



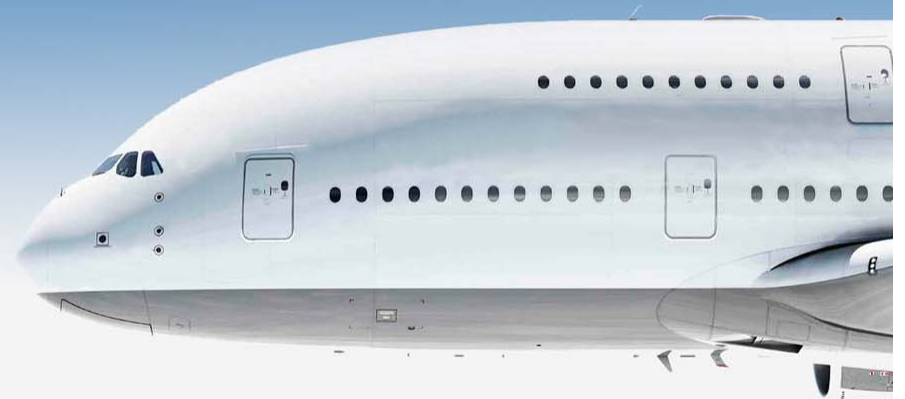
| ICAO CAPACITY & EFFICIENCY

Civil-military cooperation- the big picture

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Civil-Military cooperation workshops 2019





