

**HIDDEN RISK OF COGNITIVE BELIEF, ASSUMPTION-BASED CALLOUTS &
EXPECTATION BIAS IN AVIATION SAFETY:**



AirArabia
العربية للطيران

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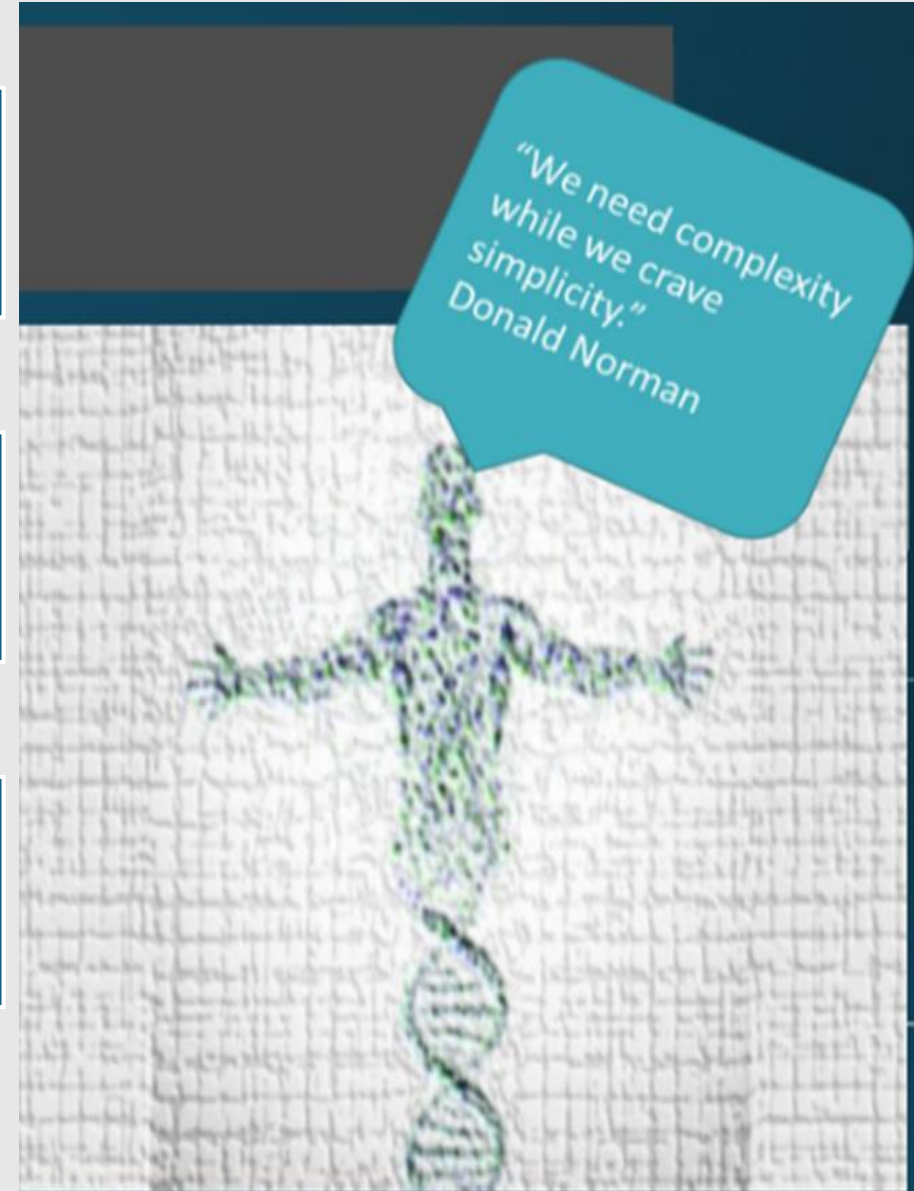
Manager - Safety & Emergency Response
Air Arabia

