Commercial aviation is in transition from a strictly government-controlled transport sector to a much more competitive liberalised operating environment. For many years the ANS industry has been under pressure to adapt to new institutional arrangements and increased operational requirements. ATM must meet the challenges of the 21st century – in which a global seamless airspace is developed, based on cost-effective and efficient services, with sufficient capacity to meet the world's air transport needs in a safe and environmentally-responsible manner.

CANSO’s Global Vision on the Future of Air Navigation Services supports the creation of a globally harmonised ATM service, much in line with ICAO’s Global ATM Concept. CANSO’s Global Vision adds new thinking on the institutional and operation changes that must be accommodated by all stakeholders, including States and industry.

At the heart of the ‘Vision Wheel’ is the need to transition to seamless air navigation services. To achieve this, ANSPs, industry partners, regulators and governments will all need to make progress in nine areas, and CANSO believes that civil-military cooperation is a crucial element in that transition process.

Current restrictions resulting from competitive use of airspace can be resolved through improved civil-military cooperation where the military is viewed as both a partner and customer of air traffic management. A globally optimised airspace management employing such concepts as flexible use of airspace (FUA) will release available capacity for civilian use and provide for the necessary flexibility for military operations and mission profiles.

The minimum requirements for seamless airspace are:

1. Standardised:
   - Airspace organisation, regulation, and structure (ensures equivalent levels of safety and service)
   - Flight plan format
   - Application of aircraft separation in like airspace and traffic demand
   - ATM rules & procedures
   - A/G phraseology

2. Harmonised flight level allocation schemes: appropriate to ATM requirements and to direction of flight for bidirectional routes

3. Interoperable ATM automation systems

CHARACTERISTICS OF SEAMLESS AIRSPACE

CANSO’s Seamless Airspace Workgroup has defined seamless airspace as: Contiguous airspace that is technically and procedurally interoperable, universally safe, and in which all categories of airspace users transition between Flight Information Regions, or other vertical or horizontal boundaries, without requiring any considered action to facilitate that transition and without any noticeable change in:

- Type or quality of service received
- Airnavigation communications performance standards
- Standard practices to be followed

See CANSO Global Vision on Future of ANS brochure for more information
The Need for Improving Cooperation

Civil-Military cooperation has become even more important in the current aviation environment, because continued rapid growth in civil air traffic has put increasing pressure on scarce airspace resources. In addition, those regions experiencing high growth in traffic are facing the biggest challenges, and will therefore benefit most from increased Civil-Military cooperation. But while the case for improved Civil-Military cooperation is clear, the means by which this can be achieved is less so. In many States, significant obstacles exist to a cooperative approach to airspace use.

However, CANSO has developed a number of elements that it believes form the basis for improved Civil-Military cooperation.

It is CANSO’s firm belief that good performance in ATM stems from good government policy-making and political will, and this is even more important in the case of Civil-Military cooperation.

Foundations of Cooperation

Key to successful cooperation is the establishment of trust and transparency on all sides. The needs and requirements of both civil and military airspace users must be fully understood and recognised. Only through mutual cooperation can mission-oriented military air traffic and capacity-oriented civil air traffic be handled smoothly and according to requirements.

States can play an essential role in developing the framework through which needs and requirements can be articulated and balanced. Examples from CANSO members range from coordination mechanisms, to joint Civil-Military offices and the fully integrated model. There is no ‘one size fits all’ solution, but all are built on the basic premise of understanding and appreciating the needs and requirements of the other. It must be recognised that the military is both a partner and customer of ATM, and the aim should be to pursue a win-win scenario.

Having accepted that transparent information sharing and trust are the essential building blocks of Civil-Military cooperation, the second essential element is the legal framework that needs to be established by the State. Civil and military cooperative arrangements need to be defined by enabling legislation and a set of regulations that stipulate the respective roles, rights and responsibilities.

