



xStream won ATM Awards 2019 in the 'Environment' category

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xStream, a Very Large Demonstration coordinated by the SESAR Joint Undertaking and co-financed by the European Union, has delivered concrete, new solutions to improve Extended Arrival Management (E-AMAN) operations at busy airports. With this project, FABEC (the Functional Airspace Block Europe Central) and its partners NATS, Air France Lufthansa and Swiss were the winners of this year's ATM Awards in the 'Environment' category recognized by a panel of senior, worldwide experts.

The successful results of the 'xStream' project are providing the basis for synchronised deployment by the SESAR Deployment Manager : 24 European major airports will operate extended arrival management procedures by 1st January 2024 in order to improve flight efficiency and predictability at airports, in TMA, in Extended TMA and in en-route. Amongst them, ten major airports are located in FABEC airspace and four in UK airspace.

In 2019, final xStream trials were conducted in Frankfurt, London, Paris and Zurich and explored a large set of solutions. A first set of trials was conducted in London-Gatwick, London-Heathrow, Zurich and Paris to further explore the benefits of Extended AMAN (E-AMAN). Through these trials, AMAN horizons were extended from 200 NM to more than 350 NM, with a wide participation of surrounding Upper Area Control centres (UAC) such as Maastricht, Reims, Paris, Swanwick, Prestwick, Shannon, Karlsruhe, Zurich, Geneva and Milan. Extended AMAN operations were demonstrated for the first time on a highly congested single runway at London-Gatwick. The absorption of arrival delay during the en-route phase led to a reduction of fuel consumption by up to 30 kg per flight, representing 90 kg of CO₂ emissions and has now been permanently implemented.

With the number of E-AMAN operations on the rise, some UACs in the core area of Europe will have to handle several arrival flows with delays to absorb in en-route sectors. To prevent a significant increase of ATCO workload, a shadow-mode trial was conducted with Karlsruhe, Reims and Maastricht UAC as well as E-AMAN airports in which E-AMAN strategy was applied using a new collaborative tool called XMAN Portal. The tool enabled real-time information sharing about E-AMAN service provision by the UACs and is seen as an essential step towards full implementation of E-AMAN in the European ATM system.

From March to October 2019, additional live trials were performed in Frankfurt and Paris to further explore the benefits of optimising target times of arrival (TTA) procedures at congested airports. Using webservice-based platforms, DSN (resp. DFS) was able to automatically coordinate TTA requests with Network Manager (resp. flight crews from participating airlines) in order to optimise air traffic flows into arrival constraints. This new process was experimented on ATFM regulations in Paris, and with airborne flights landing at Frankfurt airport just after the morning opening of the airport. By better matching traffic demand with local constraints, delays could be reduced in Paris by 5% without impact on safety management by ATCOs. Results in Frankfurt show the potential of better flight efficiency with a slight reduction of track miles flown in the Terminal Area (TMA).

Finally, two trials were conducted in Zurich and Paris to address the integration of airspace user priorities in the arrival planning process. Indeed, a few minutes gained by a flight can be sufficient to ensure connections for dozens of passengers. In Paris, the AFLEX (Arrival Flexibility) concept allows an airspace user to express its priorities (i.e. swap requests between two arrivals) to the DSN web portal in real-time, which will then be integrated by





Paris FMP in its arrival planning strategy. In Zurich, a shadow-mode trial was performed using the new User Driven Prioritization Process (UDPP) collaborative prototype in order to integrate Airspace Users' preferences during arrival capacity constrained situations. The two concepts are complementary to each other and should be further developed.

E-AMAN operations between London-Gatwick and Maastricht UAC were implemented immediately after the trials and other partners are already working towards partial or full E-AMAN implementation starting in 2020.
ENDS.

About xStream

xStream is a project conducted by a consortium of European Air Navigation Service Providers, Airlines and Research Organizations. xStream is led by DSNA and is one of several large-scale demonstration activities of SESAR 2020, aiming at delivering ready-to-be operational, innovative solutions. Demonstrations consisted of flight trials in Paris, Zurich, London and Frankfurt areas, and involved a large number of upstream ACCs. The project is co-funded by the SESAR JU within the framework of Horizon 2020 (No 734145).

www.sesarju.eu



About FABEC

The airspace of the six FABEC States of Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland is one of the busiest and most complex in the world. This airspace is handled by 7 Air navigation Service Providers : ANA Luxembourg, DFS, DSNA, Eurocontrol (MUAC), LVNL, Skeyes, skyguide.

The majority of the major European airports, major civil airways and military training areas are located in this area. FABEC airspace covers 1.7 million km² and handles about 5.8 million flights per year – 55% of European air traffic.

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