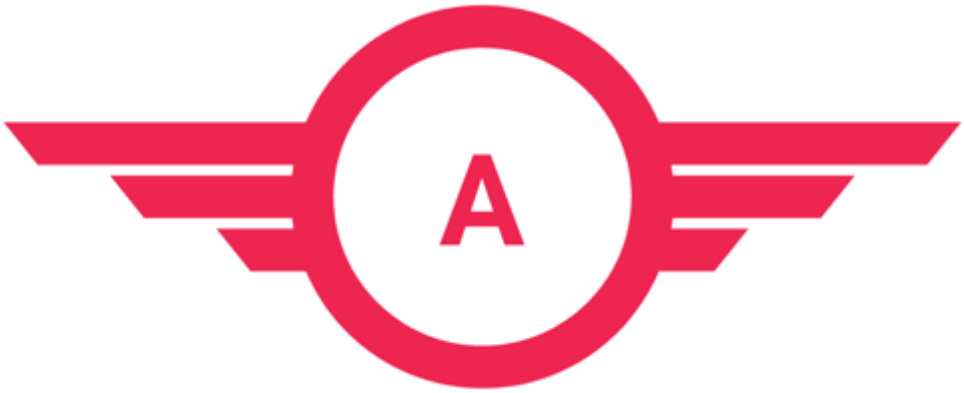


Accident Investigation

Causal Analysis using System Theory

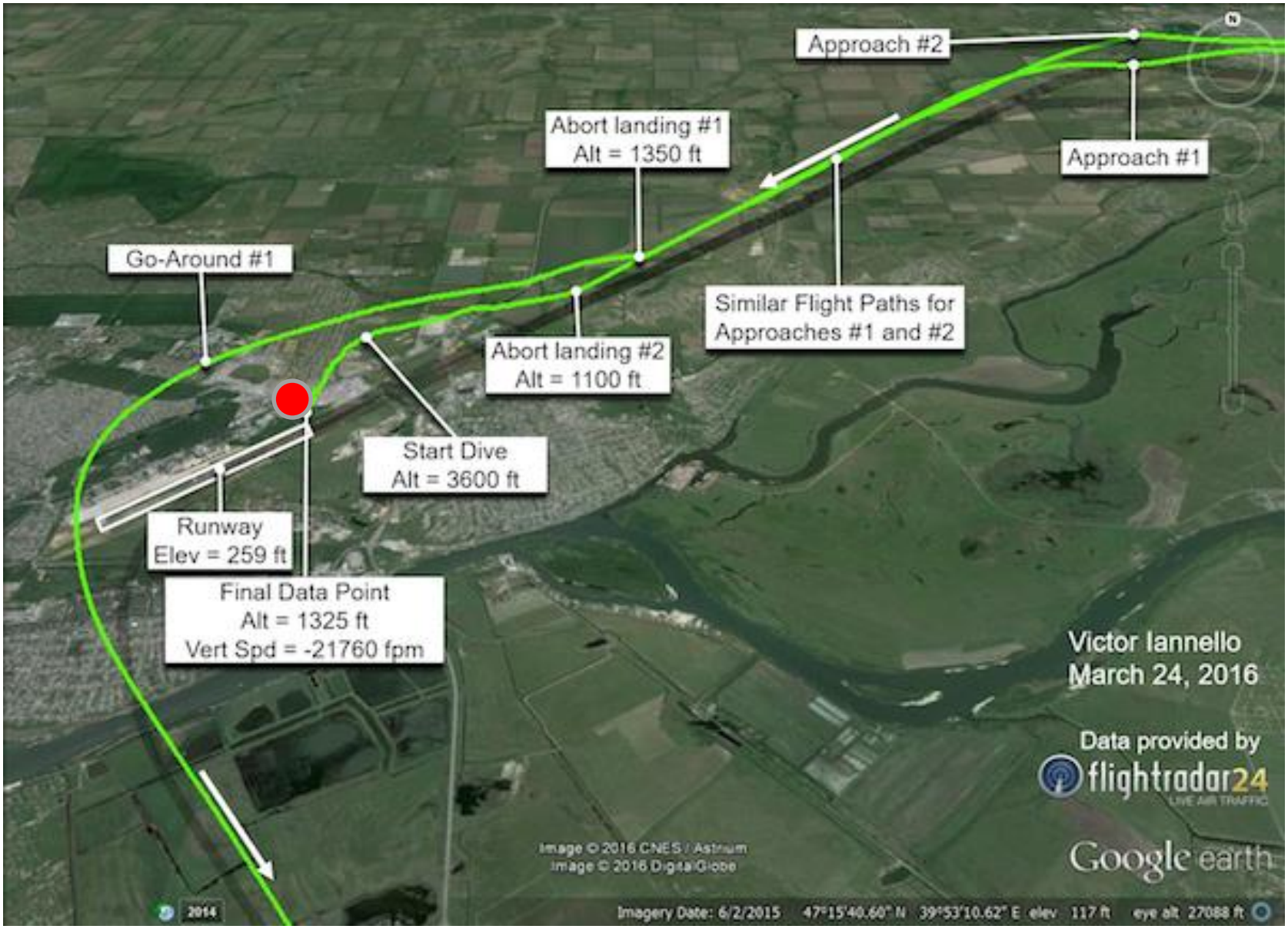
CAST Walk Through flydubai CFIT

Presented by: Darren STRAKER, Hong Kong (EDT + 12)