HUMANS AS A SYSTEM

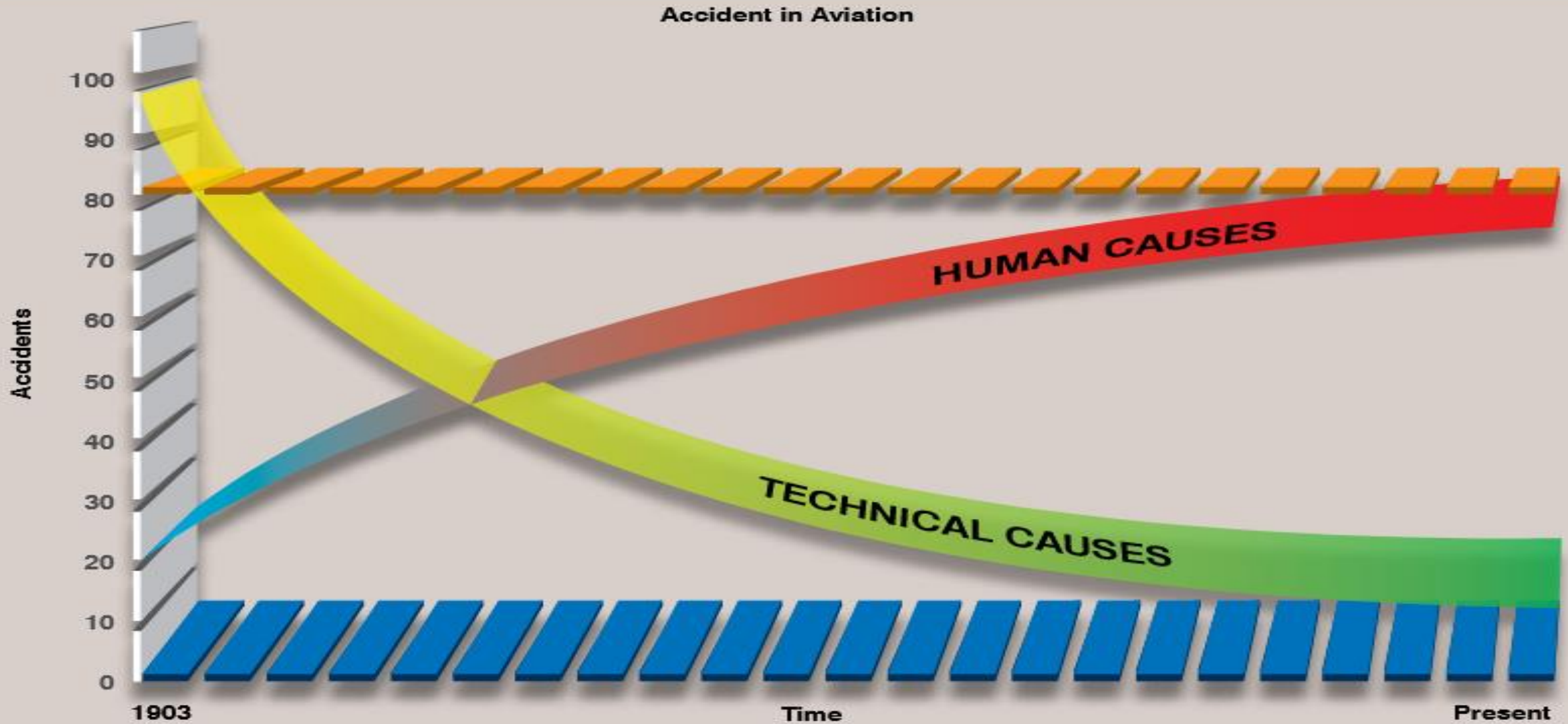
Humans have a lifecycle, performance operating characteristics, failure modes, patterns of behavior

