UPRT 2080

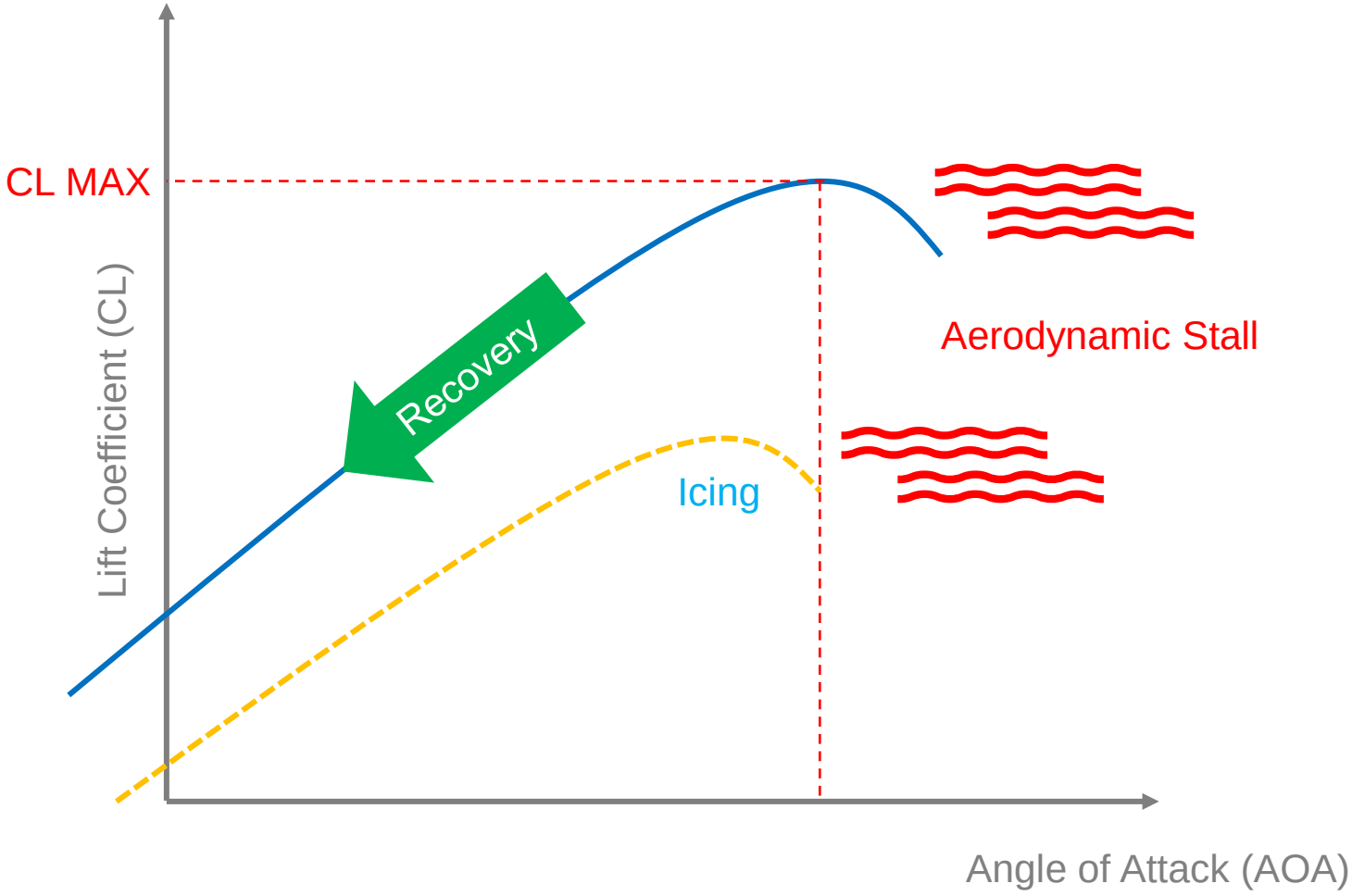
Captain Savio Schmitz

Disclaimer

The views, thoughts, and opinions expressed in this presentation belong solely to the author and do not reflect or are affiliated with the author’s employer or any other organization or individual.

