

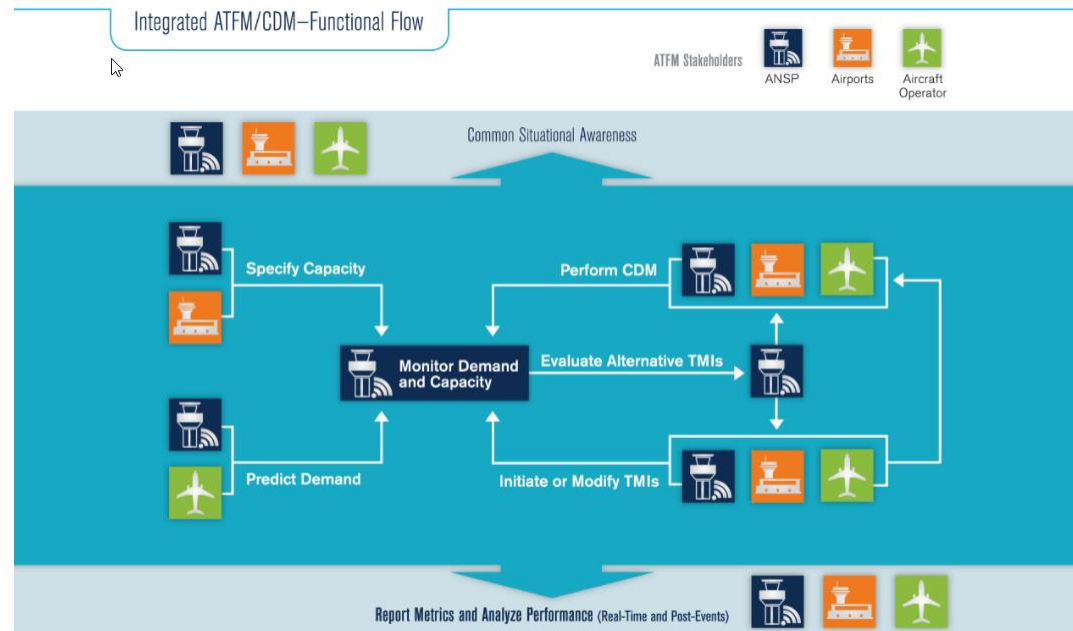


CANSO Operations and Safety Workshop 9-12 May 2022

Stuart Ratcliffe

Why do we need to declare capacity?

- What can be safely handled
- What can be managed efficiently
- First step in ATFM
- Balance demand against capacity
- Manage the flows of traffic
- Incident investigation
- Resource improvements



What resources need declared capacity?

- Capacity is expressed as maximum number of aircraft through an ATM resource:
 - Aerodrome
 - Airspace sector
 - Arrival/departure Fix
 - Waypoint

