



ICAO BANGKOK

UNITING AVIATION

# Drivers for NANP Development

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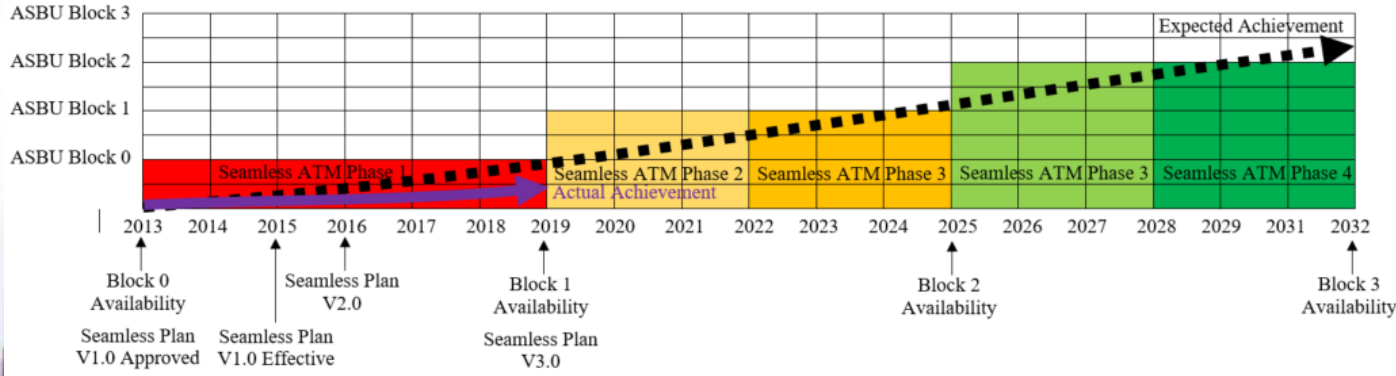
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# NANP Drivers

The overall performance of States implementing the Global Air Navigation Plan (GANP) and the associated Asia/Pacific Seamless ANS Plan thus far been poor, so we're years behind matching ground systems with current aircraft capability.





# NANP Drivers

For example, the Asia/Pacific Region should've implemented the Aviation System Block Upgrade (ASBU) Block 0 as committed by APANPIRG/24 in 2013; yet nine of the ten priority elements had not been implemented by 2019.

Acceptable Implementation	
ADS-C, CPDLC	B0-TBO
Partial Implementation	
Strategic Civil Military coordination	Regional
Tactical Civil Military coordination	Regional
ADS-B airspace	B0-ASUR
ATS surveillance with data integrated	B0-ASUR
ATS Inter-facility Data-link Communications (AIDC)	B0-FICE
Civil Military use of Special Use of Airspace (SUA)	B0-FRTO
Partial and Slow Implementation	
Approaches, including PBN	B0-APTA
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS
Unacceptable Implementation Progress	
Aeronautical Information Management (AIM)	B0-DATM



# NANP Drivers

What's the problem? Lack of resources? Lack of priority?

Experience from audits, seminars, workshops and assistance missions indicates that the main cause is a lack of cross-government planning and involvement/commitment by all stakeholders.

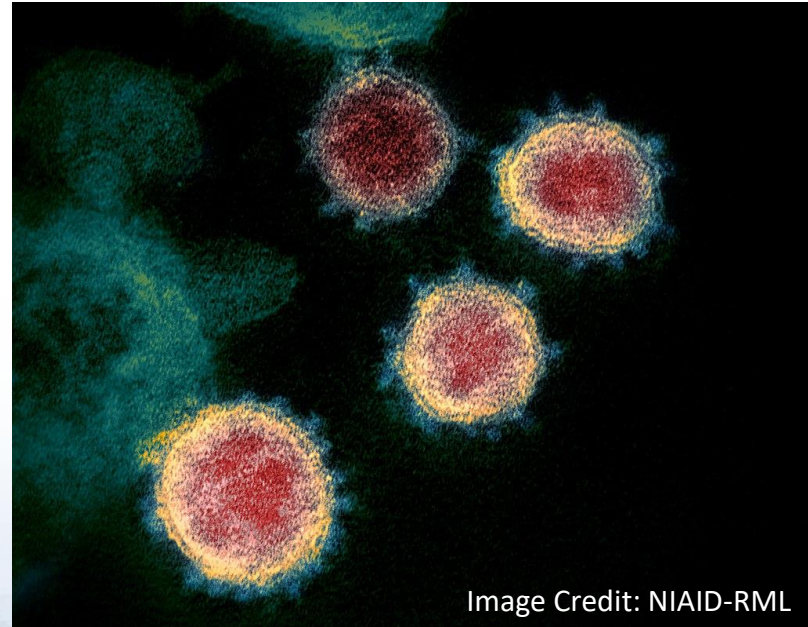




# NANP Drivers

Now that the COVID-19 pandemic has dramatically affected the world, we need to consider:

