Cap. German Diaz-Barriga Mtz

RUNWAY EXCURSION

A veer off or overrun off the runway surface.

(ICAO)

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RUNWAY EXCURSION

Overrun on Take Off: A departing aircraft fails to become airborne or successfully reject the take off before reaching the end of the runway.

Overrun on Landing: A landing aircraft is unable to stop before the end of the runway is reached.

Directional Control: An aircraft taking off, rejecting take off or landing departs the side of the runway.

Undershoot on Landing: An aircraft attempting a landing touches down in the undershoot area of the designated landing runway within the aerodrome perimeter

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DATA DRIVEN

BOEING
IATA
ICAO

REACTIVE
PROACTIVE
PREDICTIVE

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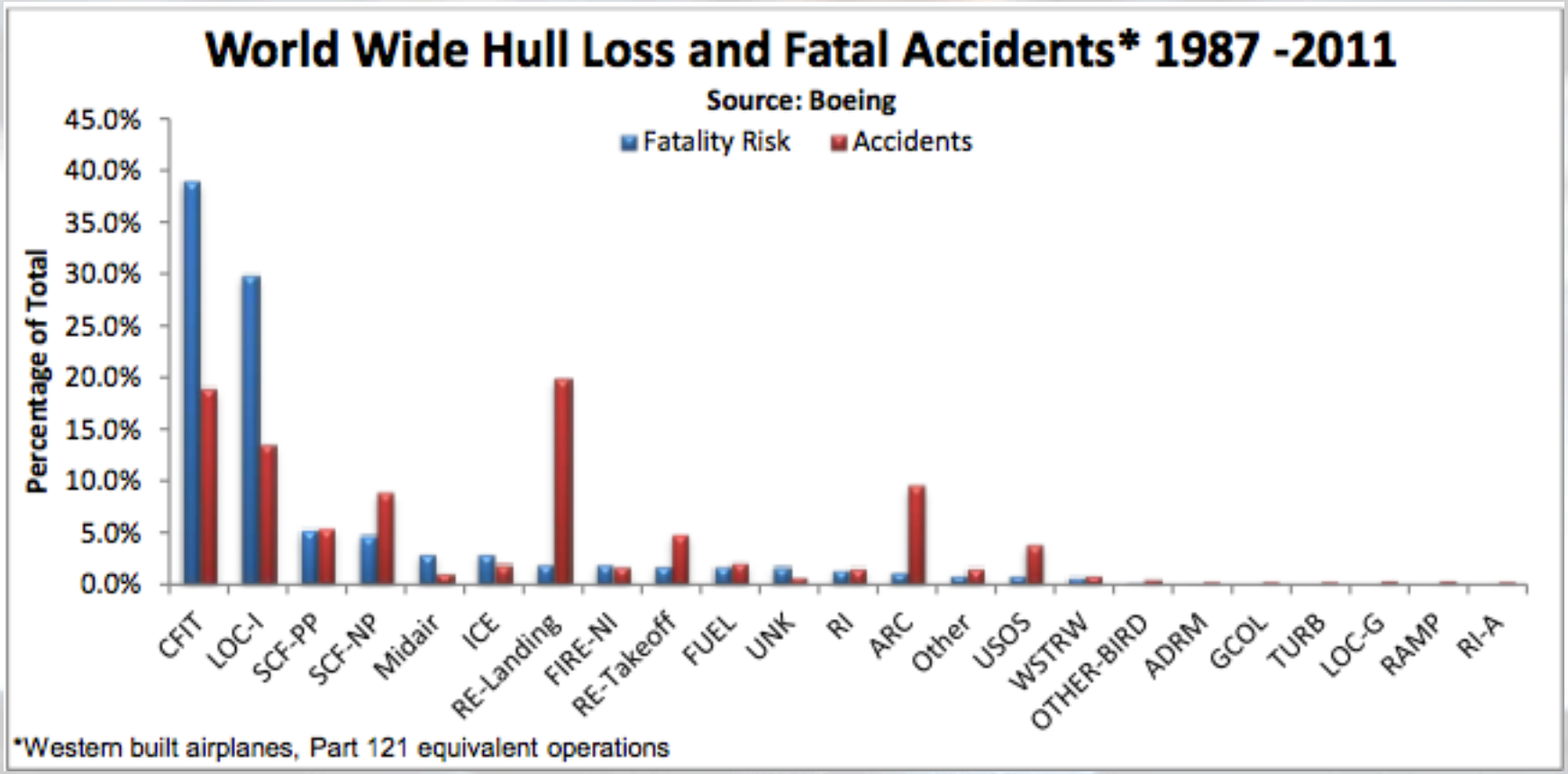
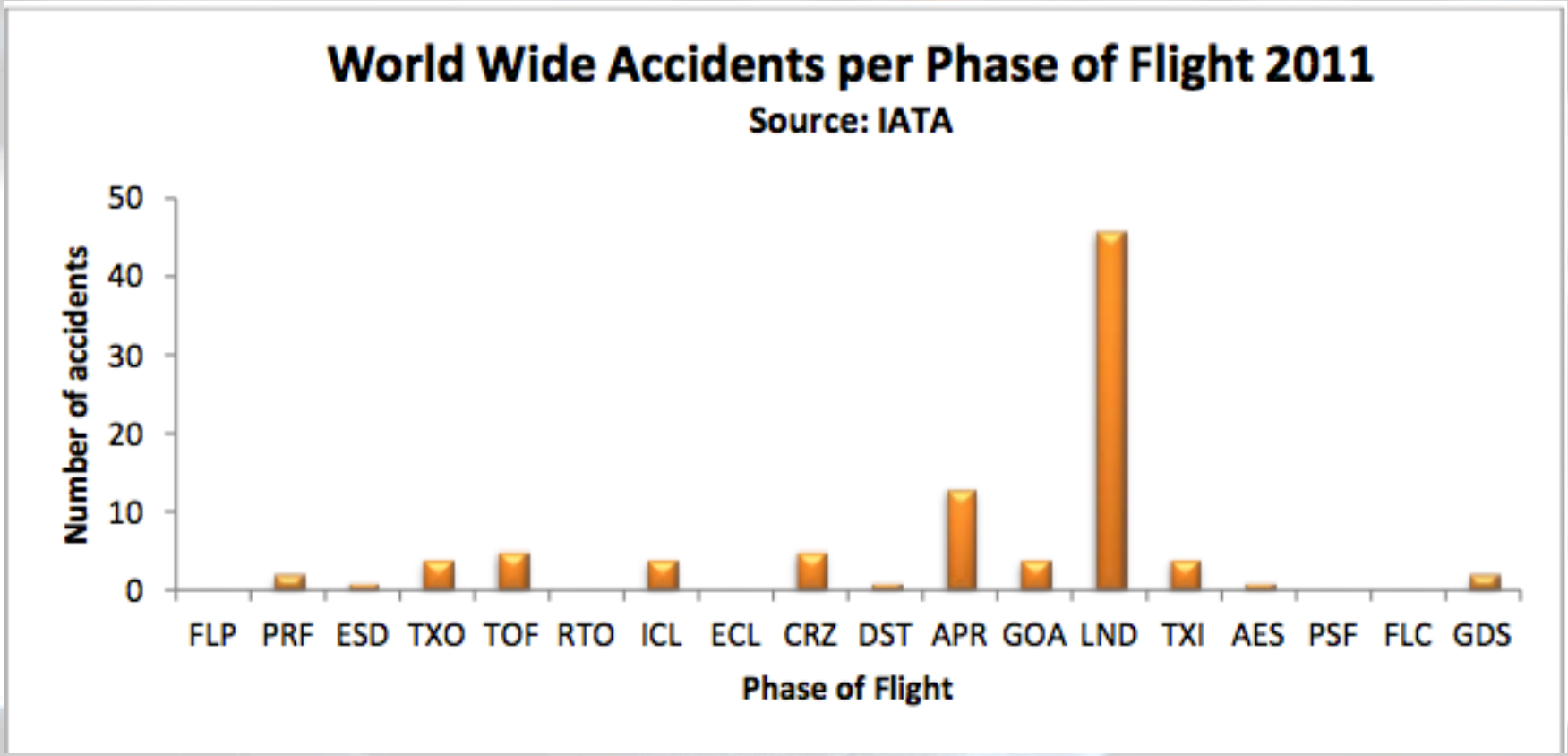
RASG-PA ANNUAL SAFETY REPORT



