MODULE IV

ICAO AND AIR SPACE AND AIR TRAFFIC MANAGEMENT

ICAO INSTITUTIONAL AND REGULATORY FRAMEWORK

1. Institutional Framework
2. Article 3 of the Convention
3. Assembly Resolutions
4. Existing Regulatory Framework

WHAT IS ICAO'S ROLE?

- Does NOT regulate the military.
- Serves as an international platform to promote cooperation.
- Determines and disseminate best practices.
- Uses its regional framework to bring civil and military authorities together.
- Raises awareness.
- Facilitates the use of existing arrangements wherever they exist.

KEY POINTS: ARTICLE 3 AND ICAO ASSEMBLY

- State aircrafts are exempted from compliance with articles of the Convention
- States are required to safeguard navigation of civil aircraft when setting rules for their State aircraft
- ICAO Member states may include, when appropriate, representatives of military authorities in the their delegations to ICAO meetings
- ICAO should serve as an international platform to facilitate improved civil/military cooperation, collaboration and the sharing of best practices

ASSEMBLY RESOLUTIONS

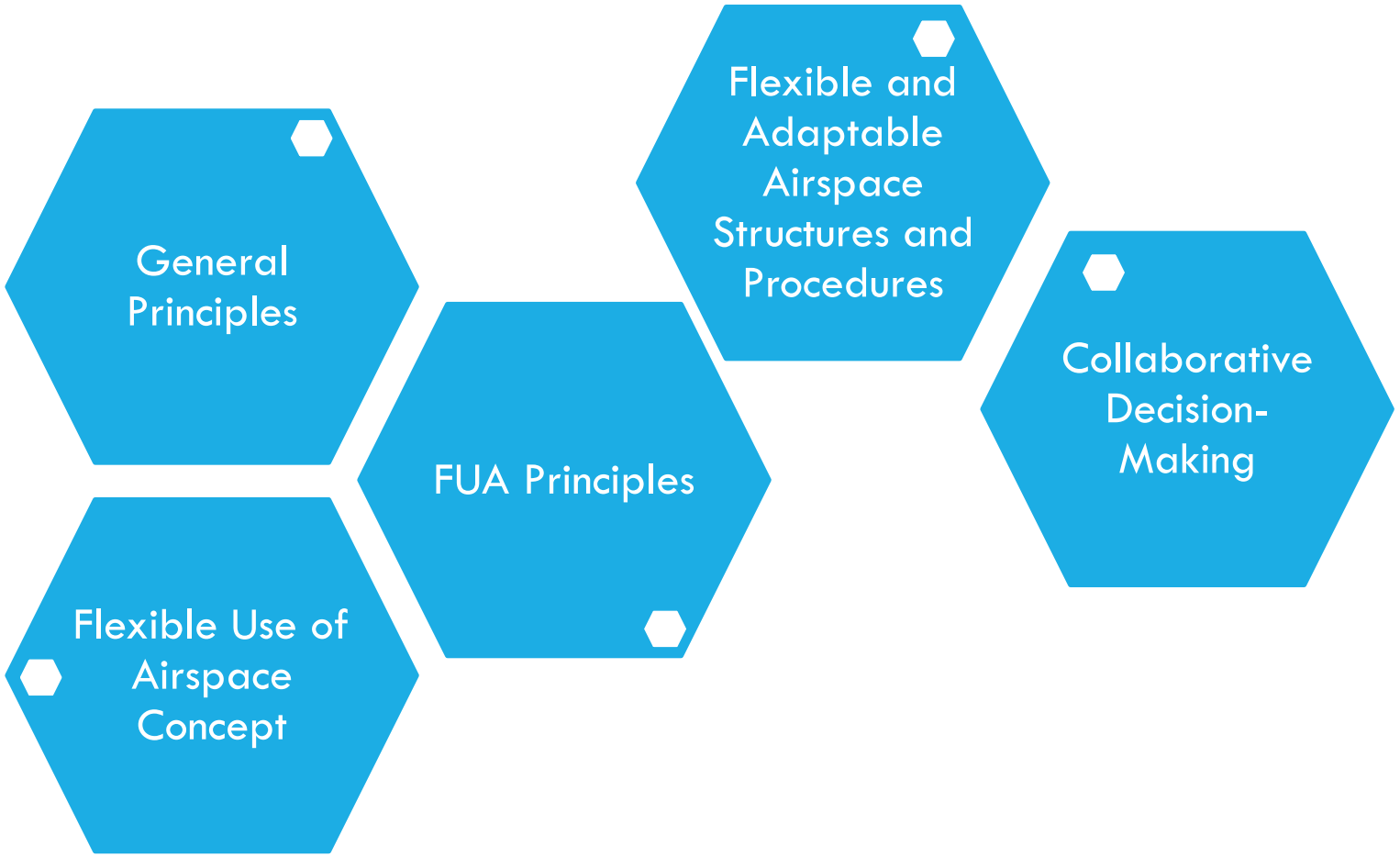
At the 37th Session of the Assembly, 28 September to 8 October 2010, Resolution A37-15, Appendix O, —Coordination and cooperation of civil and military air trafficll was further articulated. It was recognized that airspace is a resource common to both civil and military aviation and that many air navigation facilities and services are provided for and used by both civil and military aviation. Further, the shared use of airspace and certain facilities and services by civil and military aviation shall be arranged so as to ensure the safety, regularity and efficiency of international civil aviation as well as the requirements of military air traffic. As a consequence, 182 ICAO Member States may include, when appropriate, representatives of military authorities in their delegations to ICAO meetings. The 37th Assembly also concluded that ICAO should serve as an international platform to facilitate improved civil/military cooperation, collaboration and the sharing of best practices.

