

**Docket No. SA-530**

Exhibit No. 3-D

**NATIONAL TRANSPORTATION SAFETY BOARD**

**Washington D.C.**

**Helicopter Association International Presentation  
on Industry Safety Initiatives**

**(37 pages)**



**NTSB HEMS HEARING**

**FEBRUARY 3-6, 2009**

**WASHINGTON, D.C.**

**Matt Zuccaro**

**President HAI**

**Co-Chair IHST**

# **Helicopter Association International**

- **Established 1948**
- **The professional trade association for the International helicopter community**
- **1,575 member organizations**
- **1,200 individual members**
- **in 78 countries**
- **HAI Members operate over 5,000 helicopters and fly nearly 2.3 million hours each year**

# **HAI SAFETY POLICY**

- **Safety As a First Priority**
- **Safety Above All Else**
- **Fly To a Higher Standard**



**Helicopter  
Association  
International**

**International Helicopter  
Safety Team**

**IHST**



# International Helicopter Safety Team

**WWW.IHST.ORG**

**REDUCE THE INTERNATIONAL  
HELICOPTER ACCIDENT  
RATE BY 80 % OVER THE  
NEXT 10 YEARS**

**Executive Committee**

**Secretariat**

**IHST**

**International  
JHSAT**

**Regional  
JHSATs**

**International  
JHSIT**

**Regional  
JHSITs**

# IHST Regional Developments

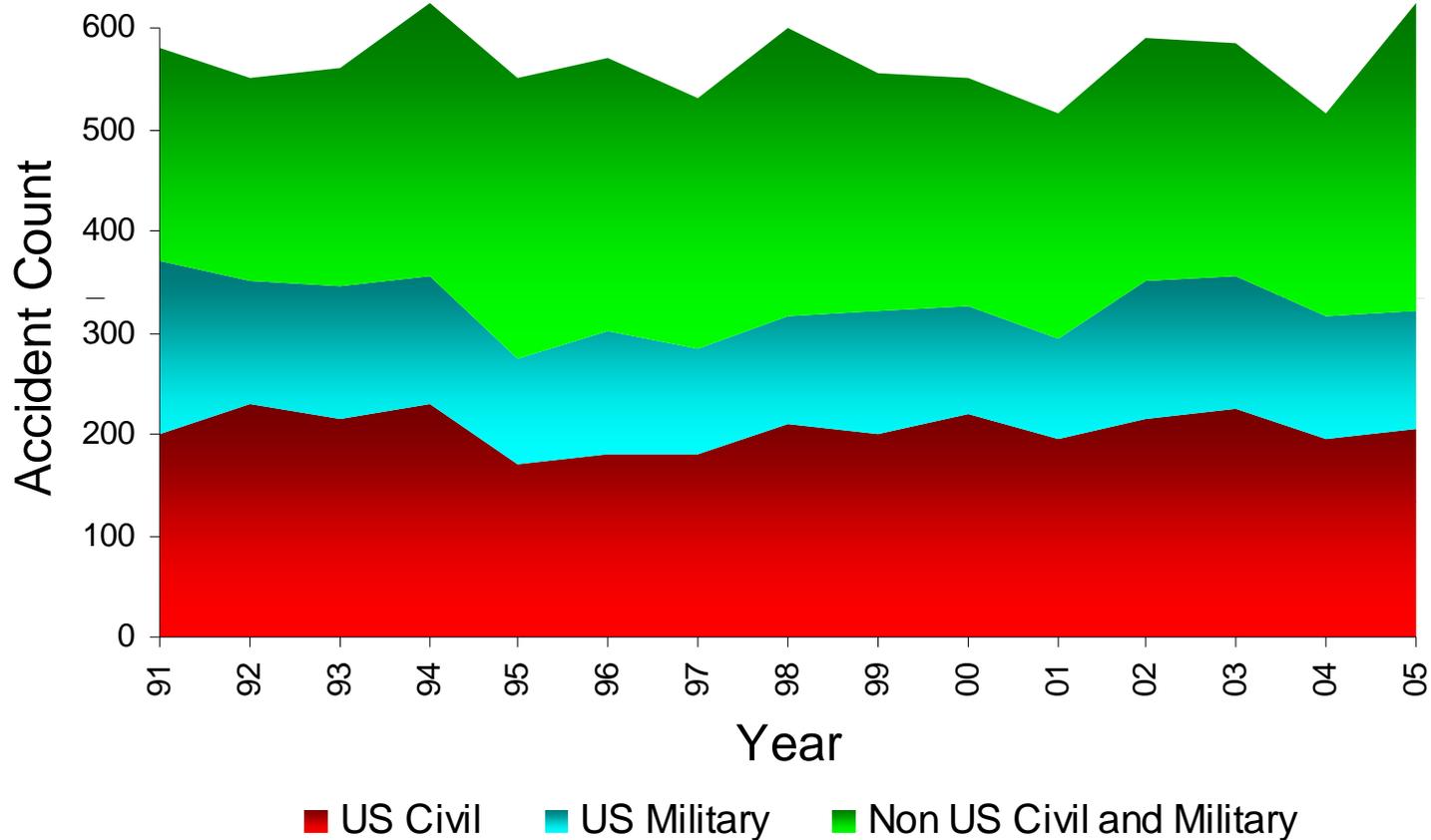
- ❖ 1st Regional Conference held in New Delhi in June 2006
- ❖ JHSAT process workshop in New Delhi in March 2007
- ❖ 2nd Regional Conference held in Melbourne, Australia in March 2007
- ❖ Latin American Regional Conference held in Brazil in June 2007
- ❖ Canadian and EU JHSATs operational

## IHST Conferences:

- **Germany**                      **May 2008**
- **Europe**                         **September 2008**
- **Portugal**                       **October 2008**
- **Middle East**                   **November 2008**
- **Far East**                       **April 2009**
- **Russia**                         **May 2009**
- **Africa**                         **September 2009**

