Civil-military cooperation- the big picture

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A Global Picture

4.1 BILLION

PASSENGERS
carried by airlines
(7.1% increase
from **2016**)

53 MILLION

TONNES OF FREIGHT
carried by airlines
(4.0% increase
from 2015)

35 MILLION

**SCHEDULED
COMMERCIAL FLIGHTS**
flown by airlines
(3.7% increase
from 2015)

62.7 MILLION

JOBS SUPPORTED

54,000

ROUTES WORLDWIDE
(over 2,000 new
routes from 2015)

49 BILLION

KILOMETRES FLOWN
by airlines
(5.3% increase
from 2015)

76 MILLION

HOURS FLOWN
by airlines
(5.0% increase
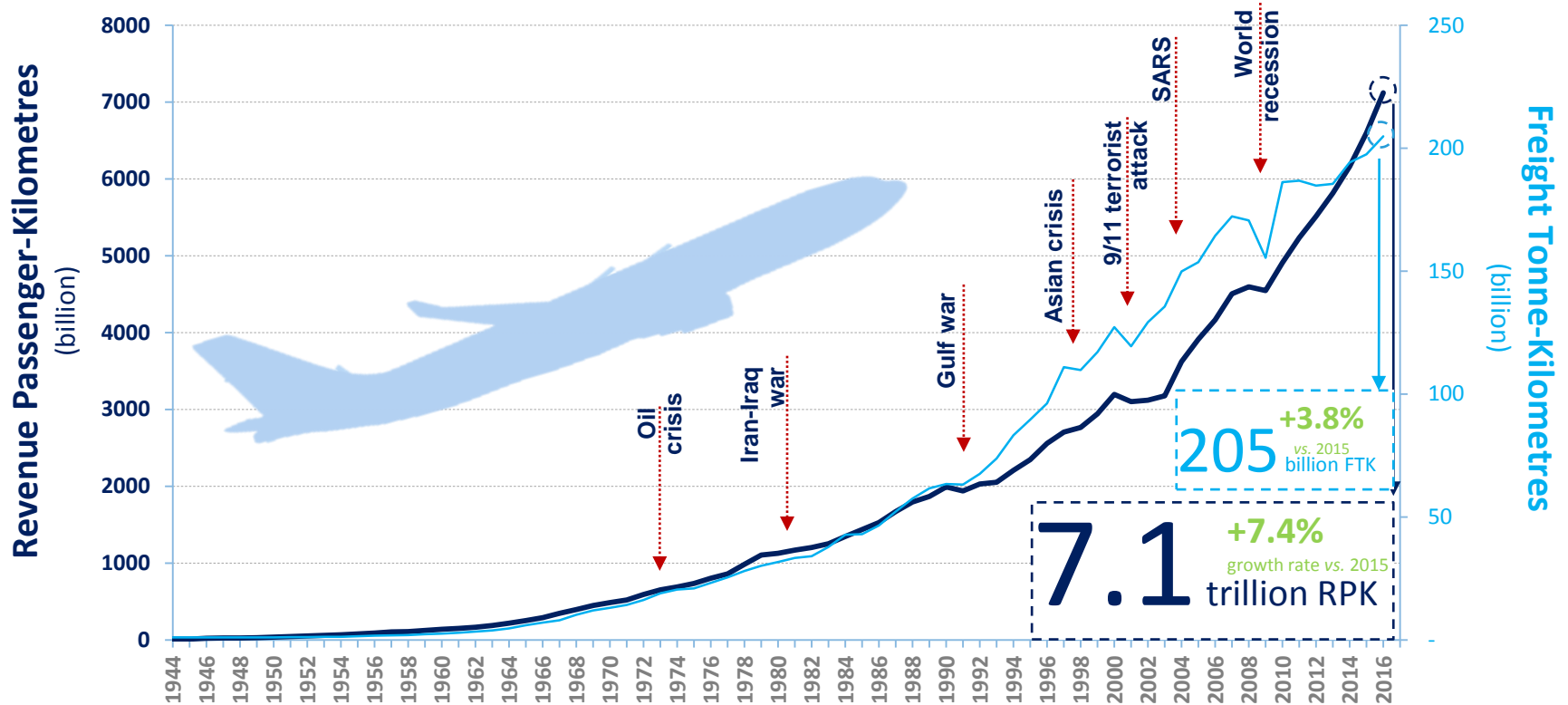from 2015)

