



Development of Singapore's National Air Navigation Plan (NANP)

31 July 2020

CAAS

Civil Aviation Authority of Singapore

National Layer of ATM Planning

- Identify ATM priorities and implementation activities to meet Singapore's needs and challenges
 - Aligned to the global and regional vision and requirements
- Detail rationale behind ATM modernisation in Singapore

- Compounding ATM problems
- Complex and sophisticated new ATM systems
- New CNS technologies that enable revolutionary changes in ATM



National Air Navigation Plan

- Provide strategic roadmap for continual enhancement in ANS aligned to the Global and Regional Planning Frameworks

Hierarchy of Documents

Global Vision
ICAO Global ATM
Operational Concept
(GATMOC, Doc 9750)



Global Implementation Strategy
ICAO Global Air Navigation Plan
(GANP, Doc 9750)



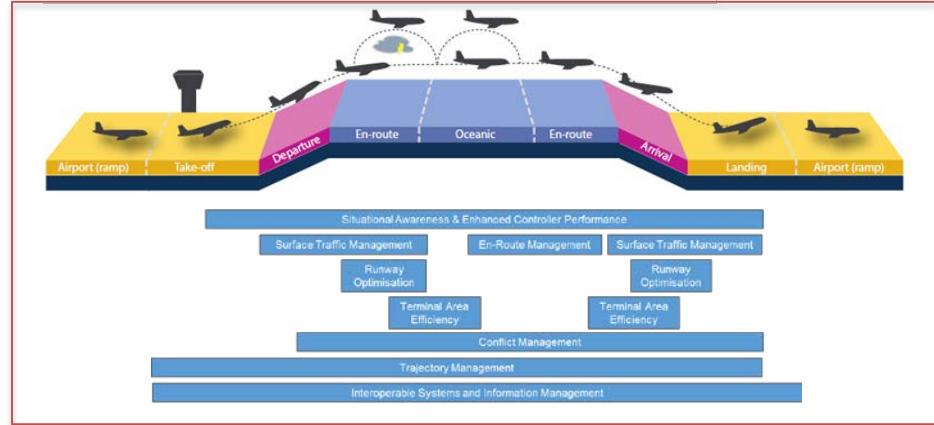
Global Guidance on Performance
Based Assessment
ICAO Manual on Global Performance
of the Air Navigation System
(Doc 9883)



Regional
Vision and Implementation Strategy
ICAO Asia Pacific Regional Air
Navigation Plan Volumes I, II and III

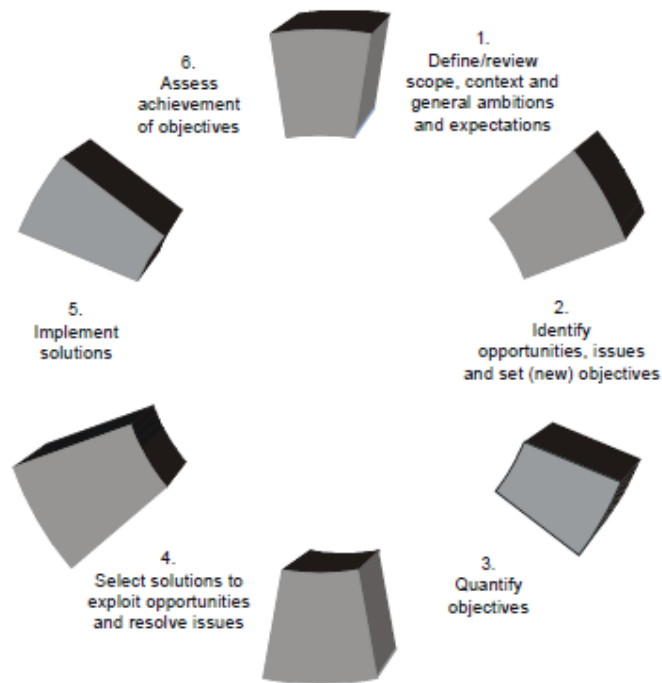


Sub-Regional Vision and
Implementation Strategy
ASEAN ATM Master Plan



Development Process

Analysis of Needs and Challenges



- Performance based approach (*Doc 9883*)
 - Define vision, and subsequently the ambitions / goals of State
 - Define Key Performance Areas (KPAs) and its associated KPIs of interest to State
 - ANS-PA tool in GANP Portal
- Suite of solutions available in the ASBU framework & other emerging research on ATM modernisation
 - E.g. Europe's SESAR, FAA NextGen

Regional / Sub-Regional Requirements

- Needs and benefits analysis based on challenges of the region / sub-region
 - Guiding principles / priorities laid down in various planning documents e.g. ICAO APAC Seamless ANS Plan, ASEAN Transport Strategic Plan
- Enhancements to the ATM System of the region to achieve **interoperability** and **seamlessness** in operations
 - Benefits seen at a network level



Collaborative Decision Making – Stepwise Process in the Prioritisation of Elements

1. Based on Singapore's needs, CAAS, as the civil aviation authority, **develops a first cut of priorities** of the various ASBU and regional elements
2. **Engagement with relevant stakeholders** (e.g. military, airlines, aerodrome operators) for concurrence
 - Regular and frequent dialogue sessions held between CAAS and stakeholders to look into different matters of ATM operations and planning
 - All other stakeholders would be advised of ATM modernisation plans subsequently
3. Project teams would thereafter **flesh out details** of implementation, and be responsible for the progress and reporting of ATM elements to be implemented

Post-Development Feedback

- Relevant portions of the Singapore NANP is shared among all stakeholders, including ICAO APAC Regional Office for information
 - Including progress of implementation and amendments of timelines (e.g. due to COVID)
 - Feedback gathered for refinement of the NANP in subsequent editions

Lessons Learnt

- State's NANP should reflect the working characteristics of the State
 - Europe → 3-level SESAR European ATM Master Plan with individual local / State-level Local Single Sky Implementation (LSSIP)
 - Australia → ATM plan details the roles and responsibilities of each participant
 - Other regions / States → may need to adapt accordingly
- Sharing of NANP among stakeholders is important, but could be limited to details of relevance

Thank you