RE 30% de los Accidentes



Landing 50%, Approach 14%

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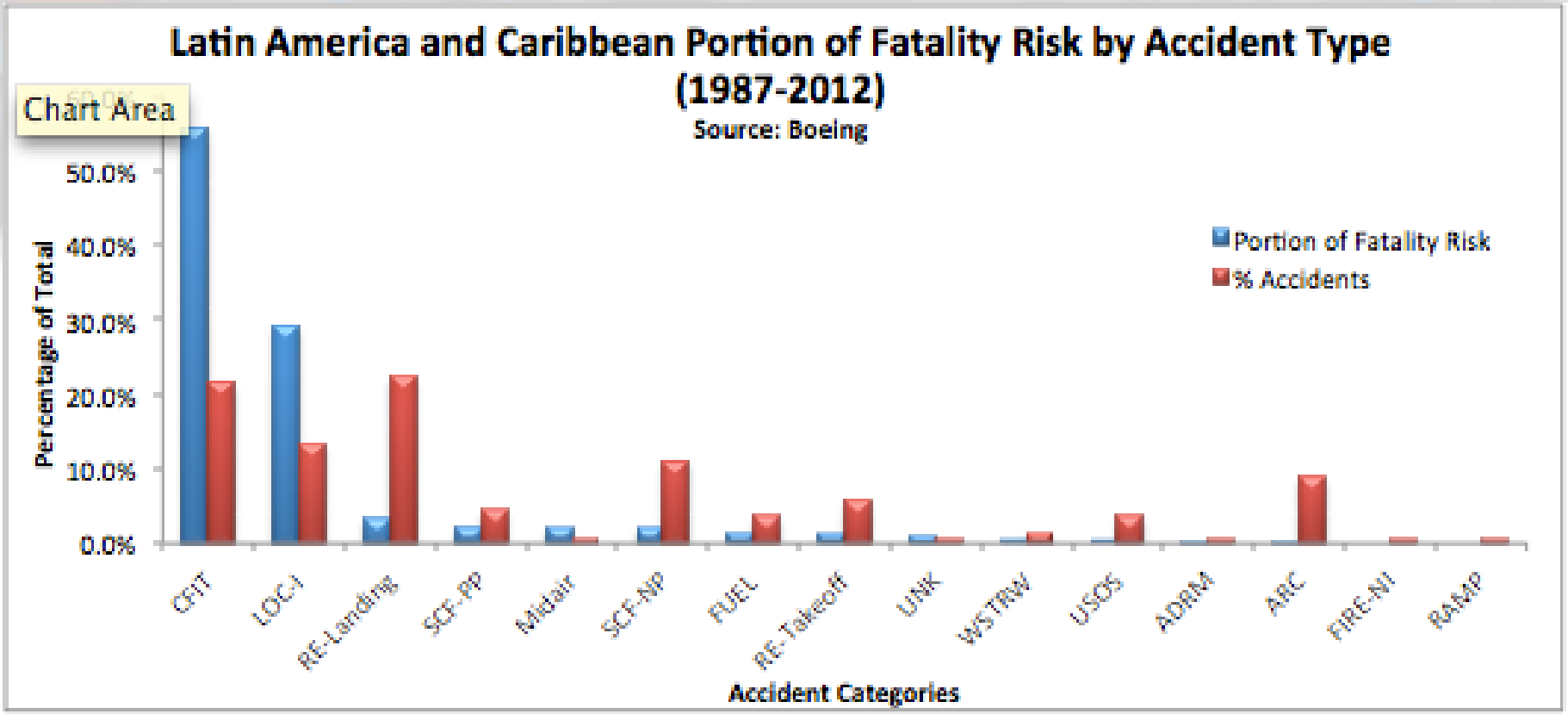