Normal measured period is one hour



Capacity Declaration time frames

Nominal Capacity Declaration

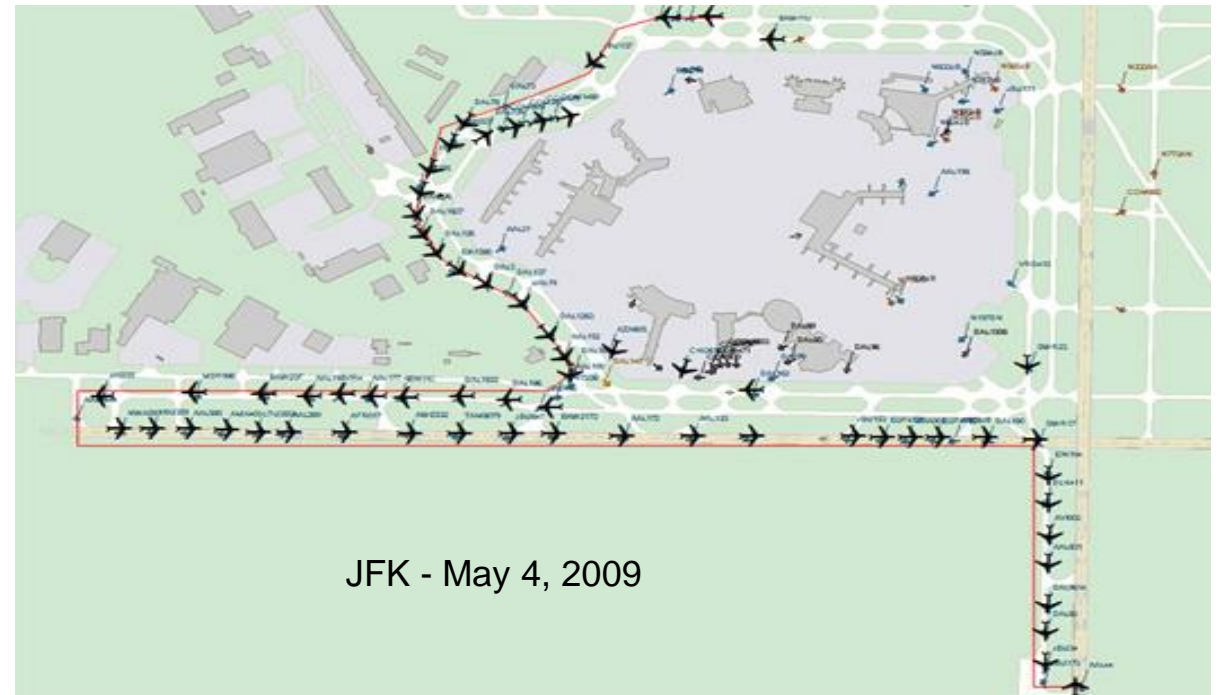
- Declared in advance – strategic phase
- Reviewed annually?
- Ideal Conditions
 - Infrastructure
 - Weather
- Used to balance demand and capacity in strategic time phase
