

ACI EUROPE POSITION PAPER



European Airspace: Providing Efficient Connectivity of People, Goods and Regions



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Cover / Photo: Stockholm Arlanda Airport (ARN)

Introduction

Air traffic growth in Europe has shown strong performance in recent years, but airspace capacity has not kept up. This has led to increased disruption in European skies, coming to a head in a delay crisis in summer 2018. According to EUROCONTROL, en-route delays more than doubled in July-August 2018, with the average delay per flight increasing by +192%. Overall, 20% of operated flights were delayed in this period. The main causes were a lack of air traffic controllers & other ATC capacity issues (61%), weather (30%) and strikes/other disruptive events (9%). Capacity will not instantly become available in order to prevent a similar crunch in 2019.

Beyond these immediate difficulties, airports are acutely affected by insufficient airspace capacity and ATFM disruptions, with the following repercussions:

- ATM delays are not simply an en-route issue, but have an impact on the ground all the way into the terminal building - due to the cascading impact of delayed aircraft on demand for & use of airport infrastructure. This in turn deteriorates the passenger's airport experience and the quality of airport infrastructure & services.
- While flight cancellations translate into direct revenues losses for airports both as regards aeronautical revenues (user charges), non-aeronautical revenues (in particular from retail and food & beverage), flight delays also end up impacting non-aeronautical revenues. Punctuality and passenger satisfaction are essential to maximize non-aeronautical revenues and keep airport charges cost-effective, as our data clearly shows that dissatisfaction result in lower passenger spend.

- Furthermore, if en-route delays result in aircraft landing or departing during airports' night restriction hours, then the airport's very license to operate can be called into question. In this regard, some Member States have started questioning airports about such infringements to operating restrictions, while legal cases are also brought forward by local groups representing residents. Where airports have fixed night curfews in place, en-route ATFM delays can result in either formal infringement of the night curfews if ATC allow flights to depart/land or when flights are being diverted causing significant disruption and cost for airlines and passengers.

Based on the above, it is clear that airports have a direct interest in mitigating ATM disruptions and improving ATM efficiency – and beyond that, in addressing the root cause for such disruptions.

ACI EUROPE considers that Europe's airspace capacity shortfall will only be overcome through a strategic, network-based, coordinated and consolidated approach. This requires collaboration, coordination and consolidation within airports, and between airports and the airspace network. Successful implementation of this approach would serve to optimise both airspace and ground use, maximise capacity to meet demand, make investments more efficient and deliver efficient air connectivity & improved quality for people, goods and Regions.

The following paper sets out the vision of the airport industry for this approach, how to consolidate operations at airports and between airports and the network, and how this can be facilitated through operational processes and technology.

Approach and vision

1. The Air Traffic Management (ATM) network serves the primary function of providing efficient air connectivity for people, goods and regions.
2. The ATM network's goals must be to facilitate on-time arrivals and departures, in order to provide on time & reliable service to consumers as well as predictable and smooth operations for industry and other stakeholders on the ground and in the air.
3. The ATM network's capacity needs to be matched with comparable capacity on the ground, as part of a holistic strategy for airport and airspace capacity optimisation. Any mismatch impacts drastically on the "door-to-door" policy. As such there is an intrinsic link between coordination at airports, in the network, and between airports and the network.
4. The ATM network needs to be able to absorb market growth and shifting connectivity patterns by introducing more seamless and collaborative service provision to meet current and future demand.
5. The ATM network is a service to end users. Availability needs to be highly predictable and as uninterrupted as possible. While airport performance influences the performance of the network, network performance directly impacts the performance of airports.

Consolidation at airports

6. Operations at and around airports need to become coordinated and consolidated. Stakeholder operations should be based on shared data and information through an integrated airport operations plan (AOP) and Collaborative Decision Making, in the interest of the connectivity of people and goods both locally and in a modernised airspace network. This is otherwise known as the “Ground Coordinator” concept and in its most complete form is embodied in the Airport Operations Centre (APOC), although for smaller airports there might be alternatives to a fully-fledged APOC.
7. A collaborative approach to building an AOP and a culture where stakeholders invest in understanding each other’s modus operandi & respective business models is key in moving towards consolidated operations. The consolidated execution of the AOP that makes predictable passenger journeys possible may happen through physical or virtual operations centers where the common goal and the focus on the end user supersedes individual stakeholder/company interests.
8. ATC is an important player in consolidated operations as they are key in making the best use of available runway throughput, planning and executing on-time arrivals and departures, and thus predictability for passengers. Information sharing between ATC and other stakeholders in an APOC is critical in planning and optimising capacity use in line with expected arrivals and departures.
9. Coordinated operations are, by their very definition, not possible in isolation. They require, preferably, a contractual relationship between ATC and the airport in order to define mutual (performance) goals, modus operandi and

means/joint processes to make predictable air services/ journeys happen. The contractual relationship can be based on a variety of options from enforceable cooperation agreements all the way to contracts based on tenders.