# Worldwide Helicopter Accidents per Year

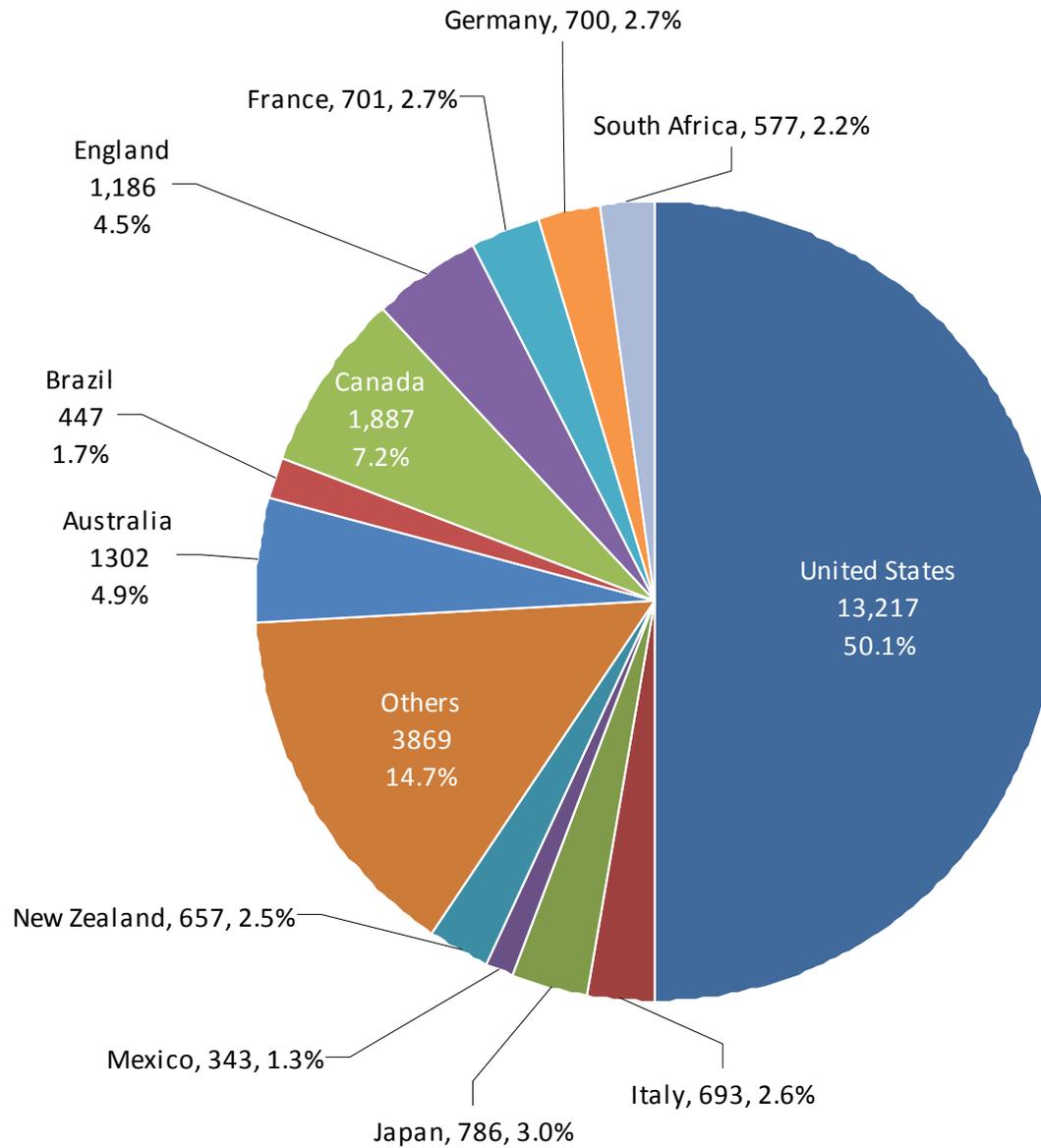
1991 to 2005



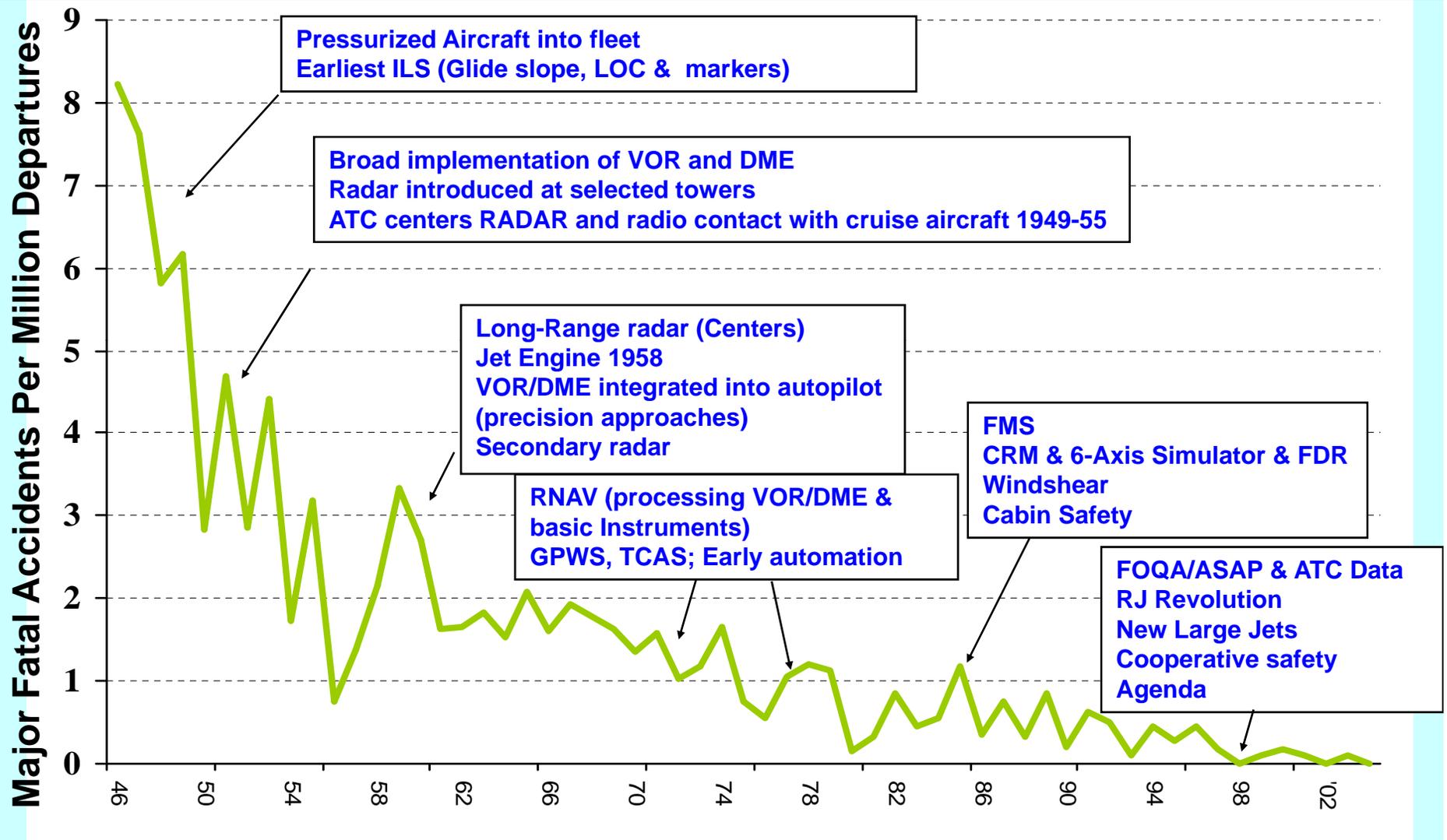
Source - Bell Helicopter

# Worldwide Fleet Distribution by Country

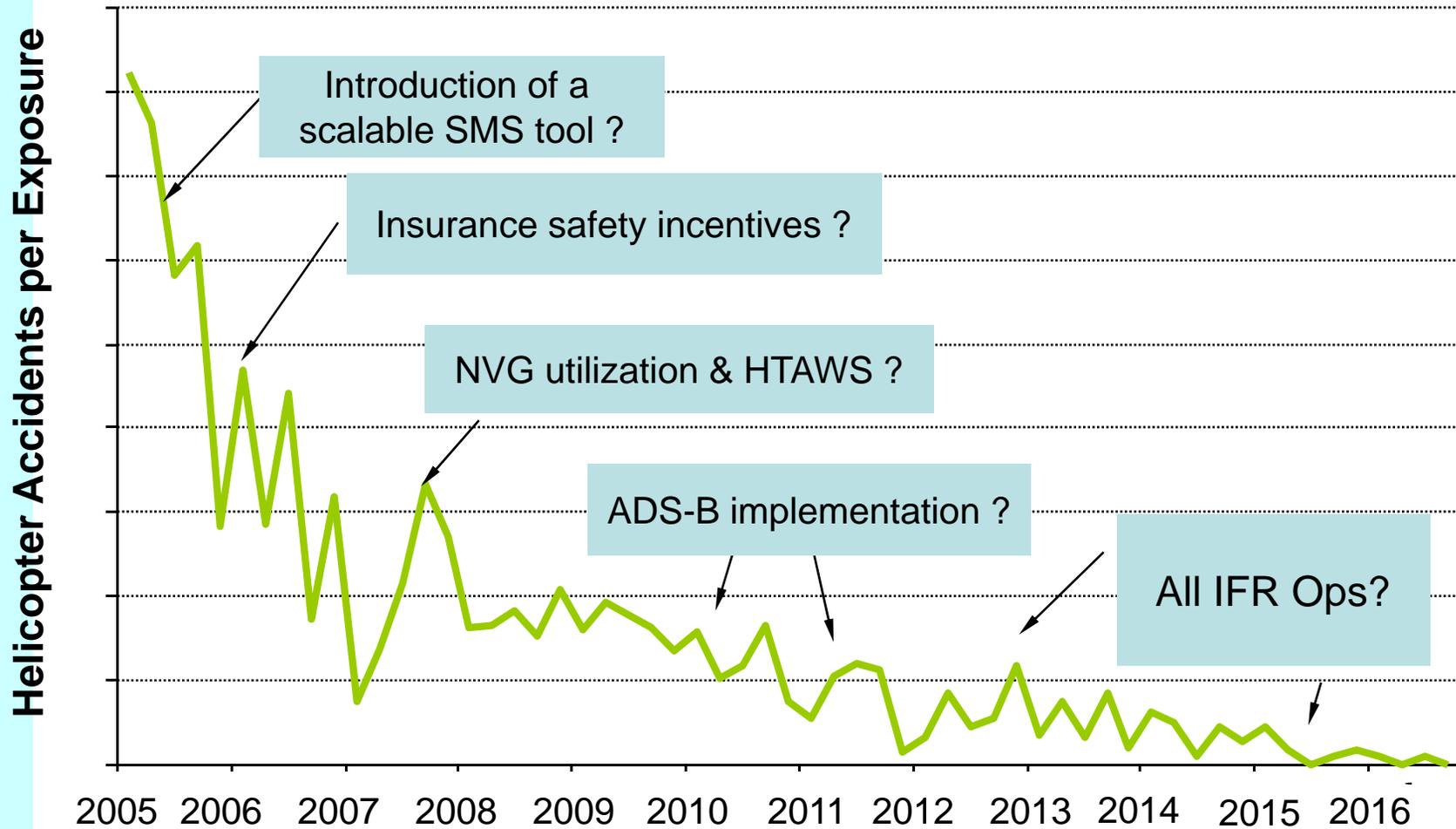