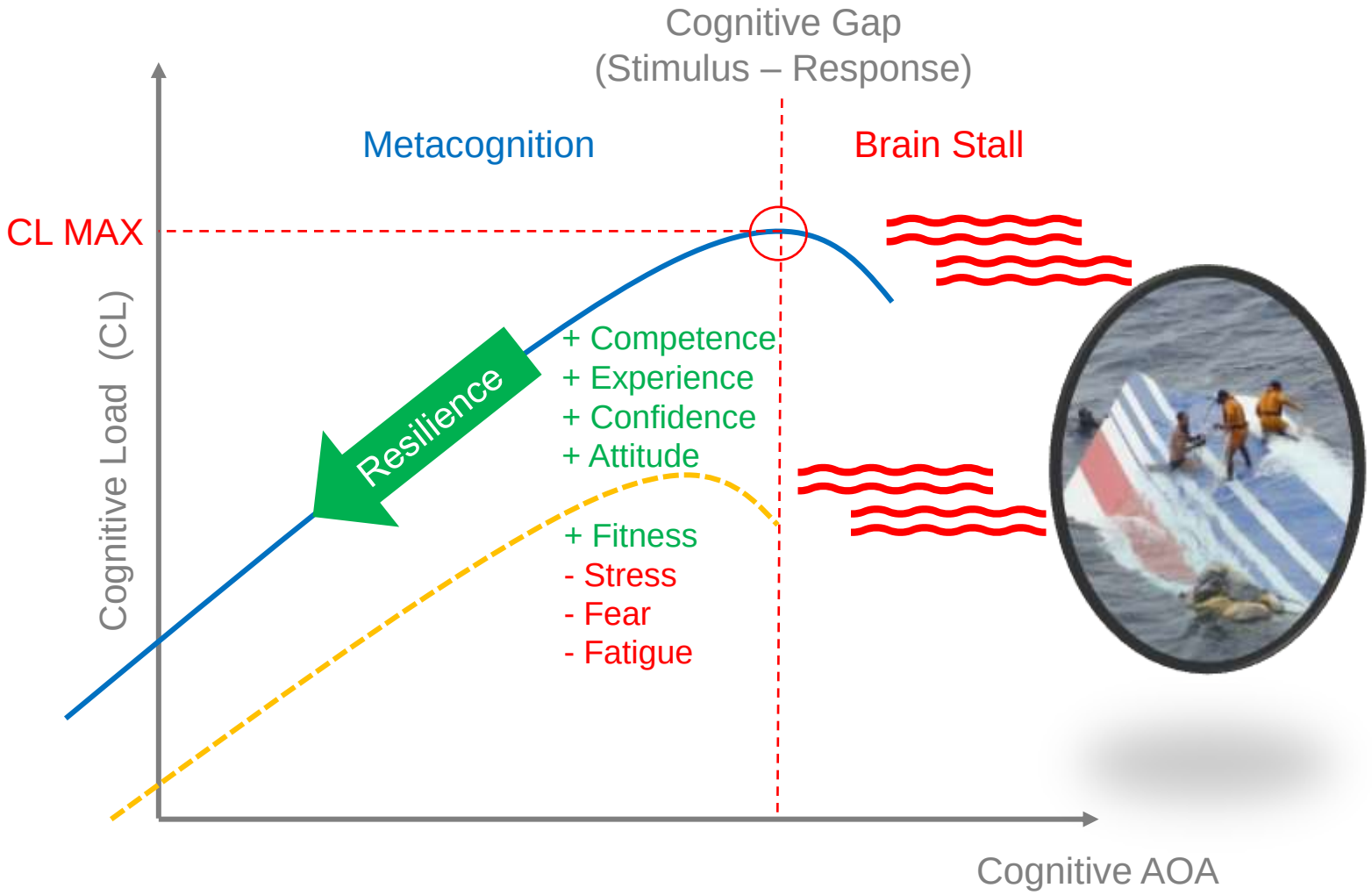
Aerodynamic Angle of Attack (AoA)