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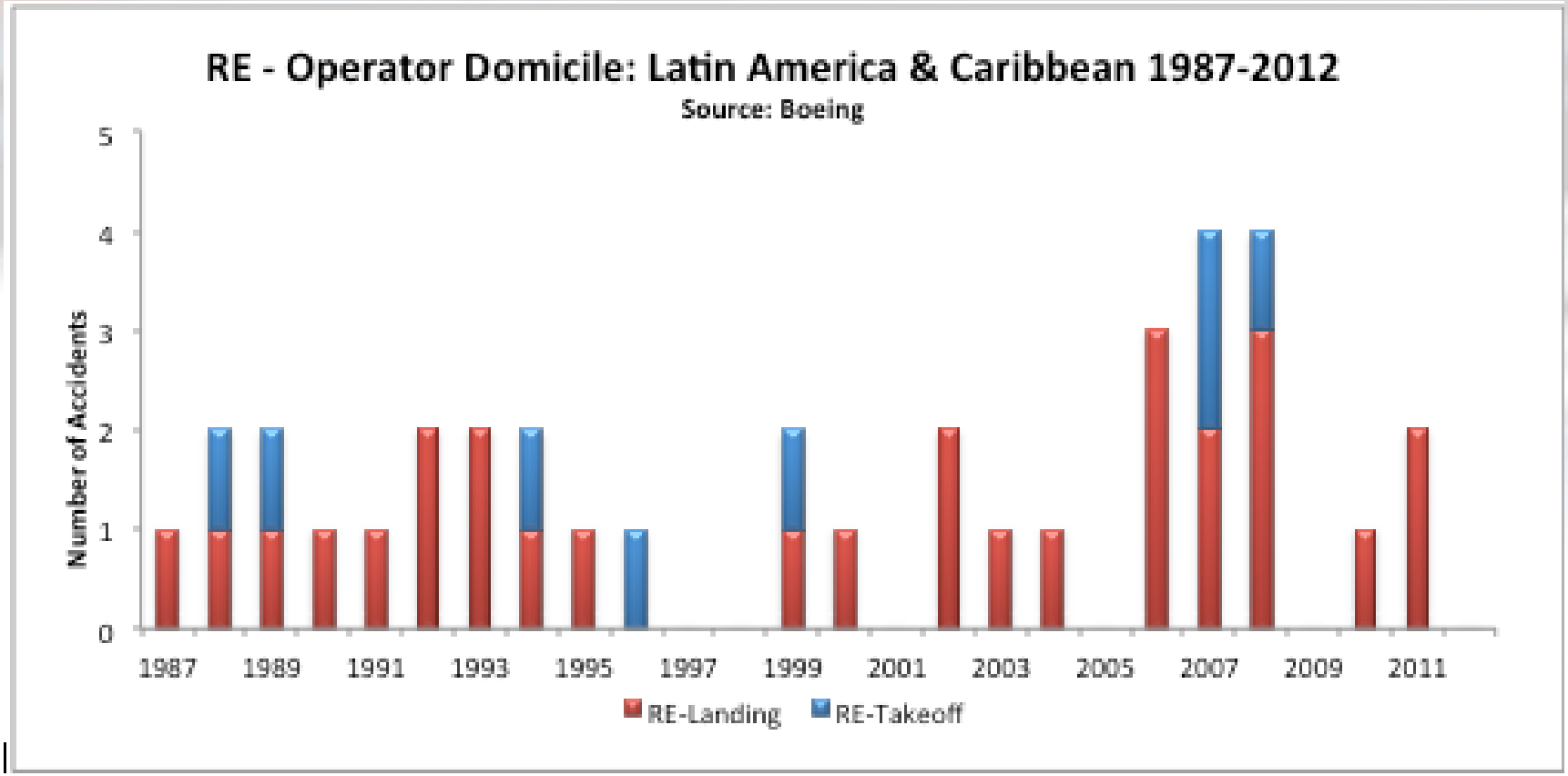
RE - Operator Domicile: Latin America & Caribbean 1987-2012
Source: Boeing
Number of Accidents
0
1
2
3
4
5
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
RE-Landing
RE-Takeoff

Latent conditions	19% Safety Management 13% Flight Operations: Training Systems 13% Regulatory Oversight	
Threats	**Environmental**	25% Contaminated runway/taxiway 19% Ground-based nav aid malfunction or not available 13% Wind/windshear/gusty wind
	Airline	19% Contained Engine Failure/Powerplant Malfunction 19% Other threats 13% Maintenance events
Errors	31% Manual handling/flight controls 19% SOP adherence/SOP Cross-verification 13% Failure to GOA after destabilization on approach	
Undesired Aircraft States	33% Controlled flight towards terrain 33% Vertical / lateral / speed deviation	
Countermeasures	67% Monitor / cross-check 50% Comunication Environment 50% Leadership	

IATA determined the Top Contributing Factors regarding runway excursion accidents occurred in LATAM/CAR