- Used to determine Airport allocation Slots

Operational Capacity Declaration

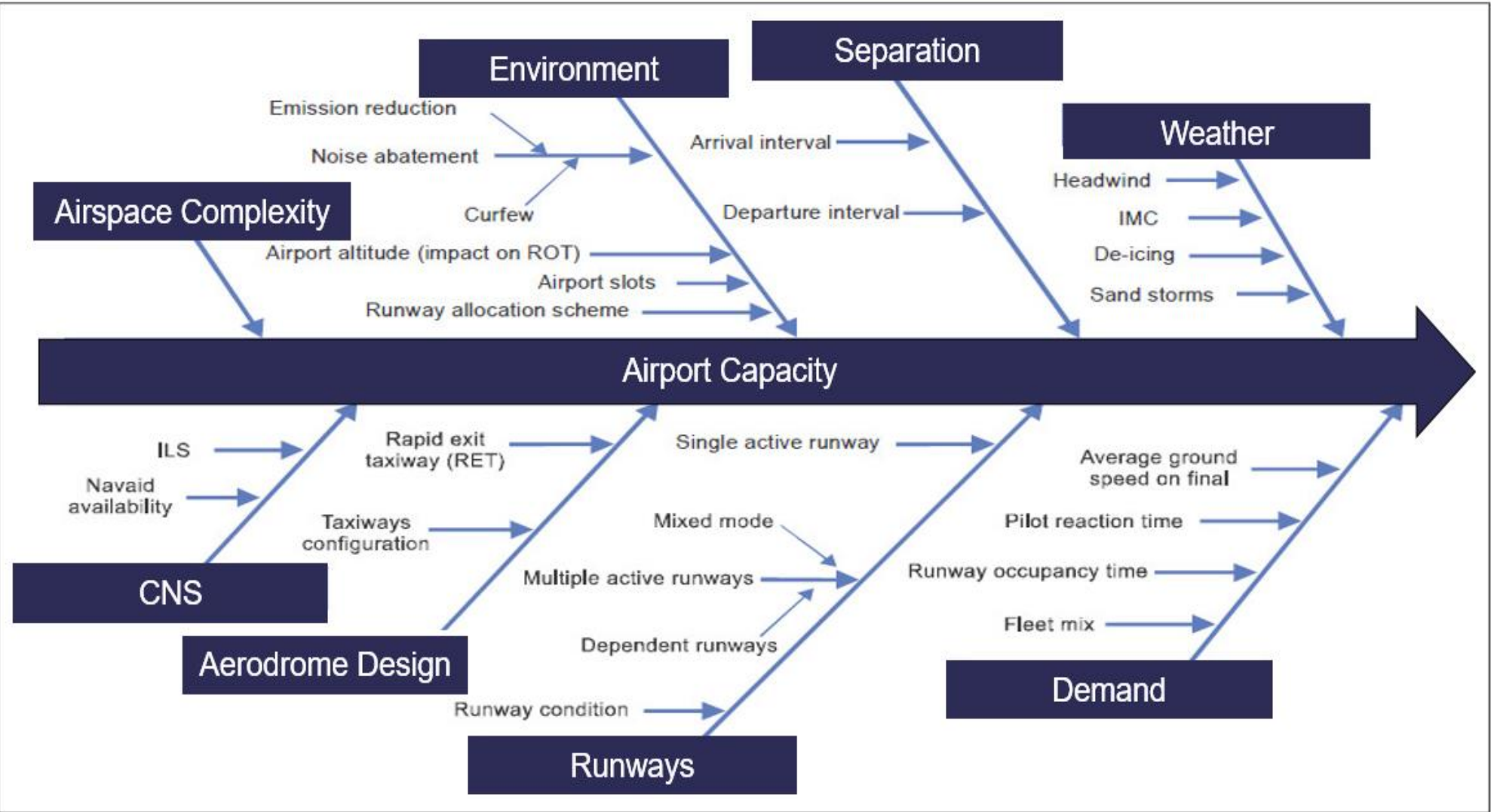
- Declared in the Pre-tactical and Tactical phases
- All conditions need to be considered
- It is variable
- Used to balance demand and capacity in pre-tactical and tactical phases