Aerodynamic Stall = key factor in most LOC-I accidents

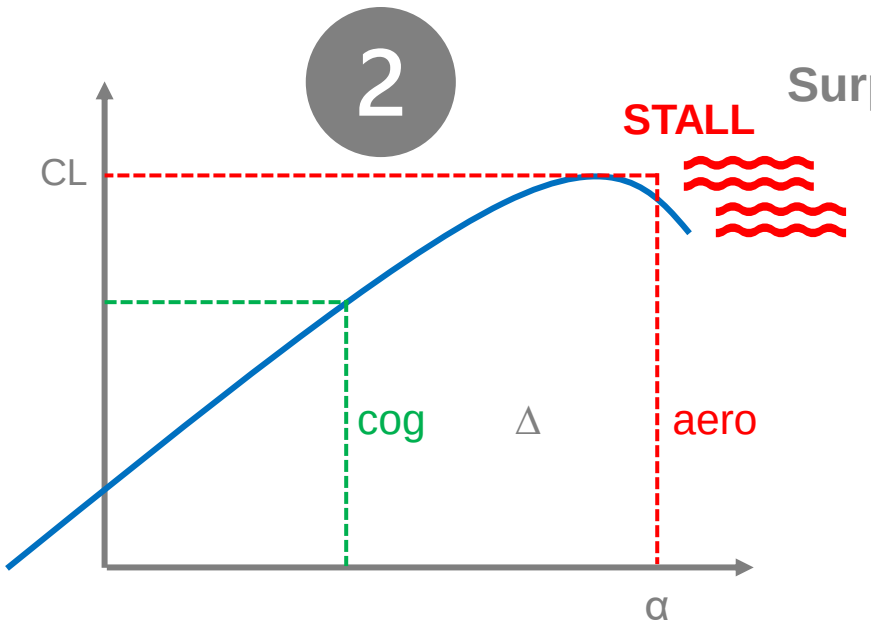


Cognitive Angle of Attack (AOA)

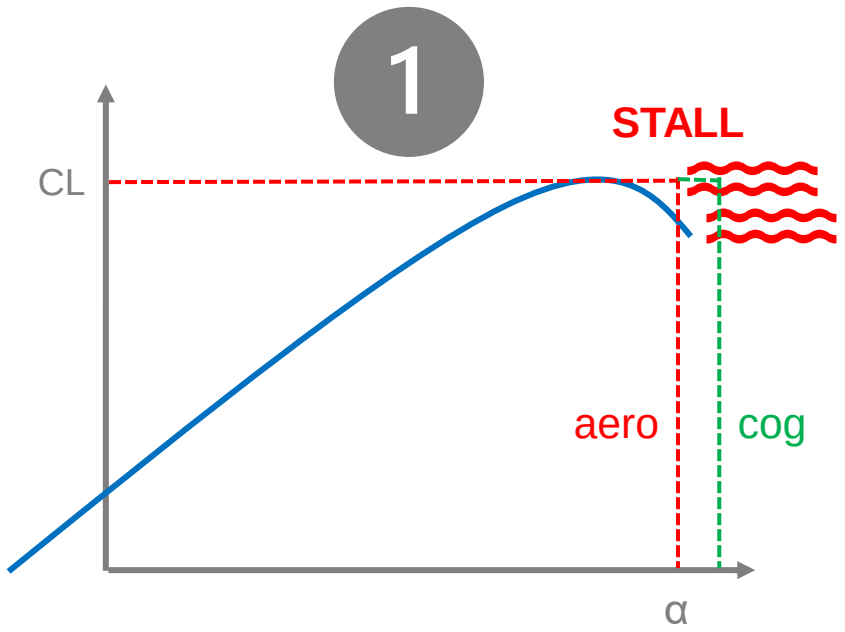
Human Factor (HF) = leading causal factor in LOC-I accidents



Psychology of Reality-Based Training



Surprise?