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

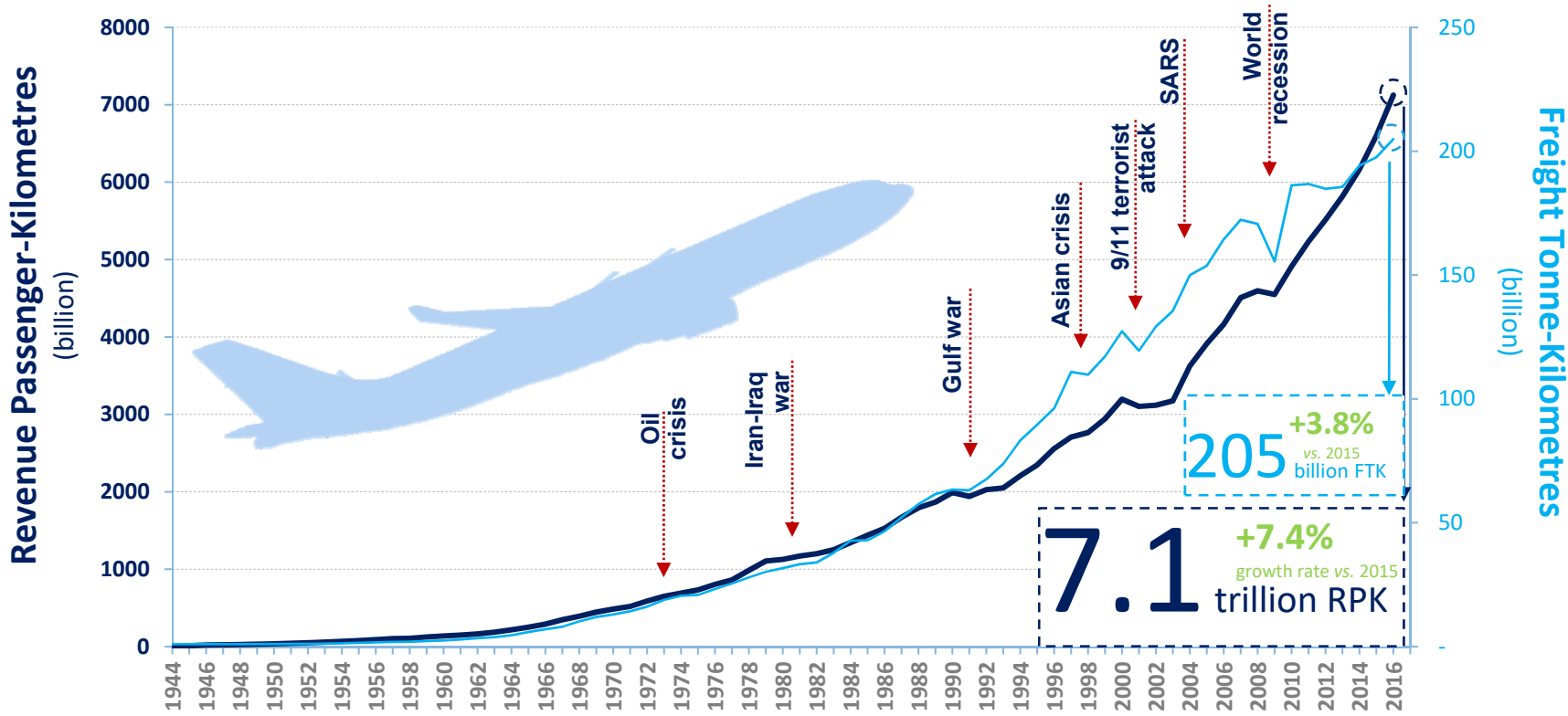
\$2.7 TRILLION

ECONOMIC IMPACT

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



Growth of Air Transport

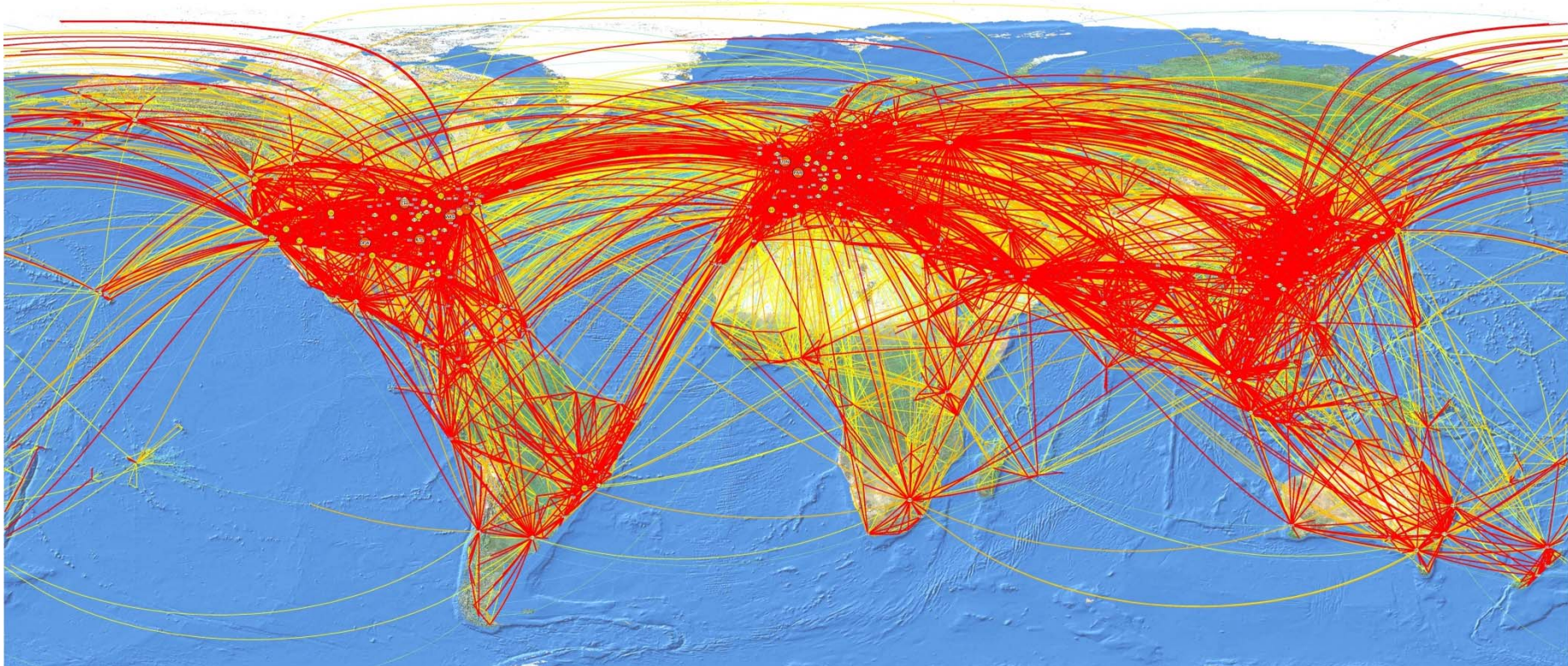


Source: ICAO Annual Report of the Council
Scheduled commercial traffic
Total (international and domestic) services