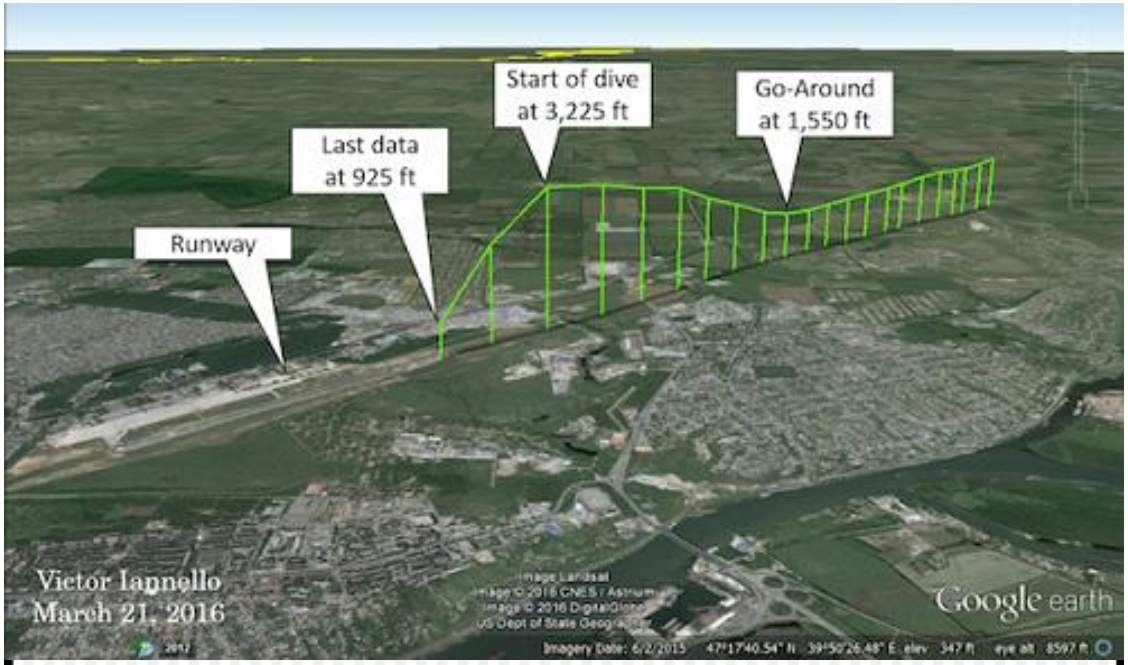
Information

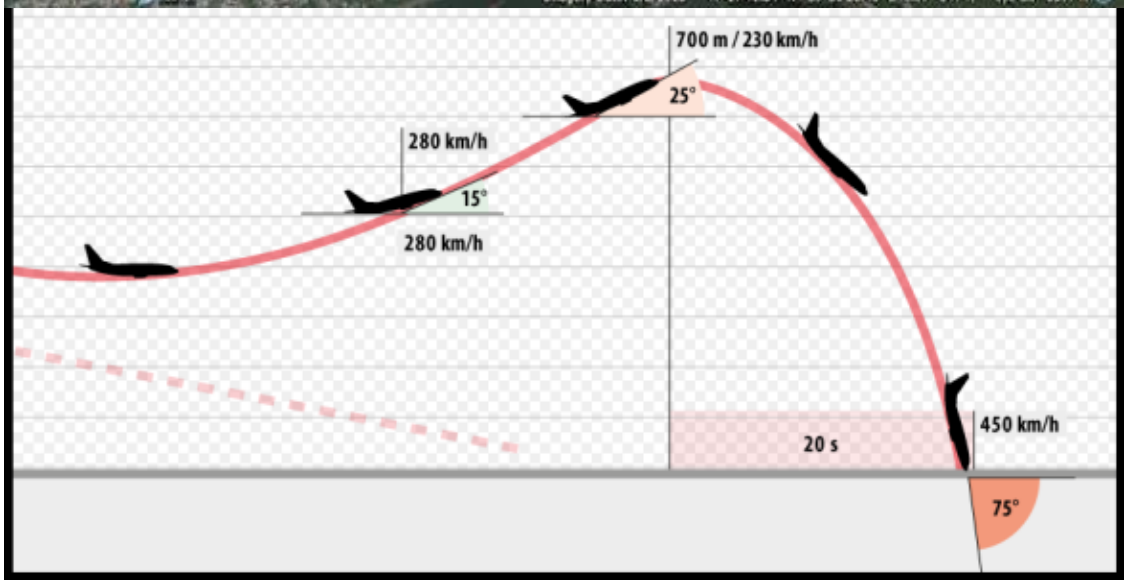
This is template for practicing CAST analysis