## 26,365 Aircraft Total



# Factors That Led To Breakthroughs in Major Airline Fatal Accident Rates Since 1946

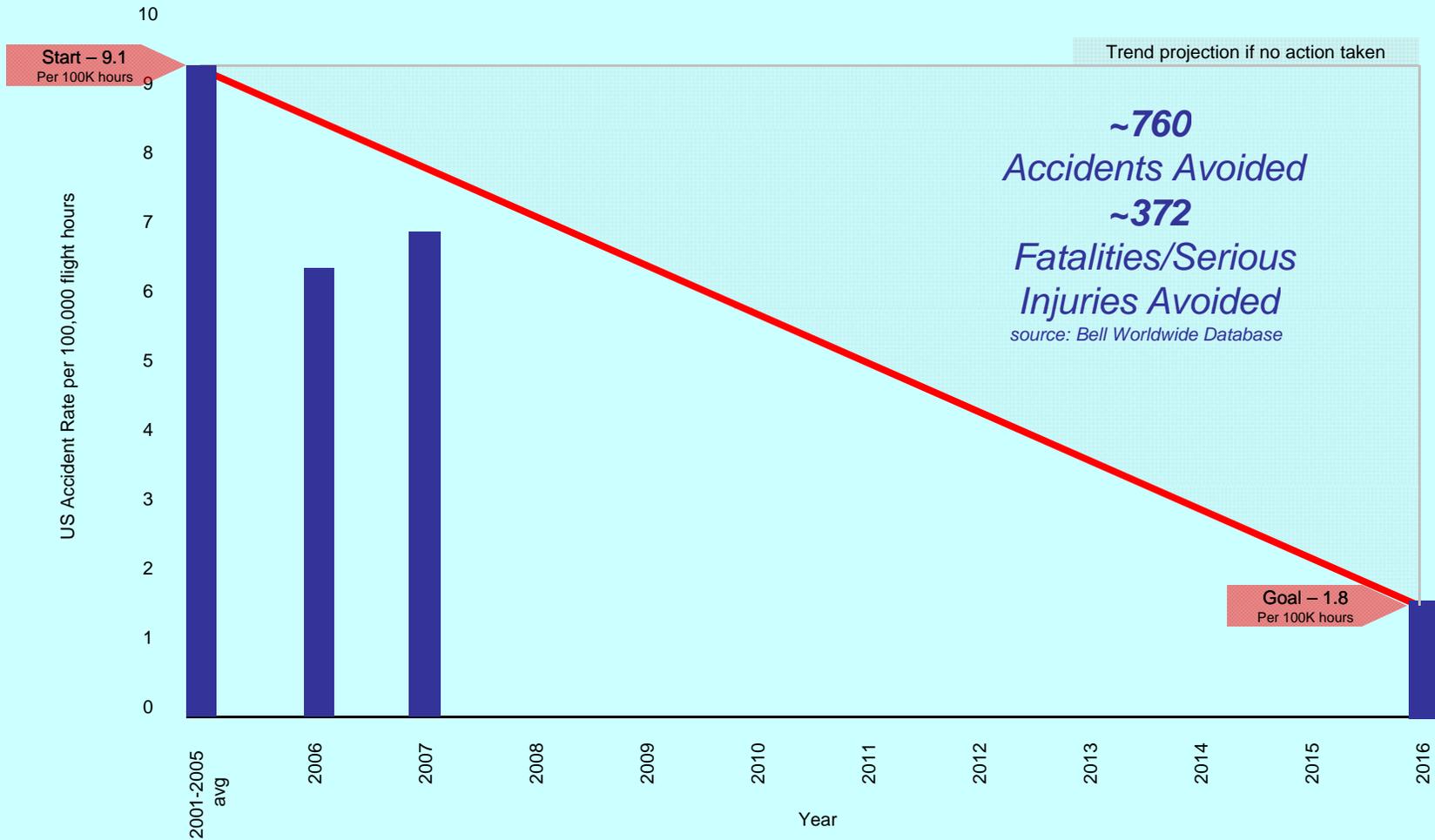


## Example of Potential Breakthroughs in Helicopter Accident Rates



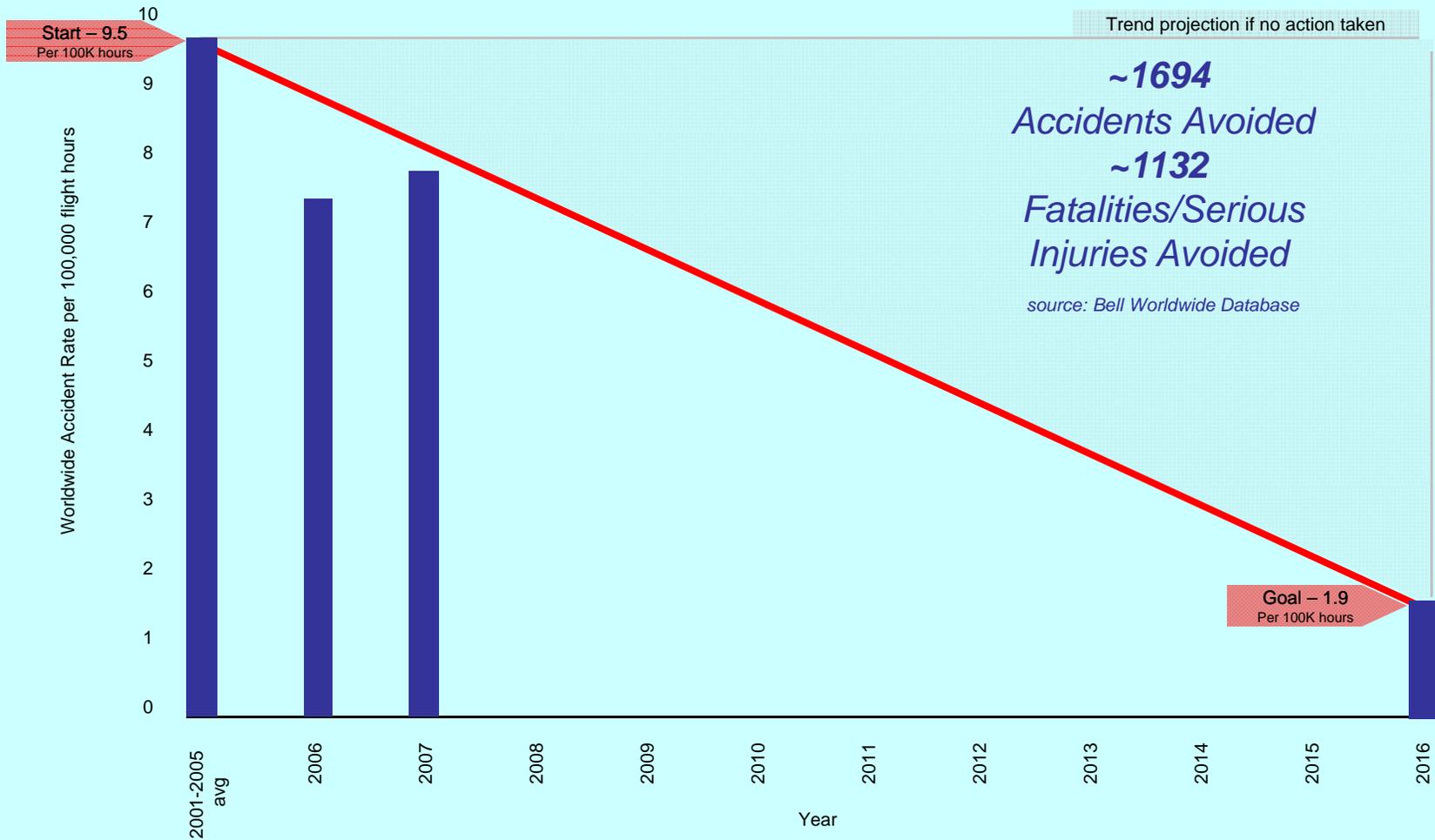
