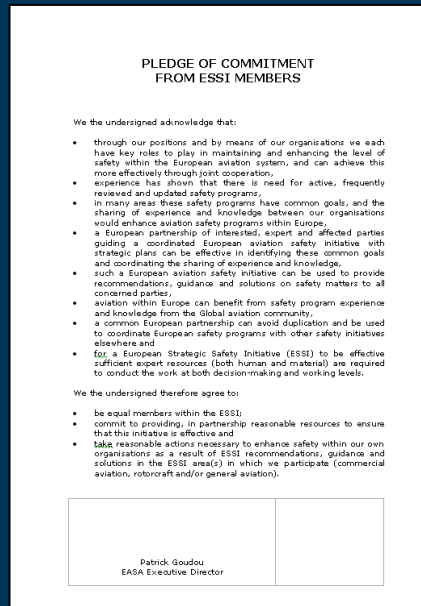
Standard Presentation, EASA, Cologne

# ECAST

---



# ECAST Members Pledges signed



- **Airbus S.A.S.**
- **Aircraft Engineers International (AEI)**
- **Alenia Aeronautic S.p.A.**
- **Boeing Commercial Airplanes**
- **Civil Aviation Authority UK**
- **DGAC France**
- **Dutch Ministry of Transport, Public Works and Water Management**
- **Embraer - Empresa Brasileira de Aeronáutica**
- **Ente Nazionale Aviazione Civile Italy**
- **European Transport Safety Council**
- **European Aviation Safety Agency (EASA)**
- **Federal Office of Civil Aviation Switzerland**
- **Fokker**
- **International Air Transport Association (IATA)**
- **International Federation of Airworthiness (IFA)**
- **National Aerospace Laboratory (NLR)**
- **Rolls-Royce plc**
- **...**
- **More than 50 member and partner organisations in total Listed by Alphabetical order**

# ESSI/ECAST Pledge

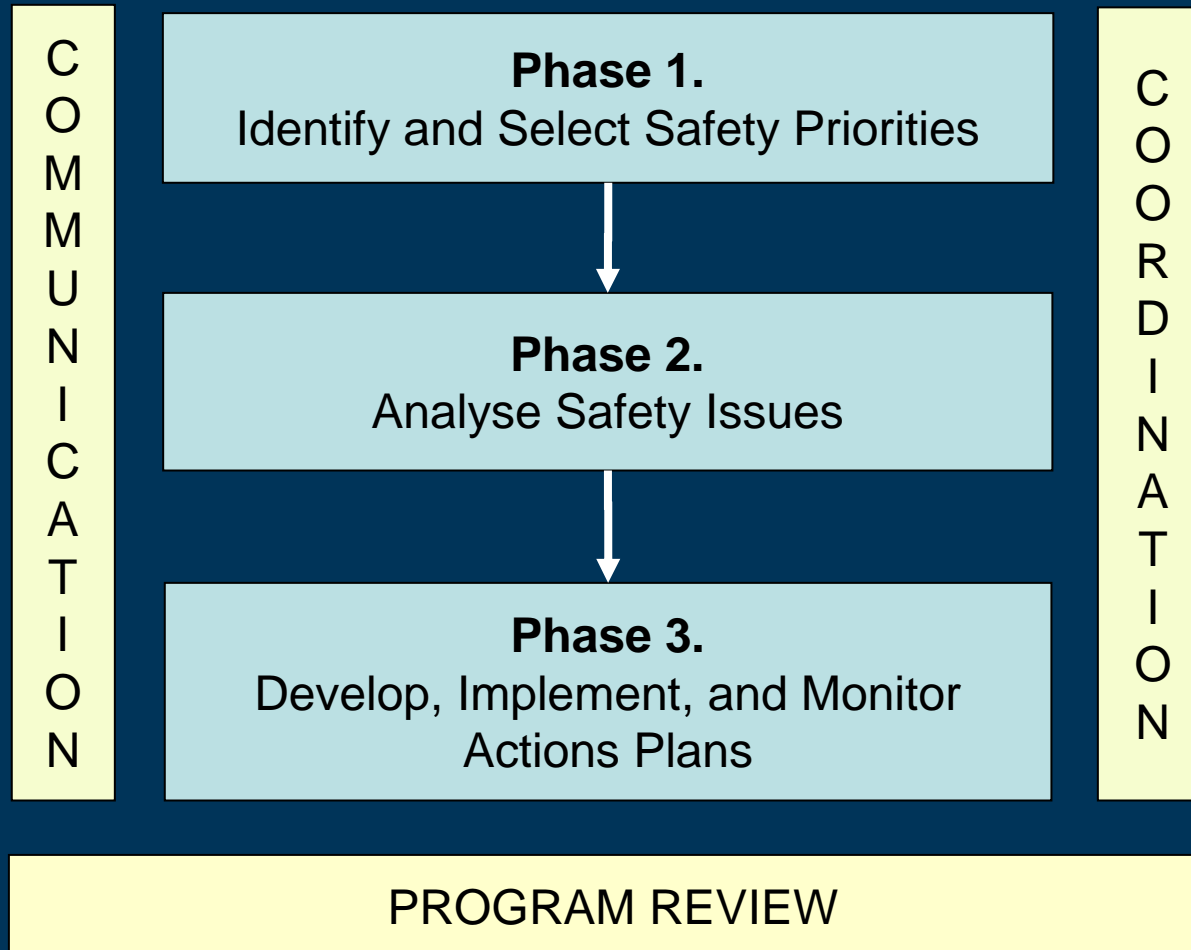
---

- **Represents high-level commitment**
- **Signatory organisations are:**
  - ★ **Equal partners within the ESSI**
  - ★ **Provide, in partnership, reasonable resources to ensure that the ESSI be effective, and**
  - ★ **Take reasonable actions as a result of ESSI recommendations, guidance and solutions in the ESSI area(s) in which they participate**



- Co chaired by IATA and EASA
- Coordinates with:
  - ✦ US Commercial Aviation Safety Team (CAST)
  - ✦ COSCAP under the ICAO Technical Co-Operation Programme
  - ✦ EUROCONTROL European Safety Program (ESP)
  - ✦ Flight Safety Foundation Runway Safety Initiative (RSI)
- Has defined and enacts a new safety improvement process
- Monitors JSSI actions plans adapted from CAST and assesses suitability for Europe of newer CAST action plans

# ECAST Process – 3 Phases



# ECAST

## Work Priorities 2007-2009

---

- |   |
|---|
| <b>1. Ground Safety</b>                                 |
| <b>2. Runway Safety</b>                                 |
| <b>3. Safety Management System &amp; Safety Culture</b> |
| <b>4. Flight Crew Performance</b>                       |
| <b>5. Loss of Control</b>                               |
| <b>6. Approach &amp; Landing</b>                        |
| <b>7. Aviation System Complexity</b>                    |
| <b>8. Fire, Smoke and Fumes</b>                         |
| <b>9. Air-Ground Communications</b>                     |
| <b>10. Mid Air Collision</b>                            |
| <b>11. Controlled Flight Into Terrain</b>               |
| <b>12. Icing</b>  |
| <b>13. Bird Strike</b>                                  |
| <b>14. Loss of Control due to Weight &amp; Balance</b>  |
| <b>15. Air Navigation</b>                               |

# ECAST SMS – published WPs and materials

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

**Best Practice only!  
(no AMC or GM)**



This web site is a resource for Industries to obtain information about ECAST efforts in the area of Safety Management and to Support for organisations wishing to implement a Safety Management System.

