
IFATCA

ICAO, IFATCA AND THE WORK OF TOC (AND A LITTLE BIT OF PLC)

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WHAT CAN YOU EXPECT?

- Overview of ICAO and IFATCA's influence in it
- How TOC's (and PLC's) work fits in to this picture
- IFATCA's Task Forces
- A more in-depth look at some of the topics the committees and task forces concern themselves with
- An examination of Safety Culture

OVERVIEW OF IFATCA @ ICAO

THE ORIGIN OF ICAO

- International Civil Aviation Organization
  - Specialized agency of the UN;
  - 1944: Chicago Convention;
  - 4 April 1947: ICAO began operations;
  - HQ in Montréal, Canada;
  - Only global forum for aviation issues.

FIVE STRATEGIC OBJECTIVES:

Safety

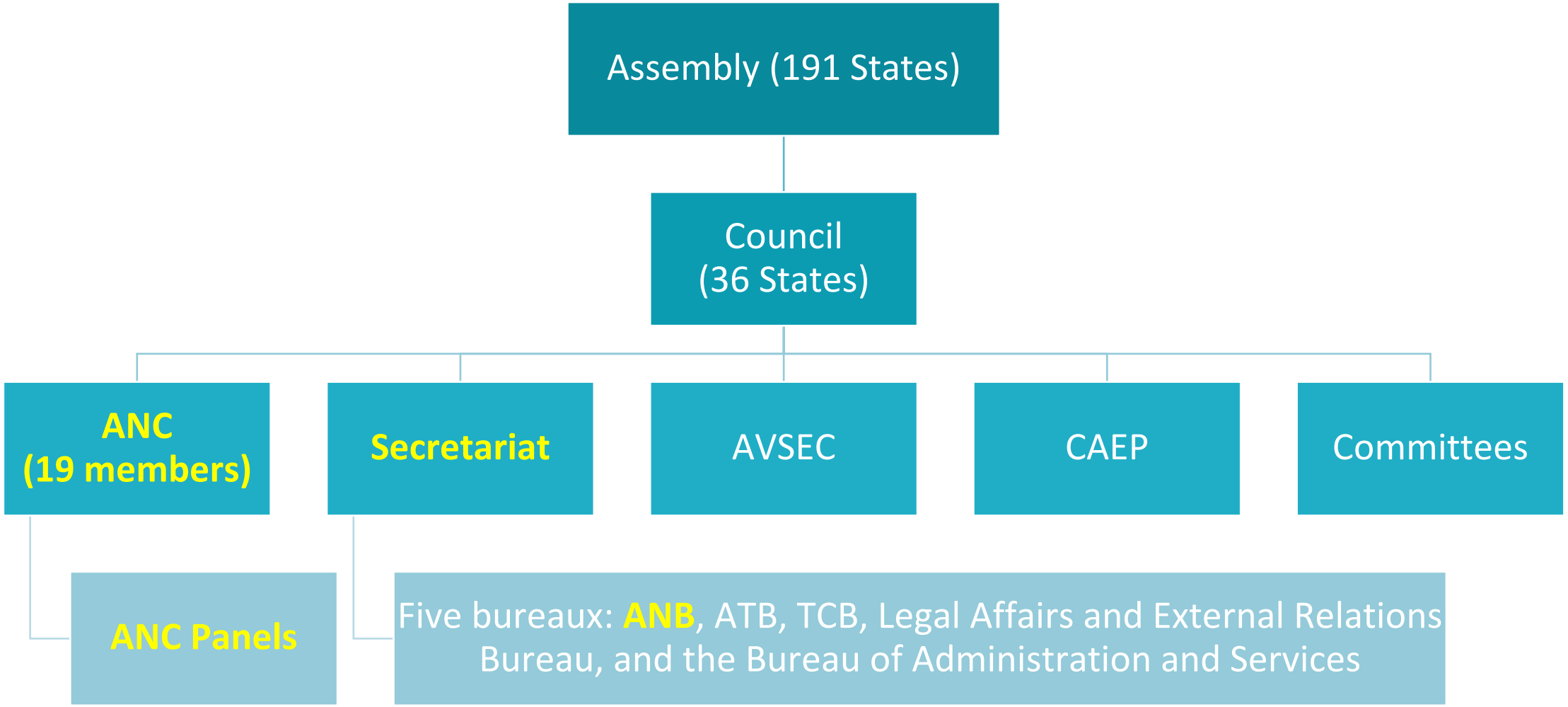