3.5 PER CENT

OF GDP SUPPORTED

$2.7 TRILLION

ECONOMIC IMPACT

*Source: **Aviation Benefits 2017** (https://www.icao.int/sustainability/Pages/IHLG.aspx)*

Growth of Air Transport

Revenue Passenger-Kilometres (billion)

Freight Tonne-Kilometres (billion)

Oil crisis

Iran-Iraq war

Gulf war

Asian crisis

9/11 terrorist attack

SARS

World recession

205 **+3.8%** *vs. 2015* billion FTK
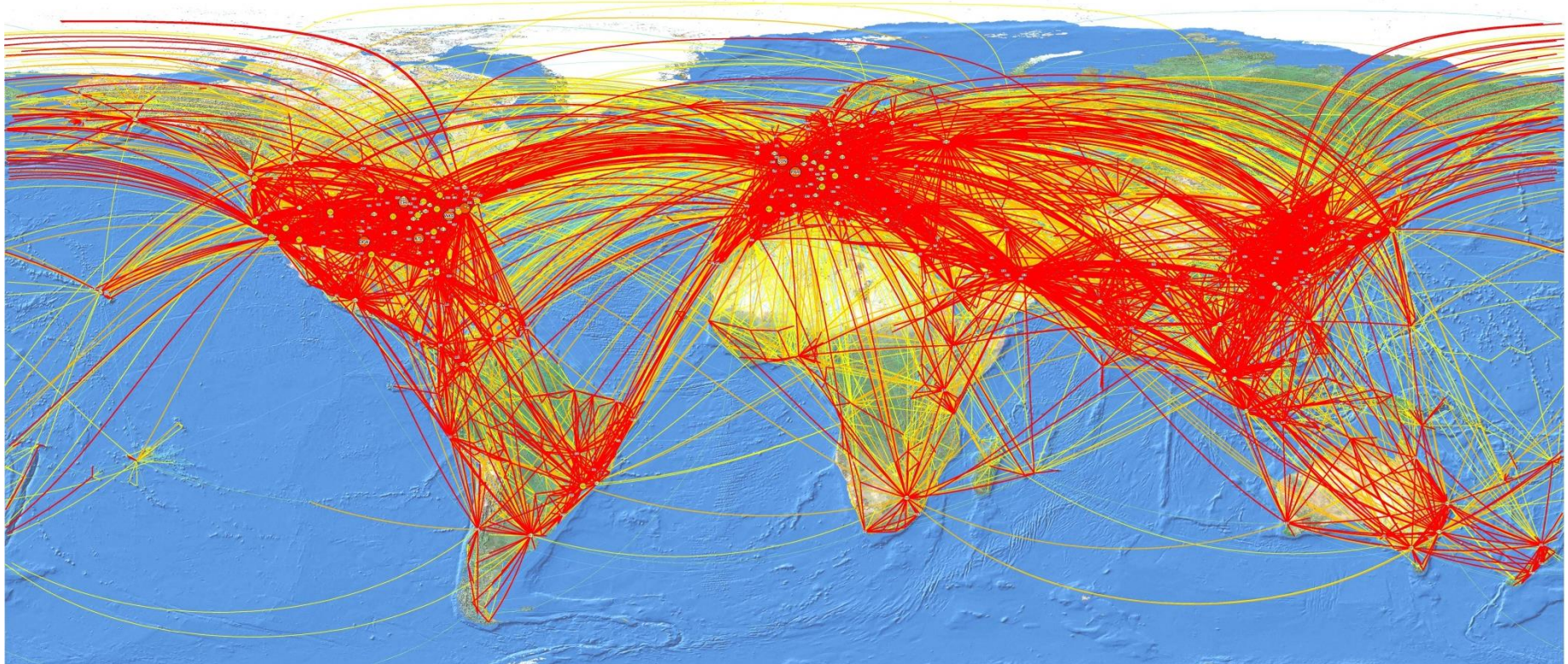
7.1 **+7.4%** growth rate *vs. 2015* trillion RPK