Obligations of ICAO Member States under the Chicago Convention germane to civil/military issues include:

1. Rule-making as regards aviation safety rules in compliance with ICAO SARPs contained in the Annexes to the Convention (Article 37);
2. Carrying out tasks which pertain to, for instance, ATM and which are laid down in the Annexes to the Convention, such as the classification of airspace and coordination between civil and military air traffic.

CIVIL AND MILITARY INTER-OPERABILITY

AIR SPACE ORGANIZATION AND MANAGEMENT



GENERAL PRINCIPLES:

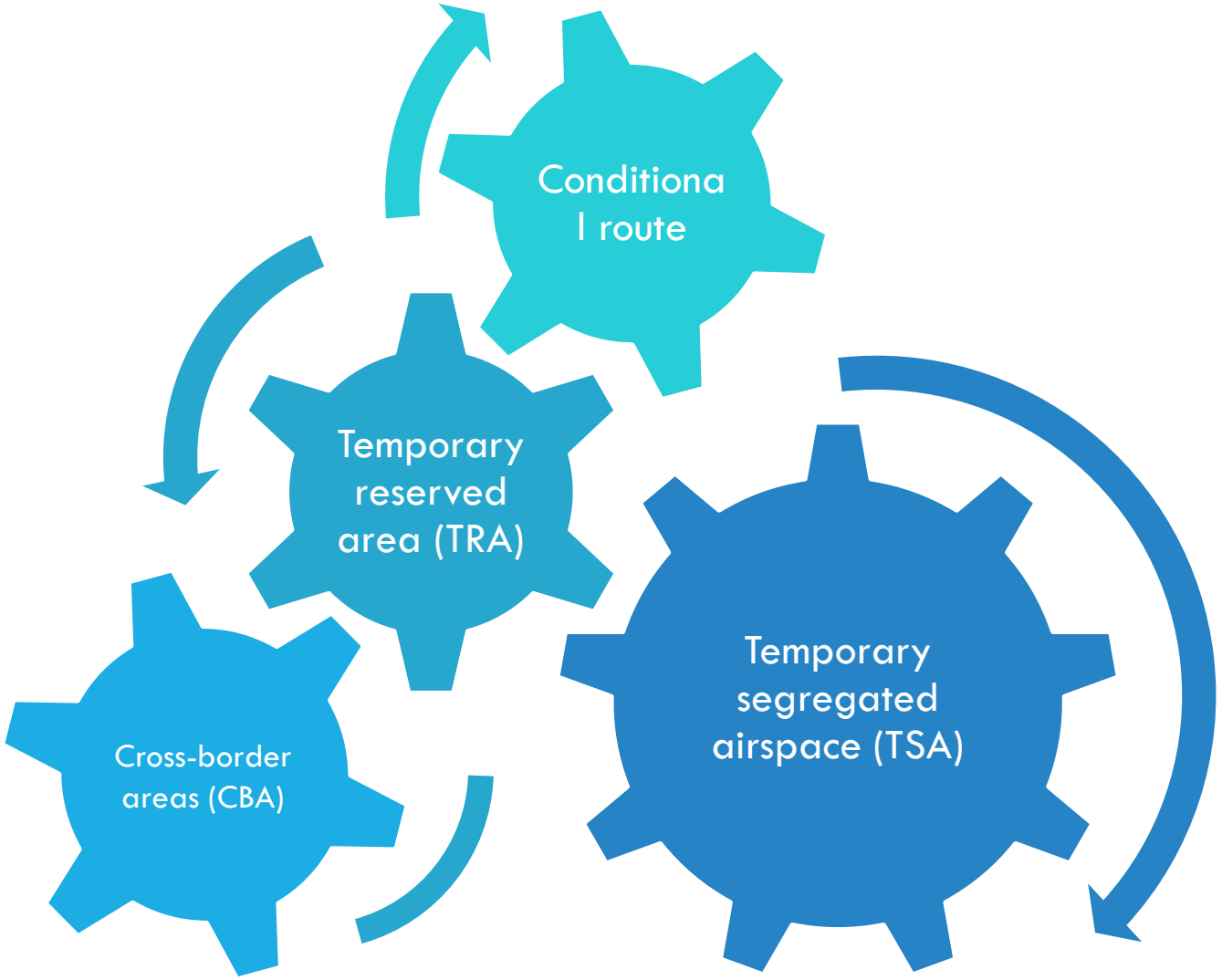
The management of airspace should follow these guiding principles and strategies:

- All available airspace should be managed flexibly.
- Airspace management processes should accommodate dynamic flight trajectories and provide optimum operational solutions.
- When conditions require different types of traffic to be segregated by airspace organization, the size, shape, and time regulation of that airspace should be set so as to minimize the impact on operations.
- Airspace use should be coordinated and monitored in order to accommodate the conflicting requirements of all users and to minimize any constraints on operations.
- Airspace reservations should be planned in advance with changes made dynamically whenever possible. The system also needs to accommodate short-notice unplanned requirements.
- Complexity of operations may limit the degree of flexibility.

Flexible Use of Airspace(FUA)

- An airspace management concept.
- A methodology of capacity management.
- Airspace should not be designated as either purely civil or purely military airspace.
- Airspace should be considered as one continuum In which all users‘ requirements have to be accommodated to the greatest possible extent possible.

FLEXIBLE AND ADAPTABLE AIRSPACE STRUCTURES AND PROCEDURES



COLLABORATIVE DECISION-MAKING(CDM)

- CDM brings together airlines, civil and military aviation authorities and airports in an effort to improve ATM through information exchange, data sharing and improved automated decision support tools.
- CDM enables information-sharing and facilitates decision-making processes by ensuring that stakeholders are provided with timely and accurate information essential for the planning of their operations be they civil or military.
- Involvement of military airspace users and military airspace planners in national or regional airspace planning ensures adequate planning both in time and dimension, which serves military aviation but also de-conflicts with civil traffic flows to the maximum extent possible.
- CDM increases predictability in case of unforeseen events or disruption. Properly carried out, CDM also leads to optimum airspace utilization with benefits to all participants in the system.