# Progressing Toward the 80% Goal

## US Fleet Data



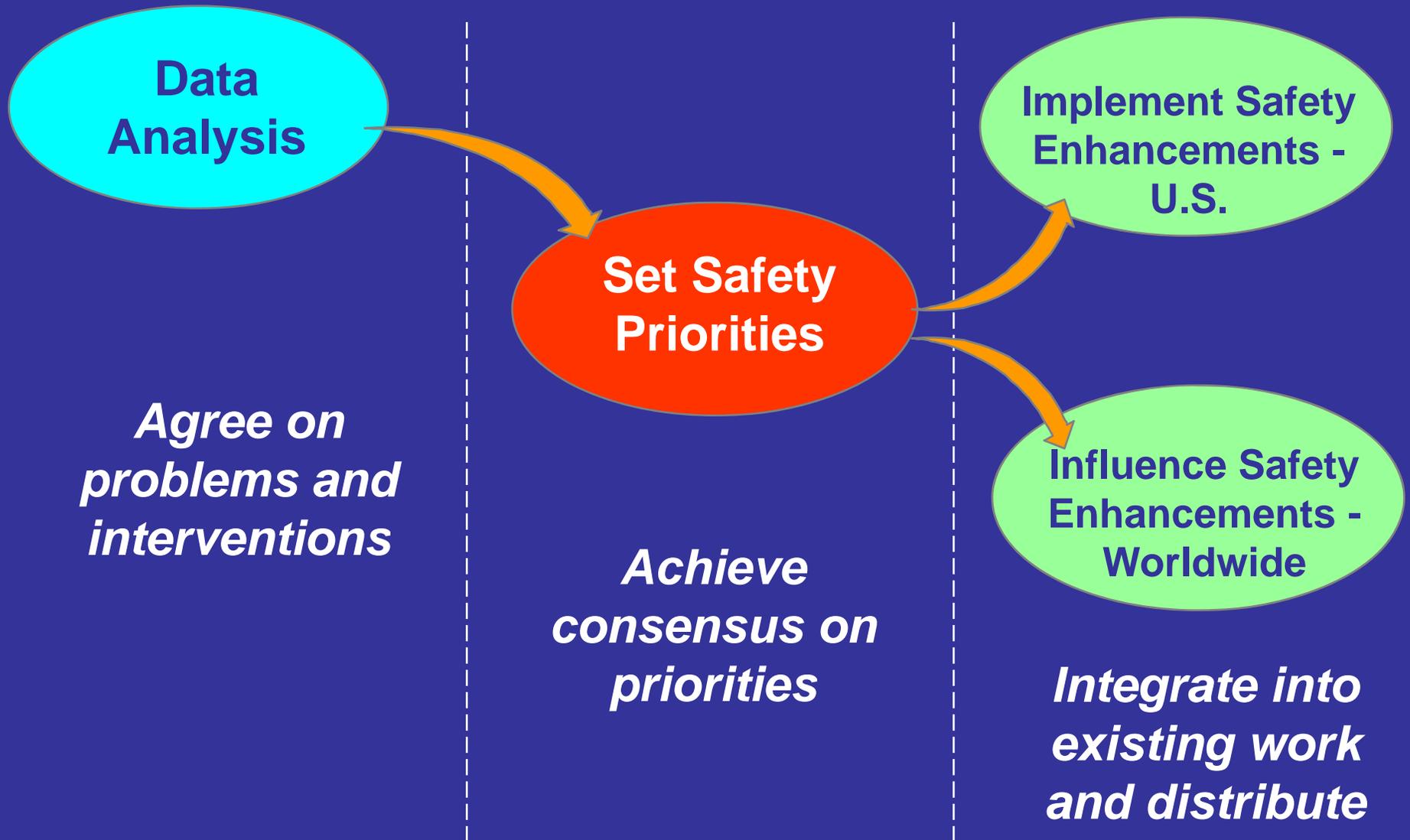
# Progressing Toward the 80% Goal

## Worldwide Fleet Data

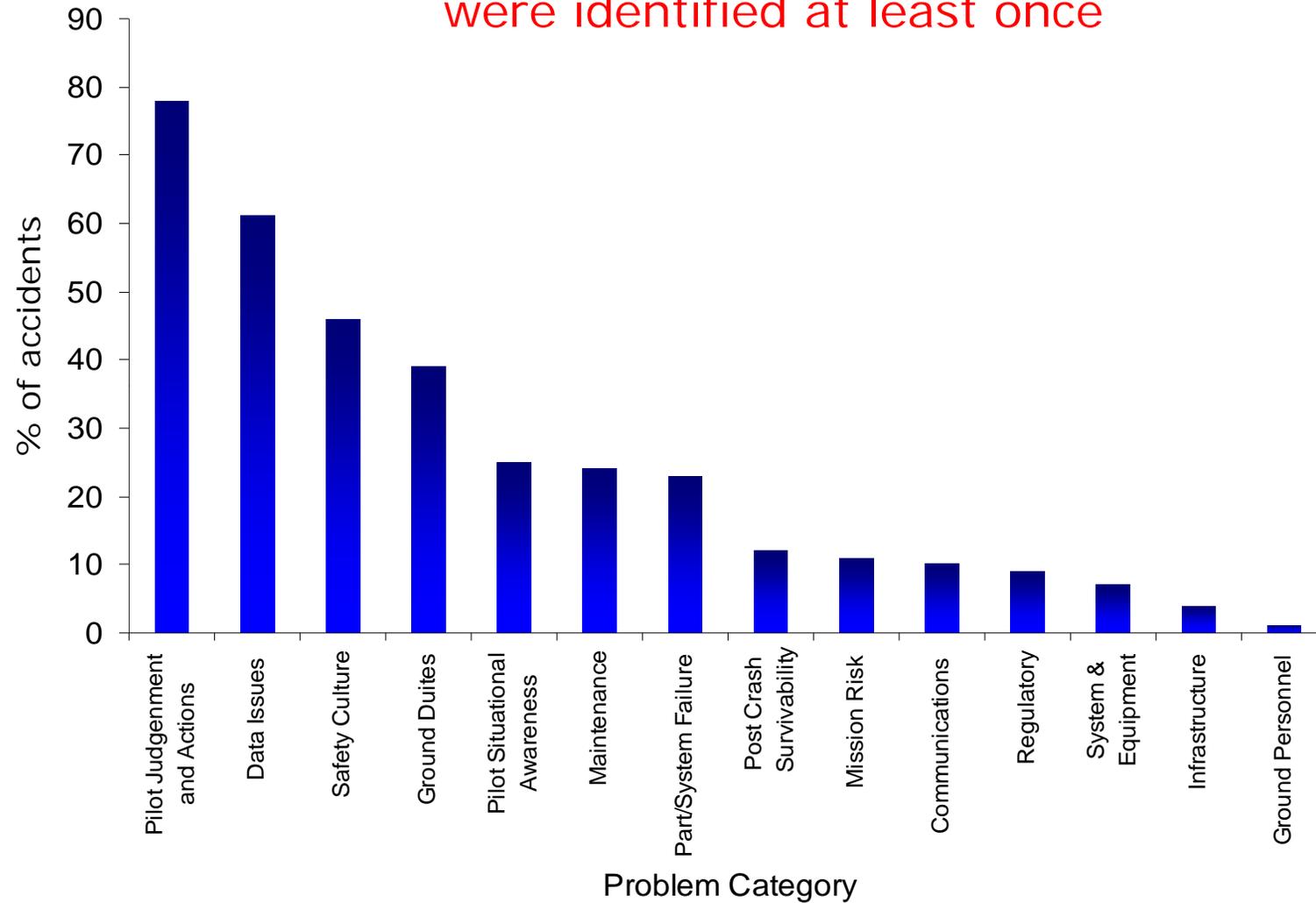


# IHST

## A Three-Stage Process



