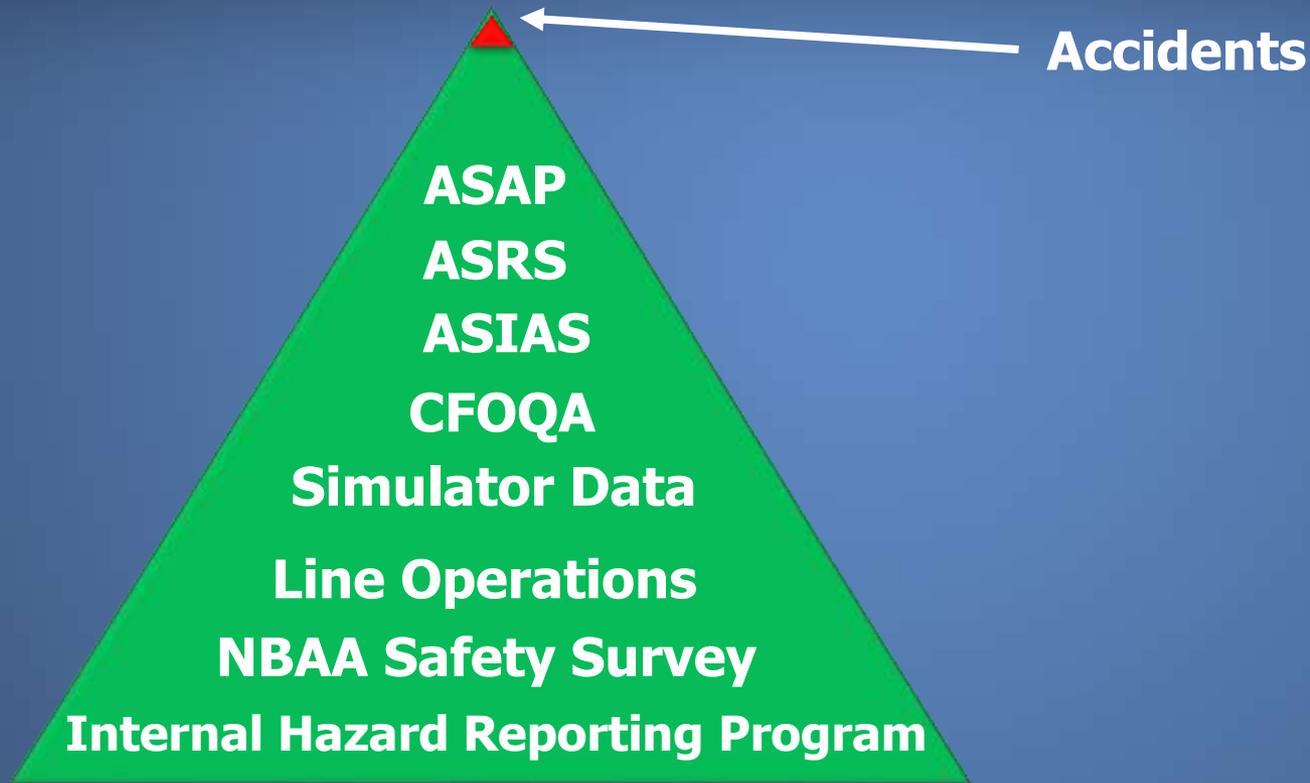




NBAA Safety Committee Annual Risk Assessment Meeting

Robert Sumwalt

Potential Sources of Data



Type of Operation

Business - Individual or group use for, or in the furtherance of, a business and without a paid flight crew.

Corporate - Individual or group business transportation with a paid flight crew (includes fractional ownership).

On-Demand 135 – Aircraft operations providing air transportation of persons or property for compensation or hire.



- NTSB investigates all civil aviation accidents in the US.
- We are the census keeper of these accident data.