Cognitive α < Aerodynamic α

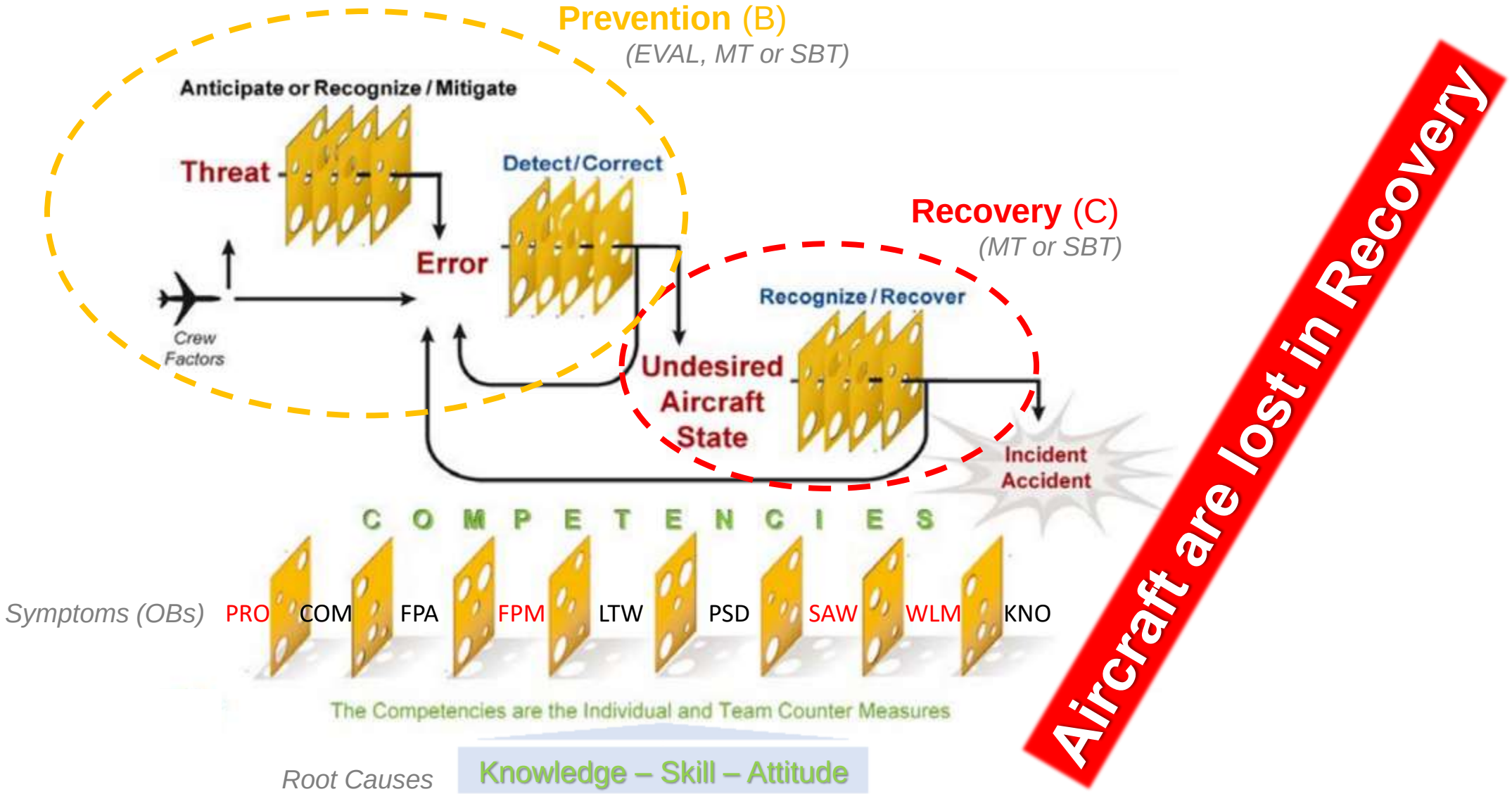
1. Cognition
(unexpected part)