Which is influenced by context, and their own organic make-up and history

Humans add a layer of complexity to the system



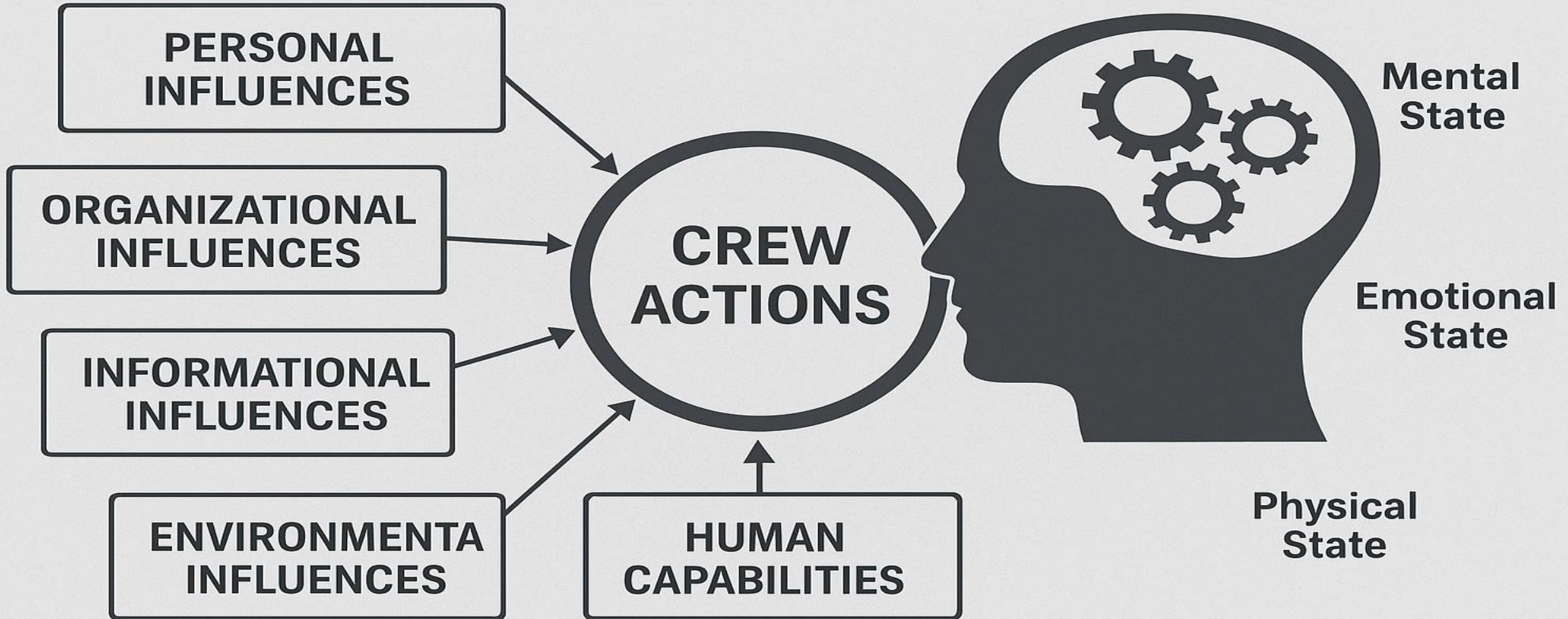
HIDDEN THREATS OF HUMAN FACTORS



Statistical graph showing that 80 percent of all aviation accidents are caused by human factors

INFLUENCES ON THE CREW (HUMAN)

INFLUENCES ON THE CREW



COGNITIVE BELIEF & ASSUMPTION BIAS

Cognitive Belief refers to internal 'truths' or mental models that shape how individuals interpret information and make decisions. While these beliefs simplify complex tasks, they can lead to misjudgment if not aligned with reality. Recognizing these beliefs is essential to prevent assumption-based errors.

Assumption bias occurs when a crew member assumes something is true without verifying it, which can lead to errors.



COGNITIVE BELIEF /ASSUPMPTION BASED CALL OUT FOR A ROUTINE TASK

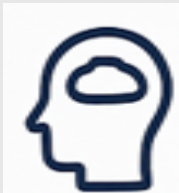
Deeply held assumptions or mental frameworks influence how we interpret information.
What we expect to see can override what is actually there.

This cognitive bias can lead to overlooking verification, even during routine tasks.

Some Contributing Factors:



Distraction: Diverted attention



Cognitive Belief – Expecting a normal outcome (“it always works”).