- how to support struggling airlines with the most efficient airspace, air navigation and airport services possible; and

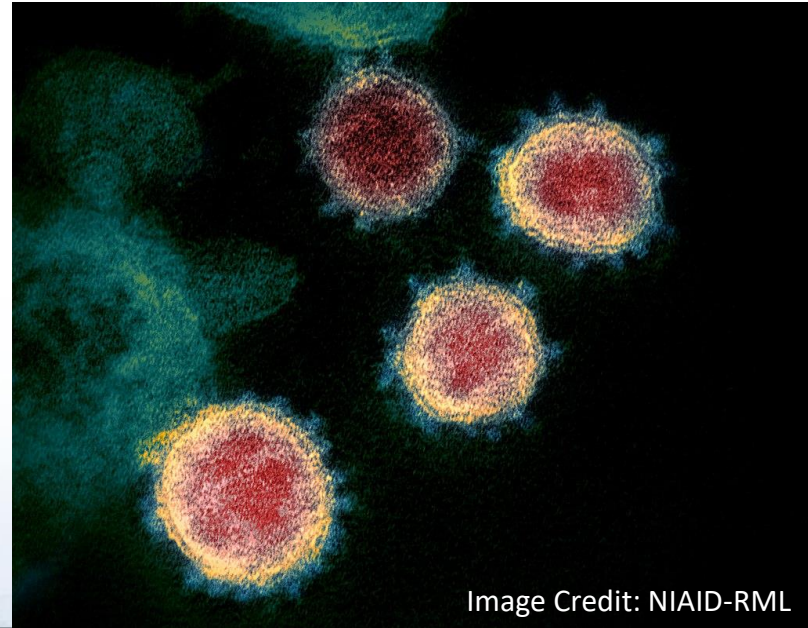




# NANP Drivers

Now that the COVID-19 pandemic has dramatically affected the world, we need to consider:

- amending NANPs (and global and regional plans) to reflect the new reality of low air traffic and lack of financial resources.





# NANP Drivers

However, on the positive side, the pandemic has taught us that whole-of-government planning involving more than just 'traditional' aviation entities is critical to achieve an optimum result!

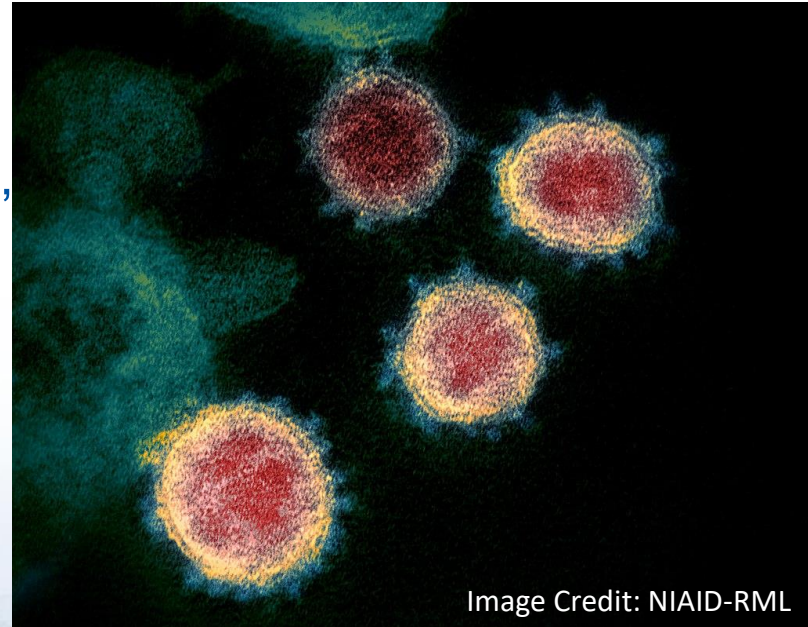


Image Credit: NIAID-RML



# NANP Drivers

The Declaration of Asia Pacific Ministerial Conference on Civil Aviation committed to the 2018 'Beijing Declaration', which expected States to develop NANPs by 2022.