ATM SECURITY
AND
ATM IN CRISIS SITUATION

ATM SECURITY

To adequately provide for national security and defence, aviation security and law enforcement, the following three levels of security objectives should be considered:

1. **Tactical operations security** should provide daily ATM security oversight and coordination that maximizes awareness of security situations within the ATM system via layered security processes.
2. **Strategic operations security** should ensure continuity of the ATM system via long-range planning, crisis management, analysis and support functions.
3. **Special interoperations security** should feature enhanced ATM security cooperation and use of liaisons for civil/military/law enforcement operations.

ATM IN CRISIS SITUATION

It is of paramount importance from the early stage of a crisis that, immediately following a political decision to take action during a crisis situation, civil and/or military aircraft employed in support of the military operations be afforded maximum priority in the use of the airspace and the ATM resources of participating nations.

The interrelationship and a safe and balanced coexistence of civil and military activities are crucial. Military operational requirements and consequent planning will need to be considered at the earliest possible opportunity against an assessment of the impact that any planned action may have on civil operations in the airspace, and priorities allocated accordingly. Continual reassessment of the impact will be necessary as the situation and military requirements develop.

STATE AIRCRAFT OPERATIONS

- State Aircraft Roles
- State Non-Aviation Airspace Requirements
- State Aircraft Constraints
- Fully-Compliant Operations
- Partially-Compliant Operations

STATE AIRCRAFT ROLES

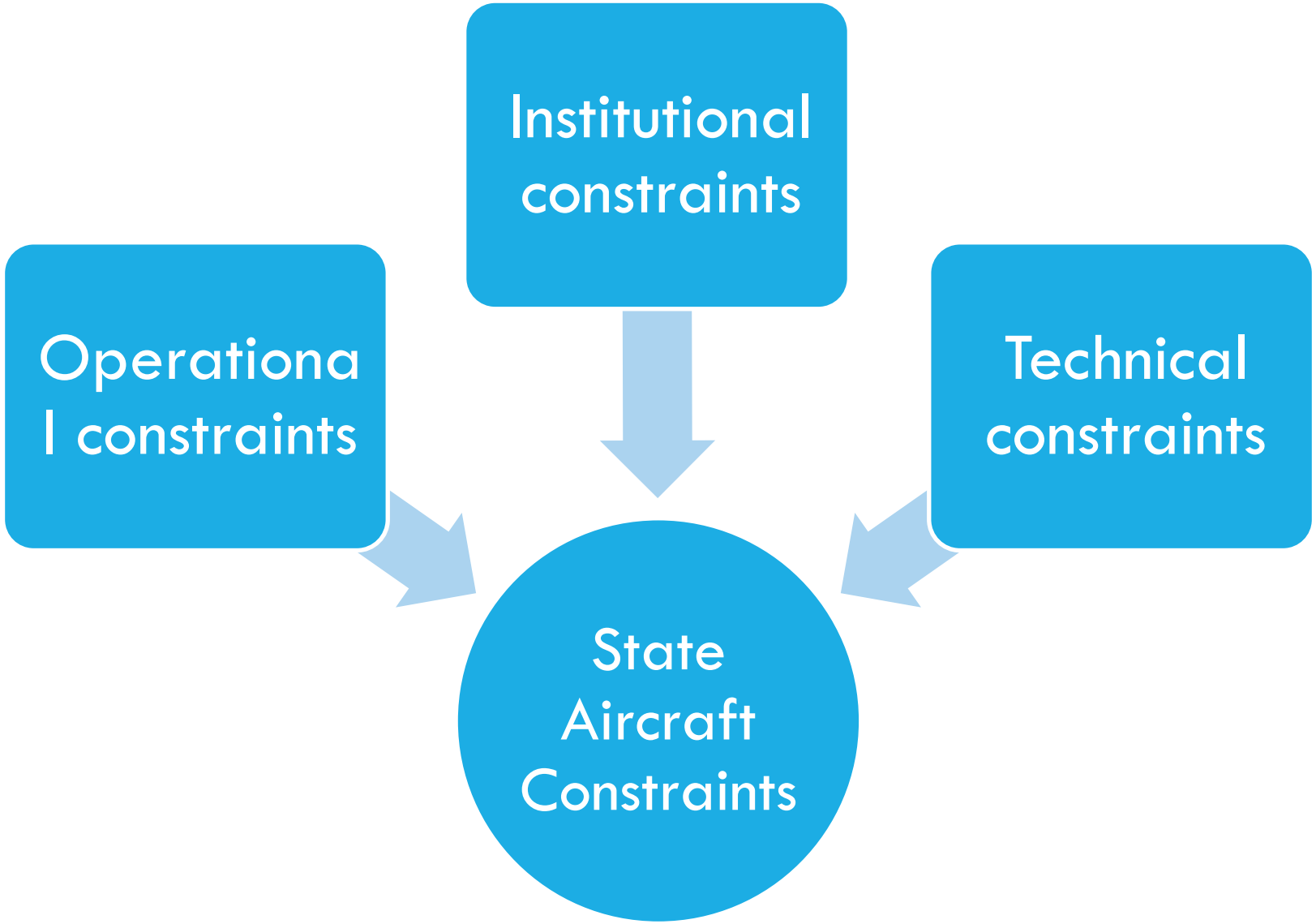
- Counter-air
- Space operations
- Air power contribution to land and maritime operations
- Airborne operations
- Aeromedical evacuation
- Intelligence, surveillance and reconnaissance (ISR)
- Special air operations
- Air-to-air refueling(AAR)