Aerodrome Nominal Capacity Declaration

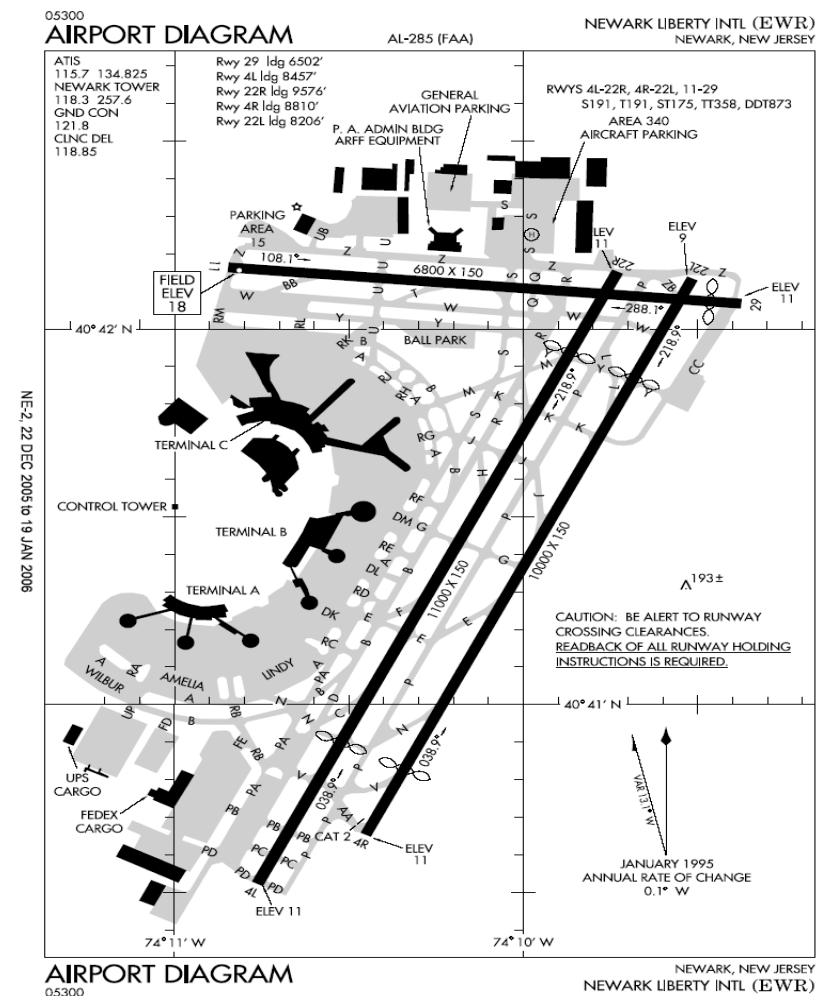
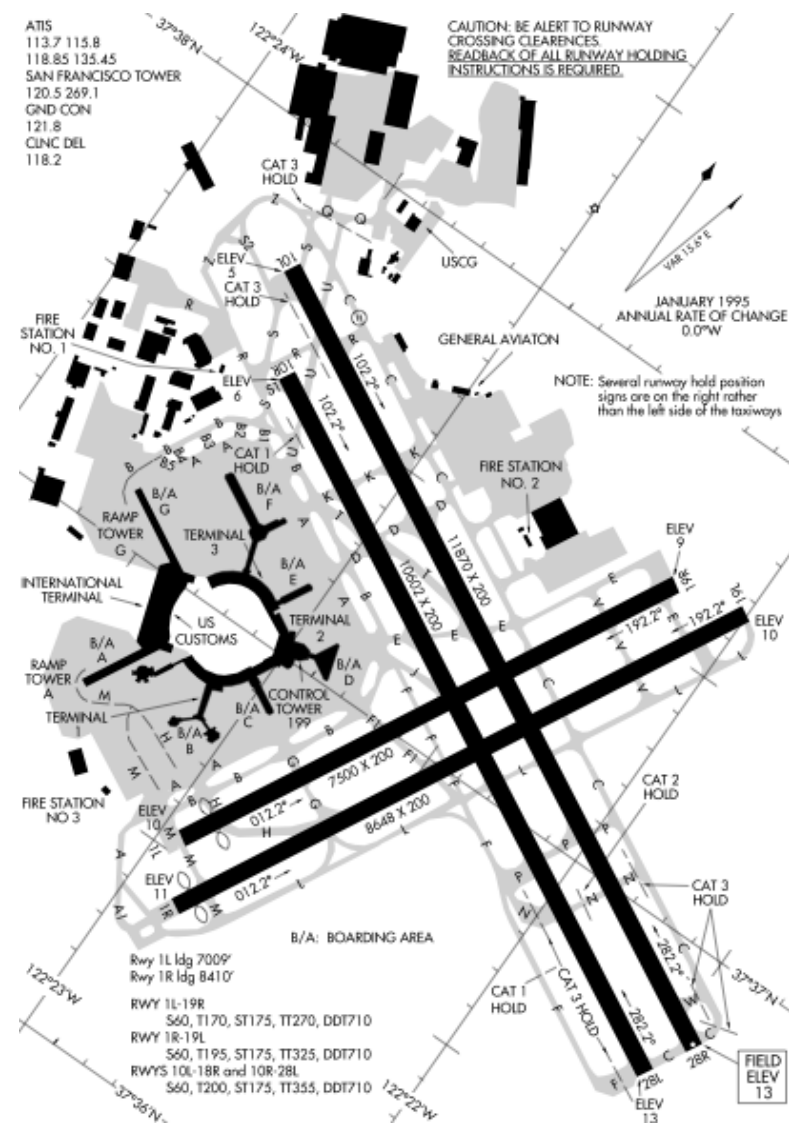
- Check-in counters
- Security Screening
- Carousels
- Customs and Immigration
- Gates
- Airport layout (RWY/taxiway configuration)
- Runway throughput
 - Pilot reaction times
 - Runway occupancy
- Arrival and departure capacity
- Sector capacity



