Aviation is undergoing a fundamental change.
Integration of emerging technologies in civil aviation - Challenges and opportunities
ICAO’s Role in ATM Modernization

“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 strategy for integrated planning.
Going back to the roots...

- An Aviation System Block Upgrade (ASBU) contains
  - Intended *Operational Improvement* / Metric to determine success
  - Necessary *Procedures* / Air and Ground
  - Necessary *Technology* / Air and Ground
  - *Regulatory Approval Plan* / Air and Ground
  - Positive *Business Case* per Upgrade
  - Well *understood* by a Global Demonstration Trial
    - All synchronized to allow initial implementation
    - Won’t matter when or where implemented
Low Density
Large/Complex Airspace

High Density
Large/Complex Airspace

Low Density
Small/Simple Airspace

High Density
Small/Simple Airspace
A plan for the future is essential for integration with high density complex airspace.
GANP Update

• 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 be comprehensive planning tool to support the development and implementation of a harmonized global air navigation system
Global Traffic Forecast

• Air traffic is predicted to **double** in the next 15 years

• Our collective responsibility is to **allow the aviation system** to safely realize this growth
How can we allow the predicted growth?

- **Innovation** starts on the flight deck, at the control position and on the tarmac
  - People using the tools are the first to know how they can be improved
We need to balance economic potential and safety
EMPOWER Stakeholders

DELIVER Measurable Results

ANTICIPATE the needs

COLLABORATE on global priorities

RECALIBRATE to performance standards

FACILITATE State implementation

COMMUNICATE progress

VALIDATE results
Some thoughts about the Future

- **SARPs-ready proposals** from Standards-making organizations and other aviation stakeholders

- **Continued evolution** of our standardization methodology
Could UAS spark ATM revolution?

Delivery drone “controllers” will primarily use automation to manage numerous vehicles flying to and from distribution centers and customers at 200-400 ft. above the ground, depicted here in a concept for the Amazon Prime Air service. Credit: Amazon Prime Air
How can we allow the predicted growth?

- **RPAS and Remote ATS stakeholders as catalysts of innovation and agents of change**
  - Lead the change for creating innovative solutions
  - Every aviation professional as a ‘safety authority’
THANK YOU