# NANP Drivers

With respect to civil-military cooperation – an important component of a NANP – the 47<sup>th</sup> and 54<sup>th</sup> Director's General of Civil Aviation Conference concluded that States should use a whole-of-government approach to address this important area.





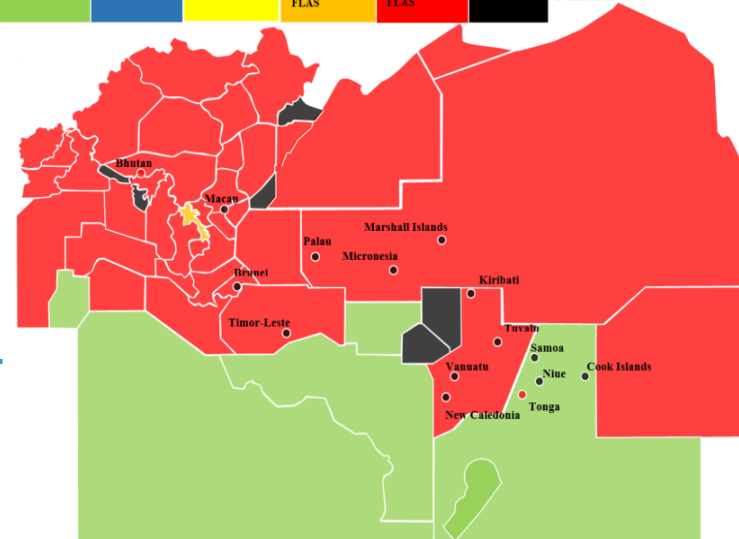
# Poor ATM Efficiencies

Few States utilize the normal ICAO standard ATC separations (5NM and 3NM), despite the requirements of the Seamless ANS Plan, causing:

- less capacity; and
- more conflicts and ATC workload.



Cat T 3NM Cat R ≤ 50NM TOC ≤ 50NM Cat S 3NM TOC 5-10NM	Cat T 3-5NM Cat R ≤ 50NM TOC ≤ 50NM Cat S 6-10NM TOC 11-20NM	Cat T 3-5NM Cat R ≤ 50NM TOC ≤ 50NM Cat S 11-20NM TOC 11-20NM	Cat T 3-5NM Cat R ≤ 50NM TOC ≤ 50NM Cat S 5-20NM TOC 11-20NM FLAS	Cat T 6NM+ Cat R 51NM+ TOC 51NM+ Cat S 21NM+ TOC 21NM+ FLAS	No Report	ATC Separations – Compliance with Seamless ANS Horizontal Separation Standards
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### ATM Systems

7.35 The delivery of CNS/ATM services should be based primarily on the CNS/ATM capability. All ATC units should authorise the use of the horizontal separation minima stated in ICAO Doc 4444 (PANS ATM), or as close to the separation minima as practicable, taking into account such factors as:

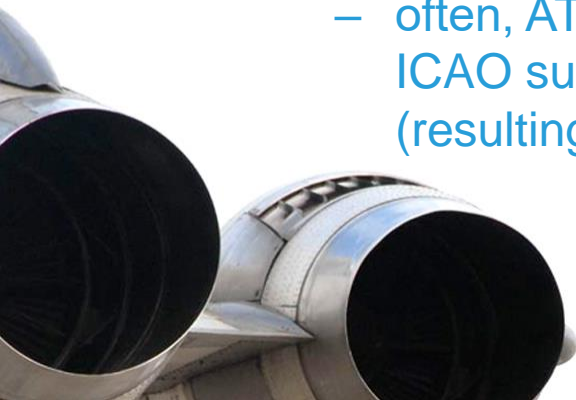
- the automation of the ATM system;
- the capability of the ATC communications system;
- the performance of the ATS surveillance system, including data-sharing or overlapping coverage at TOC points; and
- ensuring the competency of air traffic controllers to apply the full tactical capability of ATS surveillance systems.



# Poor ATM Efficiencies

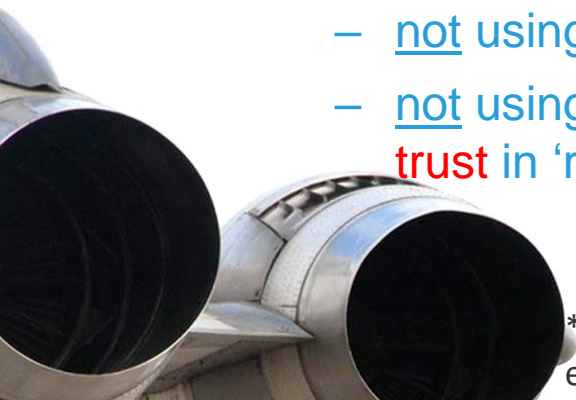
Why do many ATC units use conservative separation standards?