- Search and rescue
- Police/customs
- Meteorological support
- Geographic and hydrographic support
- Aerial fire fighting
- Experimental/trial aircraft
- VIP aircraft
- Unmanned aircraft system (UAS)
- Special air operations
- Air-to-air refueling(AAR)

State Non-Aviation Airspace Requirements

State non-aviation operations in some circumstances require access to national airspace. Often these operations will not be compatible with other concurrent aviation activity and will render airspace non-compliant with FUA principles.

Operations including surface/naval weapons firing, research, development and exercising of non-kinetic weaponry, jamming, and weapons storage 200 will normally require the use of segregated airspace in order to ensure the safety of nonparticipants.


Institutional constraints
Operational constraints
Technical constraints
State Aircraft Constraints

Fully-Compliant Operations	Partially-Compliant Operations
• Airlift • VIP Airlift	• Counter-air missions. • Aeromedical evacuation • ISR • Unmanned aircraft systems. • SAR • Large-scale exercises • Police/customs

Historically, State agreements between military aviation units and ANSP focused on the needs of **State defence, security and emergency procedures** as well as **military readiness and response requirements.**

- There is now a clearly defined need to establish procedures that support the efficient **integration of military and civil aviation** in day-to-day operations.

CIVIL/MILITARY COLLABORATION RESULTING IN BENEFITS TO AIRSPACE MANAGEMENT AND ATM SYSTEM OPERATIONS

It is demonstrated that collaboration:

1. Attains higher levels of safety
2. Increases airspace capacity
3. Enhances national security
4. Increases operational efficiencies through:
   - Interoperability of civil and military aircraft
   - Reduction in distances flown
   - Establishment of optimal flight profiles
   - Reduction in fuel consumption and carbon emissions

Legal Issues Concerning Communication/Navigation and Surveillance Systems

FUNDAMENTAL PRINCIPLES OF THE GNSS LEGAL FRAMEWORK

1. The safety of international civil aviation.
2. Universal accessibility without discrimination.
3. Continuity of services .
4. Respect of State sovereignty.
5. Compatibility of regional arrangements with the global planning and implementation.
6. Cooperation and mutual assistance.

OTHER LEGAL ISSUES