## Background on the ECAST SMS Working Group

The European Strategic Safety Initiative (ESSI) is an aviation safety partnership between EASA, other regulators and the industry. The initiative objective is to further enhance safety in Europe. The ESSI has three components: the European Commercial Aviation Safety Team (ECAST), the European Helicopter Safety Team (EHEST), and the European General Aviation Safety Team (EGAST).

	Summary	Guidance
<b>WP 1.1 - Review SMS/Safety Culture initiatives and materials</b>	WP 1.1	
<b>WP 1.2 - Safety Culture framework for ECAST SMS WG</b>	WP 1.2	
<b>WP 2 - Identify best practices and examples of organisations</b>	WP 2	
<b>WP 3 - Guidance on Hazard Identification</b>	WP 3	
<b>WP 4 - Guidance on Risk Assessment</b>	WP 4	

# SKYbrary

1139 Articles 760 New

Safety knowledge contributed by [Eurocontrol](#) [ICAO](#) [Flight Safety Foundation](#)

**SKYbrary** The single point of reference in the network of aviation safety knowledge

Join Skybrary and participate in the discussions about articles

Operational Issues Portal Enhancing Safety Portal Safety Regulations Portal

**Situational Awareness**

Put simply, situation awareness (SA) means knowing what is going on around you. More specifically, in the context of complex operational environments SA is concerned with the person's knowledge of particular task-related events and phenomena.

[read more](#)

**Skybrary Solutions** **Safety Alerts**

- [All clear? Toolkit](#)
- [Level Bust Toolkit](#)
- [Airspace Infringement Early Action Package](#)

[Privacy policy](#) [About SkybraryWiki](#) [Disclaimers](#)

**ECAST and ARMS products also published in SKYbrary**

[www.skybrary.aero/index.php/Category:Safety\\_Management](http://www.skybrary.aero/index.php/Category:Safety_Management)

of which ESSI is a sponsor

Safety knowledge contributed by

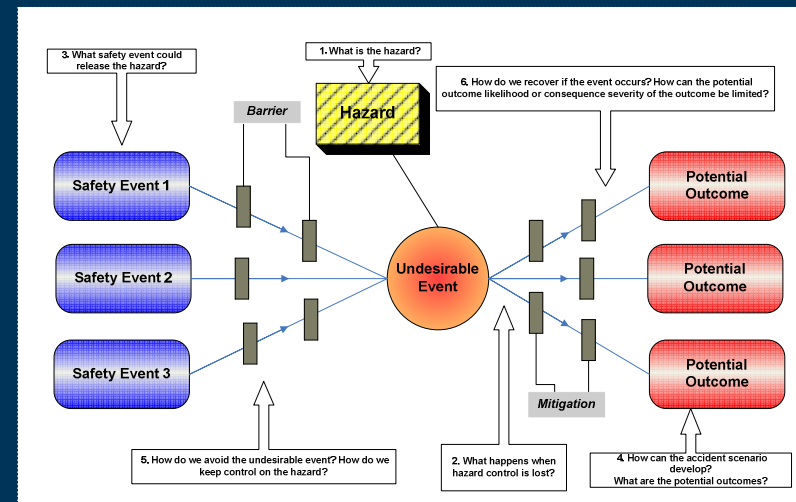
[EUROCONTROL](#) [ICAO](#) [FLIGHT SAFETY FOUNDATION](#) [UKFSC](#) [esssi](#) European Strategic Safety Initiative

# ECAST SMS: Hazard Identification

*Where guidance is probably most needed*

**Full material soon  
on the ECAST website**

- **Simple, concise and useful materials on:**
  - ✦ **Definitions (hazard, risk, etc.)**
  - ✦ **Bow Tie as 'concepts organiser'**
  - ✦ **Hazards identification process**
  - ✦ **Hazards identification methods**
- **ARMS: A new methodology for RA**
  - ✦ **Developed by the industry**
  - ✦ **Compatible with ICAO**
  - ✦ **Publicly available on the ECAST website**



# ECAST SMS: Risk Assessment

## *Where guidance is probably most needed (Part 2)*

➤ Many methods are available

➤ ECAST promotes in particular the new, ARMS methodology

★ **Developed by the industry**

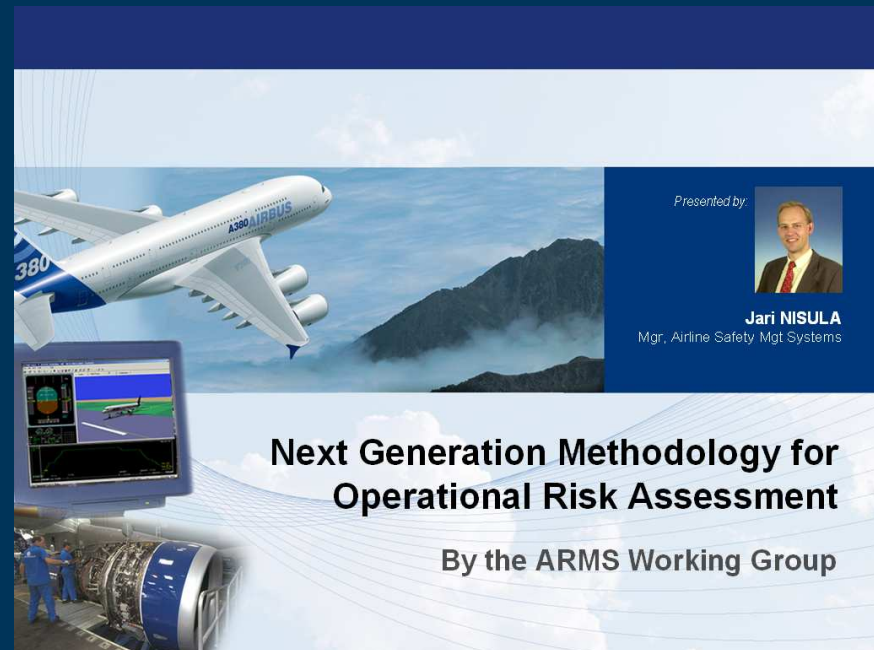
★ **Compatible with ICAO**

★ **Publicly available**

➤ **Published on:**

[http://www.skybrary.aero/index.php/Category:Safety\\_Management](http://www.skybrary.aero/index.php/Category:Safety_Management)

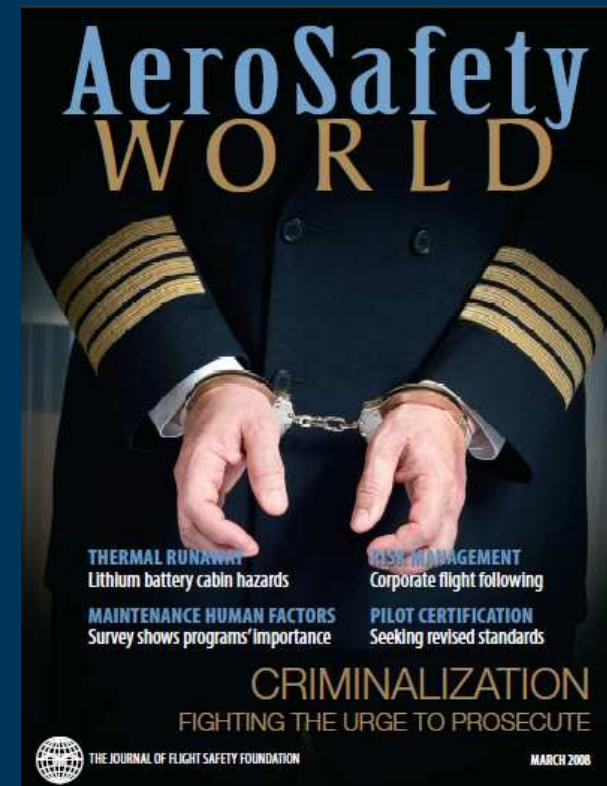
➤ **Contact:** [jari.nisula@airbus.com](mailto:jari.nisula@airbus.com)