Capacity & Efficiency

Security

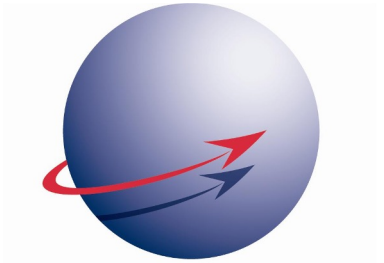
Economic Development

Environmental Protection

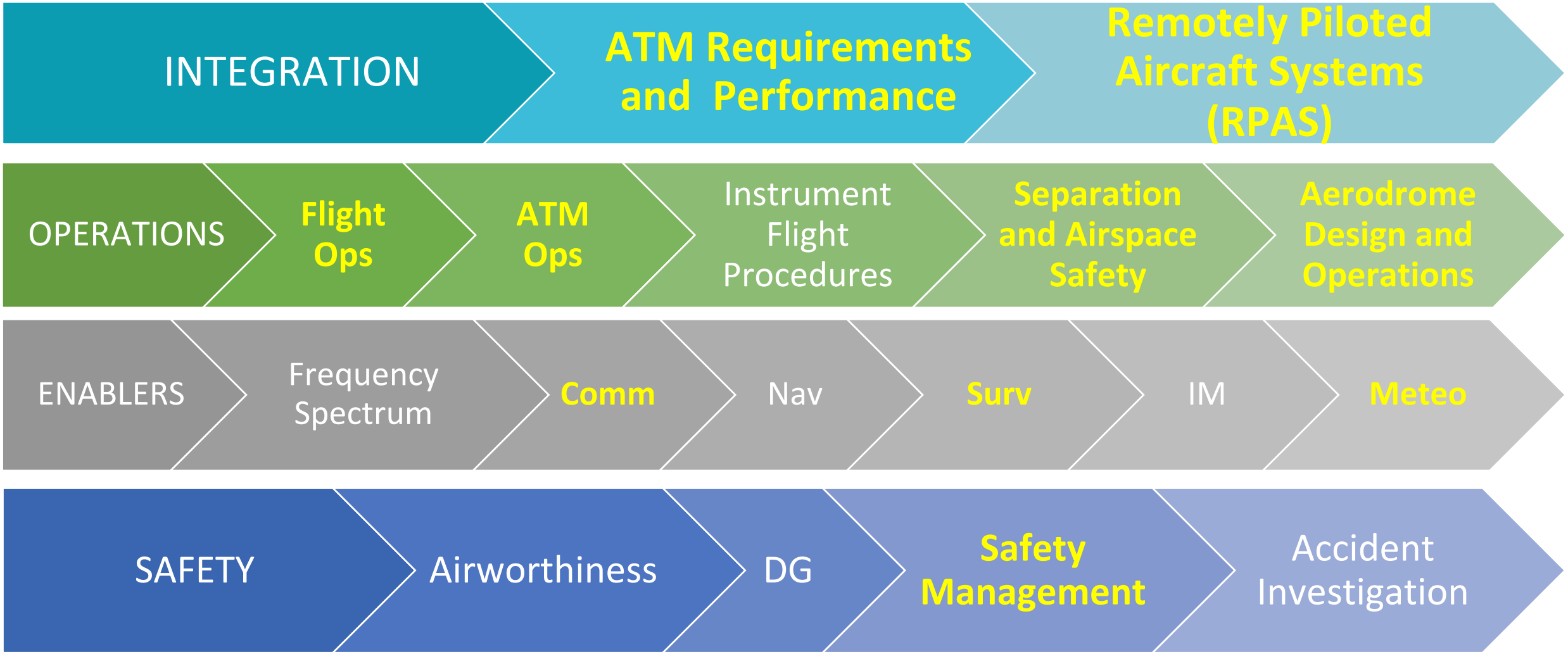
THE STRUCTURE OF ICAO



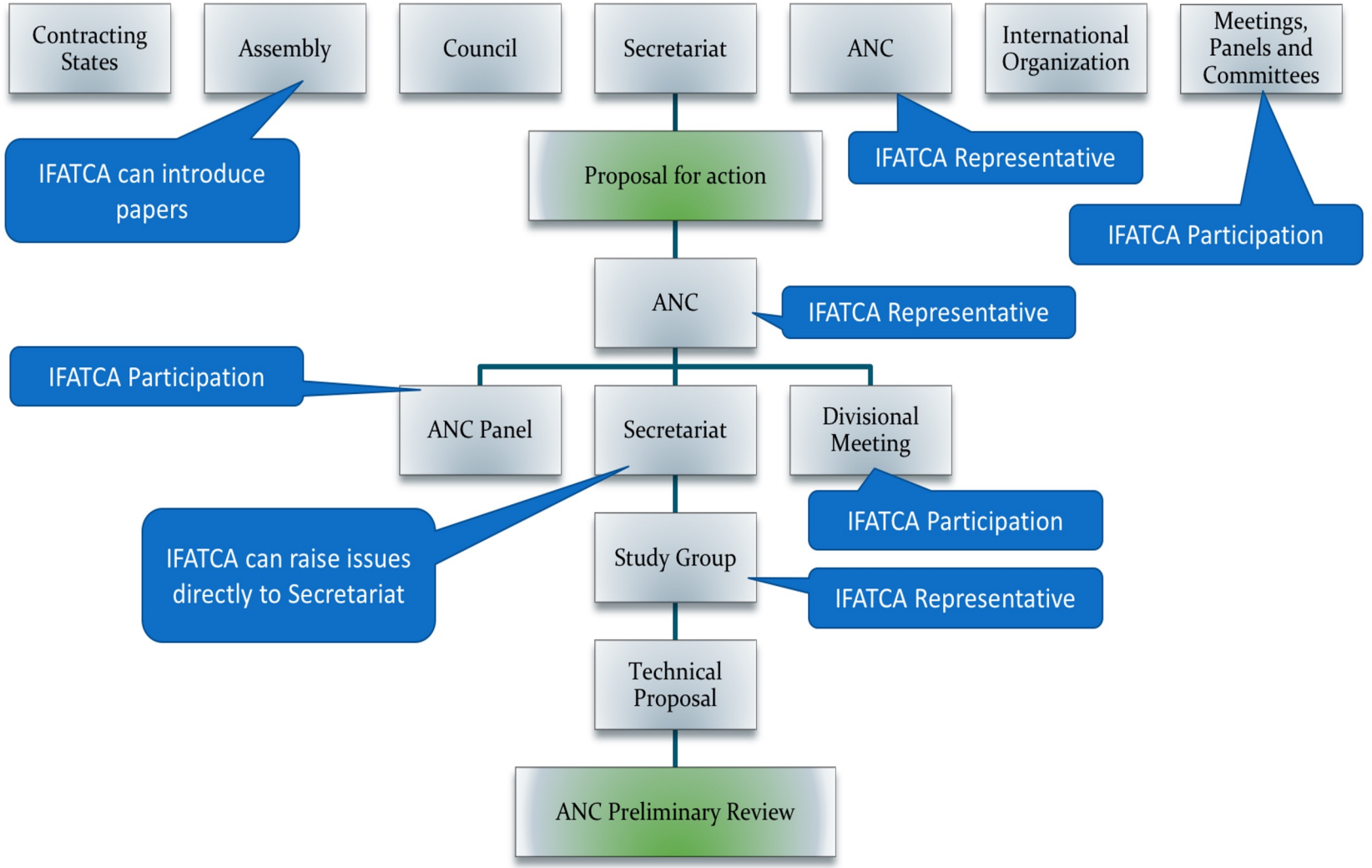
THE AIR NAVIGATION COMMISSION



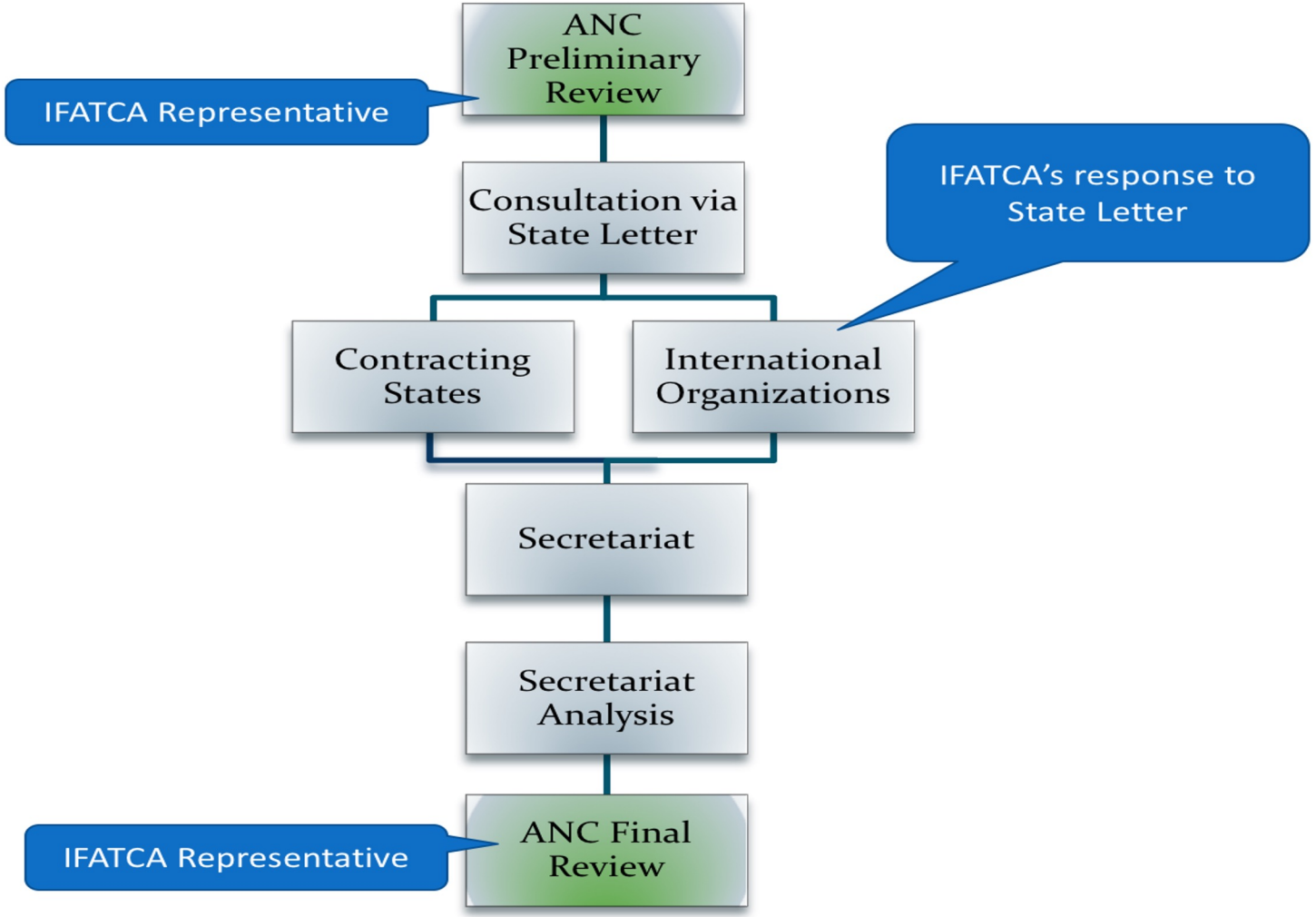
THE ANC PANELS



THE INFLUENCE OF IFATCA



THE INFLUENCE OF IFATCA



WHAT ARE THE BENEFITS?

- Have a voice in the ANC;
- IFATCA's policies;
- Contact with ICAO Secretariat and other groups;
- Input and support to ICAO on critical aviation issues;
- Liaison between ICAO and IFATCA (symposia, fora, etc.);
- Foster cooperation and good partnerships.
- Our chance to influence our future and our profession!