- conservative Transfer of Control spacing, passed on from FIR to FIR, due to lack of trust and/or data sharing and even for ‘workload’; and
- often, ATC managers with a procedural background don’t believe ICAO surveillance standards are safe, so impose larger spacing (resulting in increased ATC workload due to more conflicts).

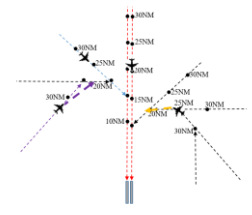


# Poor ATM Efficiencies

- Other examples of inefficient ATC separation standards are:
  - use of the wrong PBN specifications, especially RNAV 5 and 10\*;
  - using ‘trombone’ sequencing (lack of sequencing **confidence**);
  - not using the 3.0NM or 2.5NM standard in terminal airspace; and
  - not using mixed mode (arrival and departures) runways (lack of **trust** in ‘ready’ reports?).



\*Guidance is on the eDocuments webpage



# Poor ATM Efficiencies

- The Asia/Pacific Seamless ANS Plan has expectations on:
  - human performance (including use of surveillance-based separations and avoidance of FLAS); and
  - ‘Aviation Culture’, to avoid a lack of trust in controllers; often due to punitive reactions to incidents.

At least two States have been known to conduct ‘collective punishment’ for errors by individuals and for airlines that, in the eyes of the State committed an error!

## Just Culture

- Open Reporting to Management
- Non-Punitive
- Focus on Preventive, not Corrective Action

## Responsible Management

- Proactive, Safety Priority
- Informed, Open Communication
- Team Management Approach

## AVIATION CULTURE

### Human Factors

- Ergonomic Designs, Human-in-the-Loop Systems
- Fatigue Management
- Training and Use of Simulators
- Safety Nets and Contingency Planning

## Organisational Culture

- Effectively Driven by Management
- Imbedded Safety Review and Assessment Teams
- Organic: Responding to the Environment to Learn and Improve



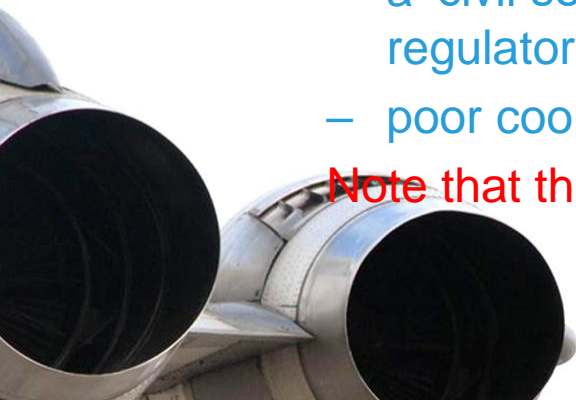
# Poor ATM Efficiencies

Why such poor performance? The main reasons appear to be:

- a lack of effort to meet regional policy expectations, because a publically-visible and empowered planning process is not in place;
- a ‘civil service’ mentality instead of a cost-aware approach\* by regulators and Air Navigation Service Providers (ANSPs); and
- poor coordination with other parts of State government.

**Note that these are human issues, largely unrelated to technology!**

\*Including efficient flight paths and minimization of ANS charges





# Conclusions

According to the Asia and Pacific Region's Ministers of Aviation,  
States are supposed to complete their NANPs by 2022...  
...and those that do not may be subject to an APANPIRG Deficiency.





# Conclusions

Despite APANPIRG Conclusions, DGCA Conference Action Items and Ministerial Declarations, resourcing, prioritization and empowerment of Seamless ANS elements has been poor...

...thus, ANS planning that only involves aviation regulators and service providers has not proven to be effective, requiring a higher level approach that can only be resolved through an effective NANP, written by a body representing a whole-of-government approach and users.





# Conclusions

Aviation faces unprecedented challenges to its recovery, with the combined problems of new health requirement costs, public confidence in flying, poor economic outlook and environmental pressures all requiring...

...a greater need to consider **every** possible aerodrome and ATM efficiency and cost reduction strategy to support airlines.





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