TRAFFIC DENSITY

2040

Lack of civ-mil cooperation

- Impacts
  - Safety
  - Efficiency of Air Navigation system performance
  - Defence and security missions
  - Interoperability (which affects the above)

Safety

- Is <u>key</u> and a <u>shared goal</u> for both Civ and Mil

- Should be the <u>first objective</u> of civ-mil cooperation and coordination

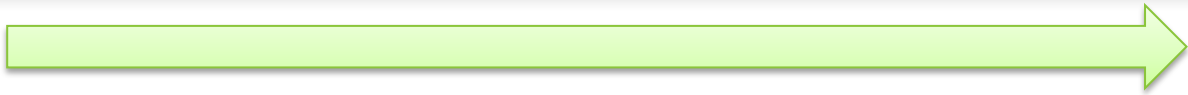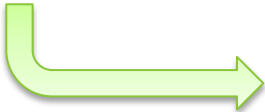- Followed by Capacity and efficiency

Why cooperation?

- Civil aviation **growth**
- Competing needs vs **common resource**
- Military to protect their national **security and defense capabilities**
- Need to **optimize** the airspace usage
- **Win-Win**

NEEDS / REQUIREMENTS

Guided discussion for Air Navigation and Safety

GANIS/SANIS (Dec 2017)

STATES/Industry/ICAO Listen and Interact

13th Air Navigation Conference (2018)

ANC Recommends to Council

40th Assembly (2019)

Civ-Mil cooperation

Military Aviation

- Collaboration
- CNS
- GANP
- Cooperation
- Coordination
- Airport (joint)
- SWIM
- Cyber resiliency
- Safety Management
- Interoperability