An inter-departmental agreement concluded between the Defence Ministry and the Transport Ministry can further institutionalise Civil-Military integration. Such inter-departmental agreements can define the principles of Civil-Military cooperation, and the tasks, responsibilities and international obligations. In addition, other special issues covered can include dealing with personnel training and employment conditions, operating procedures in times of emergency, and flight calibration and air traffic data management.

States should also consider Civil-Military cooperation from a regional, not simply national, perspective. In areas of highly fragmented airspace with pockets of intense activity, the gains from a more flexible approach to airspace use can only be fully realised by adopting a regional perspective.

There are good examples of successful regional arrangements in Europe (with CMIC in EUROCONTROL), where high traffic volumes and heavy military activity across small airspace blocks have encouraged greater cooperation. The institutional framework for achieving this embraces policy making, legislation and regulation, as well as operational arrangements and working relationships on the ground.

CANSO believes that great progress can be achieved by observing the principles of transparency and information sharing, by establishing the legal framework for Civil-Military cooperation, and by adopting a regional approach in areas of highly fragmented airspace.
With these foundations in place, States can learn from best practice in the industry and tailor their own arrangements for successful cooperation. The unique circumstances of each region require a unique State approach, but it is also true that the industry as a whole would benefit from an increased spread of best practice.

CANSO Members are committed to their Global Vision for a Seamless ANS, which is interoperable and flexible, serving the diverse needs of all users. Fully optimised Civil-Military arrangements are crucial to the delivery of that Vision, and CANSO will work with ICAO and its contracting States to promote improved civil-military cooperation in the future.

The Role of Industry in Facilitating Civil-Military Cooperation

Although only individual States can set the framework for improved cooperation, the aviation industry has an important role to play as well. In particular, ANSPs and airlines, through their respective trade associations, in addition to promoting best practice, have the opportunity to develop and advocate policy in this area. There are also options to work with the media, or seek to directly influence regulatory authorities.

Consultation with CANSO members identified a number of additional elements that the ANSPs, airlines, and their trade associations could do to help improve Civil-Military cooperation. These included:

- Promotion and monitoring of uniform regulations and training
- Reporting on specific examples of successful collaborative work and airspace sharing initiatives
- Airlines need to do more to promote the benefits of improved cooperation, especially with regard to reducing delays caused by military activity
- Airlines can also help by identifying events where military operations have had a negative impact on civil flight operations, and recommend solutions
- Airlines and ANSPs should share more information
- Early communication of strategic changes in airspace structure, airborne platforms, and political intentions is essential for safe, efficient, cost-and-mission-effective use of airspace
- Airlines should work with ANSPs, the Military, and State authorities in joint planning groups to promote better understand of each other’s needs and requirements, and where the opportunities for better cooperation lie.

An Example of Regional Civil-Military Cooperation

In CANSO’s view, one of the most important foundations for improved Civil-Military cooperation is for States to take a regional view of the issue. A regional approach has been adopted in Europe, where EUROCONTROL regards itself as “a true civil-military agency”, with civil administrators and military officers serving in the organisation’s Provisional Council, Committees and Directorates. The Agency’s charter states, “the air traffic management network shall satisfy national security as well as national and international defence requirements”.

The strong cooperation is embodied in the Civil-Military Interface Standing Committee and the Agency’s Directorate Civil-Military ATM Co-ordination (DCMAC). The latter is mainly staffed with military officers recruited from the Members States by EUROCONTROL. They work alongside the civil members of the Agency’s staff and their contribution is vital to the successful completion of the Agency’s strategic and operational objectives. EUROCONTROL is developing a framework to increase the exchange of information between civil and military air navigation service providers. This is achieved through a much closer working relationship than in the past between civil and military air traffic controllers and through the building up of air traffic management system interoperability.