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 key and a shared goal for both Civ and Mil
- Should be the first objective of civ-mil cooperation and coordination
- Followed by Capacity and efficiency

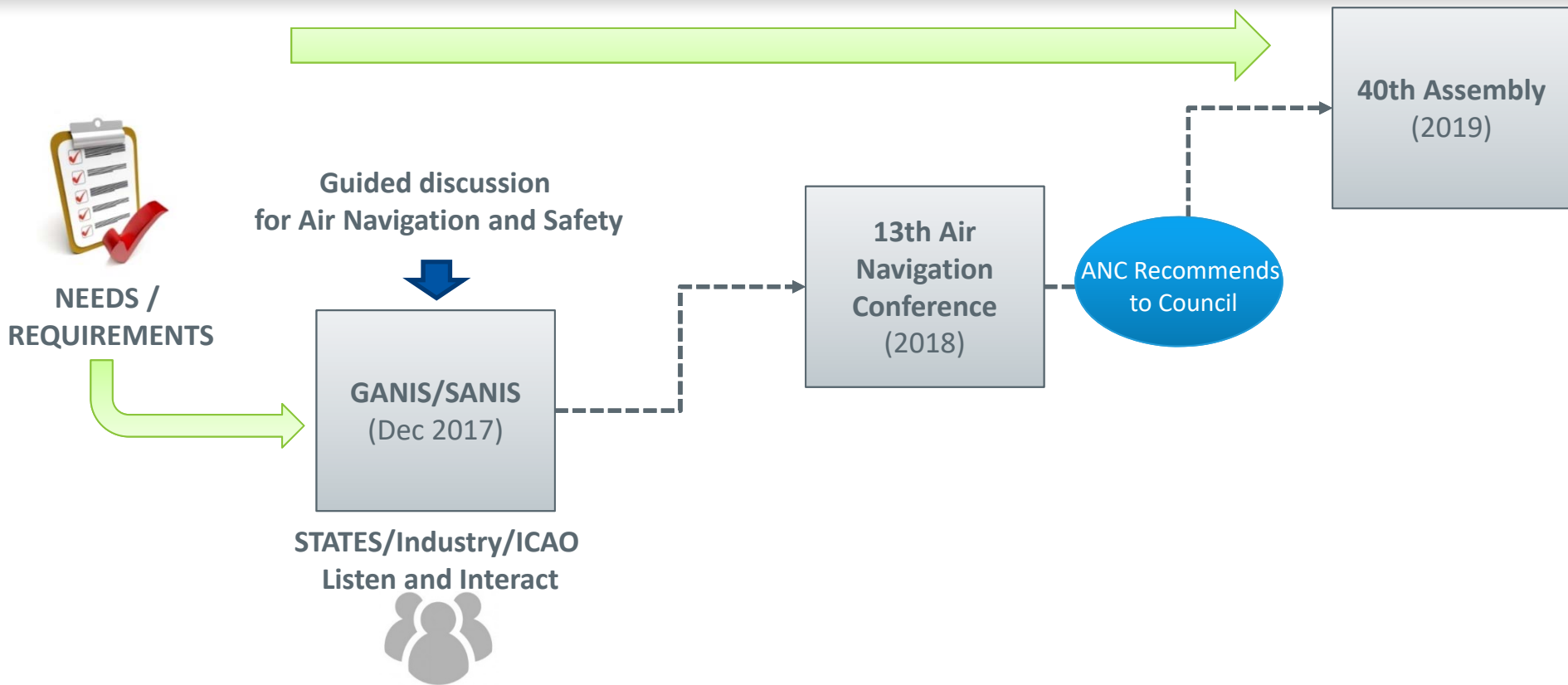


Why cooperation?