AN-Conf/13

17
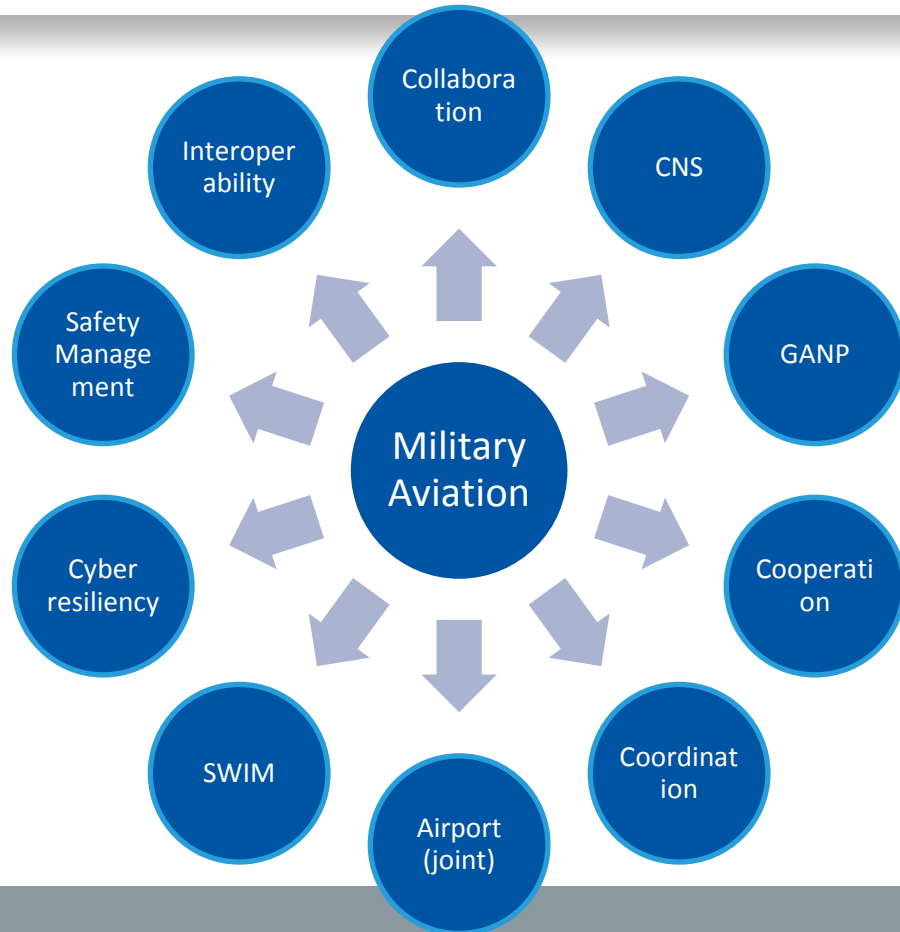
RECOMMENDED

- ➤ Call to increase and further implement coordination & cooperation
- ➤ Embrace Collaboration

AN-Conf/13 - Recommendations

- Recommendation 2.2/1 – Long-term evolution of communication, navigation and surveillance systems and frequency spectrum access.
  - That ICAO:
    - **d) develop provisions**, in collaboration with States and regional modernization programmes, to **support increased civil-military interoperability and synergies with the optimum reutilization opportunities from State and military aviation technologies**
- Recommendation 3.4/1 – Civil-military collaboration
  - **That States:**
    - a) **actively collaborate with their military authorities**, including at the regional level, and **encourage greater civil-military interoperability** and **appropriate use of performance equivalence**;
    - b) continuously **inform their military authorities** of the improvements to air navigation capacity and efficiency, safety, **cyber threats and system resilience** put forth by ICAO and **advocate** collaboration **with ICAO at the global** and regional levels;
  - That ICAO:
    - c) identify potential **opportunities for civil-military collaboration**, develop a **mechanism to collaborate** with the military community **early in the development of global provisions and guidance**, and establish guidance for collaboration with the military community at global and regional levels;
    - d) **incorporate the military dimension**, including civil military cooperation and collaboration, in future editions of the *Global Air Navigation Plan* (Doc 9750, GANP);
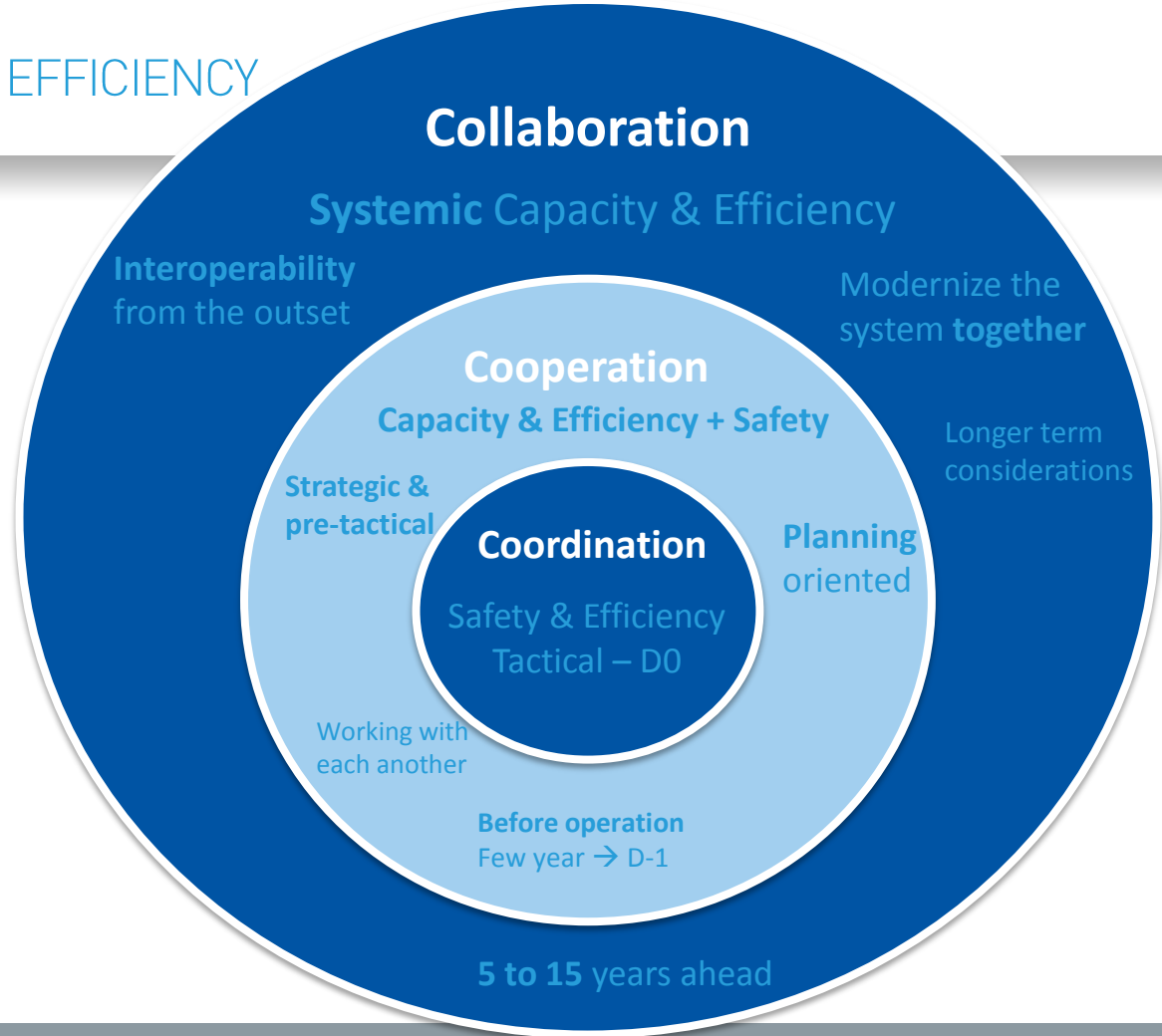
AN-Conf/13 - Recommendations

