

ACTION PLAN

ATTI talks with SESAR Deployment Manager's Massimo Garbini about the modernization of Europe's air traffic system

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The Single European Sky Air Traffic Management Research (SESAR) project, which was set up in 2004 to modernize and harmonize ATM systems, has reached a pivotal milestone. In June 2015 the first SESAR Deployment Program was delivered to the European Commission's Directorate General for Mobility and Transport. This development marked a move from the R&D phase of SESAR to the modernization of European ATM technology.

Heading up the modernization project is SESAR Deployment Manager (SDM), which comprises ANSPs, airlines and the SESAR-related Deployment Airport Operators Group (SDAG). Its role is to coordinate the implementation of the EU's Pilot Common Project (PCP), the first set of SESAR solutions to be deployed across Europe.

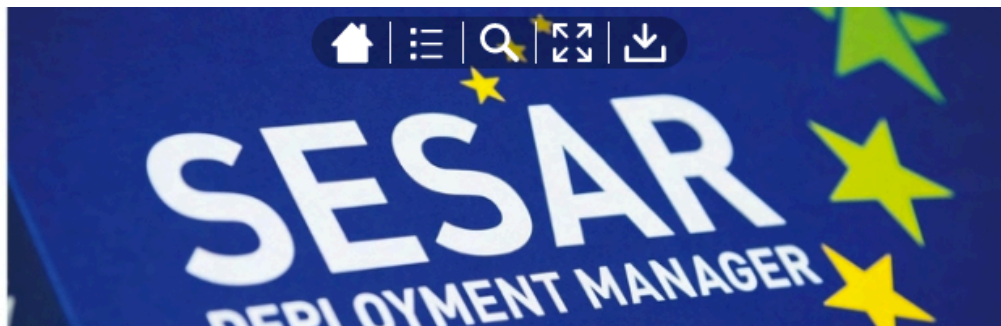
Massimo Garbini (right), managing director of SDM, explains more: "Our main task is to drive modernization in a timely manner. We will develop, consult, submit to the EC for approval, and execute the deployment program."

The PCP is a European law covering six ATM functionalities that have to be implemented by EU member states. These functionalities were researched and developed by the SESAR Joint Undertaking (SJU), which was founded in 2007 to pool the knowledge and resources of the entire ATM community in order to define, develop and validate new ATM solutions. The release of the first SESAR Deployment Program marked the end of the SJU's first phase of R&D. The SJU is now preparing for a new wave of projects under SESAR 2020.

"The PCP ATM functionalities have been recognized by the EC as the main areas the industry has to address to improve ATM," explains Garbini. "The deployment program will build on the solutions validated by the SJU and implement them in a timely manner over the next 10 years. We will also work closely with the SJU on a daily basis to ensure our programs stay aligned and focused on the common SESAR vision."

PILOT COMMON PROJECT FUNCTIONALITIES

1. Extended AMAN and PBN in the high density terminal maneuvering areas to improve the precision of approach trajectories and facilitate air traffic sequencing at an earlier stage, including extended horizon function.
2. Airport integration and throughput, including electronic flight strips, time-based separation and basic A-CDM, to improve runway throughput.
3. Flexible airspace management and free routes, including airspace management of real-time data and management of dynamic airspace configurations, to enable airspace users to fly as closely as possible to their preferred trajectory.
4. Network collaborative management, including short-term ATFCM measures (STAM) phases 1 and 2, and interface ATM systems, to improve European ATM network performance through the exchange, modifications and management of trajectory information.
5. Initial system wide information management (ISWIM). SWIM will comprise standard infrastructures and governance, enabling the management of information and its exchange between operational stakeholders via interoperable services.
6. Initial trajectory information sharing, including FDP upgrade, air-ground datalink deployment and air-ground communication service upgrade. This will improve the use of target time trajectories information, including the use of onboard 4D trajectory data by ground ATM systems and network management systems.



With a budget of €3bn (US\$3.3bn), SDM is now ramping up its activities to deploy projects that meet the demands of the PCP. The PCP focuses on the technological improvements that are mature enough to start deployment between now and 2024. It also fosters the implementation of key ground-ground and air-ground infrastructural building blocks for future common projects for ATM modernization.

ATM functionalities

"The initial deployment program, which was delivered in June 2015, provides a project overview for full PCP implementation," says Garbini. "All six of the ATM functionalities (see below) are crucial for PCP implementation. The functionalities have been translated into 44 implementation projects. The program is a blueprint for PCP operational stakeholders."

One of the most urgent projects, according to Garbini, is the extended arrival management (AMAN) and performance-based navigation (PBN) in high-density terminal maneuvering areas. "This functionality is expected to improve the precision of approach trajectories, as well as facilitate traffic sequencing at an earlier stage, thus reducing fuel consumption and environmental impact in descent/arrival phases," he says.

Currently basic AMAN, which covers arrival management extended to en route airspace, is already widely implemented in the ATM industry. The next step is to upgrade to include an extended horizon function, which will extend the AMAN horizon from 100-120 nautical miles from the arrival airport to 180-200 nautical miles.

"ATM functionality number four, network collaborative management, is also a priority for us right now," says Garbini. "This represents the ATM interface between the ANSPs and the network management systems. The aim is to provide a complete overview of information from all stakeholders so that collaborative decision making can be achieved at the network level."

Interoperability

Garbini believes that the modernization of Europe's airspace will be a long and challenging task and that industry cooperation is the key to success. As evidence of this, Garbini and Jorge Domecq, chief executive of the European Defense Agency (EDA), signed a Memorandum of Understanding (MoU) in June 2015 to establish efficient cooperation and support between the two organizations with regard to SESAR deployment.

Speaking at the MoU signing, Domecq said, "Europe's military fleets include some 9,500 diverse aircraft accounting for more than 150,000 flights each year. In other words, they form the single biggest 'airline' operating in Europe today. The challenges of SESAR and the modernization of European ATM are manifold. However, it is the role of the EDA to ensure that the European air forces will continue to have free and safe access to European airspace for training purposes, air policing and air defense missions. The financial and technological impacts of the program need to be mitigated to ensure that they do not adversely affect European defense capabilities. Only through constructive cooperation between military and civil stakeholders, can our shared vision of an efficient, safe and flexible European airspace be realized."

SDM will also be coordinating with other ATM modernization projects around the world, including the USA's NextGen, which is also currently in the deployment phase. "We are coordinating under a MoU between the EC and FAA to govern exactly which technologies should be developed," Garbini says.

Future plans

Aside from managing the timely deployment of the six ATM functionalities and their 44 projects to ensure they are delivered ahead of schedule, Garbini says that SDM is also tasked with proposing new common projects to be implemented. "The deployment program will release an early update by June 2016, which will look at what has already been implemented. I believe that we might have to review the PCP and then look at new projects," Garbini adds. "The update will include the SJU's most recent R&D, assessment of the ATM network and how it is performing, and feedback from all stakeholders. At this point we will have new research to feed into the deployment program."

SDM is the first time that Europe has revealed the deployment plan – one that has been studied, consulted on and agreed by the majority of the stakeholders in the ATM industry. Garbini concludes, "The industry is leading the modernization of our airspace. We are here to ensure that the management of ATM is more efficient in the coming years. We want to maintain high network performance in terms of safety, capacity, environment and cost efficiency, but in a nutshell we are here to support European aviation industries and its leadership." ❖