CAST Workshop



CAST Workshop





Flight Track and Holding Positions

Flight Track and Holding Points

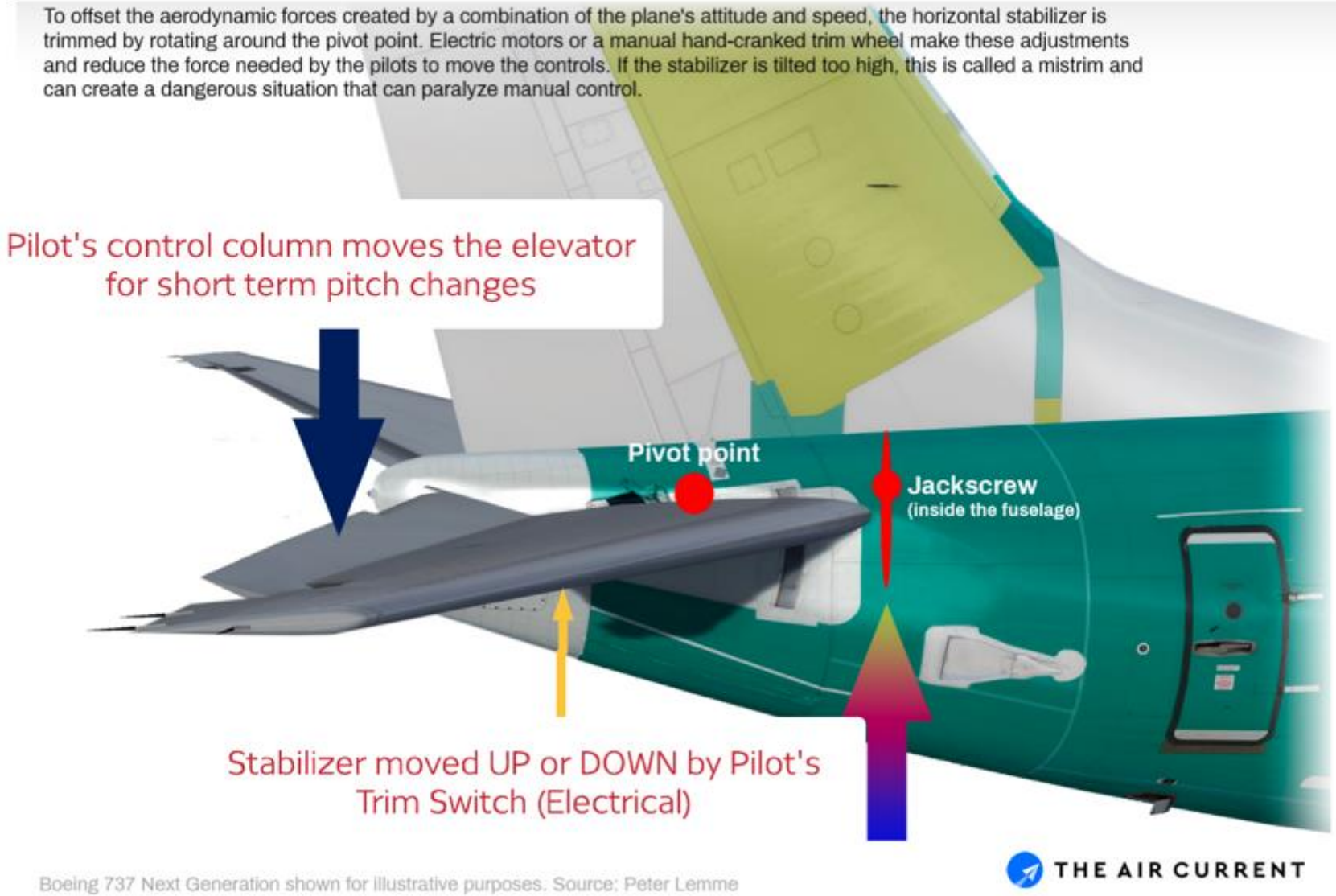
Proximate Events

One attempt to land
Wind shear warning
Go Around Initiated
Climbed to holding point

Holding for XX hours due to weather

Second attempt to land
Wind shear warning
Go Around Initiated
Aircraft Pitches Nose-down
- Controlled Flight Into Terrain (CFIT)

To offset the aerodynamic forces created by a combination of the plane's attitude and speed, the horizontal stabilizer is trimmed by rotating around the pivot point. Electric motors or a manual hand-cranked trim wheel make these adjustments and reduce the force needed by the pilots to move the controls. If the stabilizer is tilted too high, this is called a mistrim and can create a dangerous situation that can paralyze manual control.



Boeing 737 Next Generation shown for illustrative purposes. Source: Peter Lemme

Trim Switch Location – Captains Controls

Pitch Control

The pitch control surfaces consist of hydraulically powered elevators and an electrically powered stabilizer.

The elevators are controlled by forward or aft movement of the control column.

The stabilizer is controlled by the manual trim thumb switch.

Information

Its not possible to play the accident animation video on this meeting application and meet all of the IT specifications globally.

I have taken several screen shots to demonstrate the salient points of the Go Around and subsequent accident.

FDR Animation Screen Capture

FDR Animation Screen Capture

FDR Animation Screen Capture

FDR Animation Screen Capture

FDR Animation Screen Capture

FDR Animation Screen Capture

Wreckage and Evidence Collection/FDR Readout

Rostov-on-Don (Russia)

Moscow

Crew Duty Hours/ Fatigue Analysis

- All of the crew where within the companies
- specified fatigue limitations to Operate the flight.

