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# RECONNECTING THE WORLD



## AIR NAVIGATION

Global, regional and national planning





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## WELCOME TO THE GLOBAL AIR NAVIGATION PLAN PORTAL

The GANP Portal is a web portal where all aviation stakeholders will be able to find the most relevant information related to the GANP



<https://www4.icao.int/ganpportal/>



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GLOBAL STRATEGIC

GLOBAL TECHNICAL

REGIONAL

NATIONAL



**GLOBAL TECHNICAL**

Supports technical managers in planning the implementation of basic air navigation services and new operational improvements in a cost-effective manner.

ASBUs AN-SPA BBBs & PF

- BBBs
- ASBU framework

Under development

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Asia/Pacific Seamless ANS Plan

Approved by APANPERC and published by the ICAO Asia and Pacific Office, Bangkok.



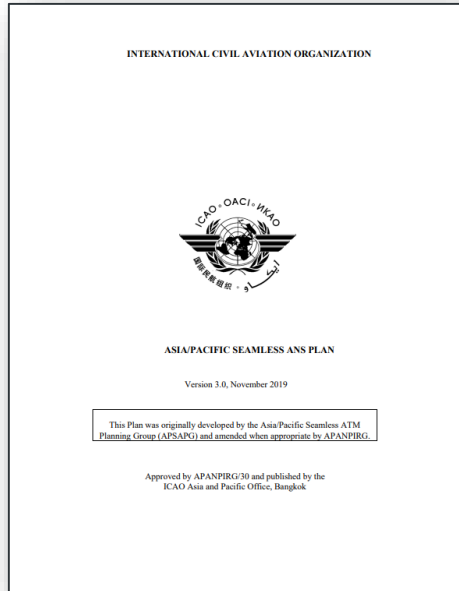


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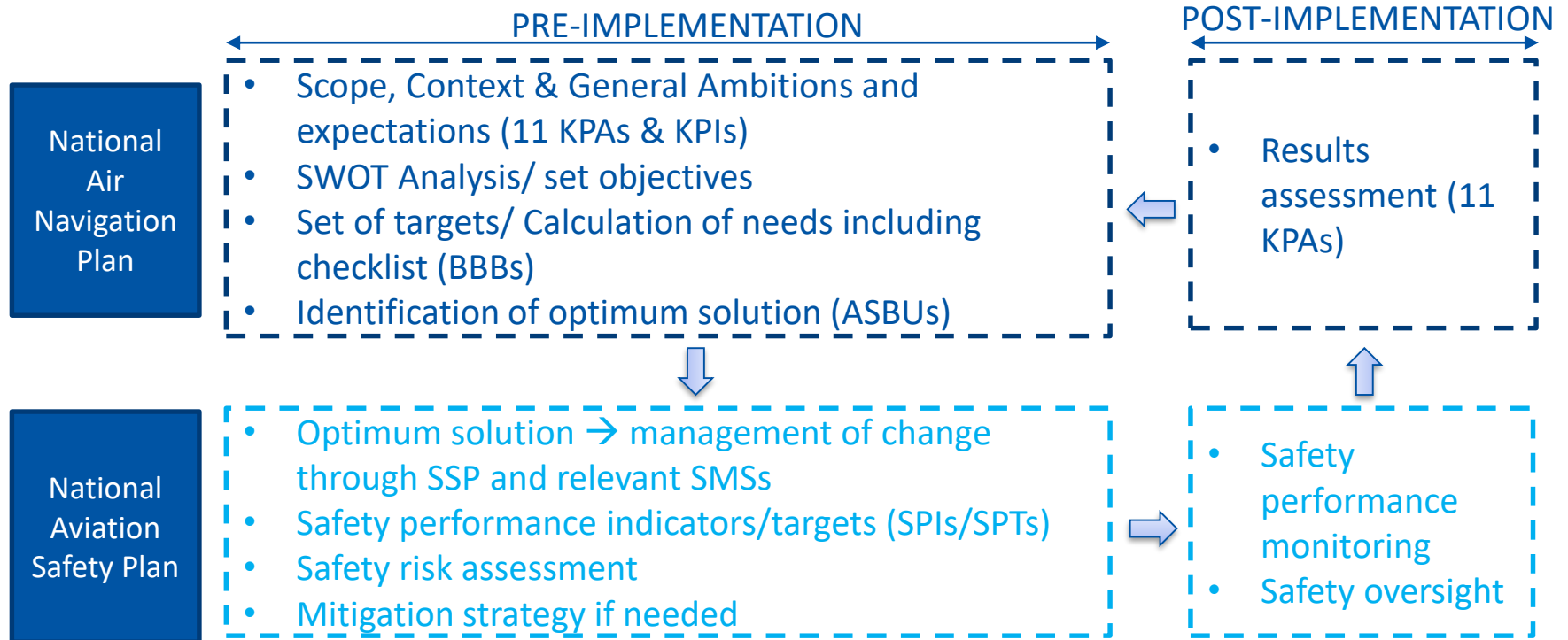
## Asia/Pacific Seamless ANS Plan