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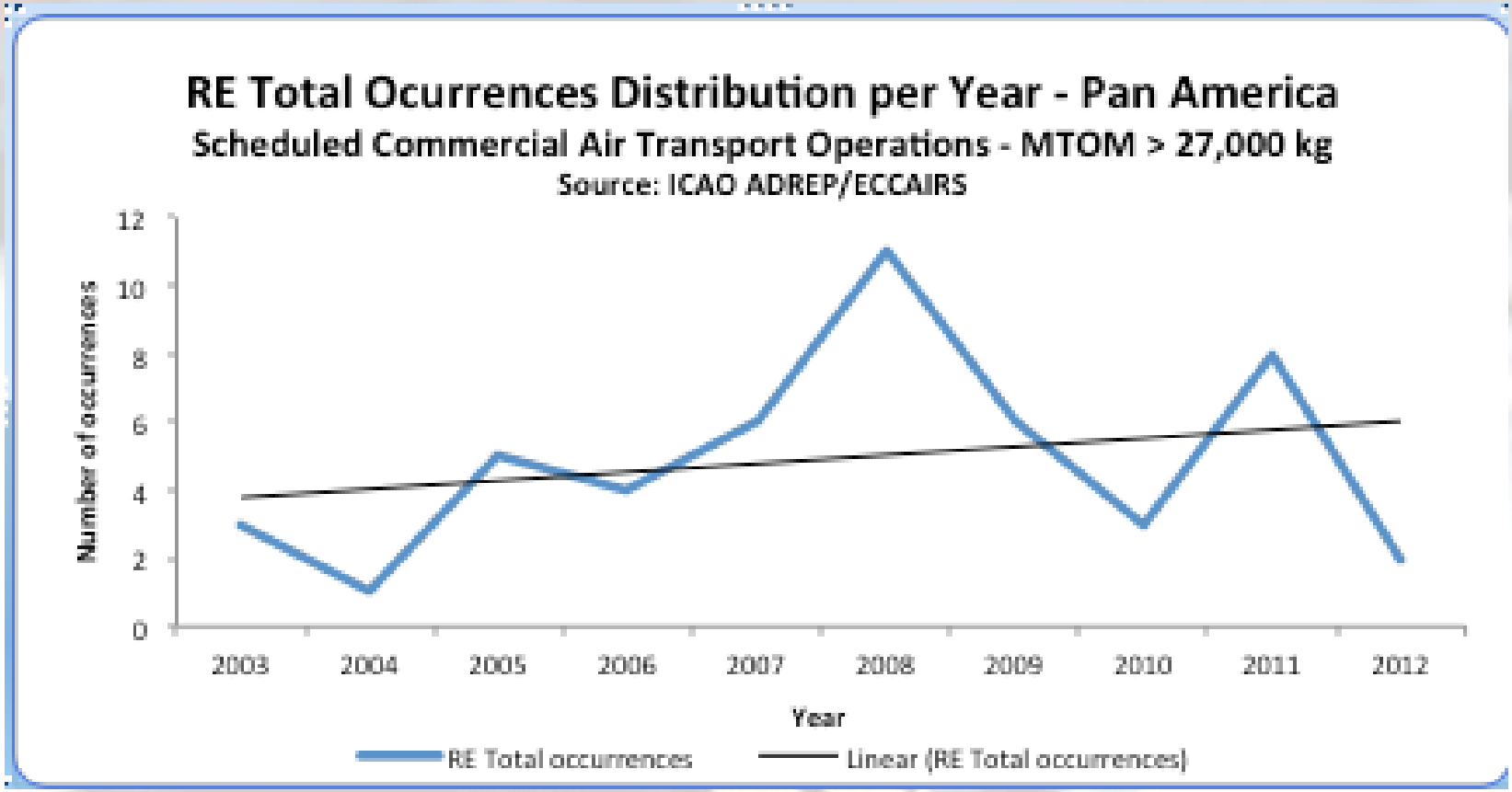

Decreasing trend: from 8 in 2011 to 2 in 2012

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According to IATA, runway excursions continue to be the most common type of accidents in the Pan American Region, accounting 0.24 of the NAM accident rate and 0.56 for LATAM (based upon the Operator Region).

Runway Excursions	2008	2009	2010	2011
Worldwide	28	23	20	17
Worldwide %	27%	26%	21%	19%
LATAM	5	2	1	2
NAM	XXXX	XXXX	XXXX	3 [W5]