Data Coding Challenges



December 29, 2016
6 Fatalities



August 9, 2010
5 Fatalities



NTSB

Accidents 2008 - 2016

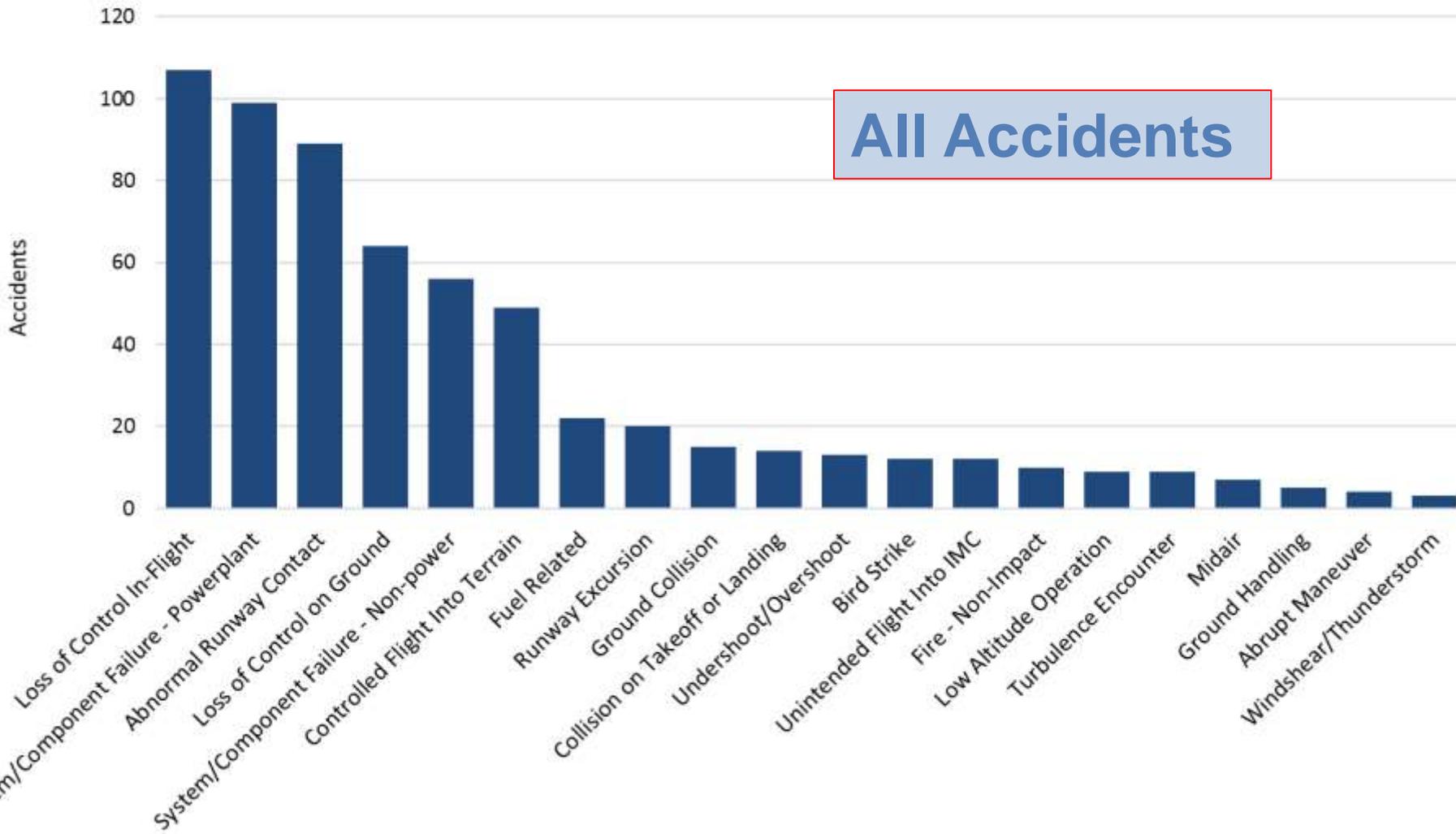
Operation Type	Accidents	Fatal Accidents	Fatalities
Business Aviation	274	66	138
Corporate/Exec	59	15	47
On Demand 135	366	84	247
Totals	699	165	432