- Strategy and guide in ATM modernization planning
- 37 Principles in three major areas
  - human performance
  - physical equipment
  - technology/information
- 16 Priority One elements
  - 11 ASBU, and 5 Regional elements)



## National Plans





The screenshot shows the ICAO GANP Portal website. At the top, there is a navigation bar with the ICAO logo and the text 'ICAO | GANP PORTAL'. Below the navigation bar, there is a main header area with the text 'WELCOME TO THE GLOBAL AIR NAVIGATION PLAN PORTAL'. The header area also features a background image of an airplane and a person in a suit. Below the header, there is a section titled 'THE GLOBAL AIR NAVIGATION PLAN' with a brief description of the plan. At the bottom, there is a section titled 'MULTILAYER STRUCTURE OF THE GANP' with a diagram showing four levels: GLOBAL STRATEGIC, GLOBAL TECHNICAL, REGIONAL, and NATIONAL. The diagram consists of four overlapping, semi-transparent colored boxes (blue, orange, green, and red) arranged in a stack, with the text 'LEVEL 1', 'LEVEL 2', 'LEVEL 3', and 'LEVEL 4' written on them.

## Draft GANP 7<sup>th</sup> Edition including:

- GANP performance framework – safety
- Linkage between BBB and USOAP
- Minor updates to the ASBU framework

## Outlook for 8<sup>th</sup> Edition

- Cyber resilience and structural improvements



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## AIR NAVIGATION

Ongoing activities applicability date of 2024/2026/2028





## Remotely Piloted Aircraft System

	2020	2021	2022	2023	2024	2025	2026
Licensing			Applicable				
Airworthiness		Effective					Applicable
C2 Link (gen.)		Effective					Applicable
Operations					Effective		Applicable
SM					Effective		Applicable
C2 Link (techn.)						Effective	Applicable
DAA						Effective	Applicable
ATM						Effective	Applicable
Aerodromes							Effective & Applicable
Other	Meteorology, Facilitation, Accident investigation, AIM, Environment, Security, Dangerous Goods, Infrastructure funding/financing, Legal issues...						



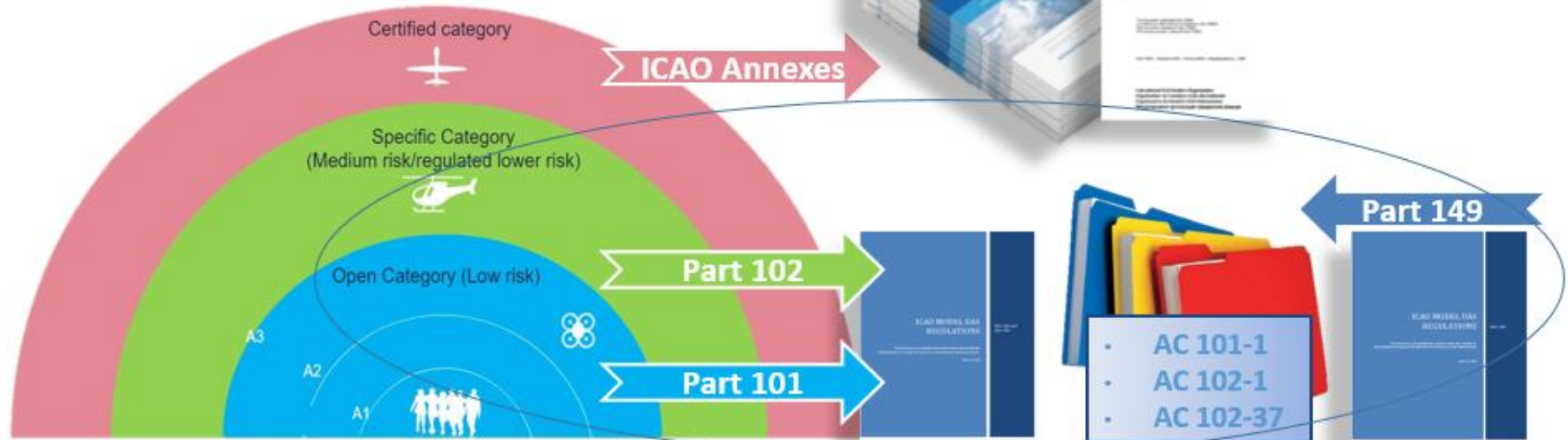
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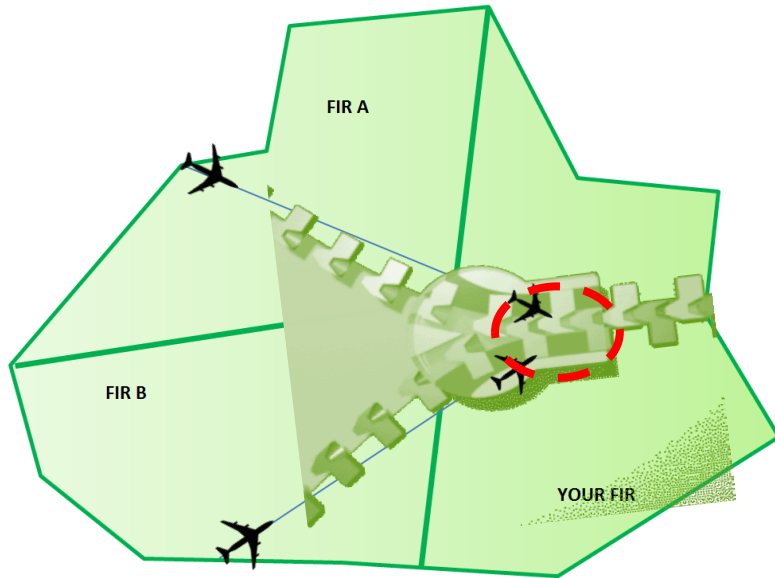
## ICAO UAS Model Regulations