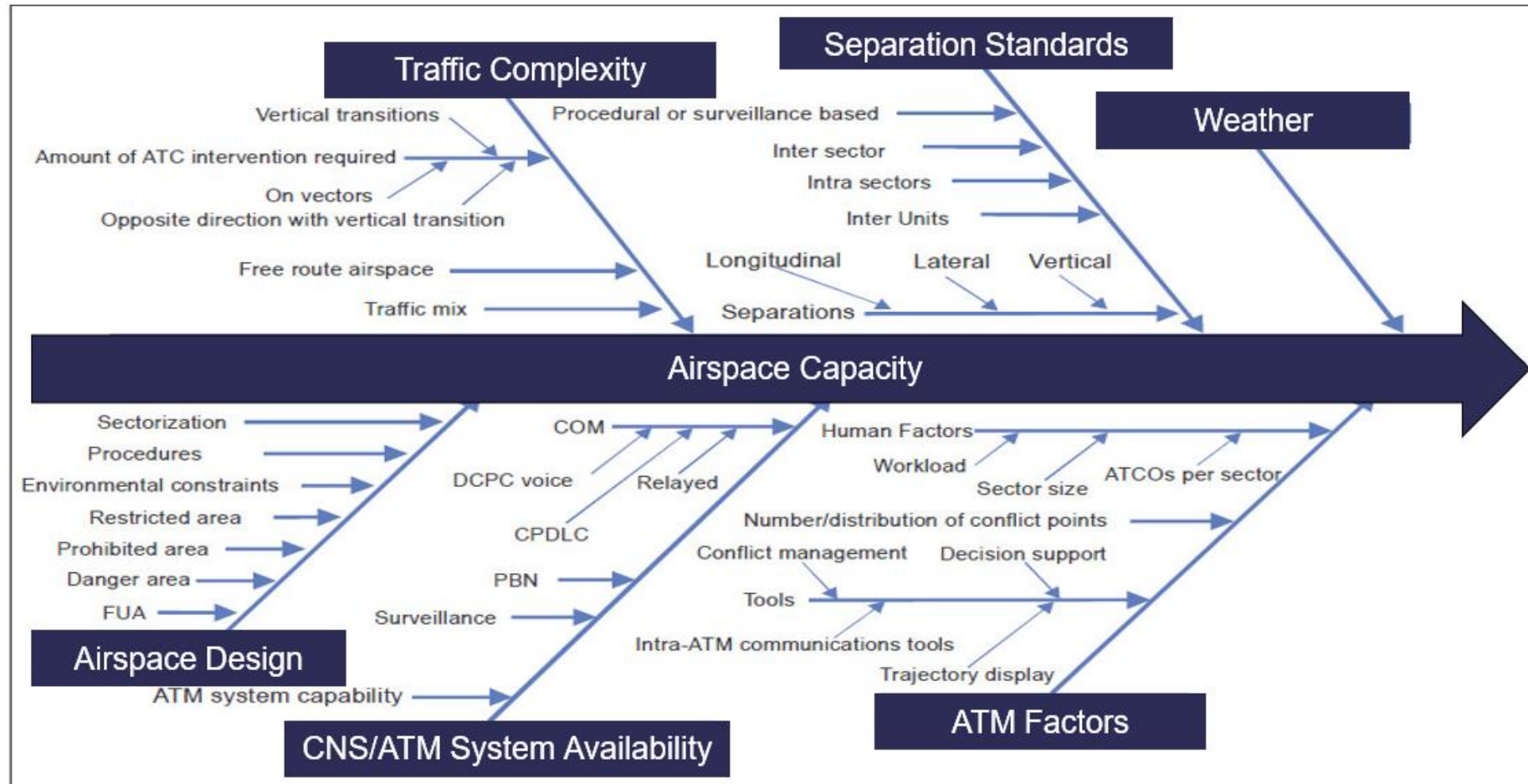
Aerodrome Nominal Capacity Declaration



Aerodrome Capacity



Nominal Airspace Capacity Declaration



Capacity Determination tools

DORATASK Model UK

- Sector Design Analytical Tool (SDAT) USA
- Capacity Indicator Model (CIM) Europe
- Reorganized ATC Mathematical Simulation (RAMS) EUROCONTROL
- ATC Sector Capacity Calculation Model used in Brazil

Capacity Declaration time frames

Nominal Capacity Declaration

- Declared months in advance
- Ideal Conditions
 - Infrastructure
 - Weather
- Is Set and does not change

Operational Capacity Declaration

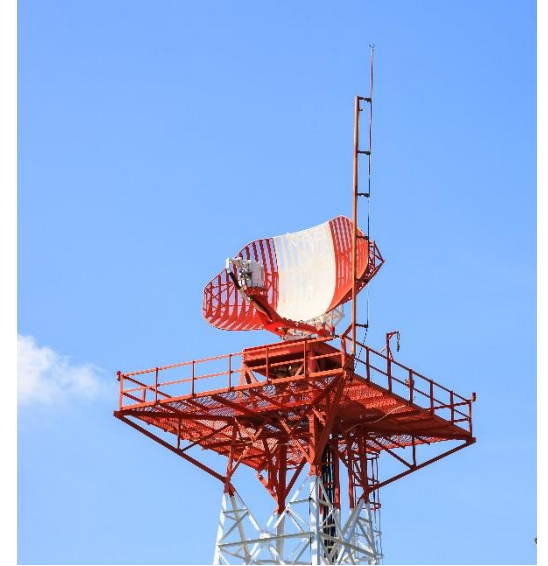
- Declared in the Pre-tactical and Tactical phases
- All conditions need to be considered
- It is variable