# ECAST SMS: Non-Criminalisation of accidents and Just Culture

Soon on the ECAST website

- Should ECAST produce a public statement?
- Activity led by Rich Jones, RAeS, UK FSC
- Subject also addressed by:
  - ✦ EC - DG TREN
  - ✦ EASA
  - ✦ EUROCONTROL
  - ✦ ICAO
  - ✦ ECAC
  - ✦ FAA
  - ✦ and FSF (*publication shown here*)



# **International Collaboration Group on SMS (ICG)**

## **Another group addressing SMS, in coordination with ECAST**

---

- **The ICG is a collaboration activity between aviation authorities in order to promote the common understanding of SMS principles and requirements in different countries, share lessons learned and encourage progress and harmonisation**
- **Members: FAA, EASA, ICAO, TCCA, CASA of Australia, FOCA of Switzerland, NCAA of Brazil and the DGAC of France**
- **Three Working Groups:**
  - ✦ **Measurements**
  - ✦ **Guidance Material (includes material from ECAST and SKYbrary)**
  - ✦ **Standard Taxonomy of Hazards**

# ECAST Ground Safety WG

---

## ➤ Terms of Reference:

**Coordinate with existing initiatives and promote implementation in Europe of existing safety enhancement materials and plans**

## ➤ Chaired by the chair of the UK Ground Handling Operations Safety Team (GHOST)

## ➤ Emerging issues

- ✦ **Shorter turn rounds**
- ✦ **Tighter H&S regulation to protect workers**
- ✦ **Present economic situation**
- ✦ **No equipage and staff certification, and lack of standardised procedures**

# ECAST Ground Safety WG

## WP 1 – Training

- WP 1 - Develop 'standardised' Ground Handling training concepts and syllabi
- Delivered in December 2009
- In synergy with with UK GHOST

Soon on the ECAST website



- Uses and promotes ISAGO training approach and material by IATA

# ECAST Ground Safety WG WP 2 – Human Factors

---

- Research the effect of Human Factors involved in ramp safety
- Performed by NLR for the Ministry of Transport NL



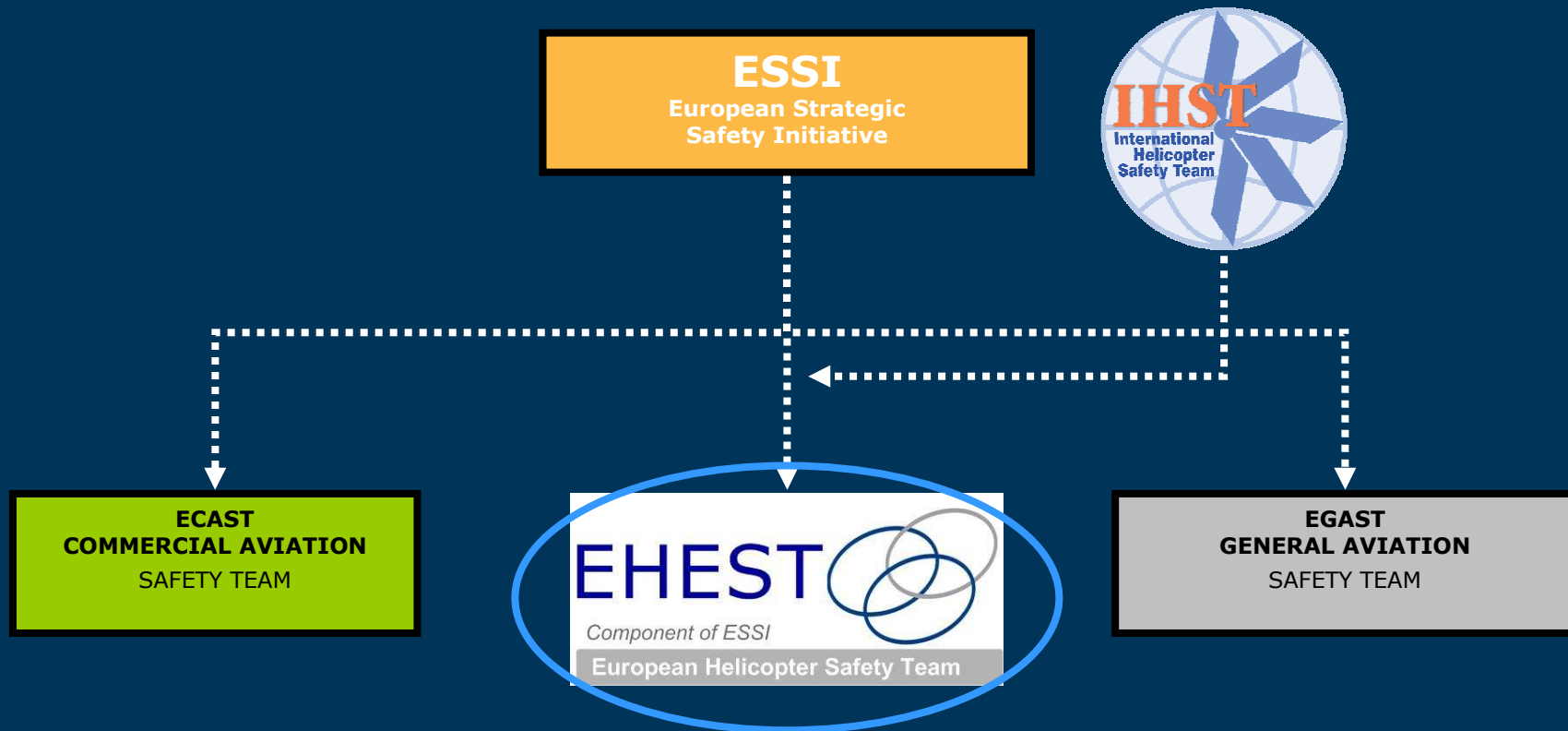
Inspectie Verkeer en Waterstaat  
Ministerie van Verkeer en Waterstaat