Year	Location	AC Type	FAR	Fatalities	
Flown by Paid Pilots					
2004	Houston G3	G3	91	3	CFIT
2005	Pueblo C-560	C-560	91	8	LOC
2005	Teterboro	CL-600	135	0	RTO
2007	Lake Michigan	C-550	135	6	LOC
2008	Oklahoma City	C-500	135*	5	Bird strike
2008	Owatonna, MN	HS-125-800	135	8	Aborted landing
2008	Columbia, SC	LR-60	135	4	RTO
2010	Aleknagik, AK	DHC-3T	91	5	Pilot unresponsiveness
2013	Thomson, GA	BE-390	91	5	Aborted landing
2014	Bedford, MA	G4	91	7	Runway overrun
2015	Akron	HS-125-700	135	9	LOC
Flown by Non-Paid Pilot					
2014	Gaithersburg,MD	EMB-500	91	6	LOC

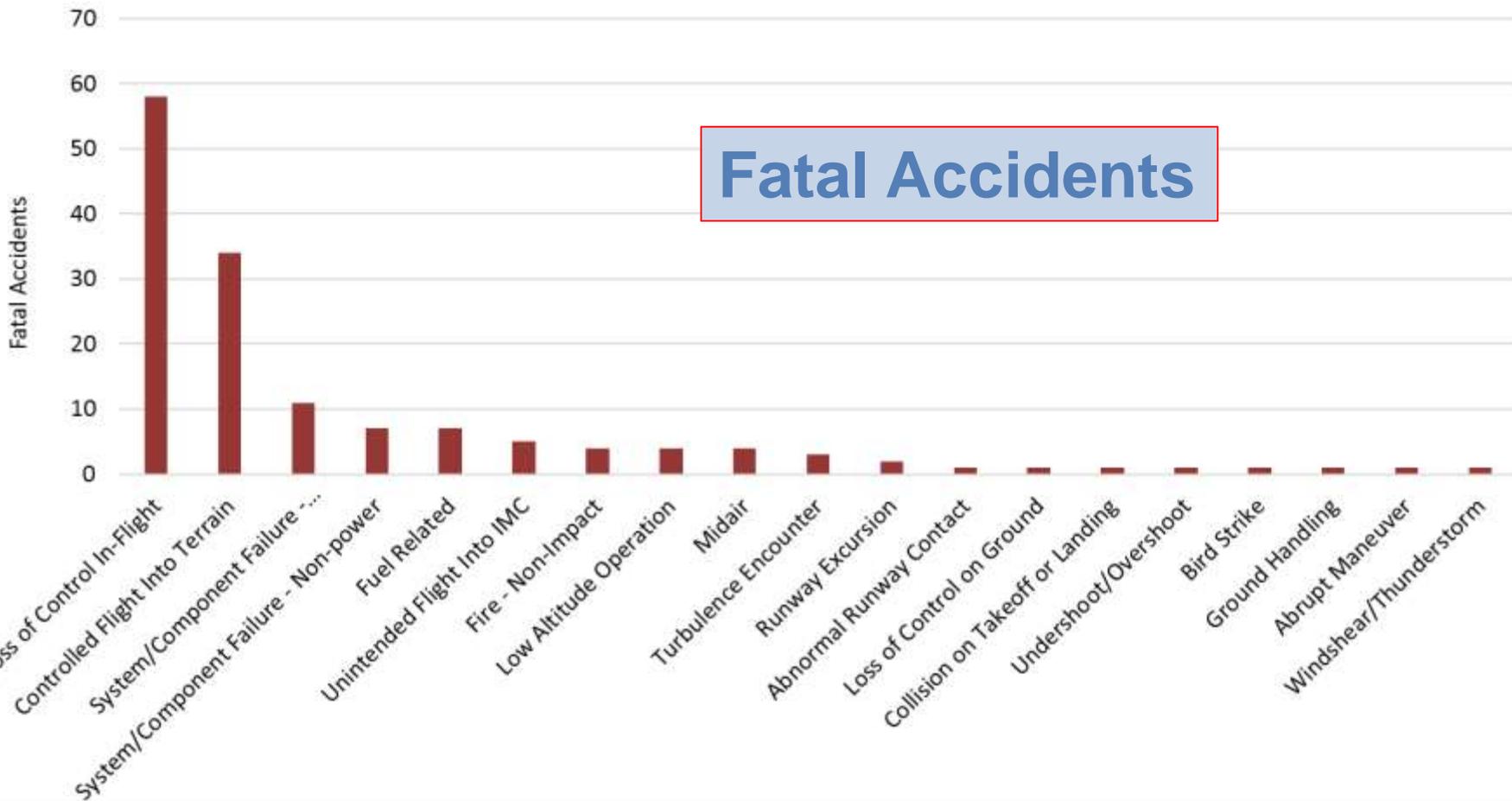
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Top 20 On Demand Part 135, Business, and Corporate Accident Occurrence Categories, 2008-2016
(excludes other, unknown, and unclassified)