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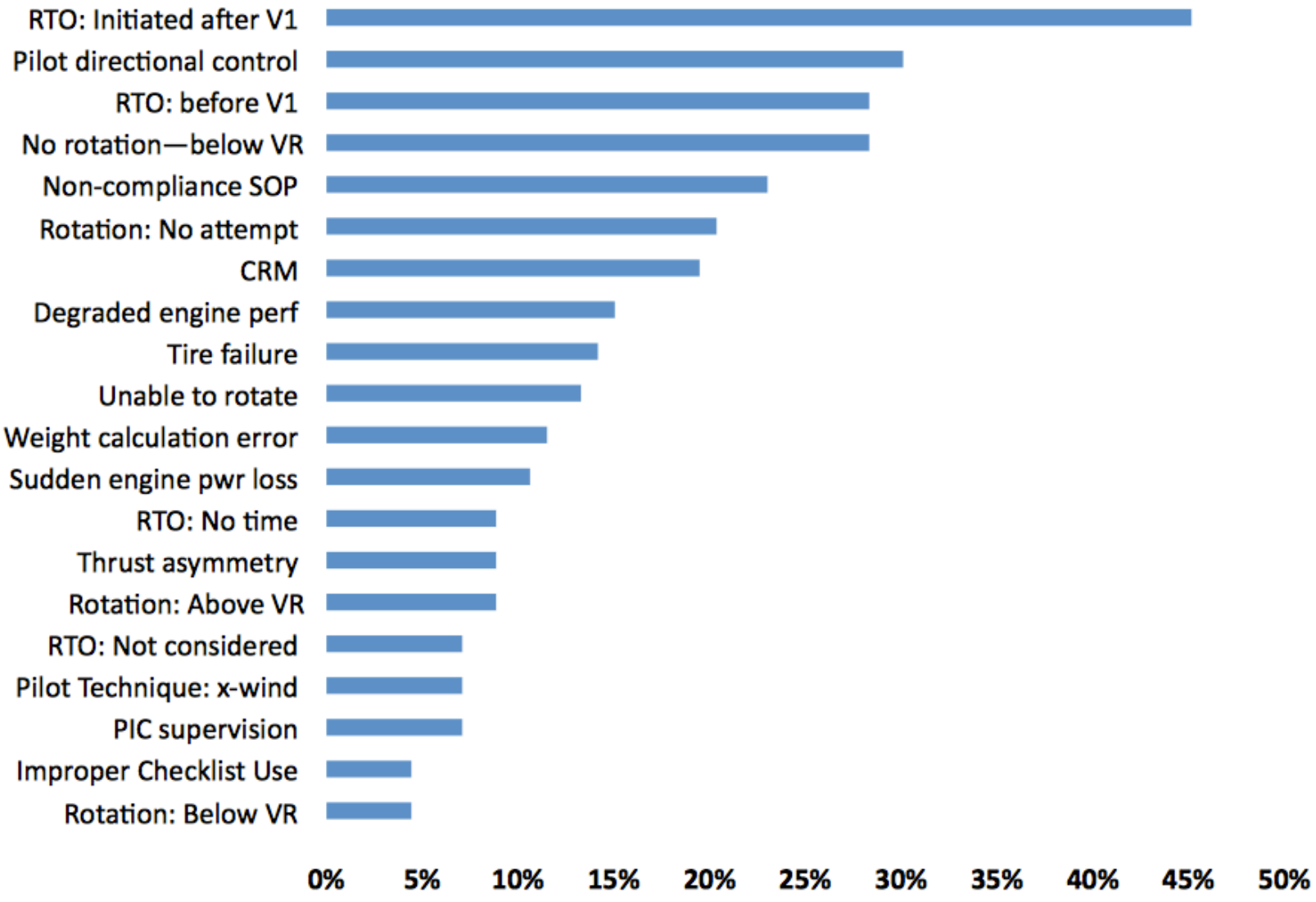