ECAST GS WG

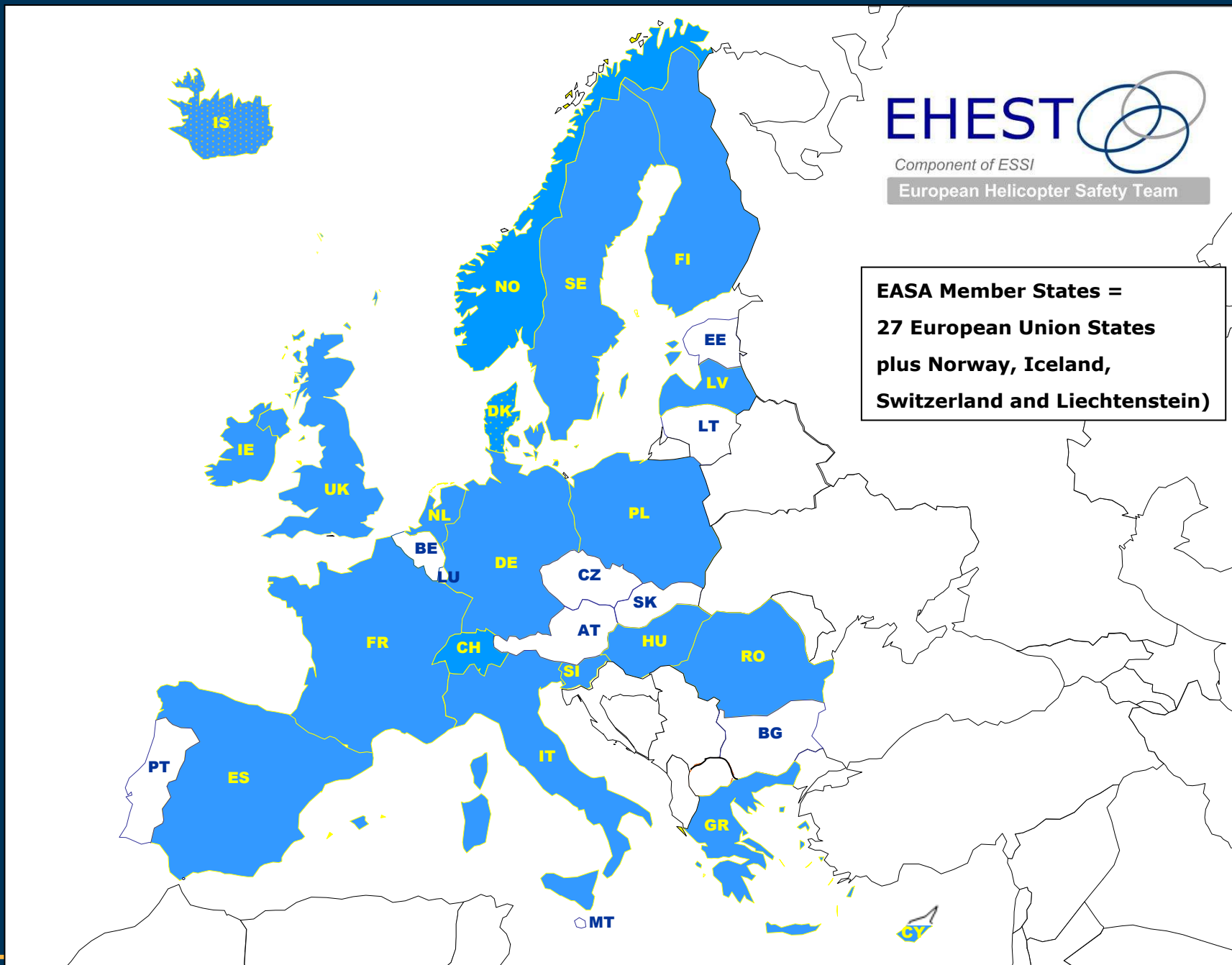
WP2 - Human Factors

- Deliverable: Best practices on HF, due March 2010

# EHEST



- **EHEST is the helicopter team of the ESSi and the European component of the IHST**
- **All helicopter operations initiative**



# EHEST

## The European Helicopter Safety Team

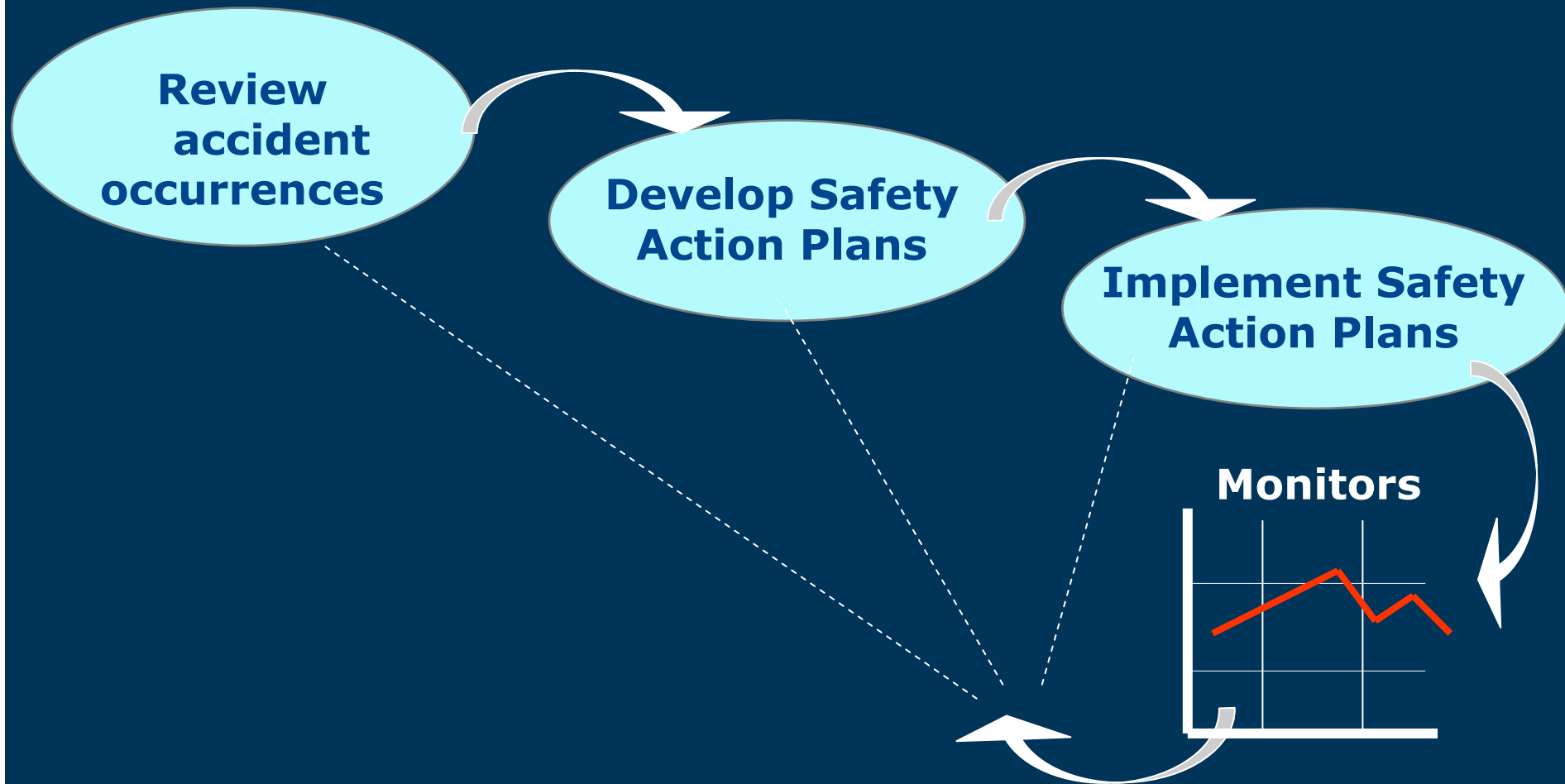
---

- EHEST is an industry/regulators partnership for enhancing rotorcraft safety in Europe based on voluntary commitment
- Features representatives of OEMs, civil operators, regulators, helicopter interest groups, accident investigators, and military operators from across Europe
- Brings together around 130 participants, of which 70 are involved in the Analysis and implementation activities

# EHEST

## General Process: Safety analysis, interventions and monitoring

---



# Scope of analysis

---

- **Data driven approach**
  - ✦ **Accidents (definition ICAO Annex 13)**
  - ✦ **Date of occurrence year 2000 - 2005**
  - ✦ **State of occurrence located in EASA Member States**
  - ✦ **Where a final report from AIB is available**
- **303 accidents (as of 20 Aug. 09)**
  - ✦ **Estimated to be some 75% of the published reports**
- **Final report 2000-2005 will published mid 2010**