The EUROCONTROL Flexible Use of Airspace Concept

Airspace should no longer be designated either military or civil, but should be considered as one continuum and used flexibly on a day-to-day basis. Consequently, any necessary segregation of airspace and air traffic should only be of a temporary nature. The full application of the concept is without any doubt the key to success and the answer to the increasing demands of both partners for more airspace capacity in terms of volume and time.

www.eurocontrol.int
1. During the last ICAO Assembly in 2007, States were asked to take appropriate action to coordinate with military authorities to implement a flexible and cooperative approach to airspace organisation and management. What has happened since?

If you look in recent ICAO history, this was also discussed in 2003 at the Eleventh Air Navigation Conference, when a broad recommendation was made to implement the operational concept and have more flexible use of airspace. Then in 2007 a similar recommendation – for joint and flexible use of airspace – was made. We are now looking towards the Civil-Military Forum, and ICAO is expected to produce guidance material to support closer Civil-Military cooperation.

2. Will it take an event such as the Civil-Military Forum to ‘kick-start’ action?

In many parts of the world, cooperation between civil and military authorities has always been fostered. But in other parts, the solutions toward more flexible use of airspace have not resonated sufficiently well enough for action to be taken. This is the first conference where ICAO has focused on this issue, where both the civil and military perspectives will be presented, allowing for a better understanding both ways. An ICAO forum does not directly produce recommendations, but should naturally flow on to the planning and implementation regional groups, with the consequent seminars and workshops that concentrate on localized opportunities for airspace improvements. EUROCONTROL has guidance on flexible use of airspace; NATO has an ATM committee. ICAO should take these ideas further and look to apply this globally.

3. What is the interest of the Council in this activity, which spans both the policy (institutional, legal, regulatory) and operational domains of ATM?

Well this is in line with the key objectives of ICAO, so the Council will be very interested in this, particularly from the environmental point of view. Airspace should be available for all to use. In Iceland for example there has been what you could call a Functional Airspace Block since 1976, when Denmark and Iceland merged the upper airspace under one control, and is extremely tactical and flexible for both military and civilian use.

4. Given your experience with military authorities in Kosovo and Kabul, what conditions are needed for good Civil-Military cooperation in ATM?

Well I’ve seen this from both sides, and I’m afraid that there is sometimes skepticism at an operational level. Controllers on both sides have yet to be convinced that they can both get what they need. The military feel that they ‘own’ the airspace, and on the civil side there is a constant belief that the military take too much airspace.

The number one thing to overcome this is training. One way of doing that would be to have a military controller in the civil centres and vice versa. Joint training seminars and continual education is also required to build confidence. This is done in some places but not as often as I would like to see.

5. In your opinion, what should CANSO be doing to facilitate Civil-Military cooperation, and do the airlines have a role?

CANSO could play a vital role, because it represents the service providers on both a military and a civilian level. That’s the core relationship, even more than the role of airlines.

CANSO can also play a wider part coordinating with military authorities to free up airspace, which would also have significant environmental benefits.
Unified regulations and legislation would certainly be a very significant factor. They would create one reference base for Civil and Military aviation resulting in the same procedures, the same phraseology, units of measurements and so on.

A flexible airspace structure, cooperation, trust, Cooperative Decision Making practices and formal agreements could be the basis of effective ATM cooperation.

Actually you need a good mixture of all those mentioned points in terms of legislation, regulations, political will and leadership. First and foremost, you need to have the political will and decision to practice Civil-Military cooperation in ATM. You should be aware of the fact that the whole process of changing the different attitudes of the actors is very time consuming. Secondly, transparency - sharing of all kinds of information - at all levels and functions supports Civil-Military cooperation. And thirdly, having a seamless transition from what is in most cases a co-located environment, to a fully integrated ATM system, takes time - one of the main key factors.

In the UK, joint and integrated Civil-Military cooperation is founded in law and directions from the Ministries for Transport and Defence. It is mandated at the highest levels, in order to share the scarce resources available. In addition to regulation, political will and leadership, there needs to be a trusting relationship and a transparent sharing of needs. No hidden agendas, but open and honest sharing of needs so that all can be satisfied, and a willingness on both sides to move forward together, understanding that efficiency of airspace and procedures can only be maximised by working jointly on the issues.