All Accidents

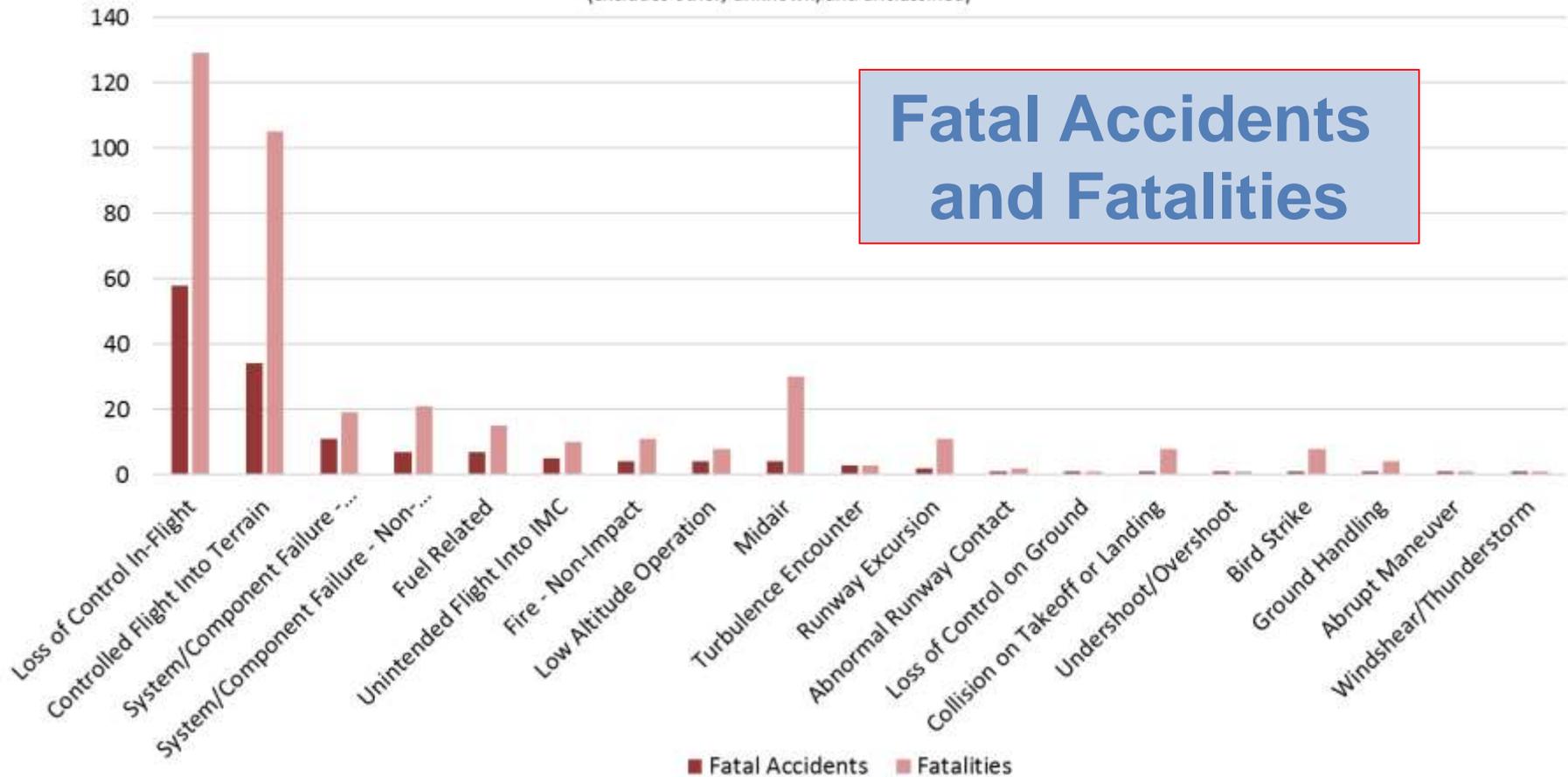


On Demand Part 135, Business, and Corporate Fatal Accident Occurrence Categories, 2008-2016
(excludes other, unknown, and unclassified)