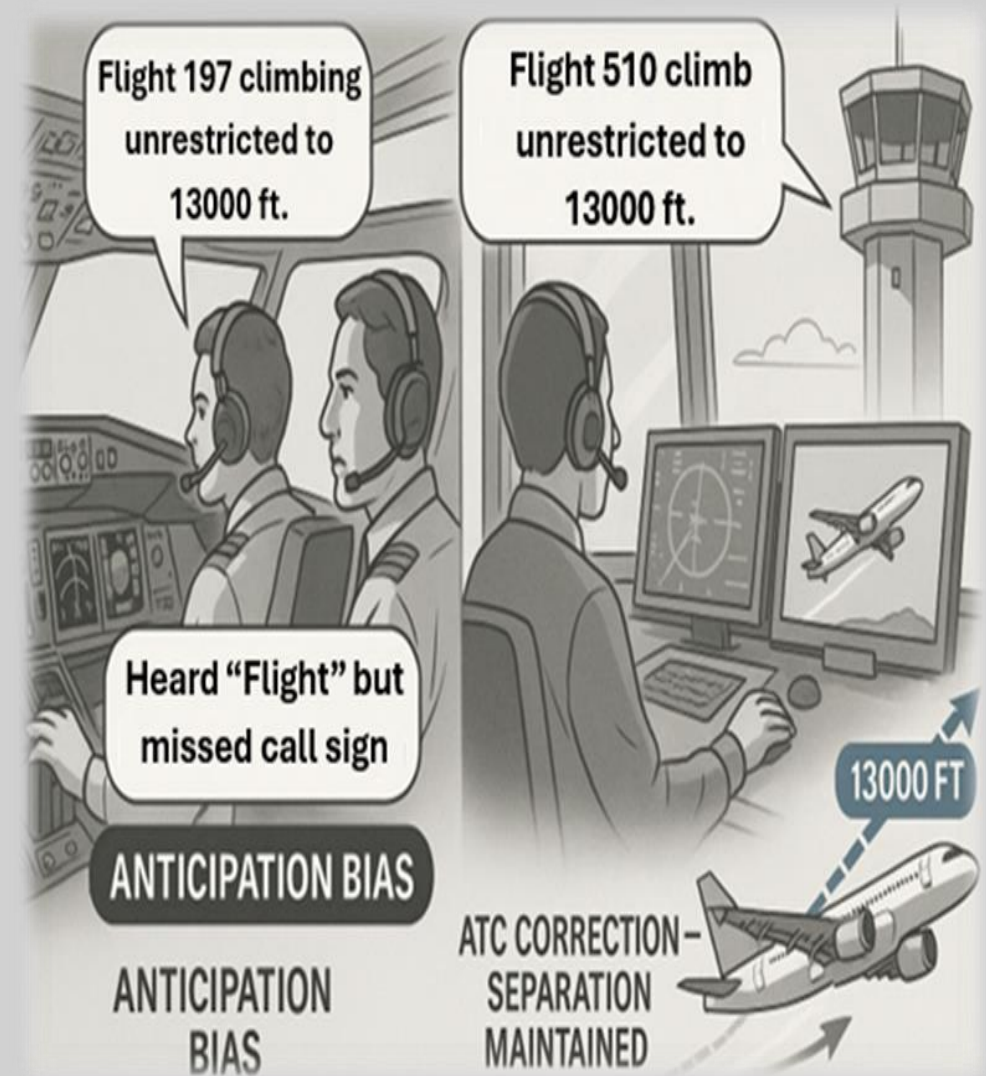
Assumption-Based Callout – Confirming verbally without actual verification.