## Percent of Accidents in which Problem Categories were identified at least once



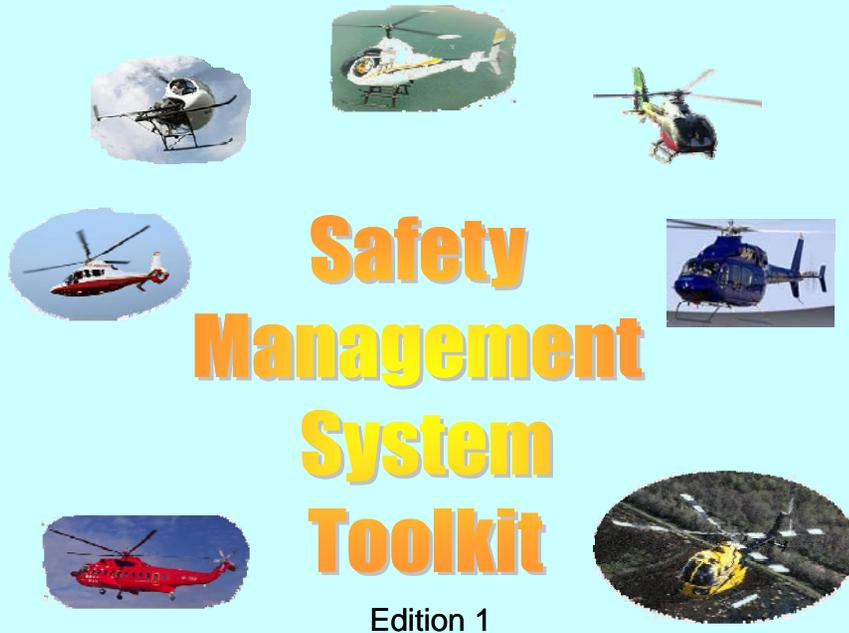
# Int'l Helicopter Safety Symposium 2007

❖ Montreal - September 19–21, 2009      300 + Attendees

## ❖ Program

- Joint Helicopter Safety Analysis Team report
- Joint Helicopter Safety Implementation Team progress update and SMS workshop
  
- Manufacturer and operator presentations
  
- Concurrent papers:
  - Safety and survivability equipment
  - Safety culture
  - Training