On Demand Part 135, Business, and Corporate Fatal Accidents and Fatalities by Occurrence Category 2008-2016

(excludes other, unknown, and unclassified)



DEDICATED TO HELPING BUSINESS AVIATION ACHIEVE ITS HIGHEST GOALS



**BUSINESS AVIATION
SAFETY SURVEY**

2016 Survey Results



NTSB

Composite "Concern" Score For Listed Mishap Types

Percentage of respondents ranking mishap as a top or second tier concern is noted (%)





NTSB

Fatigue





NTSB

Probable Cause

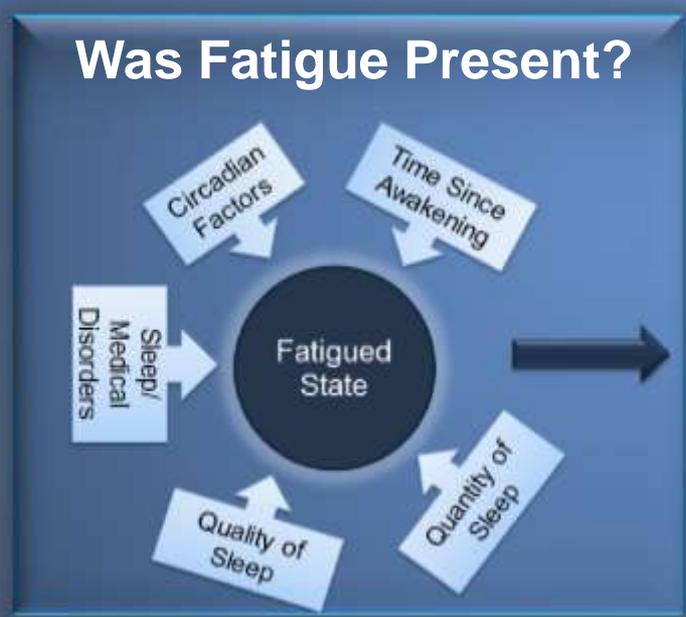
- The captain's inappropriate response to the activation of the stick shaker, which led to an aerodynamic stall from which the airplane did not recover.

Contributing to the accident:

- 1) the flight crew's failure to monitor airspeed in relation to the rising position of the low-speed cue
- 2) the flight crew's failure to adhere to sterile cockpit procedures
- 3) the captain's failure to effectively manage the flight
- 4) Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions.



Two Prongs that Must be Met to Show Fatigue was a Factor in Accident's Causation



**Did Fatigue
Adversely
Affect
Performance?**



Did fatigue adversely affect their performance?

- Throughout the flight the pilots were engaged in conversation.
- Neither acted withdrawn, lethargic or made any statements about being tired or receiving inadequate sleep.



Was fatigue present?

- Captain spent night in crew room.
 - Likely had been awake for more than 15 hours.
 - Likely running a sleep debt of 6-12 hours
- First officer commuted on red-eye cargo flight.



Did fatigue adversely affect their performance?

- “The errors of the crew cannot be solely attributed to fatigue because of other explanations for their performance.”
 - Monitoring error made by other crews, as well
 - Captain’s errors consistent with his previous performance deficiencies



Did fatigue adversely affect their performance?

“The pilots’ performance was likely impaired because of fatigue, but the extent of their impairment and the degree to which it contributed to the performance deficiencies that occurred during the flight cannot be conclusively determined.”