Consolidation between airports and the network

10. The Airport Operations Plan (AOP) and the Network Operations Plan (NOP) are inherently linked. They both serve the same goal: on-time connectivity for people and goods. There is no hierarchy between the two, and successful consolidation of AOP and NOP will be a function of the successful implementation of Collaborative Decision Making.
11. Information must flow from the AOP to the NOP and the NOP back to the AOP for this to be a success. The Network Manager should specify what information is needed from the airport, why it is needed and what the quality of the information needs to be. The Network Manager should work urgently in concert with airports and other operational stakeholders on an accelerated technology investment plan so that all the SESAR concepts can be fully integrated into operations at and around airports. This accelerated technology investment plan should also deliver high quality pre-tactical information so that airport operations are able to adjust the resources needed accordingly.
12. Coordinated operations require every stakeholder to make decisions regarding their domain as usual, but with knowledge and account taken of the needs of others. This enables a truly collaborative process for the coordinated management of operations.

13. The evolution of coordinated operations is to move to consolidated operations, also through closer collaboration.
 - a. Firstly, the Ground Coordinator (APOC) consolidates the data about the airport's capacity and performance in the AOP and sends the requested data to the Network Manager to check if they meet the NOP in terms of capacity and performance;
 - b. The Network Manager consolidates its data in the NOP and transfers the NOP data back to the APOC;
 - c. The APOC consolidates the AOP or changes it where possible to meet NOP needs.

Repeating this basic process (demand-capacity balancing) iteratively brings the operations from the planning phase to the pre-tactical phase through to the tactical phase as accurately as possible with the help of IT tools (e.g. what-if analysis, big data, etc.) in order to make operations as punctual as possible.

14. Individual APOCs are complements to the Network Manager Operations Center for the operations at and around airports. As part of ensuring this complementarity, an ATC Flow Management Position might, depending on local agreements, fulfil its function of linking ATC and the Network Manager as either a separate channel to the Network Manager on flow management issues or by being integrated in the local operations centers. Furthermore, local operations centers need to be able to share information and coordinate operations between each other on a local level based on collaborative decision making including full involvement of the Network Manager for the flow management aspects.

Facilitating through operational processes and technology

15. ACI EUROPE encourages airport operators to set up Collaborative Decision Making processes with all other stakeholders to develop coordinated operations for the sake of the passenger experience.
16. Airport Collaborative Decision Making (A-CDM) is the basis for consolidated and coordinated operations, airside (current A-CDM), in the terminal (ongoing already in some airports) and with regard to landside access. This process will be supported by IT systems and must interface with digitalised integration in the airspace. Different forms of electronic linking to the airspace network need to be available and adapted to the size and needs of the airport and the impact on the network, preferably on a B2B basis. Data sharing will provide dedicated information for stakeholders to serve the common goal. Performance needs to be monitored and collaboratively-decided mitigation measures may need to become structural. Should these structural improvements require investment, then this investment should be shared, based on the common goal of serving the passenger. In this way we move to a collaborative development of the airport platform.
17. Technological development plays a key role in achieving these goals at airport level, and as such SESAR research and development needs not only focus on en-route and controller tools but give equal importance to airport platform safety, capacity, predictability and consolidated operations. So that all airports may benefit from the

opportunities afforded by this technological development and to ensure that European airports develop at an effective pace, ACI EUROPE encourages airport operators to dedicate more resources to SESAR research and development. In doing so, airports commit to deploy procedures, tools, system and make investments that serve collaborative operations. While all airports stand to benefit from this process, deployment should be based on capabilities that need to be met rather than the mandatory, one size fits all, deployment of technical systems and procedures.

18. Deployment should be facilitated by public funding (as a lot of investment serves the network and there are only minor local benefits) to ensure appropriate speed of investment. The EU should continue to make available to industry the financial means for the right sequence, harmonization and synchronization of deployment.
19. Finally, a (local) training programme should be set up in order to support all actors'/stakeholders' understanding of the common goals and way of working together. Changing culture and bringing entities closer together is equally as important as installing new systems. This training programme should be initiated and supported at the upper management level of all stakeholders.

Conclusion

Europe's ATM network requires reform and integration with airports, who themselves must see their operations become coordinated and consolidated through the Ground Coordinator concept - if traffic growth is to be absorbed in a manner which ensures quality, optimises capacity use and boosts the passenger experience.

The ATM network serves the function of providing efficient air connectivity for people, goods and regions, and its goals must be to provide on time & reliable service to consumers, as well as predictable and smooth operations for industry and other stakeholders on the ground and in the air.

Capacity must be maximized and developed, and operations coordinated, both in the ATM network and on the ground, in order for these goals to be achieved. As such, airports need to coordinate and consolidate their operations, and integrate these with the operations of the network.

Information sharing within airports, from airports to the network, and from the network back to the airport is essential for this process to work, and may be aided through the development of innovative operational processes and technology solutions.



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