Publication of EHSAT  
Preliminary analysis  
report in Nov 09



# Analysis Methodology

---

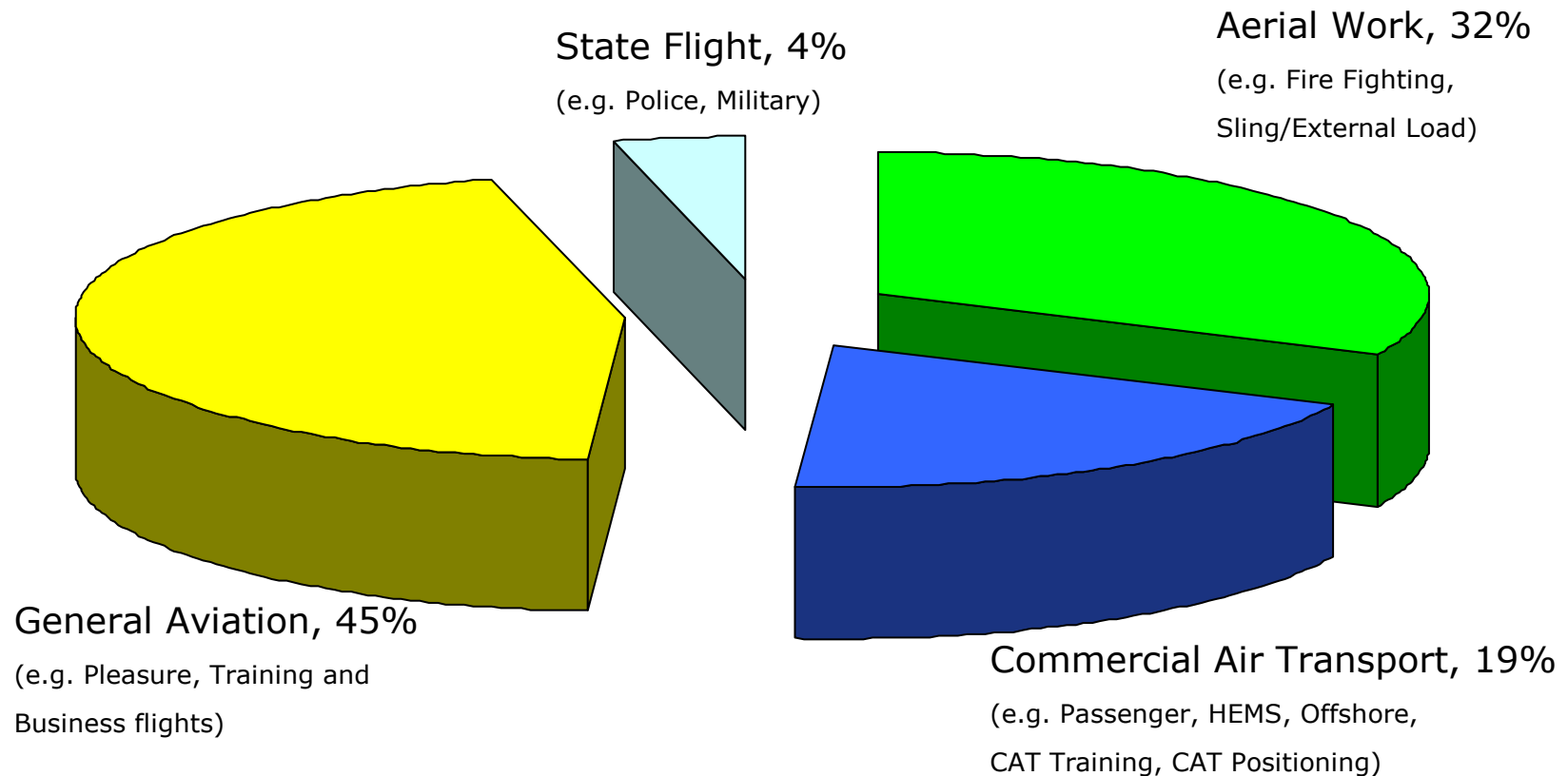
**1. Collect general occurrence information  
from accident report**

**2. Describe and analyse the accident**  
Identify events (what happened)  
and factors (why it happened) in free text

**3. Assign standard codes to factors**  
Standard Problem Statements (SPS) and HFACS

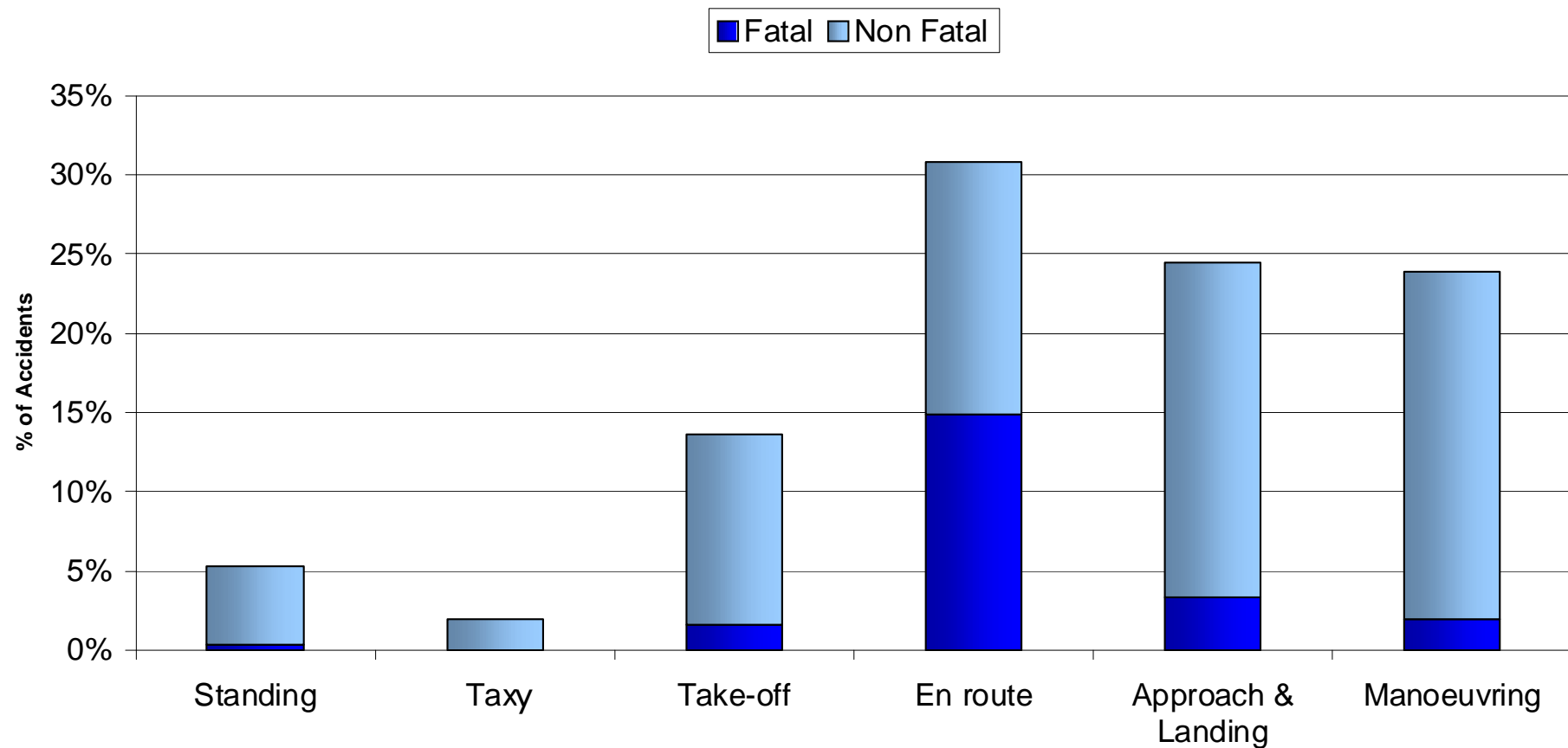
**4. Produce Intervention Recommendations (IR)**