NIGHTLY NEWS




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NTSB

COLUMBIA
ACCIDENT INVESTIGATION BOARD



REPORT VOLUME 1
AUGUST 2003



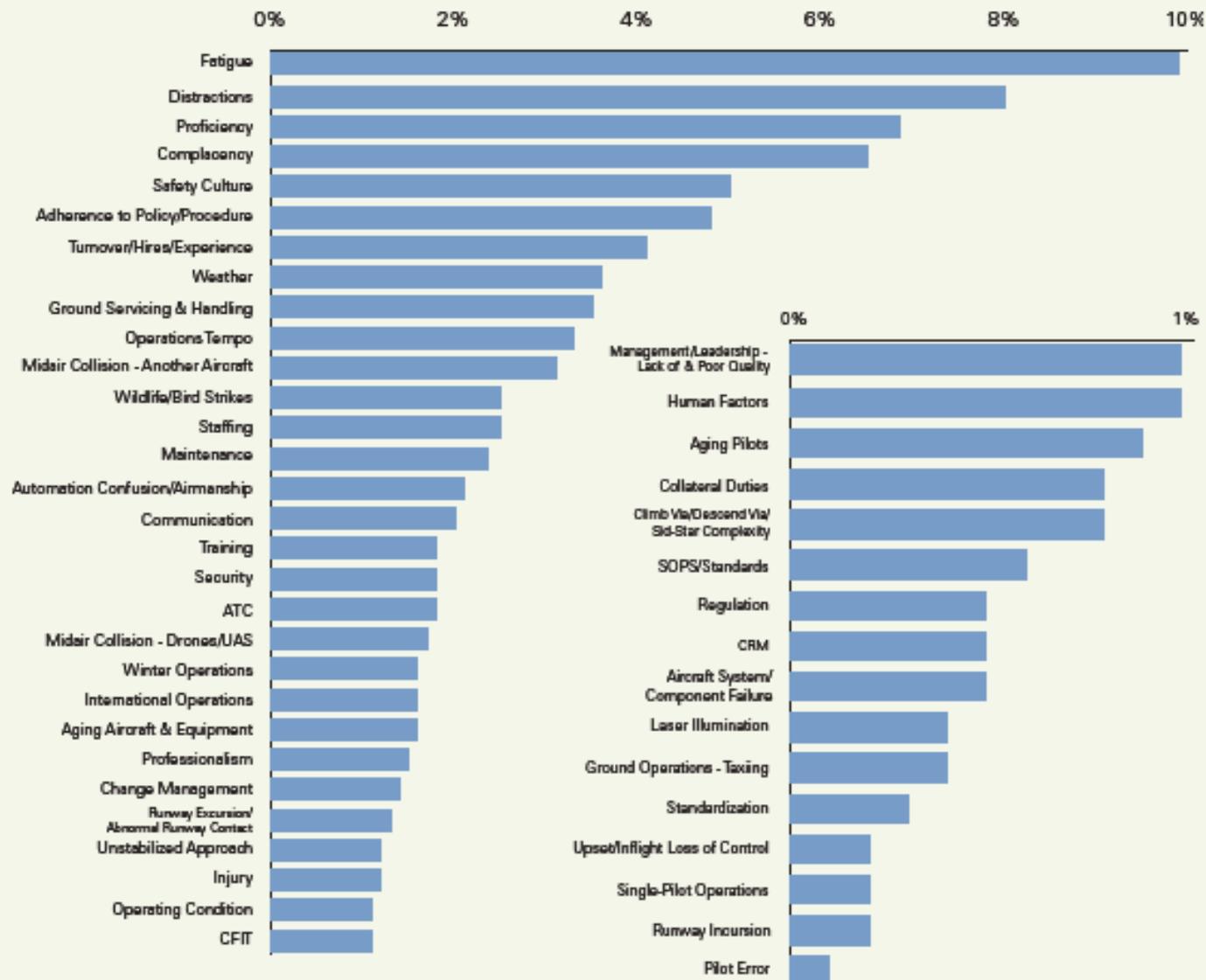
NTSB

Safety Concerns

Survey Question:

What do you consider the top three safety risks facing your flight operation in the next year?

(Three blank fields were provided for open-ended responses.)





A few thoughts:

Fatigue – NBAA survey data indicates it's the top threat.

Business and corporate – the intervention strategies for each may be different.





National Transportation Safety Board