ANTICIPATION OR EXPECTATION BIAS FOR ATC CLEARANCE

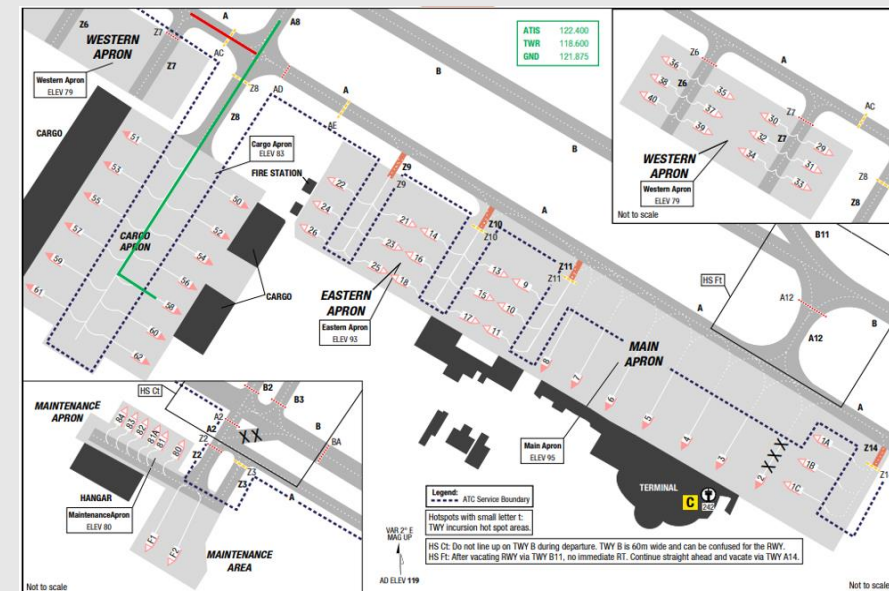
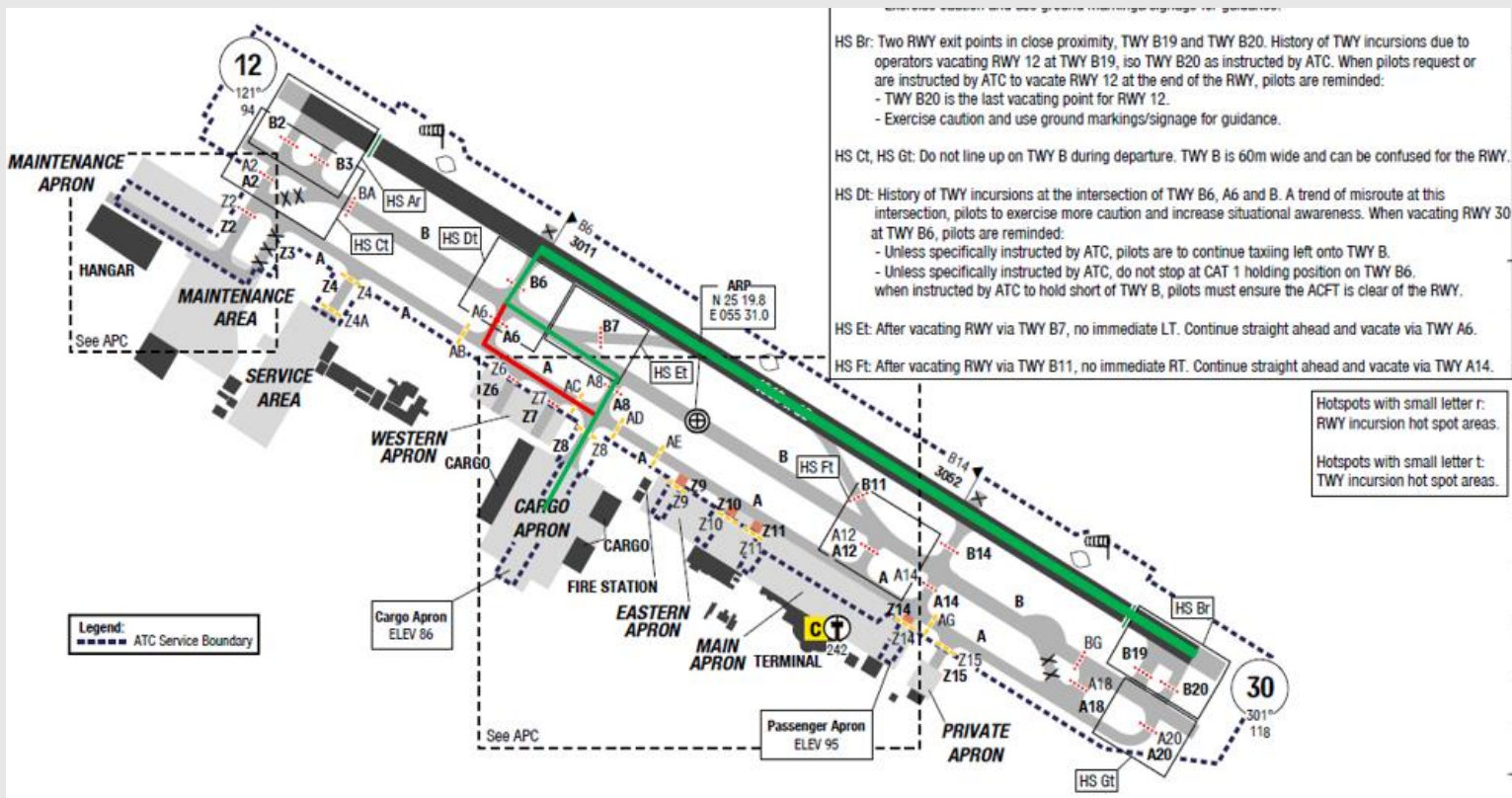
Anticipation or expectation bias occurs when pilots or controllers interpret information based on what they expect to happen rather than what is communicated.

In the context of ATC clearances, this means anticipating a standard instruction and acting on that assumption without fully verifying the actual clearance received.