- 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**

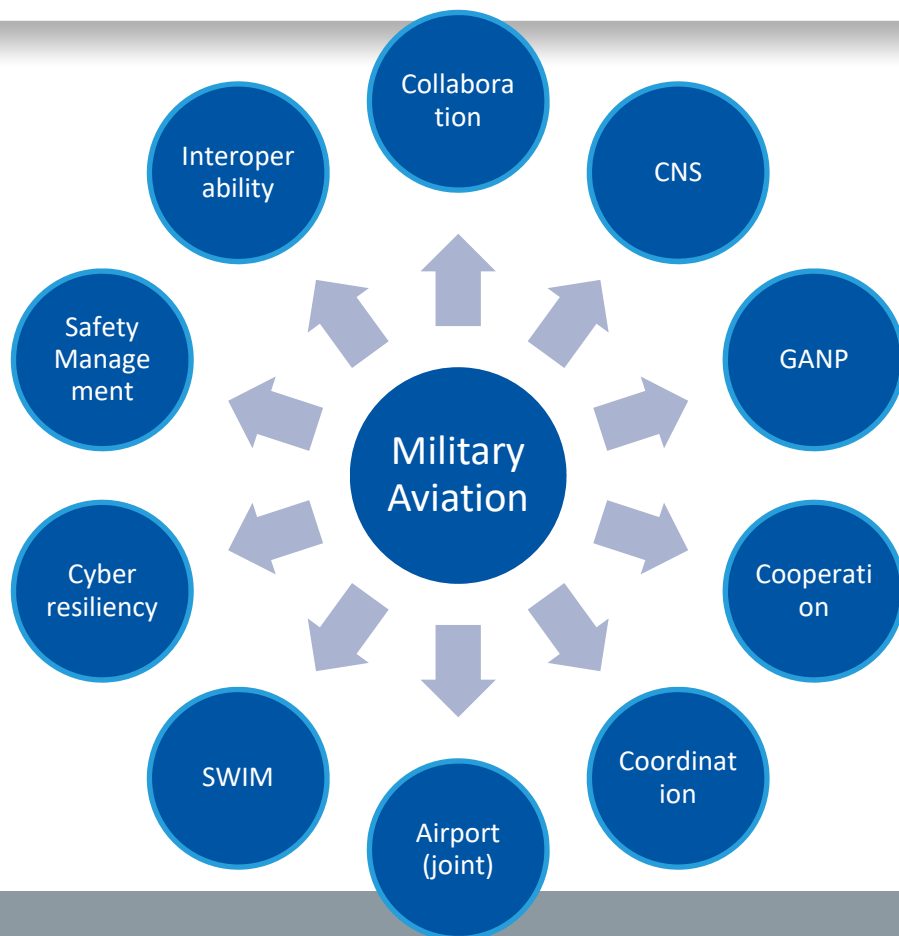


Big Picture





Civ-Mil cooperation



AN-Conf/13

17



- 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);