What are the main reasons Civil-Military cooperation has not advanced in your region?

There has been a split between Civil and Military aviation in Poland for a long time. Old “Aviation Law” nominated the Military as governor of the airspace. In effect, the Military leadership did not feel the need to observe ICAO procedures at all. Joining NATO was a trigger to diverge from old Warsaw Pact procedures, to those observed by ICAO and NATO. The process is still continuing, advancing from year to year.

Cooperation is advancing in Canada; for example the Canadian Forces maintain an ATM Coordination Office located within the NAV CANADA Head Office for the express purpose of maintaining two-way communication and awareness of issues/opportunities for cooperation and mutual management of Agreements.

In Germany we have had a fully integrated Civil-Military ATM system for many years.

Our relationship has advanced. This is partly due to the joint and integrated approach to how we deliver the service, and partly through strategic planning bodies
such as the Joint Future Airspace Development Team, instigated approximately ten years ago, which formed a joint strategy for the development of both airspace structure and enhanced airspace management. Such initiatives are fully supported by the regulator, and embedded in the governance structure of all parties. There are areas where progress has been slower; for instance many restricted and danger areas are not managed by the MoD but by other agencies such as R&D industry. Many of the areas are managed differently and are closed at certain times of the day to other users, irrespective of use. We envisage a world where all restricted airspace is managed through MABCC and the AMC type co-ordination roles.

In my opinion better Civil-Military cooperation would result in much better and more efficient use of the airspace, and – thanks to a unified set of aviation procedures – a significant increase in safety. Therefore the first thing Civil-Military authorities should aim to do is unify all ATM procedures. Secondly, all personnel like pilots and ATCOs should be trained according to the same programs based on international standards and norms.

I think we need to communicate each others’ requirements and collaboratively develop solutions in support of the defined requirements.

In general, an improvement in Civil-Military cooperation and optimising the collaboration process can be achieved by focusing on: commonly specified criteria for equipment, implementation and operating procedures; harmonised control-and-coordination procedures including data link; harmonised mapping, publications and procedure design; harmonised flight data management and interoperable data transfer, flight planning, processing and distribution, and compatible and interoperable communication, navigation, and surveillance infrastructure between all civil and military ATM systems.

Yes, it is a priority – any lack of cooperation will affect efficiency of the network and also not provide military operations with the access and flexibility they require. This must also extend across borders and not be seen as simply improved relationships within each State. A good model is that of a single entity, for instance the Civil Aviation Authority, which in the UK ‘owns’ the entire airspace and users then need to construct business cases to justify their use of the airspace, either exclusively or within a FUA environment. In this way political will can be effectively achieved whilst ensuring that State priorities are satisfied, whether they be those of customer, aircraft operator, military or civil operations.

As I mentioned before, they should introduce unified ATM regulations and training programmes to be observed by both Civil and Military personnel.

Policy-makers should focus on creating the regulatory framework required to support flexible use of airspace and military special use airspace requirements, such as UAV operations.

Government policy-makers, legislators, and regulators should develop a political and legislative framework to ensure a solid basis for Civil-Military cooperation. Only a collaborative scheme provides an increase in safety, capacity, efficiency and cost effectiveness for all airspace users. However, this approach will fail if one of the partners focus too much on the benefits to themselves.

There is a need to encourage joint planning and coordination bodies to build trust and support between civil and military service providers and operators whilst moving towards a single managed process.
CANSO – The Civil Air Navigation Services Organisation – is the global voice of the companies that provide air traffic control, and represents the interests of Air Navigation Services Providers worldwide.

CANSO members are responsible for supporting over 85% of world air traffic, and through our Workgroups, members share information and develop new policies, with the ultimate aim of improving air navigation services on the ground and in the air. CANSO also represents its members’ views in major regulatory and industry forums, including at ICAO, where we have official Observer status.

For more information on joining CANSO, visit www.canso.org/joiningcanso