[www.icao.int/safety/UA](http://www.icao.int/safety/UA)





## Air Traffic Flow Management (ATFM)



- **Draft New Standard:**  
“States shall ensure that an **ATFM service** is established with the objective of **contributing** to a safe, orderly and expeditious flow of air traffic and to support **cross-border collaboration**.”
- **Draft New Recommendation:**  
“ATFM services should be implemented on the basis of multilateral agreements that should make provision for **common procedures, common methods of capacity determination and common methods of information exchange**.”



## FF-ICE Services

Address limitations and constraints of the current flight planning mechanism

Short Term

Long Term

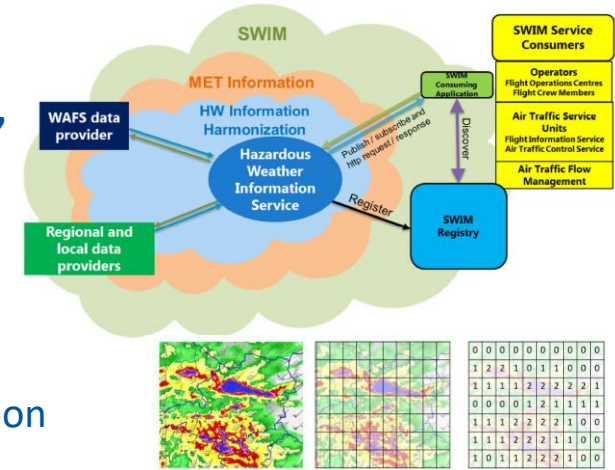
Enable transitioning to a fully collaborative environment where a flight trajectory is shared and optimized during all phases of a flight



## Aeronautical MET

### ➤ Migration from “product-centric” to “information-based”

- ✓ IWXXM implementation / SWIM environment
- ✓ Quantitative volcanic ash (QVA) information
- ✓ Hazardous Weather Information Service (HWIS)
- ✓ World Area Forecast System (WAFS) next generation information



### ➤ Integrated use of MET information in wider use-cases

- ✓ Integration into ATM/ATFM decision making
- ✓ Adverse weather avoidance in various flight phase