Dynamic operational capacity is the expected capacity associated with the tactical situation at the airport or airspace including

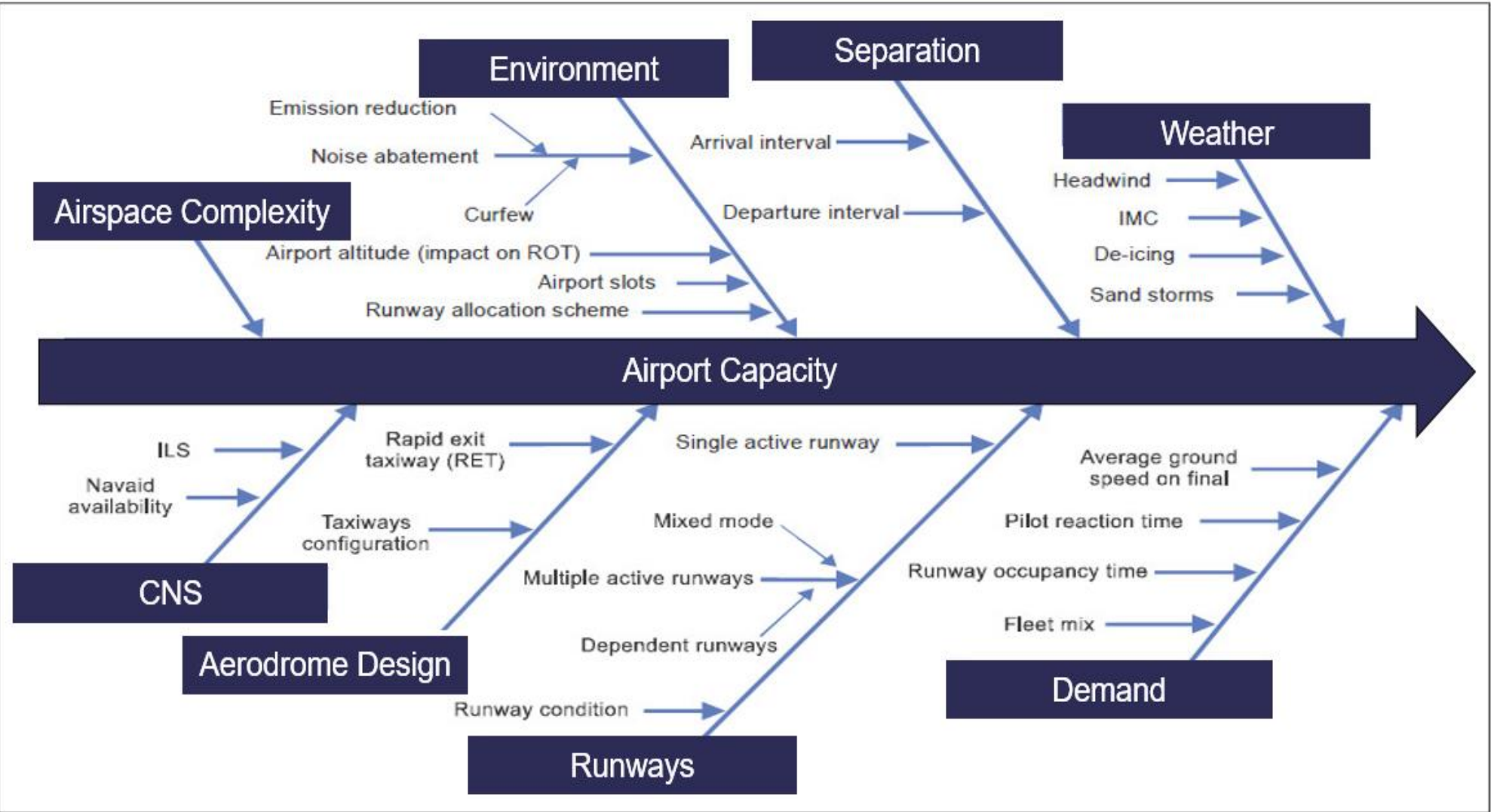
Operational Airport and Airspace Capacity Declaration