TASK FORCES

REMOTE TOWER TASK FORCE

- Remote Tower Working Group was formed in 2017 at conference in Toronto to keep track of developments in this field
- At conference in Ghana in 2018, the directors agreed to formalize the status of the working group. It was suggested then to form a standing committee. The EB was tasked with this
- At conference in Costa Rica in 2019, a working paper was accepted in committee A allowing the formation of task forces. These task forces are supposed to be more agile than standing committees as they do not need elections. The Remote Tower Task Force was then established.
- Headed by Katariina Syväys from Finland (katariina.syvays@ifatca.org)

REMOTE TOWER TASK FORCE

- Task Force is currently producing papers together with TOC and PLC to be presented at conference in Singapore, namely:
- Review of policy regarding multiple remote tower concept
- Review of policy regarding use of recorded data
- Examining the limits of human cognitive workload in conjunction with Joint Cognitive Human Machine Systems group (JCHMS)

DIGITAL TOWER CONCEPT OF OPERATIONS

SINGLE REMOTE TOWER

- A single remote tower to replace a conventional tower
- Cost of replacing conventional tower is too great
- Built as a contingency for a conventional tower
- Perhaps in the future technology may enhance the surveillance data provided

MULTIPLE REMOTE TOWER (SEQUENTIAL)

- Remote Tower Centres
- More cost efficient for ANSPs than single remote towers
  - Consolidation of human capital
  - More flexible scheduling if personnel holds ratings for more than one aerodrome
  - Projected to be cheaper to maintain than conventional towers

MULTIPLE REMOTE TOWER (SEQUENTIAL)

DRAWBACKS

- Single point of failure for multiple aerodromes is possible if poorly designed or insufficient redundancies exist
- Bandwidth required to transmit high quality imaging at high frame rates can require high construction and maintenance costs.
- Can we mitigate the risks associated with the controller not being physically present in the environment?
- What level of service can be provided with the equipment available? Runway operations are the most critical phase of flight.

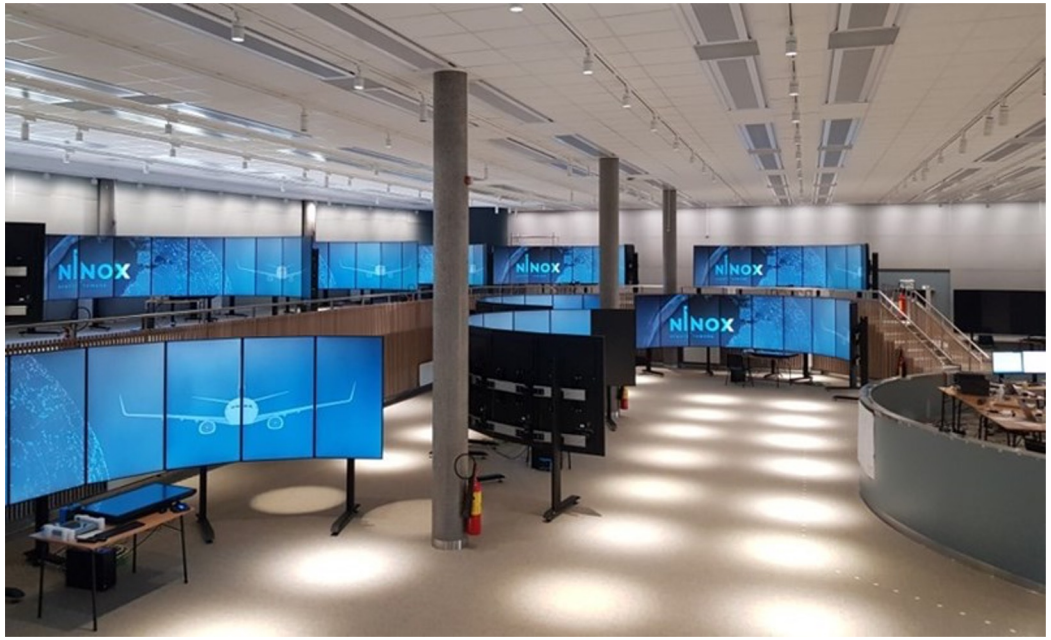


Image: RTC Bodo (Norway)

MULTIPLE REMOTE TOWER (SIMULTANEOUS)

DRAWBACKS

- All the same pros and drawbacks as sequential multiple remote tower
- Complexity of traffic must be considered
- Workload monitoring tools (being examined by task force)
- One frequency? Multiple frequencies? Sequencing?
- Increased risk of confusion. ATCO mixing up callsigns, localities, procedures?
- Social and human factors
- IFATCA policy is opposed to this concept

RPAS TASK FORCE

RPAS TASK FORCE

- RPAS Task Force was formed in 2018
- When considering UAS/RPAS there are two major classes that need integrated into the ATM system
  - Large aircraft, operating in IFR conditions, potentially performing international flights. Imagine remotely piloted or pre-programmed cargo aircraft
  - Smaller aircraft, operating in closer proximity to the ground, executing survey missions or other activities that do not require long-distance, high-altitude operations.

RPAS TASK FORCE

ACTIVITIES

- Working together with TOC and PLC to review current and create new IFATCA policy in the TPM
- Represents IFATCA on ICAO RPAS panel
- Headed by Eugenio Diotalevi from Italy

JOINT COGNITIVE HUMAN MACHINE SYSTEMS (JCHMS)