## Accident Distribution over Type of Operation EHSAT Dataset



*State Flight data only indicative*

## Accident Distribution over Phase of Flight EHSAT Dataset

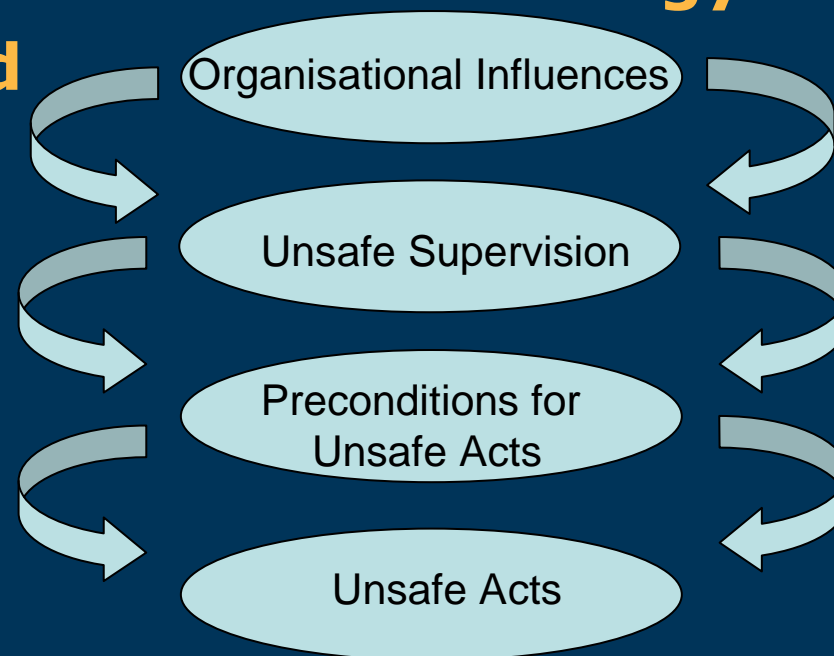


# EHEST

## Models used for identification of factors

---

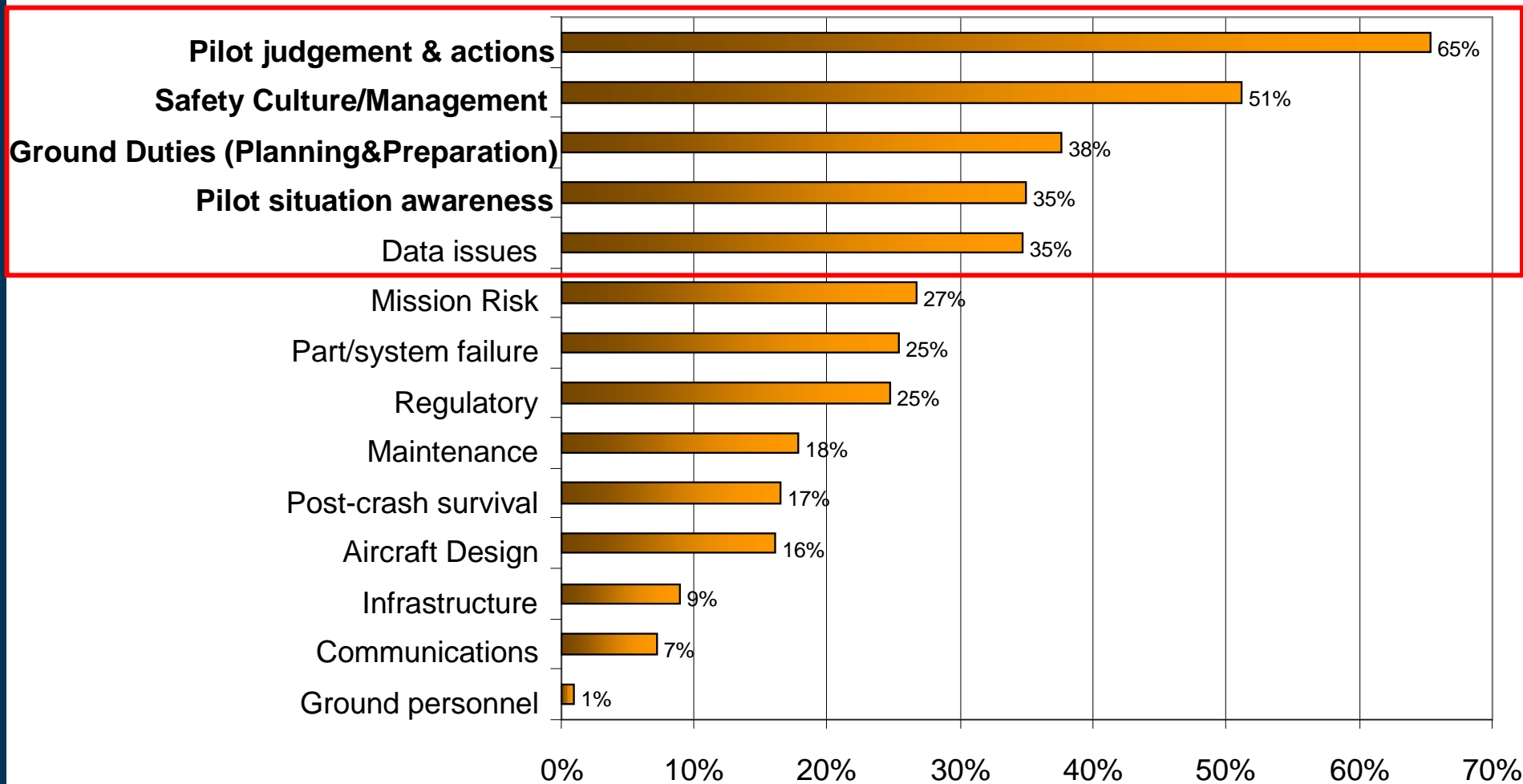
- **Standard Problem Statements,**
  - ★ **From the original, US team's methodology**
  - ★ **1775 factors recorded**
- **HFACS by Wiegmann and Shappell,**
  - ★ **Added by the European team for a complementary analysis of Human Factors**
  - ★ **818 factors recorded**