Operational Capacity Declaration

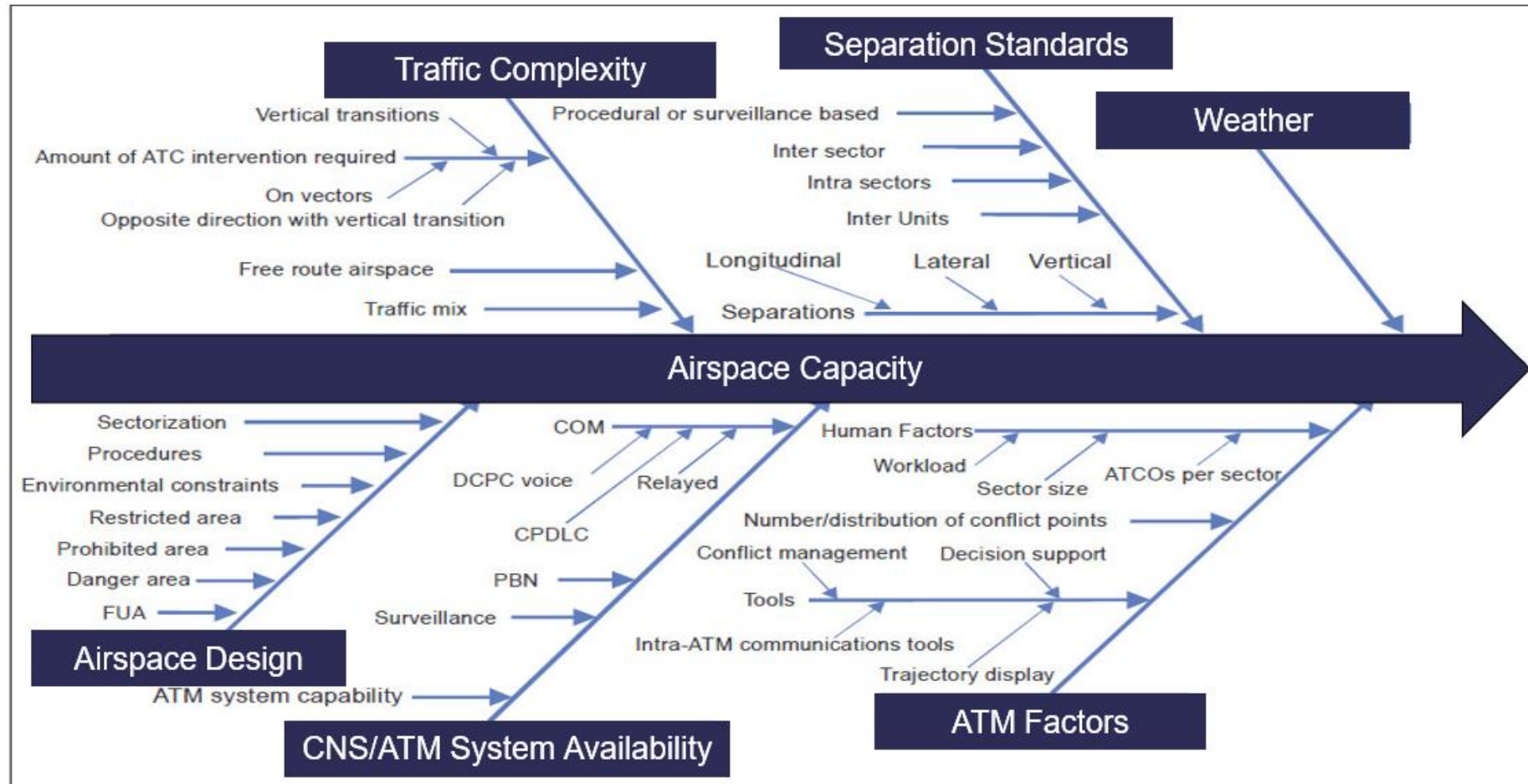
- Declared in the Pre-tactical and Tactical phases
- All conditions need to be considered
- It is variable