2. Behavior
(abnormal part)

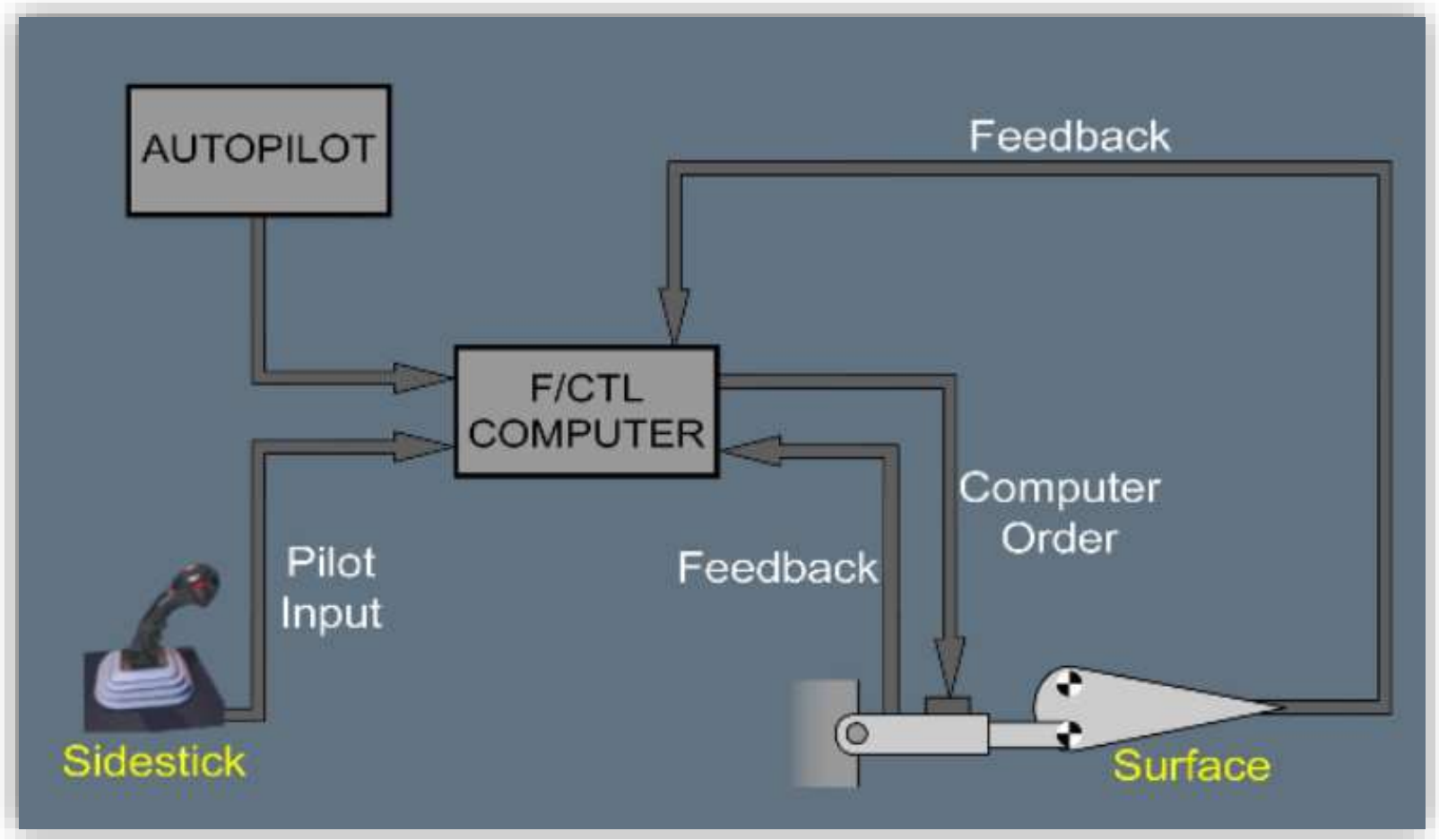
Nose-low recovery strategy template		
Either pilot — Recognise and confirm the developing situation by announcing **'nose low'** (If the autopilot or autothrust/autothrottle is responding correctly, it may not be appropriate to decrease the level of automation while assessing if the divergence is being stopped)		
	PF	**PM**
1.	**AUTOPILOT — DISCONNECT** (A large out-of-trim condition could be encountered when the autopilot is disconnected)	**MONITOR** airspeed and attitude throughout the recovery and **ANNOUNCE** any continued divergence
2.	**AUTOTHRUST/AUTOTHROTTLE — OFF**	
3.	**RECOVERY** from stall if required	
4.	**ROLL** in the shortest direction to wings level (It may be necessary to reduce the G-loading by applying forward control pressure to improve roll effectiveness)	
5.	**THRUST** and **DRAG — ADJUST** (if required)	
6.	**RECOVER** to level flight (Avoid the secondary stall due to premature recovery or excessive G-loading.)	