- No finding for fatigue

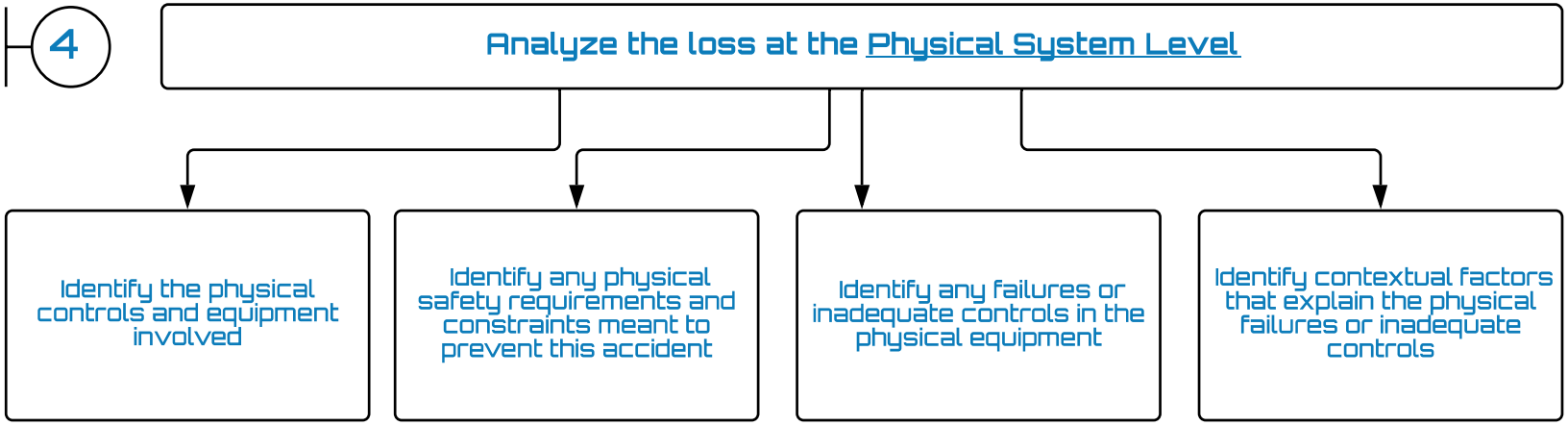
INDENTIFY THE SYSTEM LEVEL HAZARDS

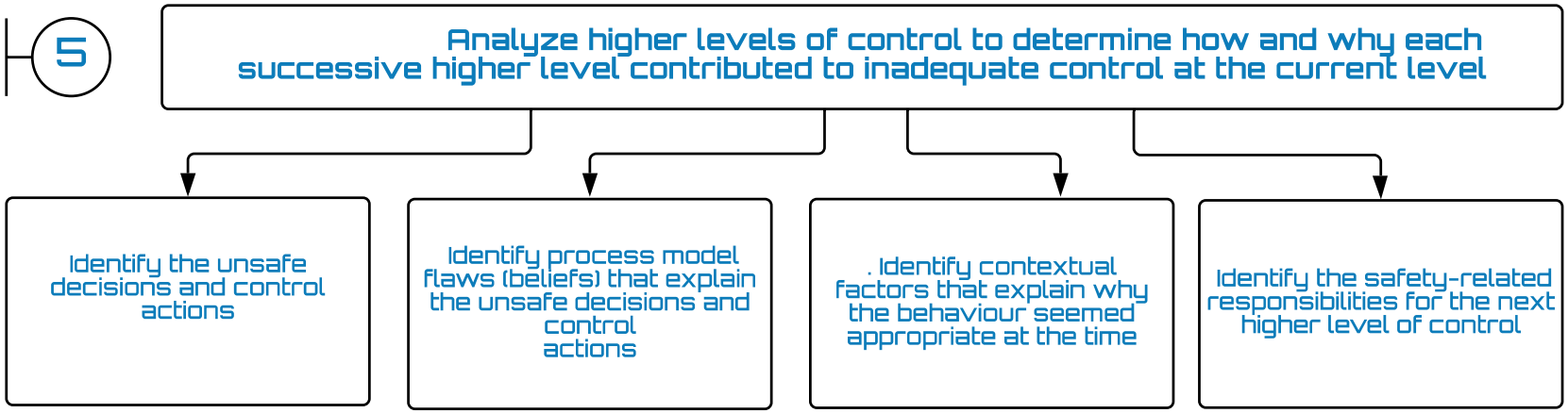
CONTROL STRUCTURE

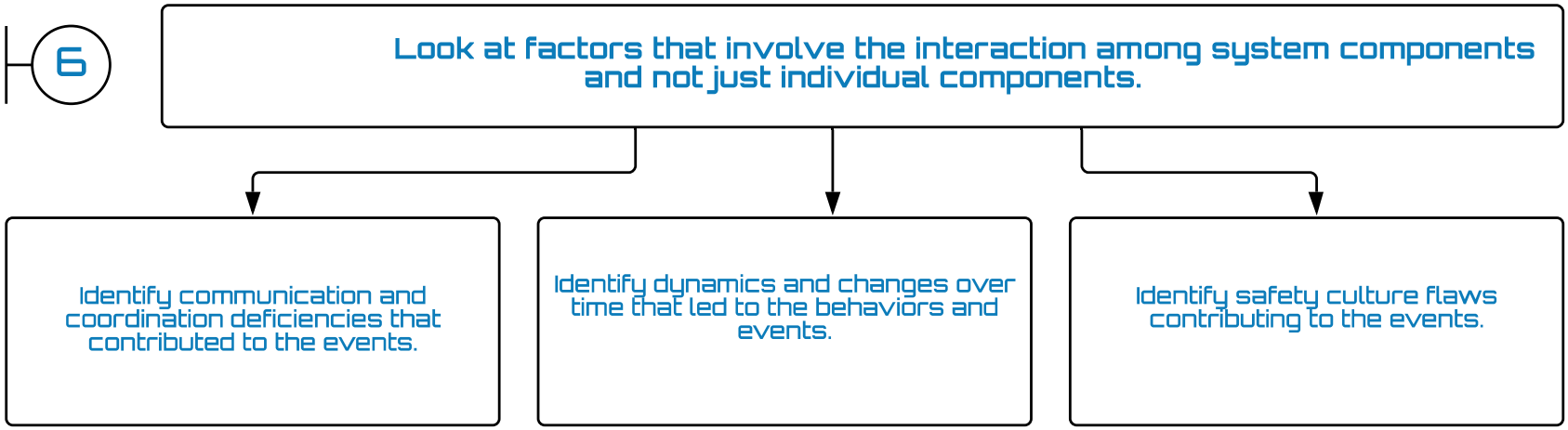
This is NOT the organisation structure

PROXIMATE EVENTS

TIMELINE AND CHRONOLOGY


4
Analyze the loss at the Physical System Level
Identify the physical controls and equipment involved
Identify any physical safety requirements and constraints meant to prevent this accident
Identify any failures or inadequate controls in the physical equipment
Identify contextual factors that explain the physical failures or inadequate controls


5
Analyze higher levels of control to determine how and why each successive higher level contributed to inadequate control at the current level
Identify the unsafe decisions and control actions
Identify process model flaws (beliefs) that explain the unsafe decisions and control actions
. Identify contextual factors that explain why the behaviour seemed appropriate at the time
Identify the safety-related responsibilities for the next higher level of control


6
Look at factors that involve the interaction among system components and not just individual components.
Identify communication and coordination deficiencies that contributed to the events.
Identify dynamics and changes over time that led to the behaviors and events.
Identify safety culture flaws contributing to the events.

Additional Sections for Annex 13

ICAO Annex 13 Compliance

Conclusions

- Findings
- Contributing Factors

Additional Sections for Annex 13

ICAO Annex 13 Compliance

Safety Recommendations

1. SR XX-2020
2. SR XX-2020
3. SR XX-2020

The End