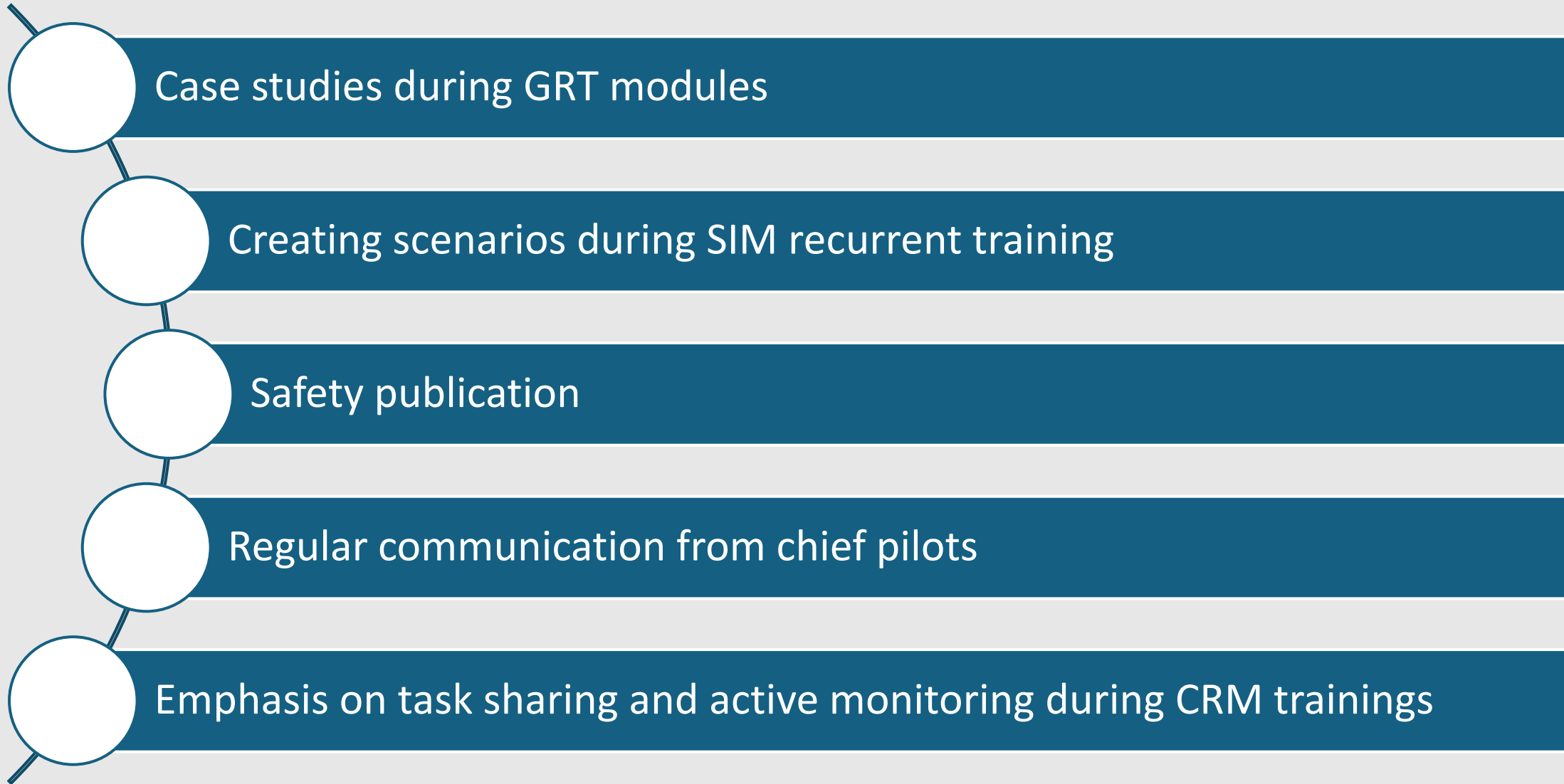


EXPECTATION BIAS

Expectation bias is a cognitive phenomenon where we Humans perceive information through the lens of our expectations, often ignoring evidence. The expectation may come from past experience or assumptions to predict what will happen next. This can lead to misinterpret information or miss critical cues that signal a potential problem. For example, a pilot who has flown a particular route many times without issue might expect a smooth approach on a subsequent flight and downplay any unusual instrument readings.



Mitigation Actions Taken to address the identified RISK of Human factors



THANK YOU