<http://hfacs.com/>

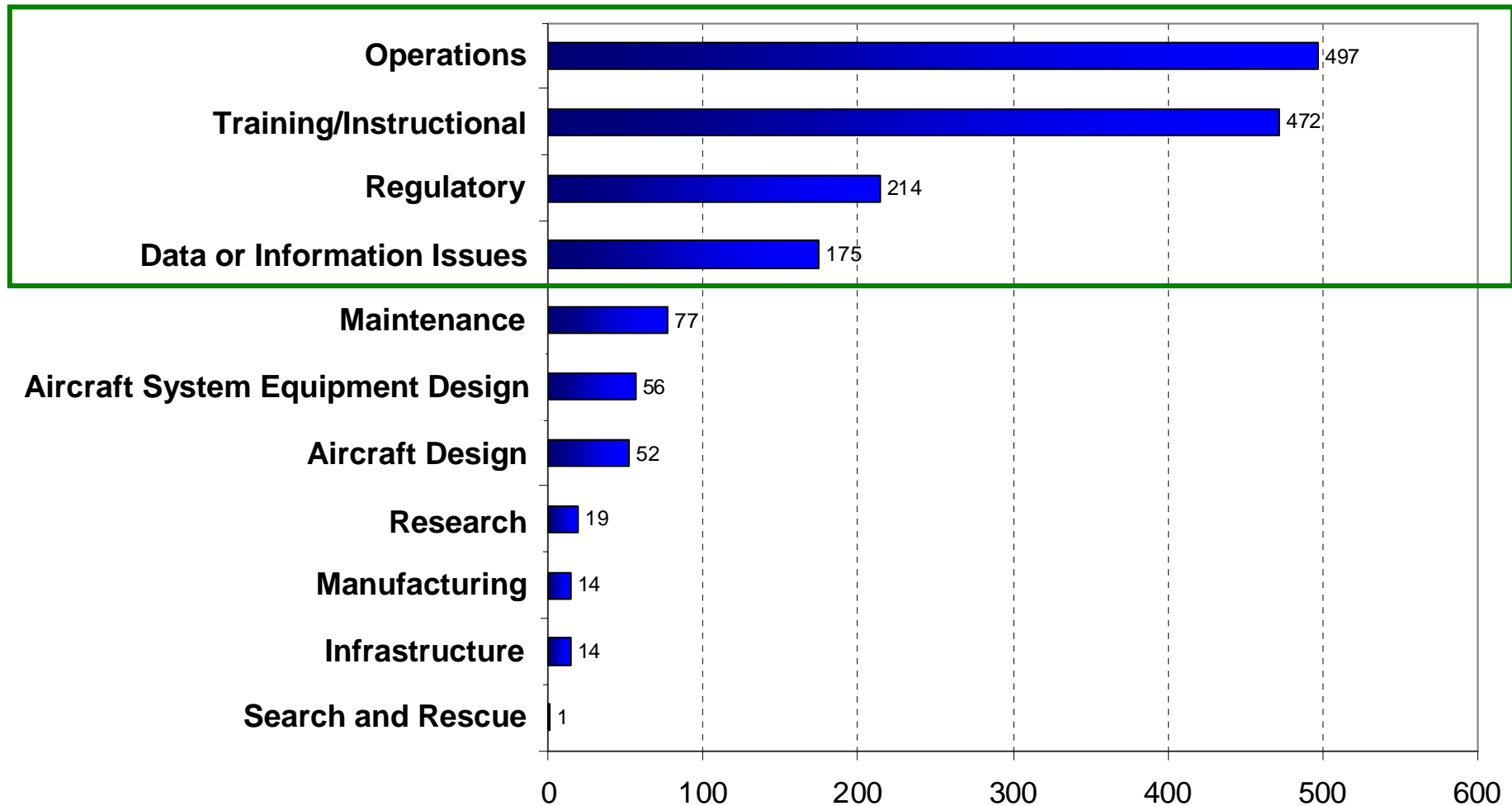
# SPS analysis results

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



# Intervention Recommendations

## Total number of Intervention Recommendations (Level 1)



# EHEST and EHSIT Sub-Teams

---

- **EHEST Communication Sub-Group**  
Tasked to reach all European stakeholders,  
with particular focus on General Aviation
  
- **EHSIT Specialist Teams**  
launched in 2009 on:
  - ✦ **SMS and Operations**
  - ✦ **Training**
  - ✦ **Regulation**



# IHST Toolkits

Login || Register || Wednesday,



# IHST

International Helicopter Safety Team

Home About Us News & Information Partners Safety Resources IHST TOOLKITS



- **In parallel, IHST has published toolkits on:**
  - ✦ **Safety Management System (SMS)**
  - ✦ **Helicopter Training**
  - ✦ **Helicopter Flight Data Monitoring (HFDM)**

✦ **Freely accessible on: [www.ihst.org](http://www.ihst.org)**

# Safety Management System

## ➤ EHEST promotes IS-BAO by IBAC

- ✦ **European standard CEN Workshop Agreement**
- ✦ **Covers more than SMS**
- ✦ **Helicopter version in development**

<http://www.ibac.org/isbao.php>

## ➤ And the IHST SMS Toolkit



The screenshot shows the IBAC website header with the logo and tagline: "International Business Aviation Council. The recognized forum for leveraging strengths of Members to enhance the safety, acceptance and economic contribution of business aviation globally." Below the header is a navigation menu with links for News, Bulletins, IS-BAO, Aircrew Card, Safety, Security, Environment, and Air Navigation. The main content area features a sidebar with a table of contents including IBAC Home, Introduction to IBAC, General Information, Contact IBAC, Members, IBAC Governance, IBAC Update, Annual Reports, File Library, Calendar of Events, and Links. The main content is titled "Introducing IS-BAO" and contains two columns of buttons: Overview, Benefits of IS-BAO, Ordering IS-BAO, Standards Board, IS-BAO Policies, Audit Program, Accredited Auditors, Registered Operators, Keeping Current, Workshop Schedule, Workshop Info, Applications and Fees, Newsletter, Bulletins, Journal Articles, Implementation Support, and Understanding SMS.