- Recommendation 3.4/1 – Civil-military collaboration
  - That ICAO:
    - e) consider, with urgency and **in collaboration with the military community**, the **interoperability** and **governance** principles for the military community in system-wide information management (**SWIM**) and in the development of the ICAO **trust framework**; and
    - f) consider, where possible, the inclusion of civil-military cooperation and collaboration subjects at ICAO events, and highlight the participation of military authorities in relevant State letter invitations.
- Recommendation 3.4/2 — Civil-military cooperation implementation
  - **That States:**
    - a) encourage their military authorities to **cooperate and coordinate** with civil aviation authorities and air navigation services providers (**ANSPs**) on airspace use, including airspace access requirements, to achieve the **most efficient use of airspace** based on actual needs and, when possible, **avoid permanent airspace segregation**;
  - That ICAO:
    - b) promote civil-military coordination and cooperation of best practices, and provide forums and other opportunities, such as **regional symposiums**, for States to exchange best practices; and
    - c) explore opportunities to provide guidance to enhance safety at joint civil-military aerodromes and to assist States in the promulgation of clear procedures for airspace access requirements.

A40 outcomes

- Highlighted the **importance of civ-mil cooperation** and collaboration (A40)
- States to continue their efforts in **support of cooperation, and flexible use of airspace, implementation** (A40)
- 6th Edition of the **GANP** contains a **civil-military dimension** (A40)

Collaboration

Systemic Capacity & Efficiency

Interoperability from the outset

Modernize the system **together**

Cooperation

Capacity & Efficiency + Safety

Longer term considerations

Strategic & pre-tactical

Coordination

Planning oriented

Safety & Efficiency
Tactical – D0

Working with each another

Before operation
Few year → D-1

5 to 15 years ahead

Why more global civ-mil collaboration ?