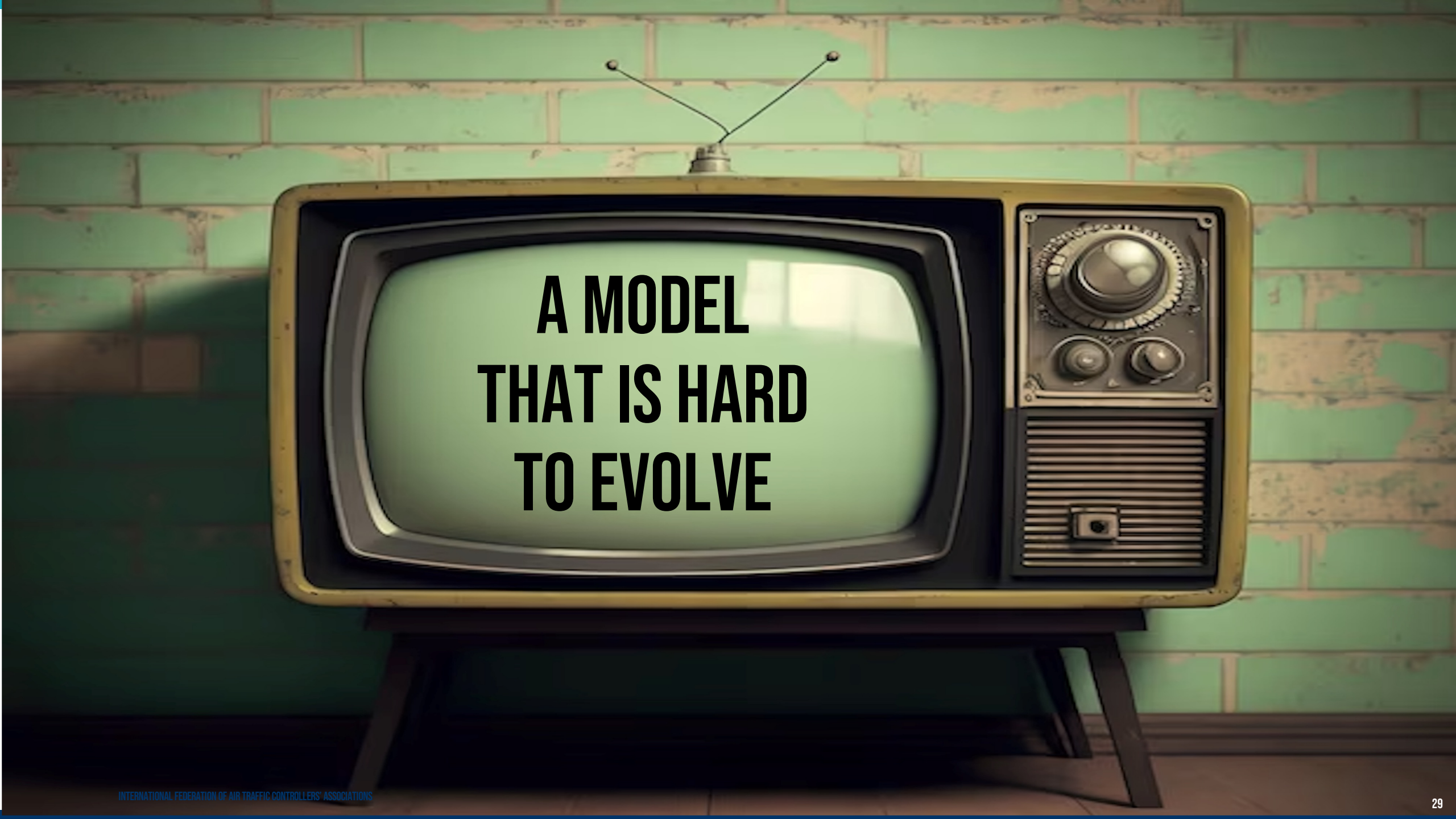
JCHMS

- Examining the interactions between humans and advanced technologies and systems
- Focusing on Artificial Intelligence, Machine Learning, and other tools that change the dynamic of our profession
  - How is the responsibility shared when machines get advanced enough?
  - Technological and human failure are the same, as it was a human who designed the technology
  - IFATCA's opinion is that the design of new systems should focus on the combined strength of human and technology, not on the replacement of humans by technology

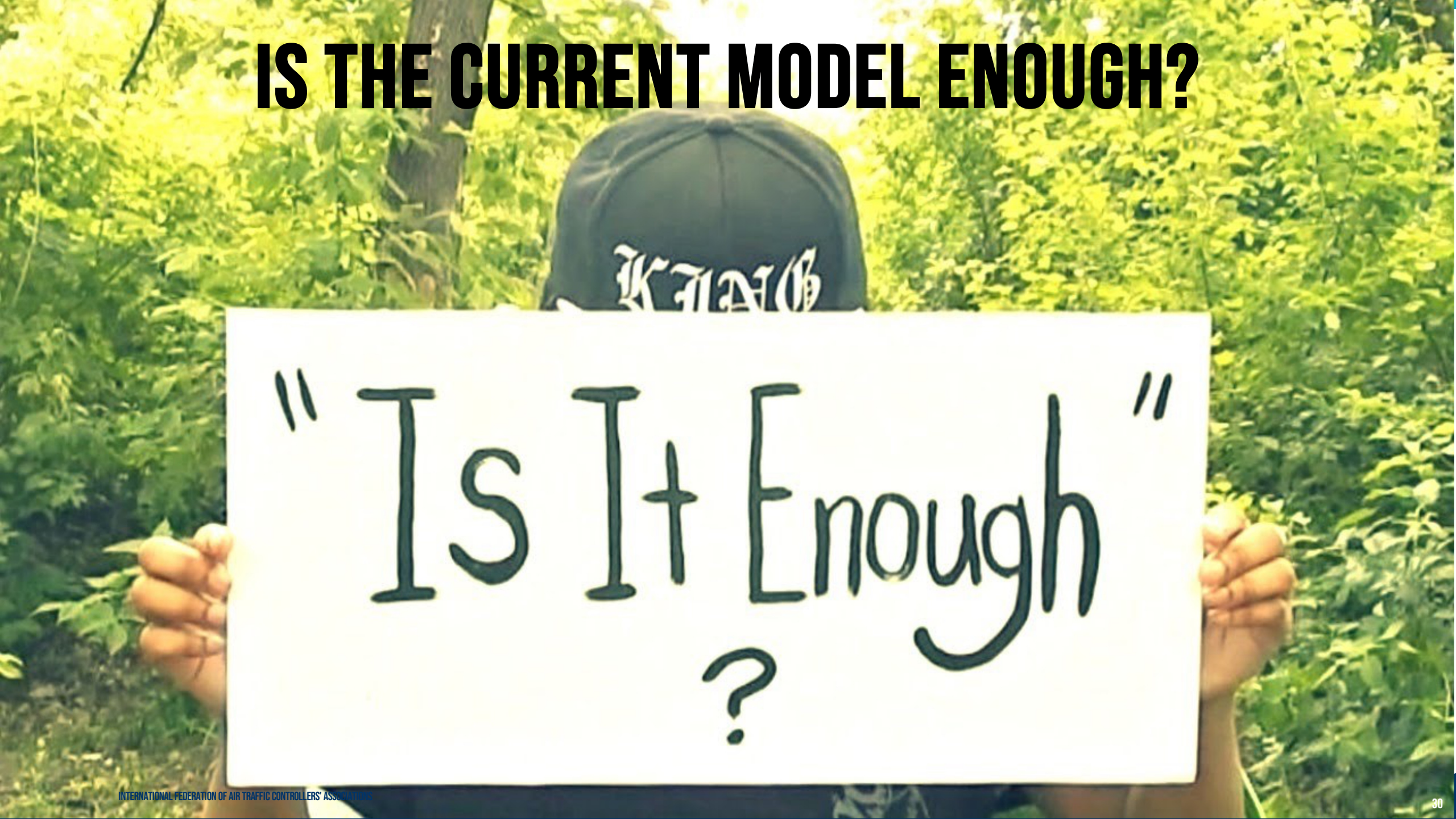

LET’S TALK ABOUT SAFETY

IS OUR CONCEPTION OF SAFETY ADEQUATE?

IS SAFETY AN ABSENCE OF ACCIDENT OR INCIDENT?


A MODEL
THAT IS HARD
TO EVOLVE

IS THE CURRENT MODEL ENOUGH?