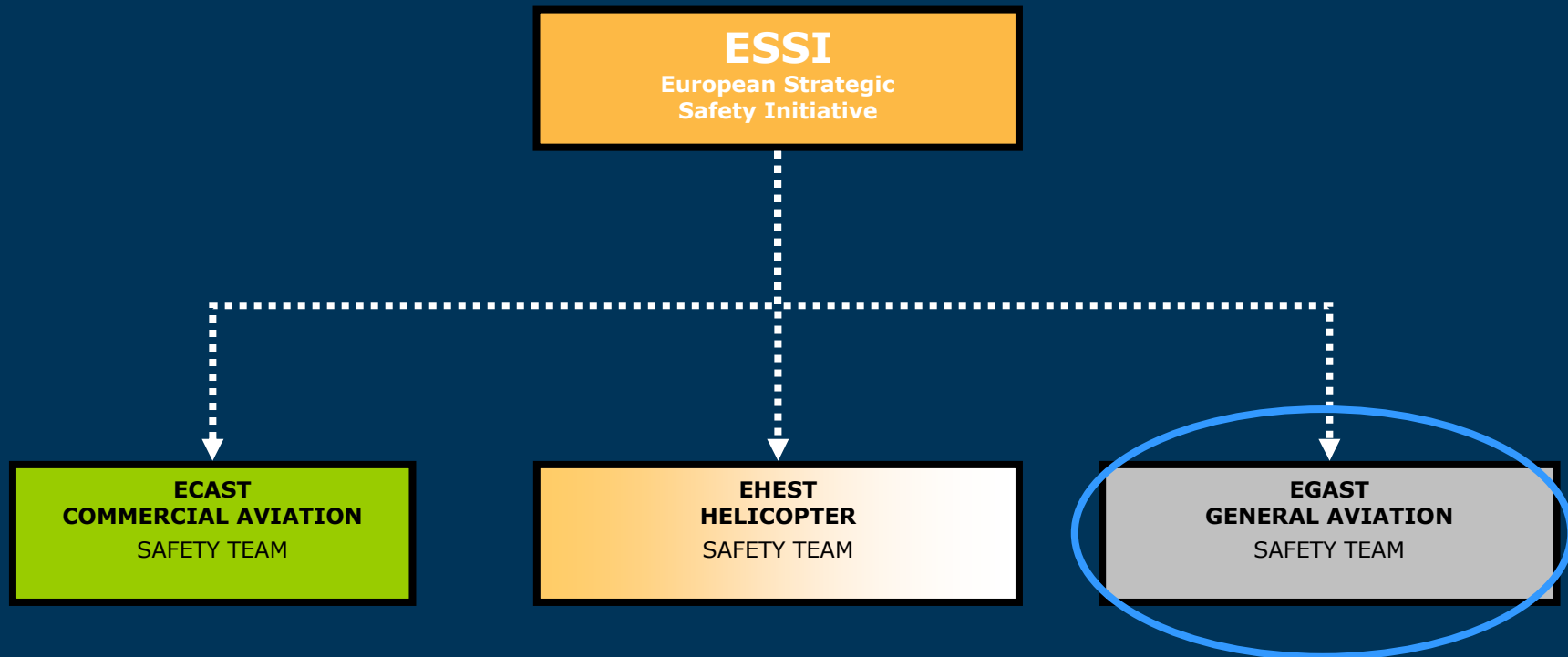
# EHEST

## Concluding remarks

---

- **European wide analysis results produced by 11 regional teams**
- **Work continues within EHSIT:**
  - ✦ **STs on SMS / Operations and Training**
  - ✦ **Next ST will address Regulatory matters**
- **Attention on communication with stakeholders**
  - ✦ **EHEST Website and Newsletter**
  - ✦ **EHEST Communications Sub-Group established**
- **The challenge now is to develop, implement and monitor effective measures to meet the 80% accident rate reduction target**
- **Continued cooperation within IHST**

# EGAST



- **EGAST addresses European GA (except Helicopters)**
- **Is a partnership between EASA, other authorities, the industry, and GA Associations**
- **Is not an EASA Rulemaking Group**



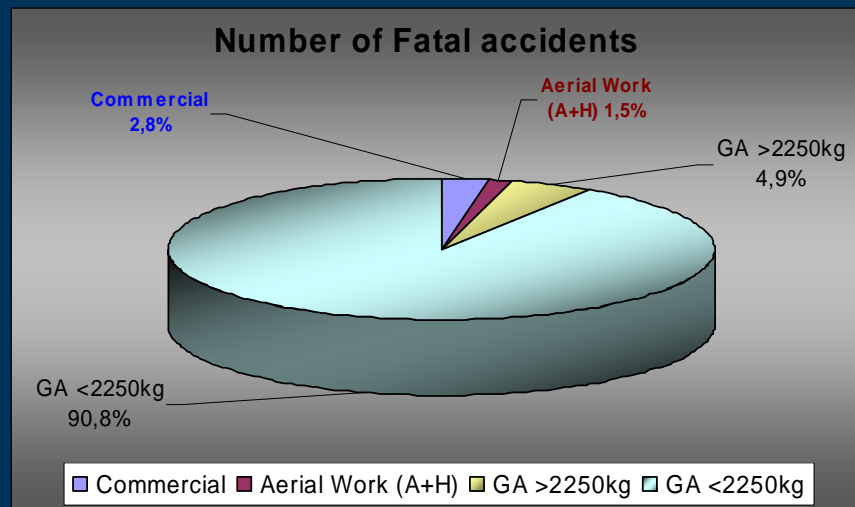
# EGAST

## General Aviation Fatal accidents

Fatal Accidents in Europe for Aircraft under 2250 Kg, per Year and Category based on data reported by States.

	Aeroplane	Moto-glider	Glider	Gyroplane	Helicopter	Microlight	Other
2006	72	9	17	1	7	34	11
2007	61	9	20	3	11	26	12
2008	53	10	16	3	7	45	6

For GA in 2008, sharing of the number of Fatal Accidents by operation



# EGAST Overview

---

- **Foundation meeting in Oct 2007 with 65 participants representing all parts of the European General Aviation community**
  - ★ **Need to set up a European General Aviation Safety Team confirmed**
  - ★ **Create a Core-Team of no more 20 than organisations, responsible to manage the initiative**
  - ★ **In line with the new regulatory framework developed by EASA for GA**
  - ★ **Cooperation with GA JSC by FAA**



➤ **Mission**

- ★ **Promote and initiate for all sectors of General Aviation (GA) best practices and awareness in order to improve safety**

➤ **Membership and Governance**

- ★ **Partnership between EASA, other European intergovernmental bodies and regulators including EUROCONTROL and NAAs and the General Aviation community**
- ★ **Co-chaired by EASA, and ECOGAS & EAC**

➤ **Cooperation**

- ★ **GA JSC by FAA**
- ★ **FAA Safety Team**
- ★ **IASA France**

# EGAST Work-directions

---

1. Safety promotion and communication on risk awareness, decision making enhancement for pilots and maintenance personnel
2. Proactive Safety for General Aviation, identification of emerging safety risks
3. Facilitate General Aviation safety data collection and analysis in Europe

# EGAST ongoing tasks

## ➤ Safety promotion

*In cooperation with IASA, France, and UK CAA:*

- ✦ Video – Back side of the power curve
- ✦ Video – Loss of visual references
- ✦ Leaflet – Collision Avoidance
- ✦ Other in preparation

[http://www.easa.europa.eu/essi/EGAST\\_1.htm](http://www.easa.europa.eu/essi/EGAST_1.htm)



## ➤ Coordination with EASA Research

- ✦ Safety Spin Resistance Concept
- ✦ Safety Implication of Biofuels in Aviation

[http://www.easa.europa.eu/ws\\_prod/g/g\\_sir\\_research\\_projects.php](http://www.easa.europa.eu/ws_prod/g/g_sir_research_projects.php)

## ➤ Identification of future risks for GA

# European Strategic Safety Initiative



## **EASA**

Ottoplatz 1  
D-50679 Köln  
PO Box 101253  
D-50452 Köln, Germany  
Tel: 49-221-89990000

**Contact:**

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

**Website:**

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

## **John Vincent**

EASA Head Safety Analysis and Research, ESSI co-Chair

[john.vincent@easa.europa.eu](mailto:john.vincent@easa.europa.eu)

Tel: + 49 221 89990 2012

## **Michel Masson**

Safety Action Coordinator, ESSI Secretary

[michel.masson@easa.europa.eu](mailto:michel.masson@easa.europa.eu)

Tel: + 49 221 89990 2024

## **Clément Audard**

Safety Team Support Officer, ESSI co-Secretary

[clement.audard@easa.europa.eu](mailto:clement.audard@easa.europa.eu)

Tel: + 49 221 89990 2038

# List of abbreviations

---

<b>AMC</b>	<b>Acceptable Means of Compliance</b>
<b>CAST</b>	<b>Commercial Aviation Safety Team</b>
<b>EASA</b>	<b>European Aviation Safety Agency</b>
<b>ECAST</b>	<b>European Commercial Aviation Safety Team</b>
<b>EGAST</b>	<b>European General Aviation Safety Team</b>
<b>EHEST</b>	<b>European Helicopter Safety Team</b>
<b>EHSAT</b>	<b>European Helicopter Safety Analysis Team</b>
<b>EHSIT</b>	<b>European Helicopter Safety Implementation Team</b>
<b>ESSI</b>	<b>European Strategic Safety Initiative</b>
<b>EC</b>	<b>European Commission</b>
<b>EU</b>	<b>European Union</b>
<b>GA</b>	<b>General Aviation</b>
<b>GS</b>	<b>Ground Safety</b>
<b>HFACS</b>	<b>Human Factors Analysis and Classification System</b>
<b>IATA</b>	<b>International Air Transport Association</b>
<b>ICAO</b>	<b>International Civil Aviation Organization</b>
<b>IHST</b>	<b>International Helicopter Safety Team</b>
<b>IMC</b>	<b>Instrument Meteorological Conditions</b>
<b>IR</b>	<b>Implementing Rules</b>
<b>SMS</b>	<b>Safety Management System</b>
<b>SPS</b>	<b>Standard Problem Statements</b>
<b>WG</b>	<b>Working Group</b>