- High pace of civil air navigation modernization
- Lack info on State aviation needs
- Maintain a positive cooperation trend in the future
- Need a long-term vision
- Meet future airspace capacity demands
- Avoid potential adverse financial, security and operational impact on military
- Allow for State aviation fleet equipage planning
- Address global interoperability
- Increase air navigation system performance
- Bring cost efficiencies
- Guarantee safety
- Ensure military mission effectiveness

Global collaboration – how to ?

- Military dimension from the outset of provision development
- Two-way stream to :
  - Work together today to build tomorrow's system
 - Allow military to voice their concerns/needs

Ongoing activities - ICAO

- Military dimension in 6th Edition of the GANP ✓

- Governance and interoperability
  - Trust framework
  - SWIM

- Regional symposiums (SAM & MID/EUR/APAC in 2019)

Interoperability is key

- Mitigate risks linked to reduction of civ-mil cooperation and its impact on both Civ and Mil operational efficiency, due to :
  - Increasing digitalization
  - Information management centric system
  - Enhanced Data sharing
  - Cyber threats
  - Reduced training and operational capacities
  - Data link requirements and frequency spectrum management
- Today and tomorrow opportunities:
  - SWIM
  - Cyber resiliency
  - Dual-use / re-use
  - Performance-equivalence
  - Increased Performance-based standards
  - Integrated CNS
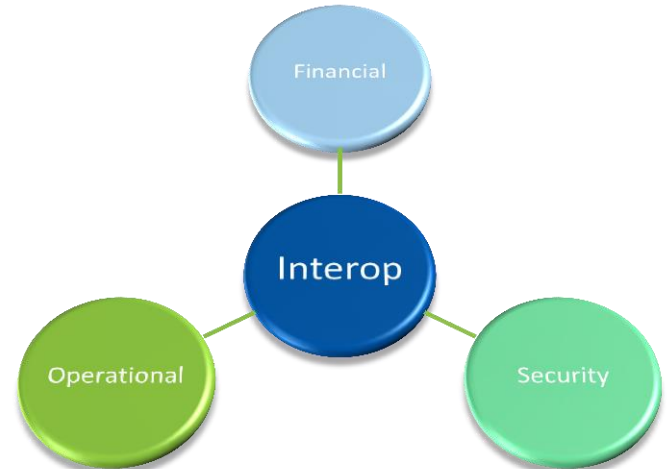
Interoperability

- Interoperability from the outset
- Affect all aspects
- Reduce the need for exemptions/inefficienci es → Win-Win

Implementation

- National and sovereign process
  - Communication
  - Trust
  - Mutual understanding
- Overarching framework in the State
  - Strategy

Will

Implementation

- Safety: coordination based
- Interoperability: strategic
- Cap/Eff: Airspace management
  - Flexible use of airspace (Annex 11 & Doc 4444)
  - ↓ of P, D and R
  - ↓ the need for permanent activation and segregation
- Win-Win

Stakeholders Roles

- ICAO:
  - Global: Offer a forum, consider the military dimension from the outset of developments
  - Regional: enhance liaisons to support regional activities
  - Support exchange of best practices

Stakeholders Roles

- States/Military Authorities
  - Liaise with CAAs & regional mechanisms
  - Develop and implement coordination and cooperation
  - Engage in Collaboration with ICAO

ICAO CAPACITY & EFFICIENCY

Conclusions

- Unanimous support both in AN-Conf/13 and A40 for more civ-mil cooperation: all States called out to take action
- Coordination, cooperation and collaboration are critical for each State
  - **Coordination:** Safety - tactical
  - **Cooperation:** Strategic and planning
  - **Collaboration from the outset** : R&D, Concepts, GANP, synchronization **at global level**
- Interoperability : **Key for attaining out shared vision**
- **Cannot work in isolation** → Airspace is a single continuum
- Win-win
  - Mil access to Civ route network and reduced need for segregation: **beneficial for both**
- Respecting both requirements → **Balance**
  - Protect States national security and defense capabilities, while enabling cost efficient operations
- State to take implementation measures – it is a long way!
- Civil-military coordination, cooperation and collaboration are crucial for civil aviation growth, and for national security and defence