## Aeronautical MET

### ➤ Introduction of “PANS-MET”

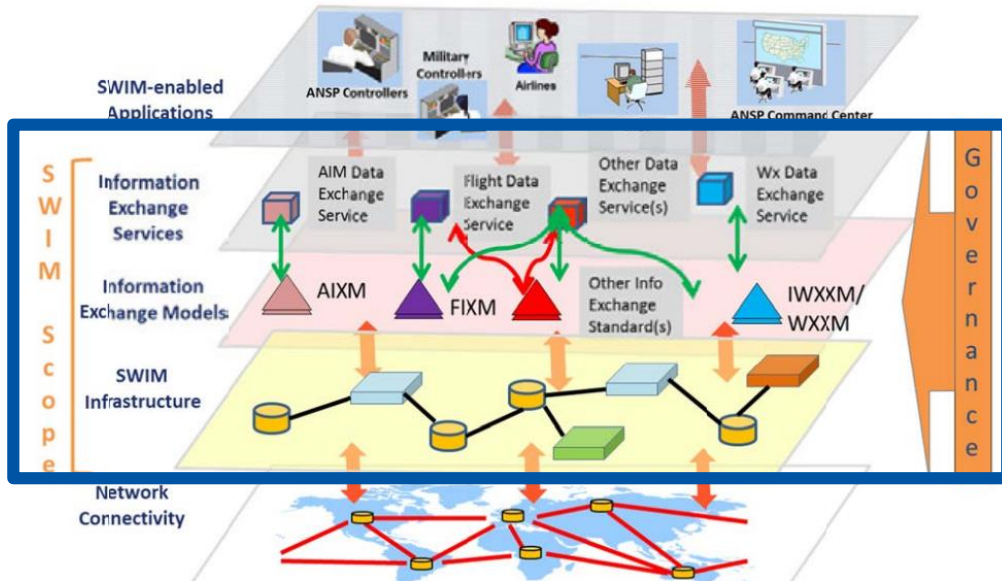
- ✓ Restructured Annex 3 (AMD 81) includes State’s obligations (SARPs)
- ✓ Technical specifications will be transferred into a new PANS-MET
- ✓ Helps with Regions/States’ better understanding and smoother adjustment to global standards



**Promotion of PANS-MET to be coordinated with ICAO Regional Groups**



## SWIM and Information Security



SWIM Global Interoperability Framework (Source: Doc 10039)

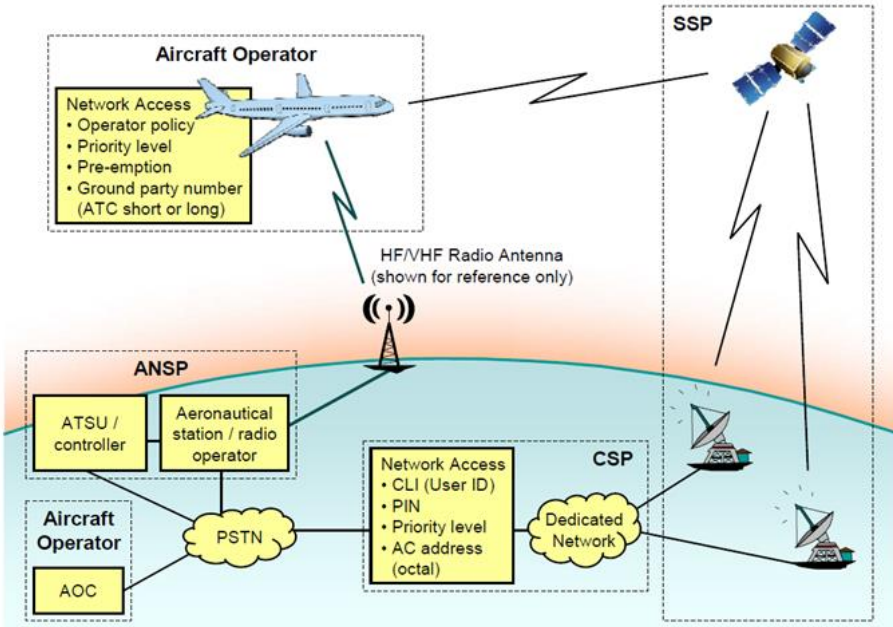


## Information Security Framework

Applicable to any information exchange  
Over Internet-Protocol



## CNS



- Amendments to the 24-bit address scheme
- Aeronautical Telecommunications Network using the Internet Protocol Suite (ATN/IPS), including VOIP
- Satellite Communications (SATCOM)
- L-Band Terrestrial Data Link System (LDACS)