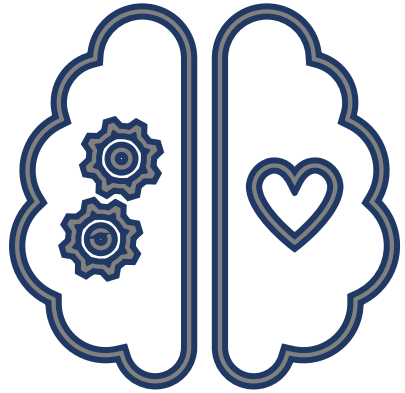
"PUSH, ROLL, POWER, STABILIZE"

UPRT – EBT / CBTA / TEM … RBT



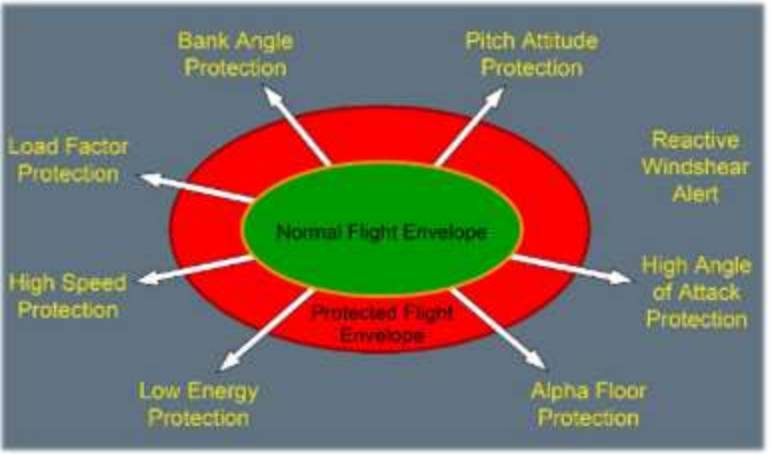
Root Cause Analysis





Rethinking Competencies and Training

- Top-down approach integrating **technology** and **psychology**
- Research consortia
- Cognitive recovery strategies / techniques
- Adapted training specs, competency framework(s), syllabus and guidance material
- Educated instructors and evaluators
- Tools-to-task (*startle effect*)
- Practice self-regulation (*cognitive AOA*)



Cost vs Benefit

- LOC-I accidents are rare
- UPRT cognitive control skills are transferable
  - Go-around, Overspeed, EGPWS (GPS interference), Memory Items …
  - Autopilot in Protection Mode (‘*What is it doing?*’)
- Mental training
  - Sports
  - Aerobatic & fighter pilots
  - Why not for commercial airline pilots?

Key Takeaways

- Technology and psychology
- LOC-I = Killer # 1
- Aircraft are lost in recovery
- Control is lost / regained in the mind
- Mind the cognitive gap

UPRT 2080

100% of accidents are due to human limitations

100% of safety is due to human capability

(FSF)

Obrigado!