**IHSS – September 2009 - Montreal**

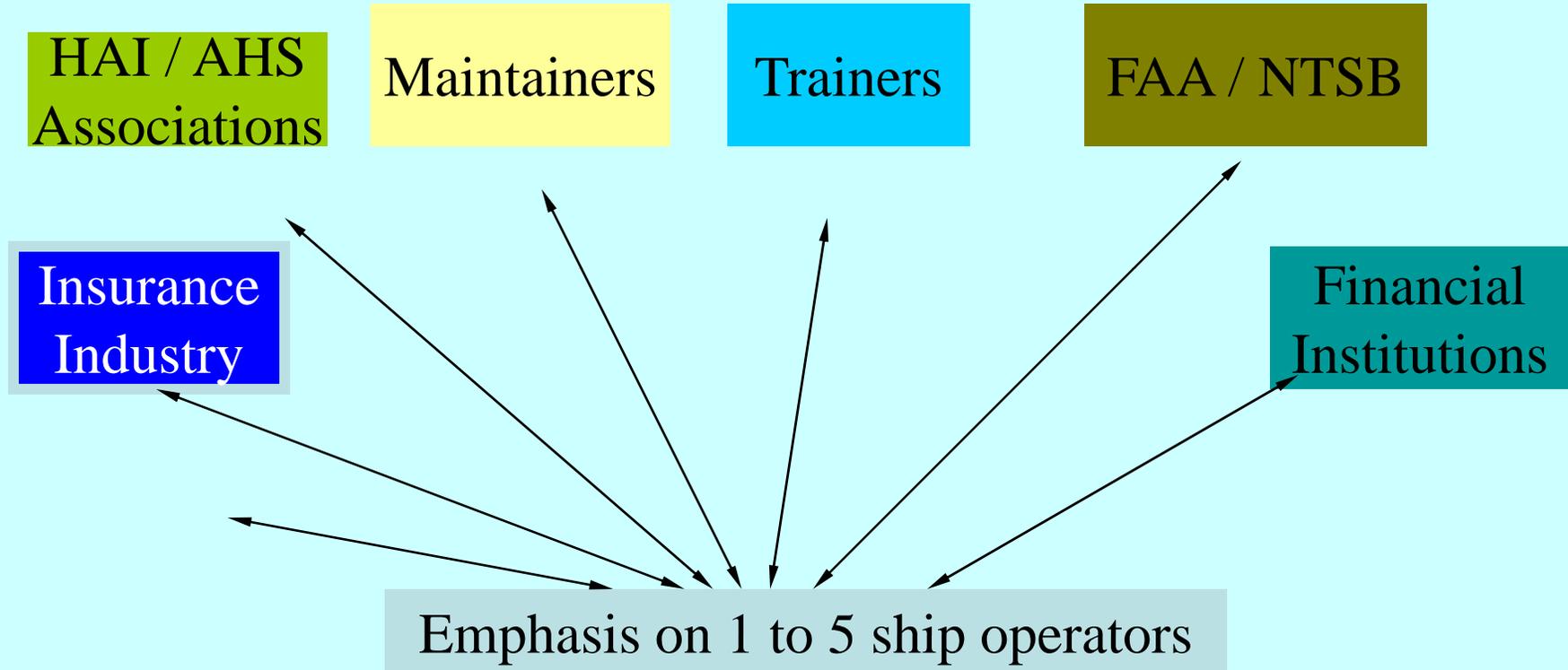


Edition 1

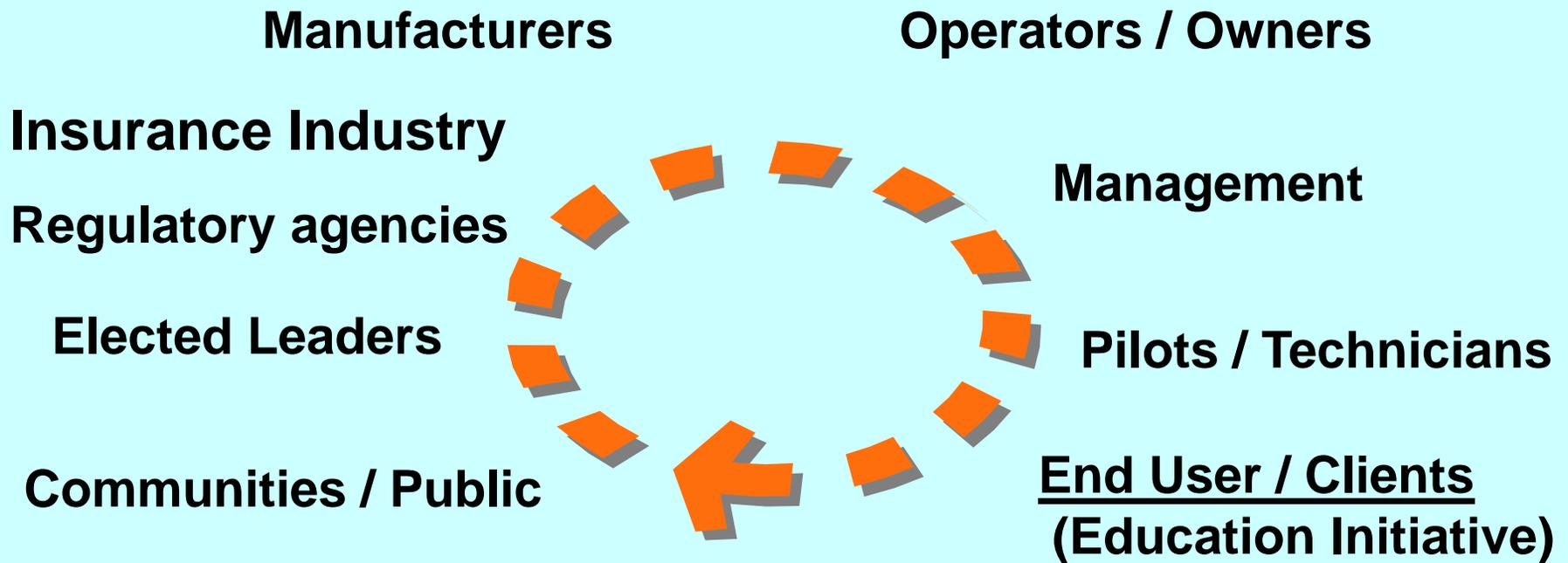


Compiled by the Joint Helicopter Safety Implementation Team (JHSIT)  
an organization of the  
International Helicopter Safety Team (IHST)