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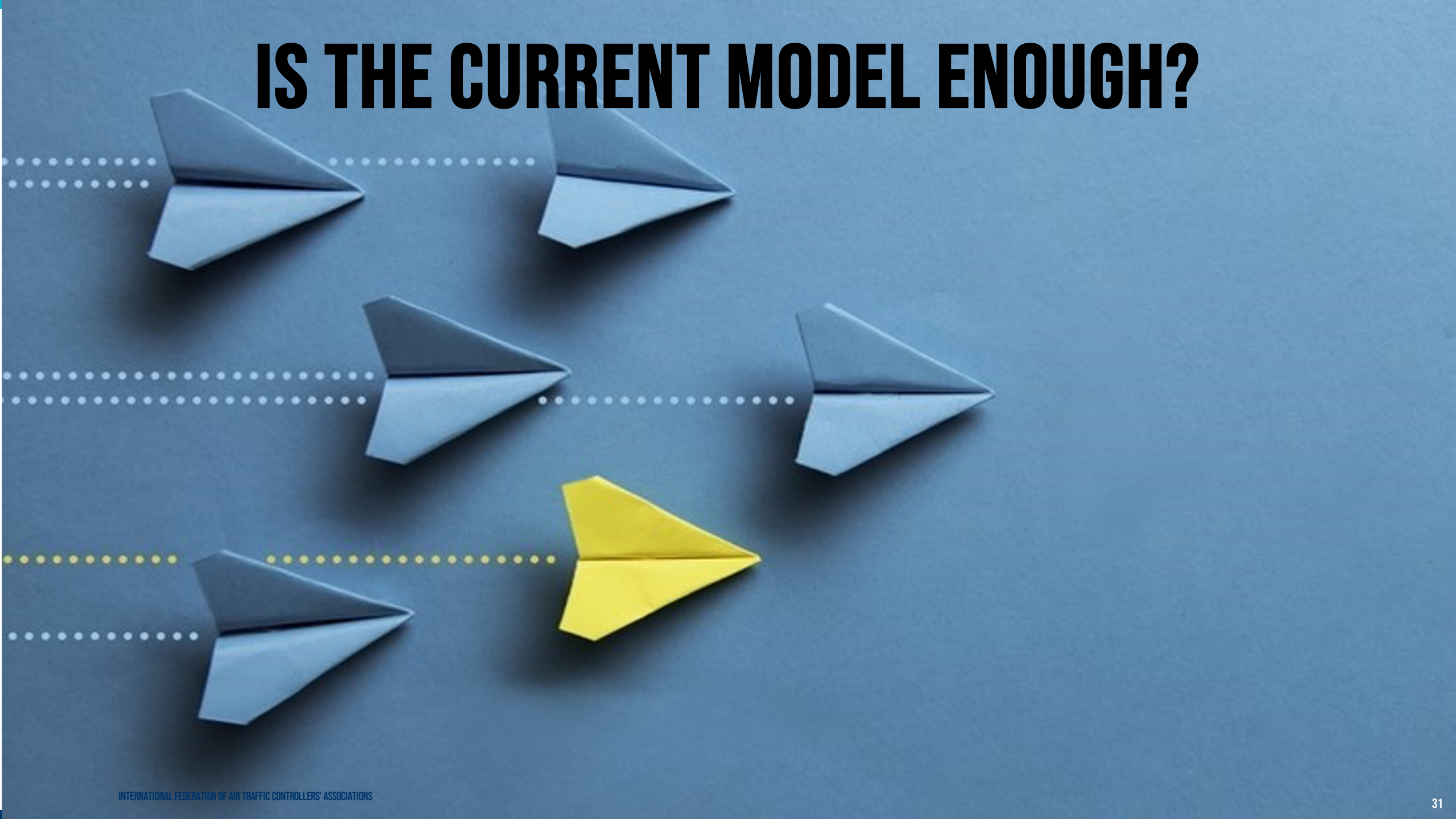
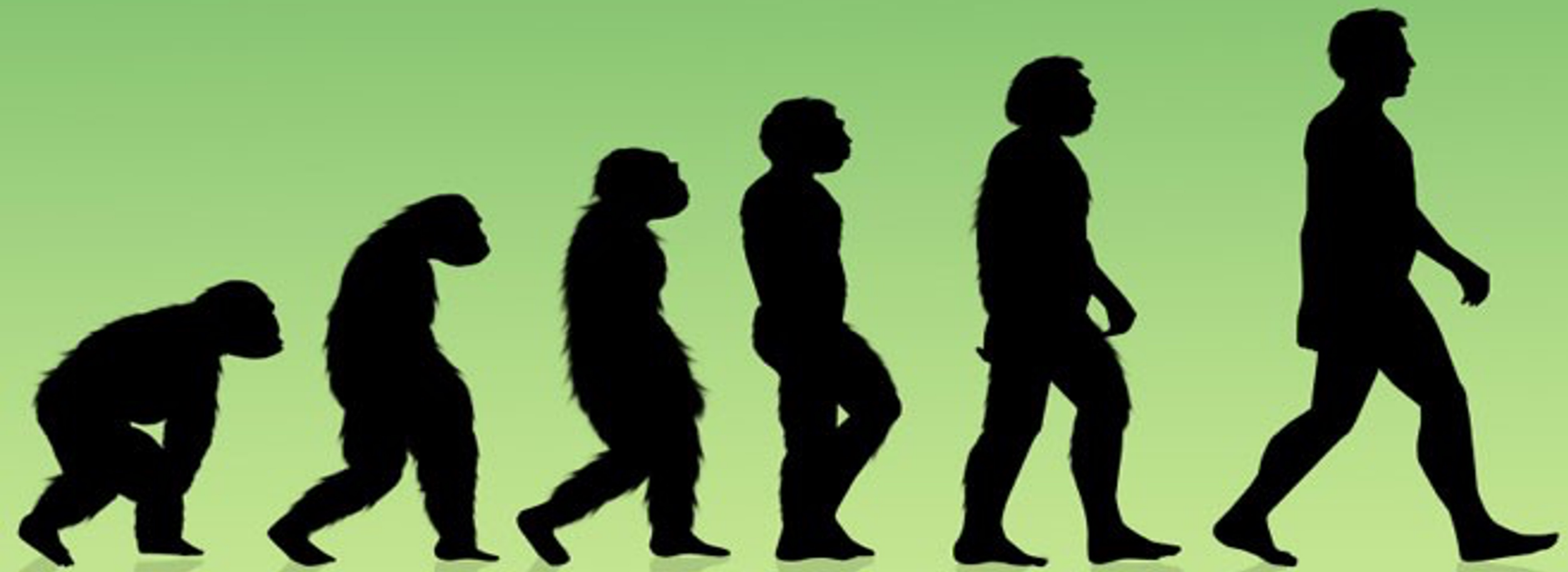


AN EVOLUTION, NOT A REVOLUTION!



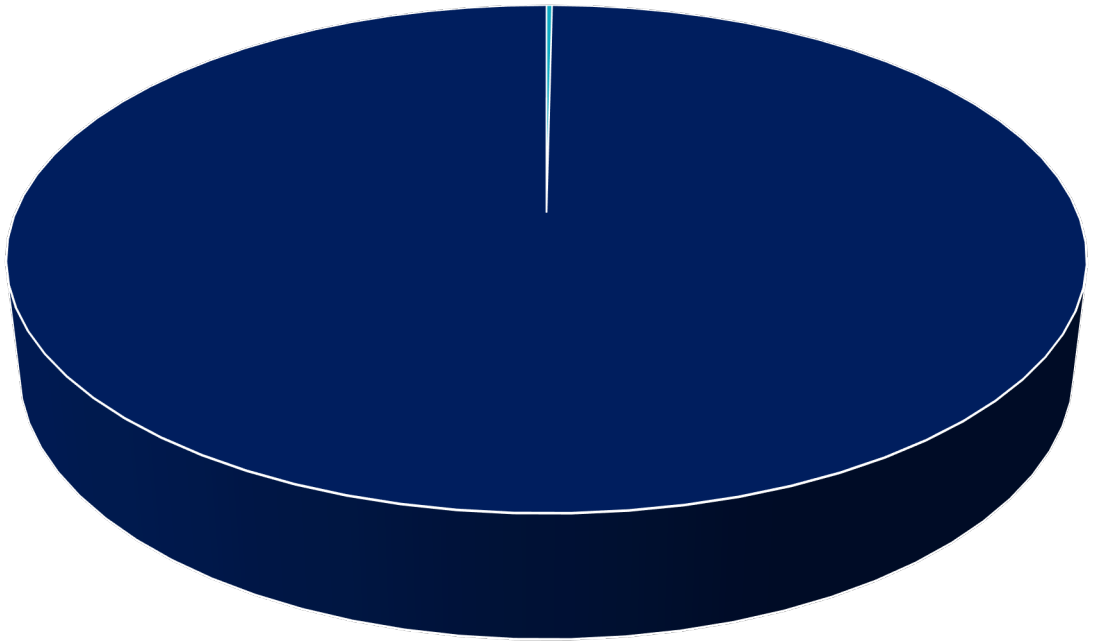
A FEW NUMBERS (AND A PIE CHART)...

1.4×10^{-7}

5×10^{-9}

1 / 5 000 000 000

4 999 999 999

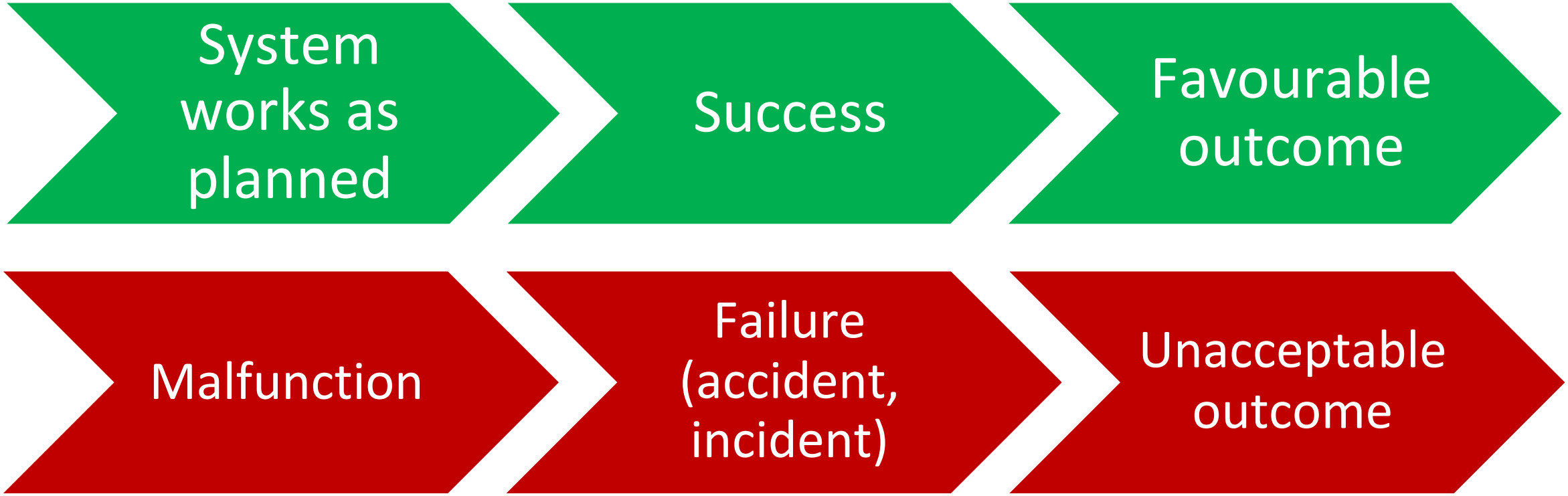


ONE QUESTION (TWO ACTUALLY...)

