



EUROCONTROL's 'LARA' system to support ICAO goals for improved civil-military coordination

The Agency's experience in developing flexible use of airspace concepts could soon be benefitting other world regions.

Consistent with their 2016 agreement, a demonstration version of EUROCONTROL's Local and Sub-Regional ASM (LARA) support system should be made available to the International Civil Aviation Organization (ICAO) during 2017.

LARA is a civil-military airspace reservations tool which balances operational requirements in line with the Flexible Use of Airspace concept (FUA). It covers both the planning and tactical phases and until now has been used exclusively within Europe.

But beginning in 2017, LARA demonstrators are being made available to ICAO Regional Offices around the world, so that the benefits of FUA can be better understood and employed on a more global basis. A number of non-European States have recently shown an interest in deploying LARA – including Australia, Brazil and the United Arab Emirates – and this year is likely to see the first formal adoptions of the tool by non-EUROCONTROL ICAO Member States.

EUROCONTROL has for some years been supporting ICAO in the development and harmonisation of civil-military coordinated ATM operations. Most recently in December 2016 a team from EUROCONTROL demonstrated LARA to ICAO personnel in the ICAO Asia and Pacific (APAC) Regional Sub-Office (RSO) located in Beijing and provided training so ICAO staff could present LARA demonstrator to interested States in the APAC region.

“There is a history of EUROCONTROL supporting ICAO in civil-military coordination and flexible use of airspace,” says Patrick Delmouzée, Head of ATM Unit, Civil-Military ATM Coordination Division, at EUROCONTROL. “With this agreement we are offering a demonstration of LARA to the ICAO Regional Offices. We are presenting this as part of a wider FUA toolkit alongside other concepts we have developed, to show how FUA works.”

EUROCONTROL's many years of experience in developing, implementing and refining FUA concepts in Europe could be put to good use in a global context, especially in areas of high traffic growth where permanently reserved military airspace areas are impeding capacity in nearby busy civil sectors. In the Asia and Pacific region, for example passenger traffic is expected to grow at 6.7% annually, while the region's overall traffic will represent 35% of global passengers in 2016, according to ICAO forecasts. These increases in traffic and airspace congestion will have a profound impact on air transport efficiency and environmental sustainability if not properly managed; allowing civil and military airspace managers to work more closely together will be a key ingredient in providing more capacity to meet future demand for air travel.

“Recognising the necessity and importance of the civil-military ATM cooperation (CMAC) and FUA concept,

Asia and Pacific Region



6.7%

Expected annual passenger traffic growth in 2016



35%

Global share of passengers in 2016



ICAO assigns a highest priority to its implementation in the Asia Pacific region,” according to Raphael Guillet, Chief of the ICAO Asia Pacific Regional Sub-Office. “Since the RSO was established in 2013, one of its key tasks has been to assist States in enhancing CMAC and implementing FUA through a series of workshops and seminars, and by working together with States on specific CMAC/FUA projects.”

LARA is much more than a clever piece of software which alerts airspace planners about the opening and closing times of dedicated military airspace areas. It is the basis of a new relationship between civil and military ATC personnel and EUROCONTROL's experience helping to deploy the concept in Europe is recognised as an important element to introducing FUA procedures in other parts of the world. Each country has very different civil-military airspace arrangements, with different relationships between the main stakeholders. In Europe many of these challenges have been overcome – but it has taken time and the process is complex.

“You have to develop a new delicate relationship of confidence and trust between civil and military users,” says Patrick Delmou  e. “We have learnt never to intervene at a political level but by showing people the possibilities of FUA, it can open minds. The stakeholders are challenged. We merely try to facilitate the existing relationships by giving them an automated tool and let them, once they have seen the possibilities, go further with it themselves.”

In many countries the military has played a dominant role in the provision of ATC services or

From left: Jan Scholz, EUROCONTROL, Pavlin Belichovsky, EUROCONTROL, Raphael Guillet, ICAO, Francois Cervo, EUROCONTROL, Liu Song, ICAO, and Huo Da, ICAO.

the management of airspace so the institutional complexities of sharing airspace involve cultural as well as technical challenges. Although the main beneficiaries to FUA are civil aircraft operators, there are benefits to the military which LARA can deliver.

“The military have in many parts of the world historically had priority in ATM service provision,” says Patrick Delmou  e. “But decisions could be taken which could see this priority being lost or reduced. FUA will ensure that they will be able to play at least at the same level as their civil colleagues, through proposing and negotiating airspace arrangements. And the advantage of a tool like LARA is that it provides military airspace users with a ready-to-go, free, automated system which coordinates between military units and the central military airspace management centre. For example, in Belgium all military units ▶

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– including air force squadrons and army shooting ranges – are presented with an automated booking system, so each operating centre can coordinate between themselves and decide who has priority.”