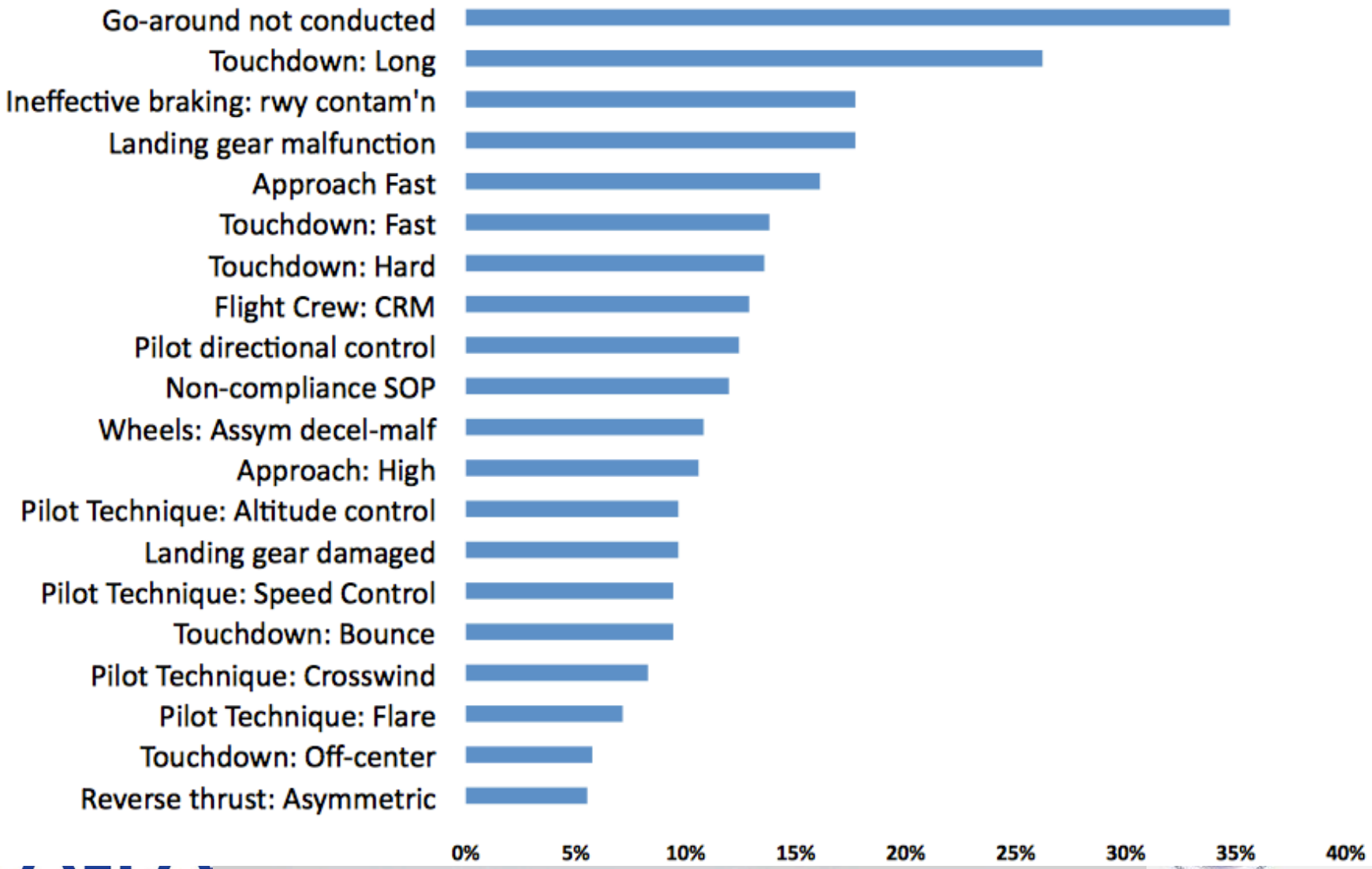
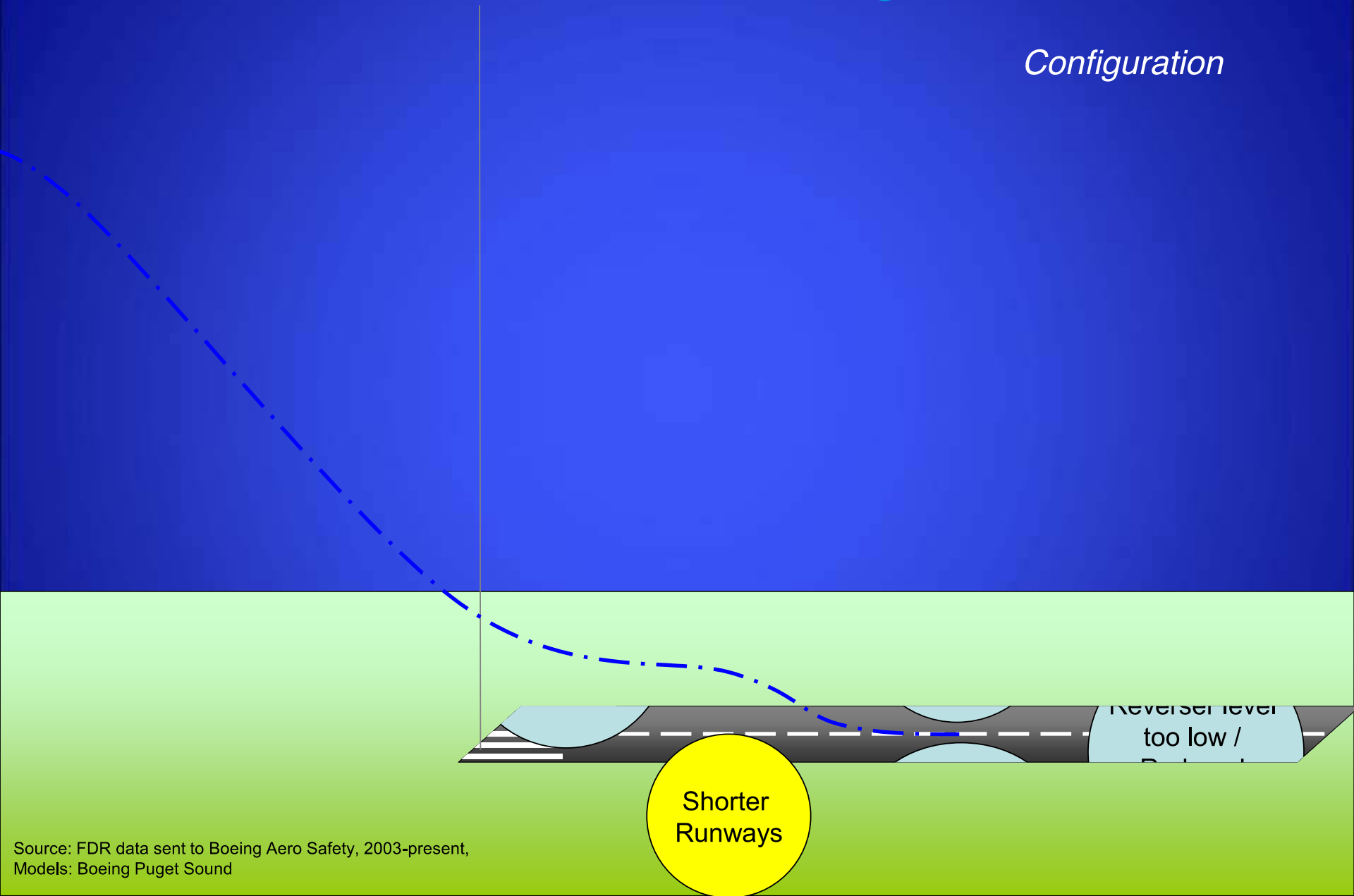
FSF - Take Off Risk Factors