HOW IS IT POSSIBLE TO MAKE SURE THAT THINGS GO RIGHT BY **ONLY** LOOKING AT HOW THEY COULD GO WRONG?

WOULDN'T IT MAKE SENSE TO TRY TO UNDERSTAND **WHY** THEY GO RIGHT?

A DICHOTOMIC VIEW OF SAFETY



ONE PROBLEM (TWO ACTUALLY...)

THESE RARE ACCIDENTS AND INCIDENTS **CANNOT** EXPLAIN WHY HUMAN PERFORMANCE IS ALWAYS THERE.

TO CARE ONLY ABOUT MISTAKES AND FAILURES **DOES NOT** ALLOW US TO UNDERSTAND WHERE WE NEED TO GO TO IMPROVE SAFETY.

BAINBRIDGE (XXXX) GUESS THE YEAR?

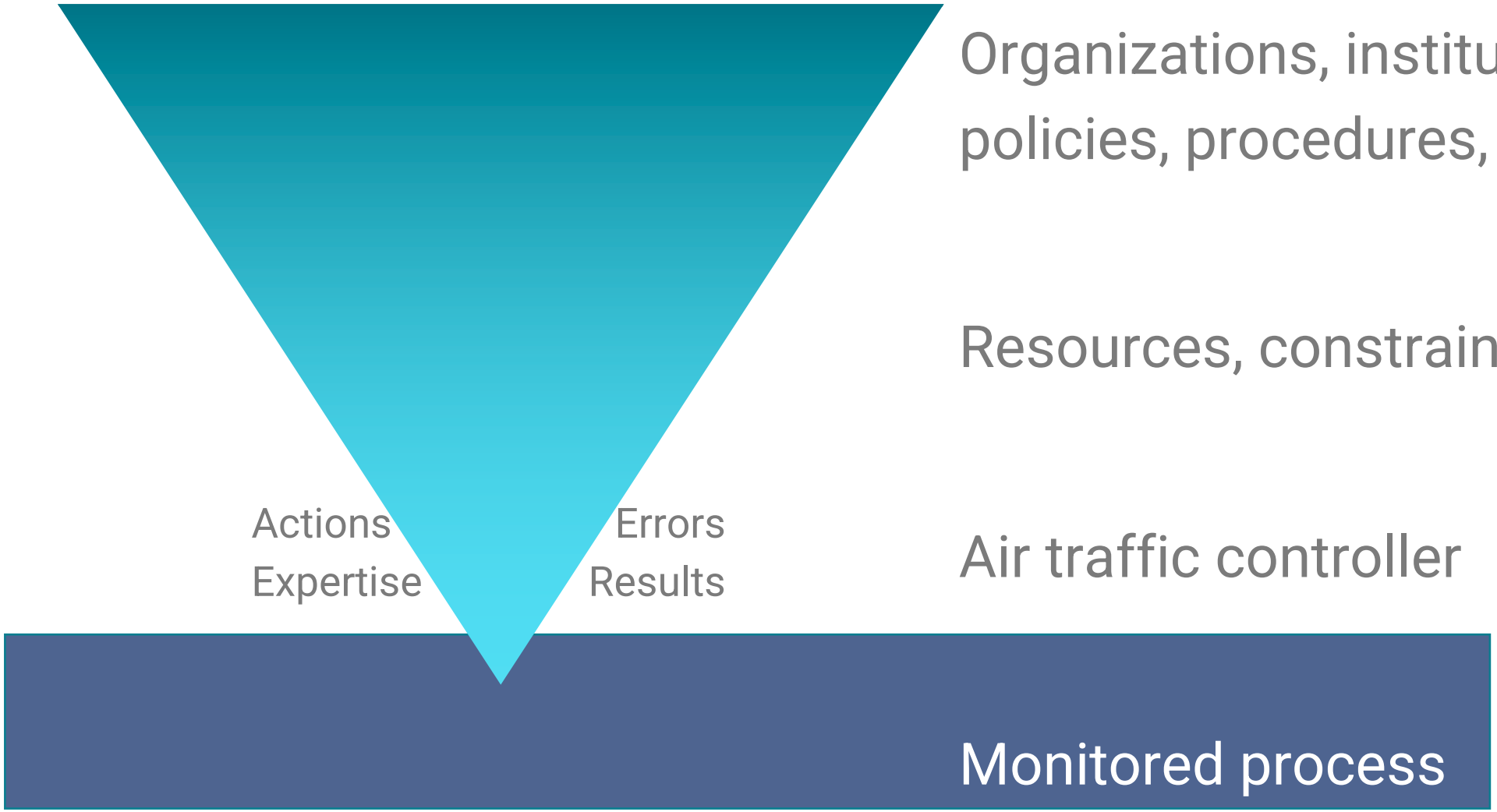
“ENGINEERS WHO TRY TO GET RID OF THE HUMAN IN THE SYSTEM END UP IN A SITUATION WHERE THE ONLY TASKS LEFT ARE THOSE FOR WHICH THEY HAVEN’T BEEN ABLE TO GET RID OF THEM”

THE SYSTEMIC APPROACH TO SAFETY.

(ADAPTED FROM: COOK, R.I. (2005). A BRIEF LOOK AT THE NEW LOOK IN COMPLEX SYSTEM FAILURE, ERROR, SAFETY, AND RESILIENCE. CHICAGO, IL: COGNITIVE TECHNOLOGIES LABORATORIES, UNIVERSITY OF CHICAGO)