ICAO is actively working to support States to deploy harmonised FUA concepts globally – developing advanced airspace management (ASM) principles that propose airspace should not be designated as purely civil and military, but rather as a continuum in which all user requirements are accommodated to the greatest possible extent. ICAO also defines flexible and adaptable airspace structures, for example Conditional Routes (CDRs), Temporary Reserved Areas (TRAs), Temporary Segregated Areas (TSAs) and Cross Border Areas (CBAs).

“We plan to assist States in enhancing their pre-tactical and tactical civil-military cooperation and improve their airspace management capabilities through the introduction of an efficient CMAC/FUA process. The LARA demonstrator can help to demonstrate the process by using the case of Europe or the local case of a specific State to highlight how States are dealing with these issues in real-world situations today. This is very important to how States which are new to these approaches will ultimately assess and implement FUA best practices,” according to Liu Song, RSO Regional Officer dedicated to FUA. “LARA’s ability to coordinate the varying priorities regarding the Advanced ASM Concept, efficient civil-military coordination and Collaborative Decision Making (CDM) – inclusive of comprehensive user privileges, approval processes, and applicable rules – is definitely its most important value-offering.”

EUROCONTROL WILL NOT BE involved in the deployment, training and support of LARA outside the Agency’s membership. The Agency is delegating this responsibility to air navigation service providers (ANSPs) who have already deployed the tool in Europe, allowing them to charge for their services. EUROCONTROL will receive a small percentage of the revenue to cover its costs – thereby reducing the costs of the European States who have already invested in the service – and is working with the designated ANSP/LARA distributors to ensure minimum service and support levels will be guaranteed to third-party users. EUROCONTROL is drawing up a list of approved ANSP suppliers who will work with LARA customers outside the Agency’s membership.

“We have already organised information sessions with various ANSPs to ensure they will comply with conditions that will guarantee quality,” says Patrick Delmouzée. “Depending on how the contract is made

LARA explained

LARA (Local and Sub-Regional Airspace Management Support System) was developed to improve airspace management processes by providing mutual visibility on civil and military requirements, by increasing mutual understanding and by enabling a more efficient collaborative decision-making process. The aim has been to produce a harmonised national and regional ASM support system meeting the operational requirements of stakeholders. LARA’s development is actively supported by the European Commission, through the trans-European transport network (TEN-T).

The LARA system is built around a performant server and database offering multiple clients seamless access to a variety of sophisticated ASM functions. LARA’s functionality encompasses all phases of airspace management – reaching from long-term event planning to airspace management at level 2 and 3 – including real-time coordination of airspace activations. The capability to connect a national LARA system to neighbouring LARA systems allows seamless coordination between different States and facilitates efficient cross-border operation. A variety of interfaces to other systems and the Network Manager enable improved collaborative decision-making.

LARA provides a user-friendly interface to allow online airspace reservation, enable transparent coordination and maximise automation of routine tasks. Through a shared real-time airspace status display, situational awareness of all players is enhanced and flight safety greatly improved. The system is designed to allow configuration of all relevant system parameters to adapt to national procedures, while contributing to the harmonisation of the application of the Flexible Use of Airspace Concept in Europe.

All data exchange is stored on a server and can be retrieved for national statistics on the use of airspace – including export functionality to PRISMIL (Pan-European Repository of Information Supporting Civil-Military performance measurement) for the production of Key Performance Indicators (KPIs).

The LARA software is developed by the UK-based company GRAFFICA under supervision of EUROCONTROL’s Civil-Military ATM Coordination Division (CMAC). LARA’s development and its requirements are based on operational best practices and are driven by its users.

with the distributor, interested States will have the right to get upgrades. The distributors will be responsible for installation, maintenance, training and bug fixing. If needed, a help desk will be provided which could involve sub-contracting a service to a local company.

For EUROCONTROL, the opportunity to support ICAO’s global mission to improve civil-military ATM coordination around the world, to export Europe’s industrial expertise and help European ANSPs develop new revenue-streams is a win-win opportunity. It is made possible through the unique institutional position of the Agency – a politically neutral, government-owned body with wide and deep experiences in civil-military cooperative ventures. ■

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LARA

LOCAL & SUB-REGIONAL
ASM SUPPORT SYSTEM



10-year old LARA has transformed civil-military coordination

LARA is ten years old. It was on 6 February 2007 when a kick-off meeting with civil and military stakeholders was held at EUROCONTROL's Maastricht Upper Area Control Centre to validate a concept and define specifications for a local ASM (airspace management) support system.

In January 2008, a demonstrator was successfully presented to stakeholders at a trial showcasing ASM/ATFCM (air traffic flow and capacity management) improvement initiatives. This led to the LARA programme: the Local and Sub-Regional ASM support system.

A prototype was released early in September 2009; this was followed by a first operational version in mid-2010.

LARA was based on best practices, developed in line with the European Commission's FUA regulations and geared up for the future implementation of the Functional Airspace Blocks (FABs).

Over the years, the LARA system matured from a prototype to an operational system, completely aligned with users' requirements. This is because LARA was developed and perfected by users for users, with the constant, active participation of the LARA Users Group.