## CNS



### ➤ GNSS EVOLUTION (Annex 10, Volume I, Amendment 93)

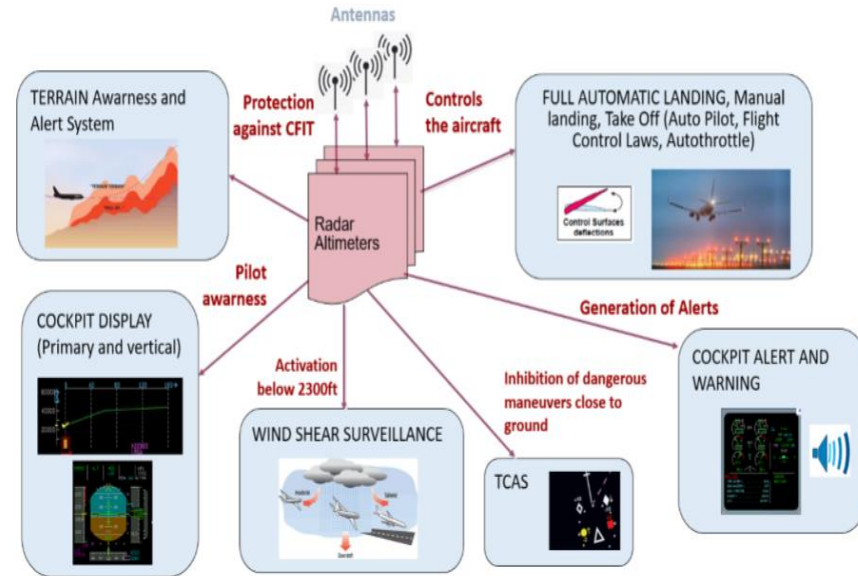
- Dual-frequency, multi-constellation (DFMC) GNSS will

- improve GNSS robustness and navigation performance
- increase reliability for GNSS-based CNS applications
- enable innovative operational concepts and global deployment of 3D instrument approach operations
- support continued rationalization of conventional navigation aids.



## 5G Potential interference to Radio Altimeters

- Further investigation in progress to provide guidance on relevant mitigation techniques as a temporary measure
- Development of SARPs for new Radar Altimeter designs, has also been initiated

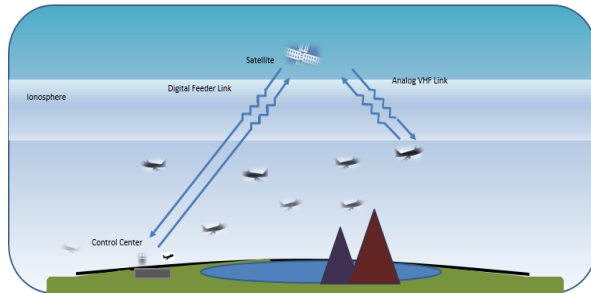




## Preparation for WRC-23 (Dubai, Nov 2023)

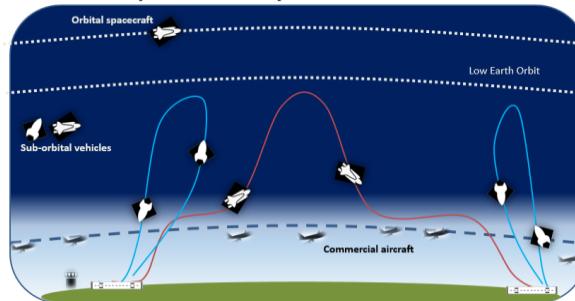
- ICAO position approved by the ICAO Council and sent to all ICAO Member States and International Organizations (SL E 3/5-21/37, 18 August 2021)
- **Active support from States** is called for to ensure the results of WRC-23 reflect civil aviation's need for spectrum

**WRC-23 Agenda Item 1.7:**  
Potential facilitation of aeronautical VHF over satellite



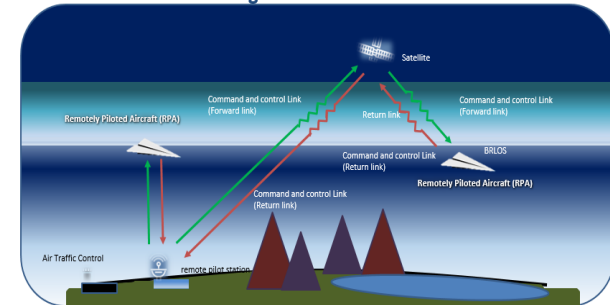
Original image from ICAO CP-02/06/06

**WRC-23 Agenda Item 1.6:**  
Spectrum use by sub-orbital vehicles



Free images of spacecraft from Pixabay

**WRC-23 Agenda Item 1.8:**  
Finalization of a satellite allocation enabling beyond-line-of-sight C2-link for RPAS





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## Aerodromes



### ➤ Annex 14 Vol I

- Obstacle Restriction and Removal
- Visual aids for navigation and for denoting restricted use areas
- Ground Handling

### ➤ Annex 14 Vol II

- Certification and SMS for heliports
- Obstacle limitation surface
- Visual aids



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## Aerodromes - Emerging issues



Water Aerodromes



Vertiports



Altiports



Total Airport Management System



# ICAO | UNITING AVIATION



**THANK YOU!**