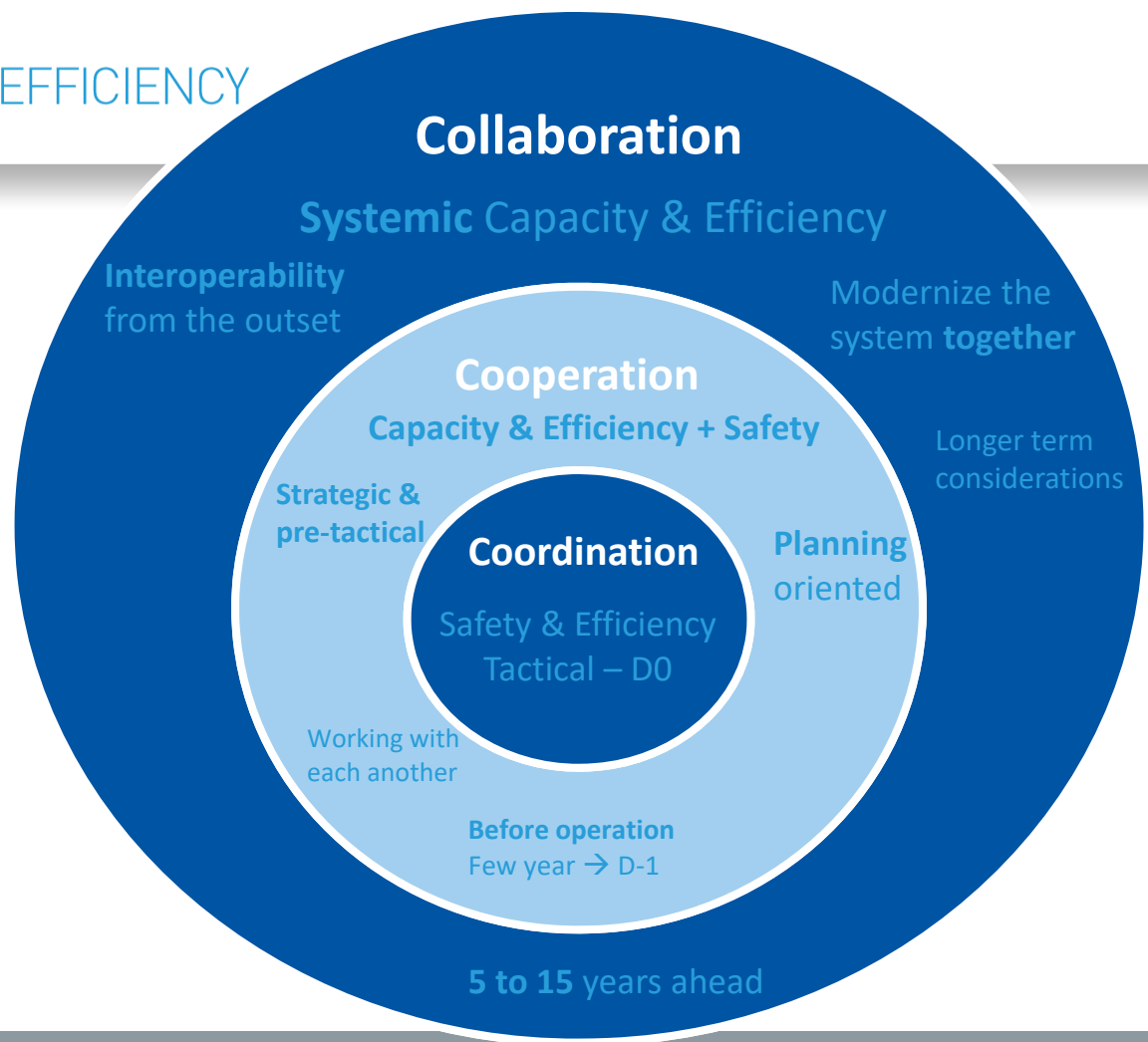
AN-Conf/13 - Recommendations

- 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)





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
- Avoid potential adverse financial, security and operational impacts
- 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

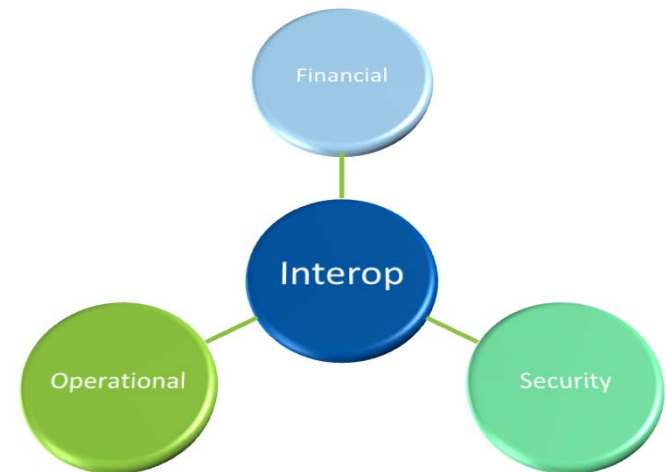
- Military dimension in 6th Edition of the GANP ✓
- Governance and interoperability
 - Trust framework
 - SWIM
- Regional symposiums (SAM & MID/EUR/APAC in 2019)





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/inefficiencies → 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



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

**Embrace cooperation today to enhance tomorrow's
air navigation system capacity and efficiency,
and collaboration for global interoperability**