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# GLOBAL AIR NAVIGATION PLANNING



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**GANP Workshop**  
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# Flight Plan

- The vision
- A Plan to realize the vision
- Collaboration
- Let's take a look to the future
- Opportunity
- Conclusion



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# THE VISION



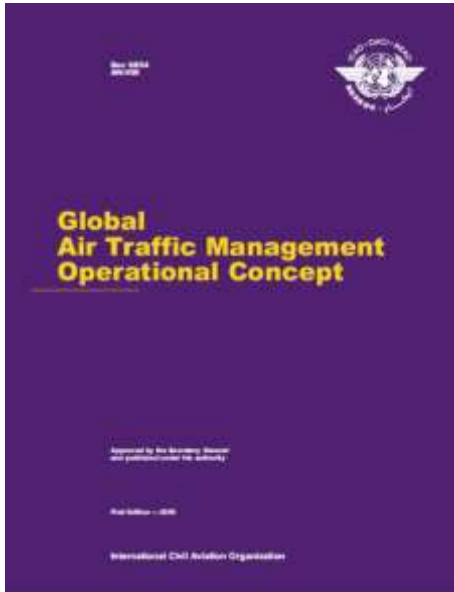


# Do we know where to go?





# Yes!



To achieve an **interoperable** global air traffic management system, **for all users during all phases of flight**, that **meets agreed levels of safety**, provides for **optimum economic operations**, is **environmentally sustainable** and **meets national security requirements**



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# A PLAN TO REALIZE THE VISION





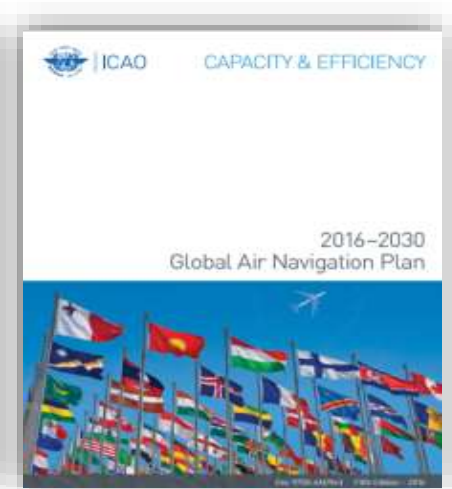
# Global Air Navigation Planning

2002

2007

2013

2016





# GANP 2013

*“Increase the capacity and improve the efficiency of the global civil aviation system”*



- Through the **GANP**, offer a long-term vision to assist all aviation stakeholders, and ensure continuity and harmonization among modernization programmes
- Through the **Aviation System Block Upgrades (ASBU)**, provide a consensus-driven modernization framework for integrated planning based on performance



# GANP 2016

- **Objectives**

- **International and overarching framework** of a global investment plan: make it more usable towards implementation
- Keep it **stable** while making the necessary updates/additions
- Adjust the **periodicity** to the Assembly and ICAO editing cycles

- **A Planning Document for Implementation**

- GANP should serve as a comprehensive planning tool to **support the development and implementation** of a harmonized global air navigation system







# 2019 Update of the GANP



## MULTILAYER STRUCTURE OF THE GANP

Click a level to navigate

GLOBAL STRATEGIC

GLOBAL TECHNICAL

REGIONAL

NATIONAL



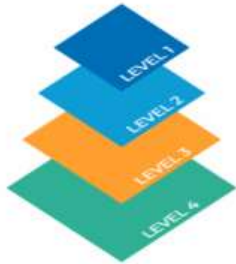


# 2019 Update of the GANP

## MULTILAYER STRUCTURE OF THE GANP

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- GLOBAL STRATEGIC
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# Main Goals of the 2019 GANP

- **Evolution of the global air navigation system**
  - Promote investment in **innovation** through research and development activities
  - Align Regional **Research and Development Programmes**
- **Support implementation**
  - **ASBU framework**
  - Alignment global, regional and national planning
  - **Performance-based** decision making method
  - Optimize **allocation and use of resources** for air navigation



# Main Purpose

- **ENHANCE THE PERFORMANCE OF THE AIR NAVIGATION SYSTEM**
  - High social visibility
    - Safety
    - Security
    - Environment
  - Medium social visibility: Operational
    - Capacity
    - Efficiency
    - Predictability
    - Flexibility
    - Cost- Effectiveness
  - Low social visibility: basis
    - Access and equity
    - Interoperability
    - Participation by the ATM community



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# COLLABORATION





# Collaboration is key to succeed

- **“No State or stakeholder left behind”**
  - Regulators, air navigation service providers, aerodrome operators, airspace users
- **Advantages**
  - Achievement expected results
  - Maximize benefits
  - Optimum use and allocation of resources





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**LET'S TAKE A LOOK TO THE FUTURE**





# An exciting future full of opportunities

- **Upper atmosphere**
  - Balloons, RPAS, space activities
  - Single homogenous region
- **Low density areas**
  - Different type of aircraft
  - Different missions
- **High density areas**
  - Traffic will continue to increase
  - Same or enhanced level of performance expected





## Manned vs. unmanned traffic



- + 362,000 aircraft
- 23,000 airliners
- Growth of 750 /year



- + 4,000,000 drones
- Expected 400k commercial
- Growth of 150,000 /year



# Types of applications

Mission types	Sectors profiled In-depth					Other growth sectors included in study				
	Agriculture	Energy	Public safety & security	Delivery & e-commerce	Mobility & transport	Mining & construction	Telecom	Insurance	Others	
Localized Surveying (primarily VLOS)		✓ Infrastructure sites	✓ Police & fire, in-vehicle units			✓ Bridge, crane & buildings	✓ Cell tower inspection	✓ Roof & site inspections	✓ Real estate, private security, media, indoor	
Long range Surveying (primarily BVLOS)	✓ Crop & livestock monitoring	✓ Pipeline & power lines	✓ Police & fire, disasters, wildlife		✓ Railway inspection	✓ Site surveying	✓ Cell tower inspection	✓ Disaster impact	✓ University & research, especially wildlife	
Light load movement (primarily BVLOS)	✓ Crop spraying / pellet application				✓ Parcel, medical supply, delivery	✓ Transport light critical material			✓ Ports, indoor/light goods movement	
Long endurance Surveying (primarily ≥ 150m)	✓ Large land monitoring	✓ Pipeline & power lines	✓ Border control, maritime, environment surveillance						✓ University & research, especially wildlife	
Unmanned aviation									✓ Cargo planes, air freight	✓ Passenger planes & rotorcraft
Others		✓ Tethered wind energy prod.							✓ Connectivity provision	

Public safety also includes prison surveillance and examples for environment include poaching prevention; University and research examples include animal breeding monitoring, geological studies



# In a time of change...

- Transformational change is needed
  - Information Management
    - Digital data MET, AI, FICE,...
    - Information exchange over IP
  - Management by trajectory
    - Time based management
    - Synchronization
    - Automation





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**OPPORTUNITY**





# South America

- **Aviation essential for further development**
- **Economic recession**
- **Agriculture, industry, minery**
- **Population**
  
- **Reduce operation costs**



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# CONCLUSION





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**Leapfrog the more advanced ANS and become international leaders in innovation!**





## How?

- Economic resources
- Potential demand: a challenge but also an opportunity!
- GANP
- ICAO's support!





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THANK YOU!