FSF – Landing Risk Factors



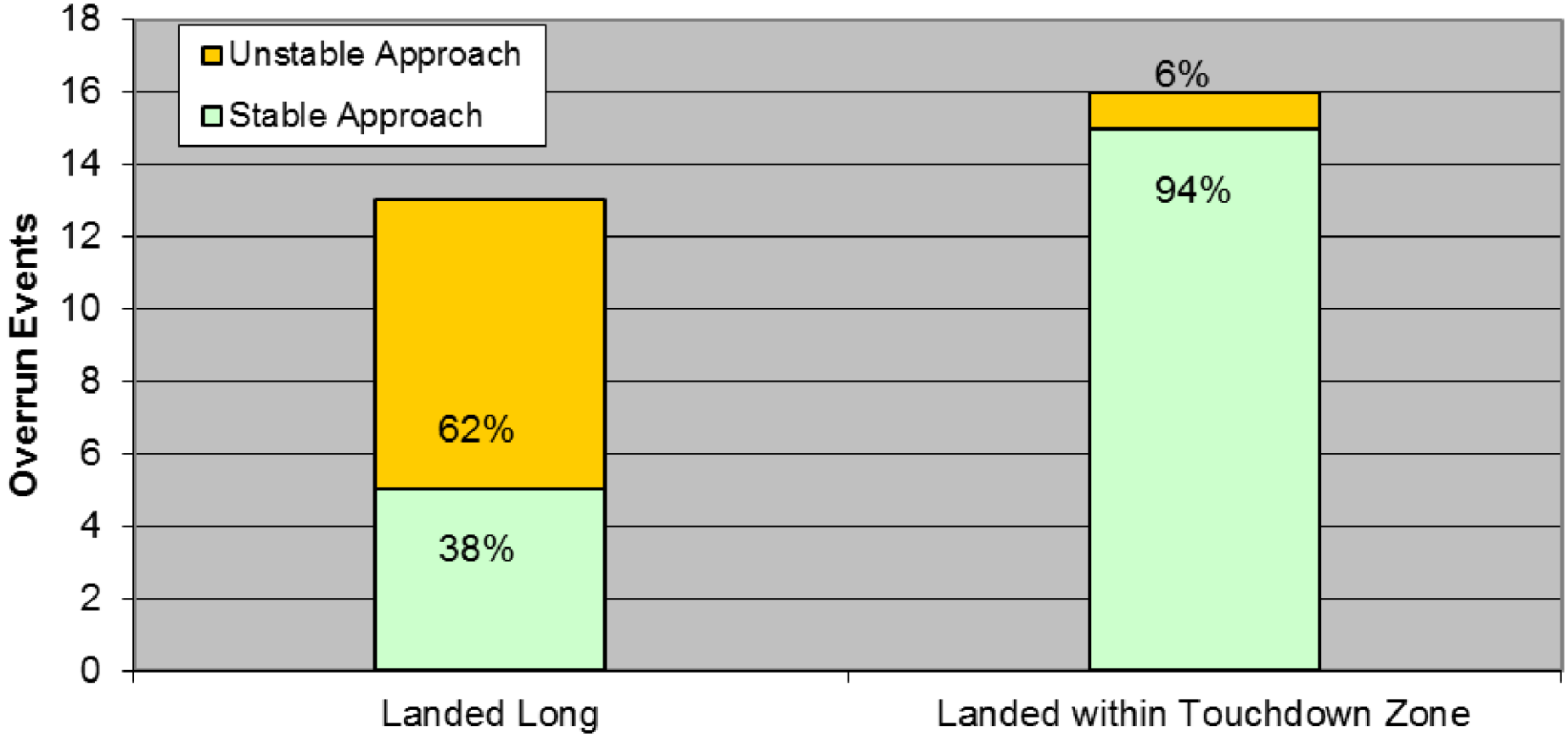
Overrun Characteristics – Boeing Fleet



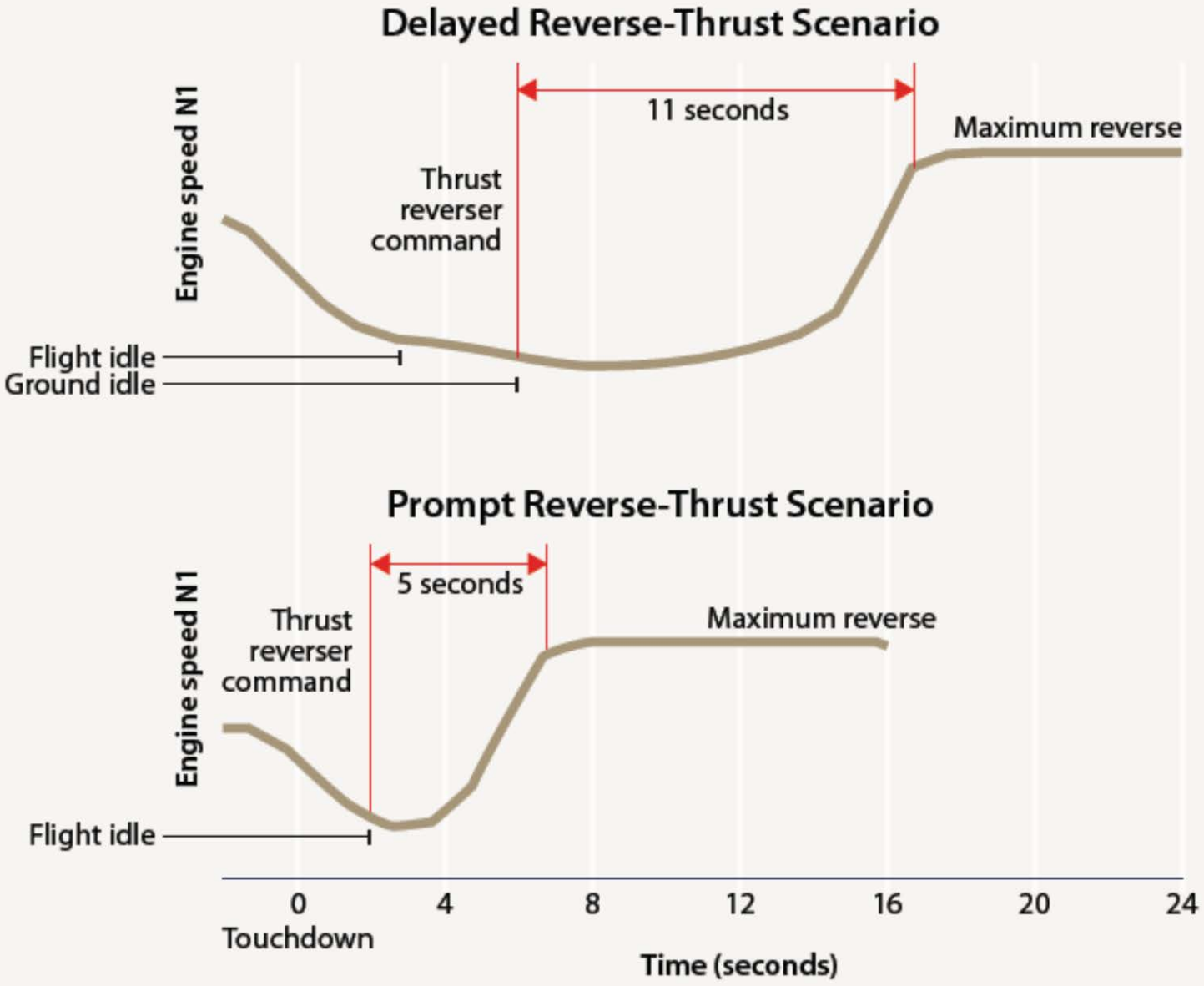
Source: FDR data sent to Boeing Aero Safety, 2003-present,
Models: Boeing Puget Sound