# Pathways to the Operating Community



# Safety Culture

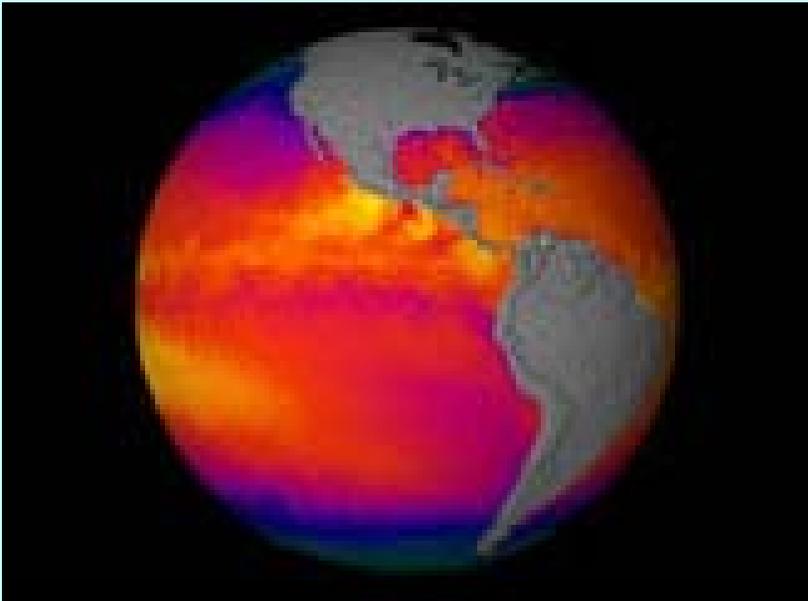


**EVERYONE HAS TO BE INVOLVED & AWARE**

# IHST Summary

- ❖ **Via a worldwide effort a structured approach will be used to manage the analytical and implementation work sponsored by the IHST**
- ❖ **All recommendations will be data driven**
- ❖ **Country data is owned, analyzed and implemented by the teams most familiar with local needs.**
- ❖ **U.S. JHSAT and JHSIT lead teams responsible for training/advising regional teams, while monitoring the results of the safety recommendations and implementation effectiveness.**
  - **European representative added to Executive Committee**
  - **JHSIT SMS toolkit available free, online.**
  - **EHEST/EHSAT building on North American work**
  - **Groups in Australia, Brazil and India committed to support the IHST**

# Helicopter Operating Environment



- **Single & Multiengine Ops**
- **VFR / IFR Operations**
- **Urban vs. rural vs. offshore**
- **1 aircraft to 300 aircraft fleets**
- **Commercial / private / public**

# Multiple Mission Profiles

Corporate

Aerial Applications

Utilities Patrol

Aerial Firefighting

Air Taxi

ENG

Law Enforcement

Aerial Photography

Firefighting

Search and Rescue

Homeland Security

Traffic reporting

Air Tours

Instruction / Training

Construction

Mineral Exploration

Environmental patrol

HEMS

Logging

Schedule Airline service

Customs

**HEMS**

Department of Defense (Military)

Courier / Cargo

# **HEMS Specific Considerations**

- 1. Off Airport Operations**
- 2. Low Altitude Environment**
- 3. Remote Locations**
- 4. Outside Normal Aviation Infrastructure**
- 5. Challenging Operating Environments**
- 6. No previous operations at site locations**
- 7. Minimal notice of flight requirement**
- 8. Daily / 24 hour - Day / Night – VFR / IFR**

## **Technology - Important part of the solution**

- **Helicopter Terrain Avoidance Warning System**
- **Enhanced Ground Proximity Warning System**
- **Health Usage Monitoring System**
- **Automatic Dependent System Broadcast**
- **GPS / WAAS enhanced**

**BUT NOT THE TOTAL SOLUTION**

**There is no magic bullet.**

- **Previous fatal accidents have involved**
  - **Twin engine IFR aircraft**
  - **Autopilot equipped**
  - **Two pilot IFR qualified crew**
  - **VFR operations**
  - **Advanced cockpit**
  - **Familiar operating environment**

# **Human Factors - Critical Area of Focus**

- **Risk Assessment**
- **Decision Making**
- **Perceived or real pressures on operations**
- **Safety Culture**

# **HAI Initiatives**

## **Mission specific HAI Safety Forums / Workshops**

**Aerial Firefighting**

**Feb & October 2008**

**Air Tours**

**May & Oct 2008**

**EMS / ENG**

**Jan 2008 & Jan 2009**

**EMS Only**

**Oct 2008 & 2009 Regional Forums**

**Participants:**

**Operators, Pilots, Technicians  
FAA, NTSB, Clients, Insurance industry**

# **Revised HEMS Operations Specifications**

- **Cooperative Industry Development of Comments in Response to FAA NPRM - OP Spec A-021 & A-050**
  - A. **Increase in Weather Minima**
  - B. **Enhance Pre Flight planning**
  - C. **Promotion of IFR flight**
  - D. **Promotion of NVG / HTAWS use**

**NOTE: HAI / FAA Regional HEMS Safety Seminars to be scheduled within next 3 Months**

# **HAI / AAMS / AMOA Initiatives**

- **Night Vision Goggles / Enhanced Vision Systems for night VFR HEMS Operations**
- **Congressional funding via A.I.P. program for infrastructure improvement dedicated to HEMS operating environment**
- **Application of HEMS criteria to Government operators (public use)**
- **Develop dedicated low level helicopter IFR Infrastructure**
- **Utilization of FDR / CVR / Video capture devices or related technology for accident investigation and FOQA programs**

# **HAI / AAMS / AMOA Initiatives**

- **Elimination of launch / response time requirements**
- **Prioritized ADS-B implementation for HEMS environment**
- **Formalized multiple flight request protocols – Helicopter shopping**
- **Review of fatigue factors within the HEMS work model**
- **Industry, Agency coordination with the International Helicopter Safety Team relative to Data driven accident analysis and a focus on the role of human factors in helicopter accident causation.**

# **HAI / Industry Initiatives**

**Non punitive safety reporting environments**

**Implementation of Safety Management Systems**

**Management oversight of Risk Assessment activities**

**Acknowledgement of risk aversion, not risk exposure**

**Client education program and forums**

**Sales & marketing of safety to operators and clients**

**Safety initiatives appropriate to specific operating environment and mission**

**Consideration of retrofit capability to existing fleet**

**Development of end user / client educational DVD**

# HAI / Industry Initiatives

- **HEMS specific mission training – use of simulators / FTD**
- **Accurate flight hour data to facilitate actual helicopter accident rates**
- **Dedicated Helicopter Low level IFR routes, point in space and precision instrument approaches to heliports & scenes, to provide seamless transition in and out of the IFR system for helicopters**

**Provide Pilots / Maintenance Technicians with sterile operating environment limited to aeronautical / airworthiness decision making considerations – free of 3<sup>rd</sup> party, non relevant influence and pressures**

- **Change the cultural mindset of relevant parties, so that daily decision making places safety as the primary consideration above all else.**

# **HAI / Industry Initiatives**

- **HEMS risk assessment / Decision making same as other mission protocols**
- **Separation of pilots from medical / patient information prior to departure**
- **Local Pre-established HEMS helistops**
- **Formalized Operational Control Agreements with clients.**
- **Formalized, structured dispatch / communication procedures**

**Safety is not a slogan**

**It requires**

**Passion and Commitment**

# CONTACT INFORMATION

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**IHST WEBPAGE: [WWW.IHST.ORG](http://WWW.IHST.ORG)**

**Questions?**