1) ACCIDENT AFTERMATH

2) BLUNT END, SHARP END



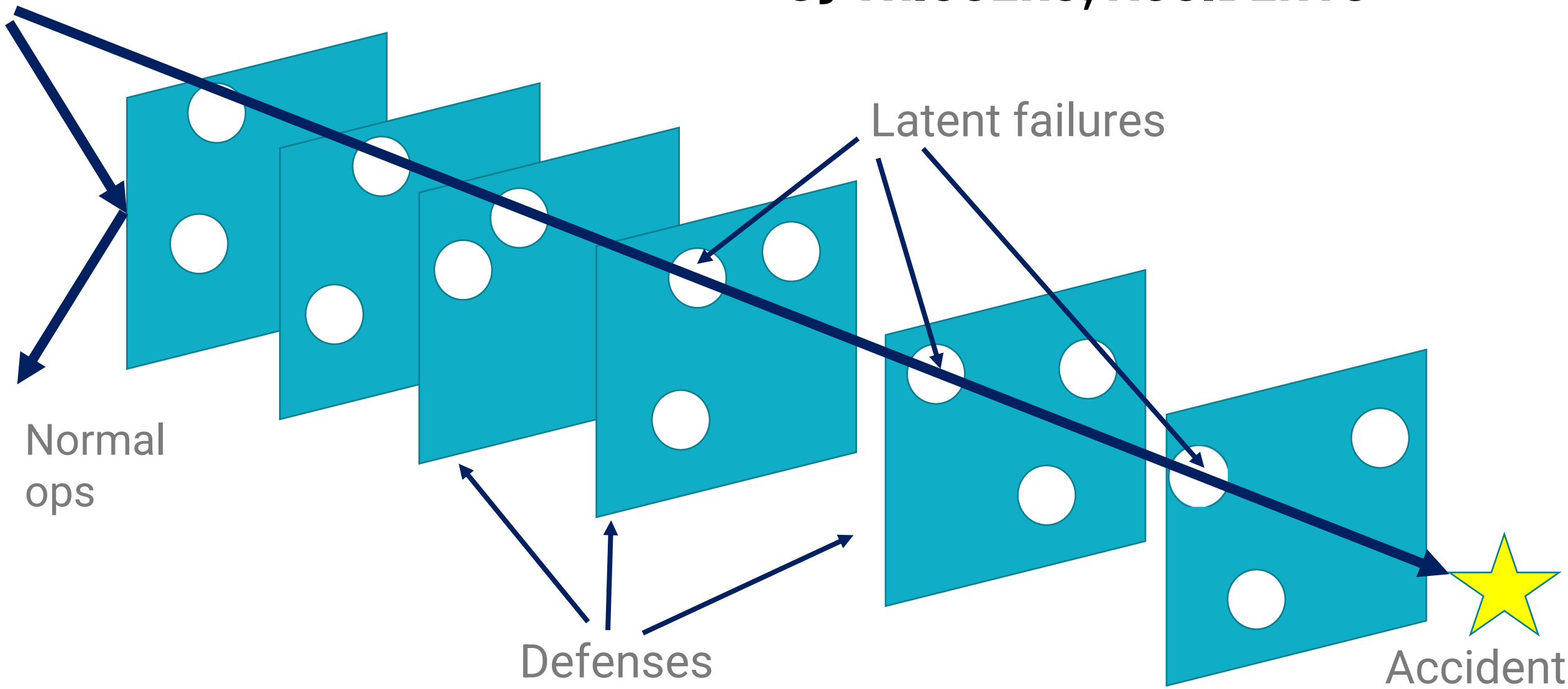
Organizations, institutions, policies, procedures, regulations