Aerodrome Operational Capacity Declaration

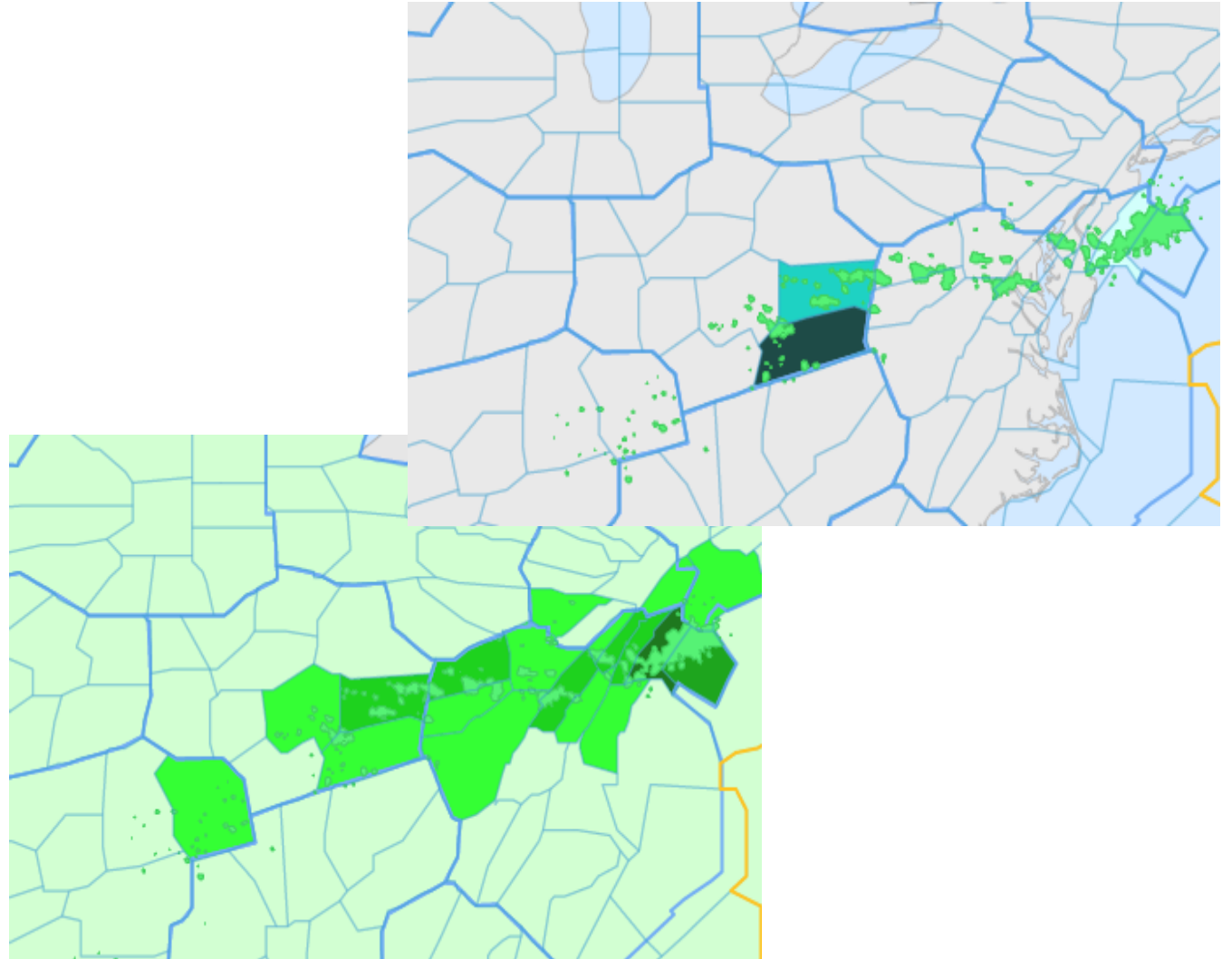


Airspace Operational Capacity Declaration



Automated Capacity Determination

- ANSPs are requesting automated capacity determination tools
- AI
- Historical data
- Climbing/Descending aircraft
- Traffic mix
- Aircraft speeds
- Aircraft flight direction
- Airspace complexity



Summary

- Capacity is required for safe efficient operations
- Capacity must be declared for all resources
- Nominal Capacity Declaration
 - Declared in strategic phase
- Operational Capacity Declaration
 - Declared in Pre-Tactical and tactical phases



Questions

Stuart.ratcliffe@metronaviation.com