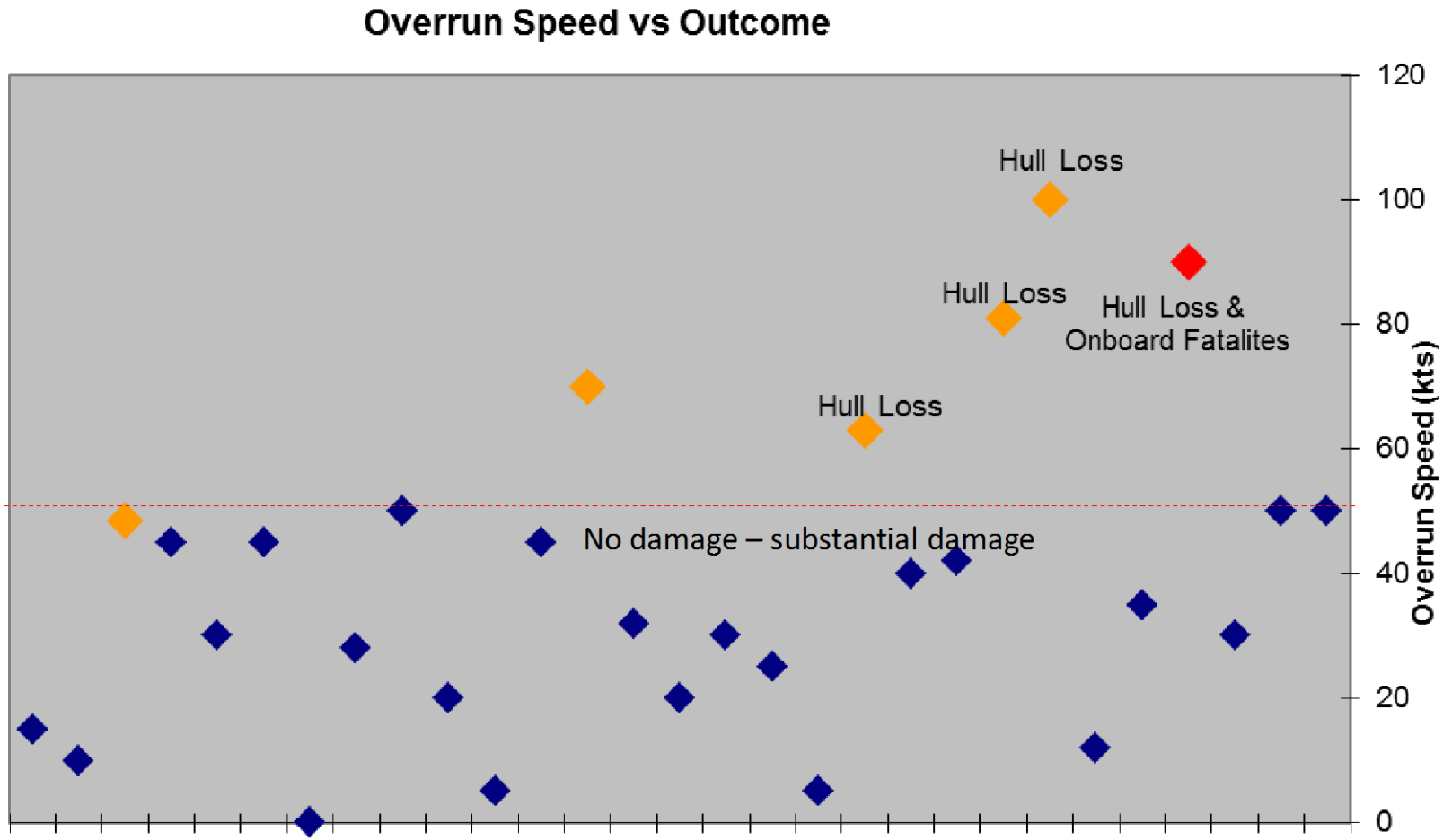
29 Boeing Jet Overrun Accidents and Incidents

Correlation of Stabilized Approach vs Landing Location



Inadequate Deceleration — Delayed Thrust Reverser Use




Overrun Speed vs Outcome
Hull Loss
Hull Loss
Hull Loss &
Onboard Fatalites
Hull Loss
No damage – substantial damage
120
100
80
60
40
20
0
Overrun Speed (kts)

RISK REDUCTION

- SOPs : CDO (constant descent operation –VNAV), Best Practices, Techniques, Good Planning, Careful Review, Accurate Flying, Good Crew Coordination.
- Succesful FMC Programing
- Terminal Area: arrive ON SPEED, ON CONFIGURATION, ON TARGET.
- BRIEFING BEFORE TOD!
- STABLE APPROACH recommendations, (DO NOT ATTEMPT TO LAND FROM AN UNSTABLE APPROACH!).
- USE OF REVERSE THRUST
- USE OF ABS
- **PILOT MONITORING**

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MUCHAS GRACIAS

Cap. German Diaz-Barriga Martinez

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