Resources, constraints

Air traffic controller

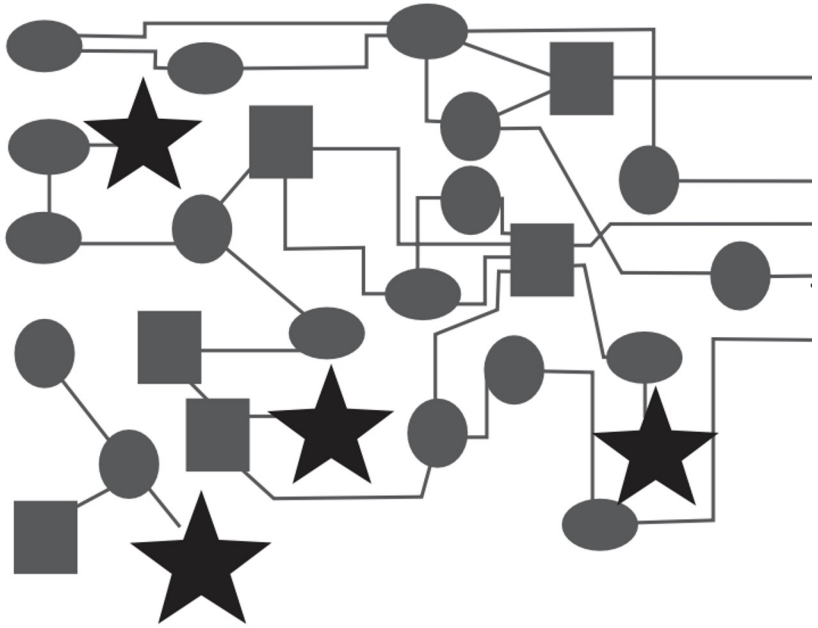
Monitored process

3) TRIGGERS, ACCIDENTS

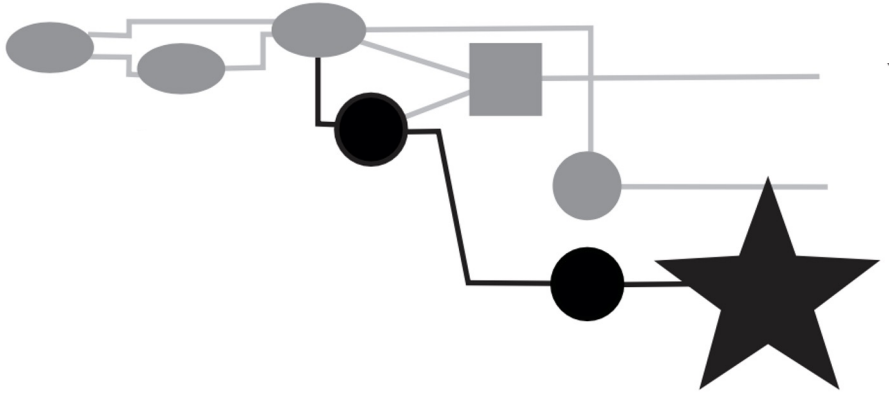


4) HINDSIGHT BIAS

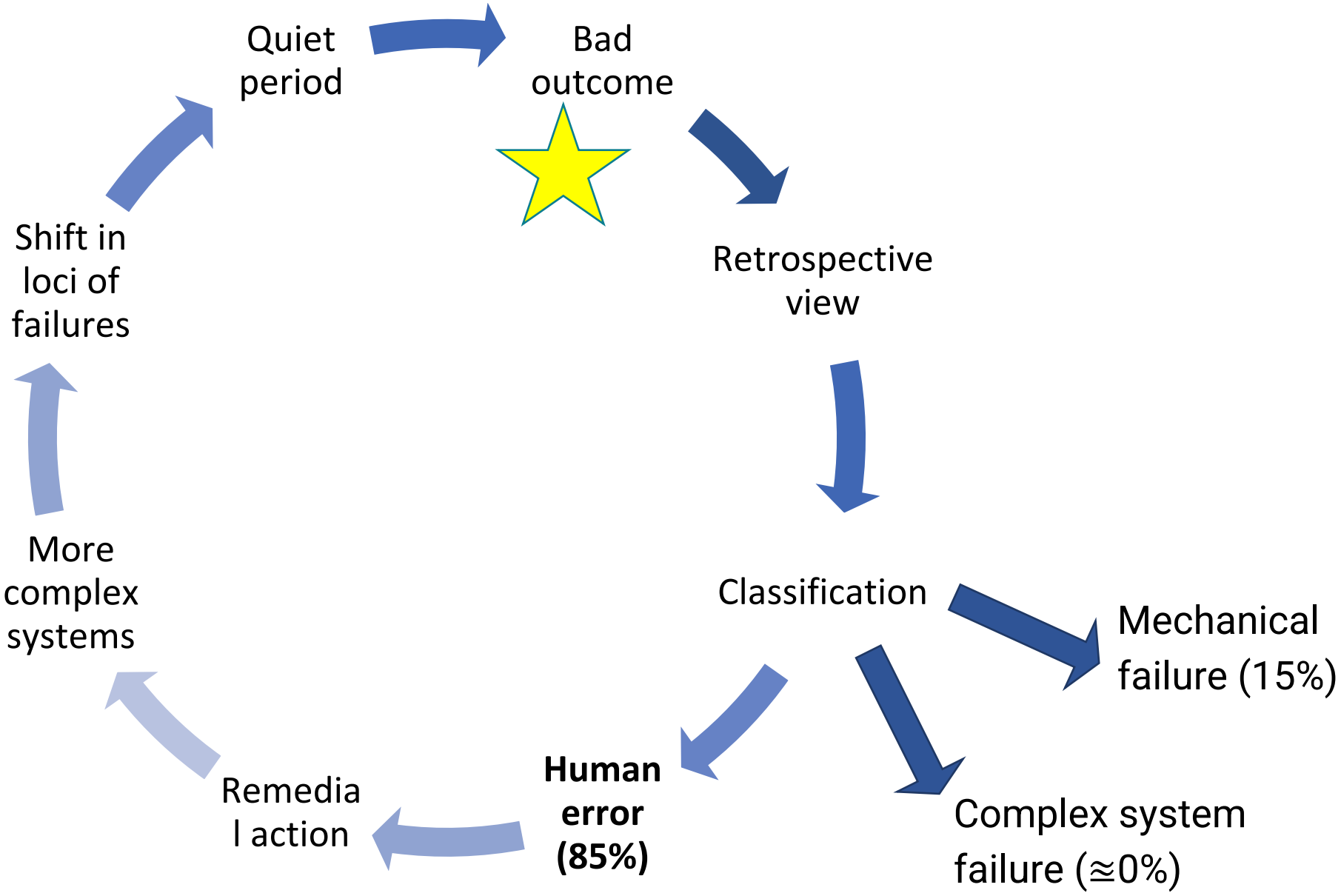
BEFORE the accident



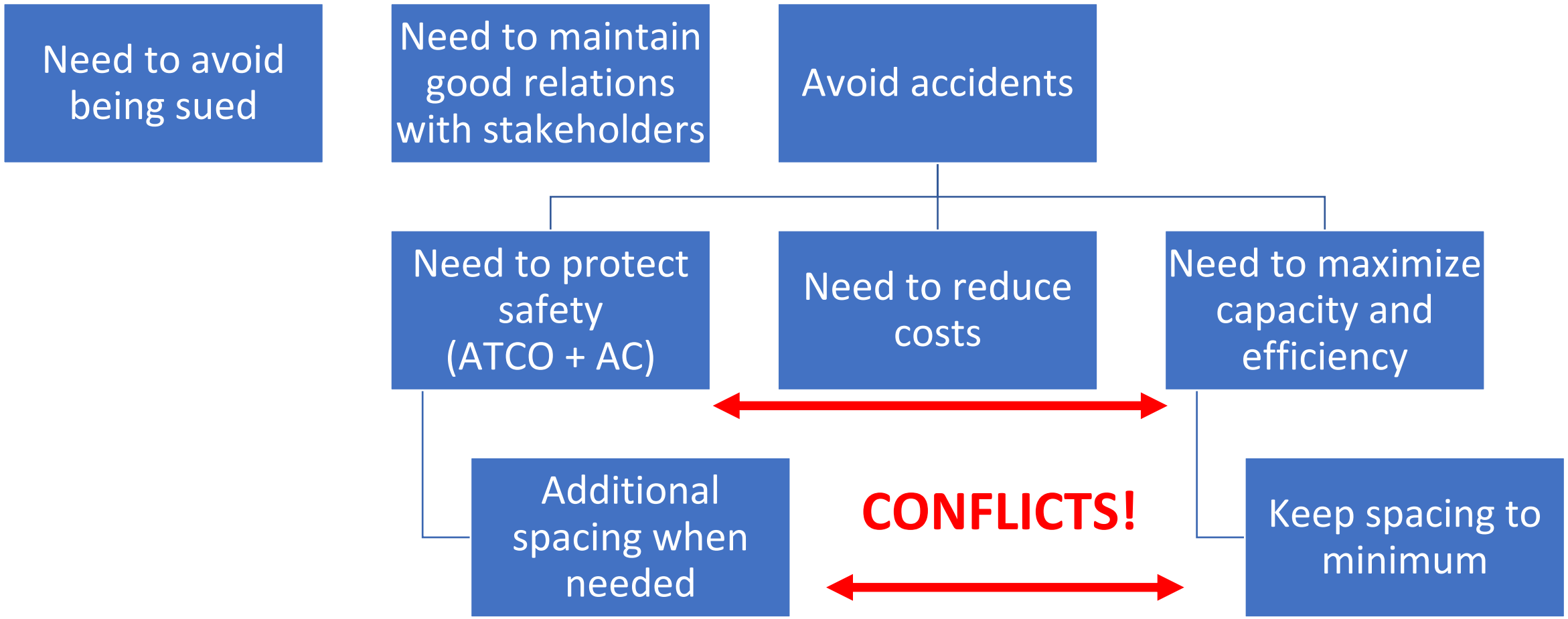
AFTER the accident



5) CYCLE OF ERROR

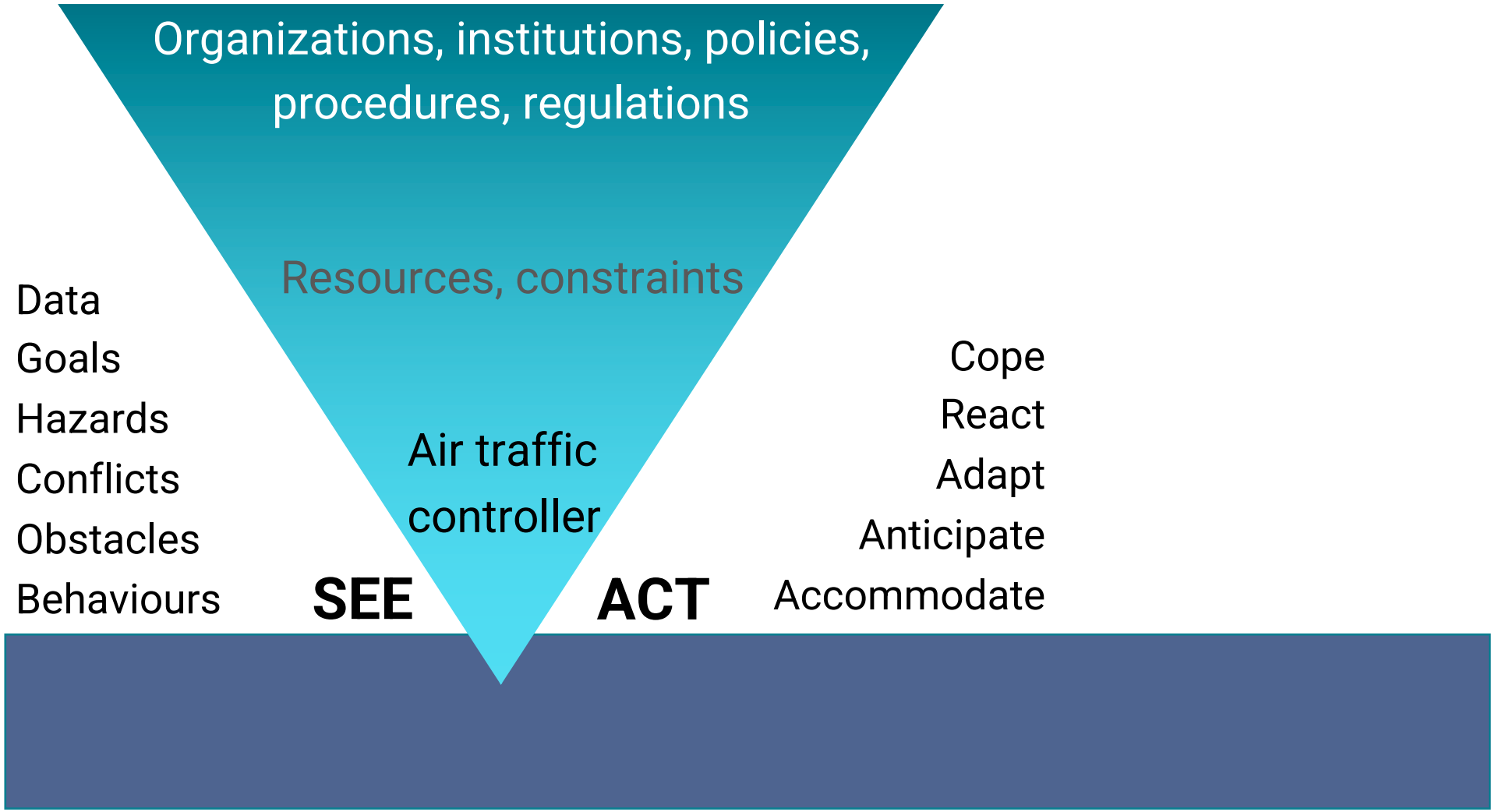


6) CONFLICTING INTERESTS



7) COMPETING DEMANDS

8) SEARCH FOR SOURCES OF RESILIENCE



SAFETY AT IFATCA

- PLC
- SMP
- THINK SAFETY WORKSHOP
- PROSECUTORS WORKSHOP
- JCHMS
- WEBSITE, WIKIFATCA

QUESTIONS?