ACI EUROPE POSITION PAPER

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

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2nd edition

Cover / Photo: Stockholm Arlanda Airport (ARN)

# Introduction

The first edition of this position paper, published in November 2018, sets out airports' vision for a high-performing European ATM network and their roles as nodes in this network. Since then, the ATM capacity crunch has continued while the political and societal context has continued to evolve. The new European Commission has an opportunity to move forward on Single European Sky reform, while the Climate Emergency necessitates the efficient flow of air traffic in Europe so as to minimise emissions. This updated position paper reflects these developments and set out ACI EUROPE's vision for a sustainable European ATM system.

Airports have gone through a business transformation process over the last 20 years. Over 50% have private shareholders, who expect a financial return on their investment, and we see now the same expectations from public shareholders. That puts a strong focus for airports on cost and operational efficiency, which means that maximising airport capacity is engrained into today's airport management. Airports are individually squeezing their assets and facilities. This is an absolute must for any airport, and not just because of capacity constraints and the difficulty in building additional physical capacity - it is just good management. Air Traffic Management and its performance are therefore crucial for airports in terms of the ability to use the existing capacity to its full extent.

Based on the above, it is clear that airport operators have a direct interest in mitigating ATM disruptions and improving ATM efficiency - and beyond that in addressing the Single European Sky policy.

The policy and societal context have evolved considerably in the time since the first version of this paper was published.

On the policy side a Wise Persons Group nominated by the European Commission provided recommendations to bring the Single European Sky back on track; the Industry Consultation Body published its 2035 ATM vision and a Stakeholders Declaration in early September 2019 confirmed a shared willingness to complete the Single European Sky. Each one of these policy documents has a common starting point: we need to increase the capacity in the air.

In parallel to these political discussions, societal concern over the climate emergency has deepened. This has seen climate strikes and demonstrations, the notion of "flight-shaming" has become mainstream, and European citizens have pressured the new European Commission to make tackling this problem one of the most important topics for their term of office. This has led to a Green Deal and the Von der Leyen Commission unveiled the climate law proposal in March 2020.

ACI EUROPE considers that the Single European Sky will only be successful through a strategic, network based, passenger-centric and sustainable driven coordinated and consolidated approach. This requires collaboration, coordination and consolidation between all operational partners within airports, and between synchronised operations at airport platforms and the operations in the airspace network. Successful implementation of this approach would serve to optimise both airspace and ground use, maximise capacity to meet demand and on time performance in a reliable way, climate sustainable operations, make investments more efficient and deliver efficient air connectivity and 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

## On Single European Sky Policy

1. The Single European Sky Policy needs to be based on serving societal needs and creating acceptance in order to ensure its success.

2. The future Single European Sky can only be achieved through a coordinated effort by all ATM stakeholders, States and the European Institutions.

3. The contribution of ATM to sustainable aviation and climate action needs must occupy a prominent place in the new Single European Sky Policy.

4. By setting clear accountabilities, tasks and objectives a simplified institutional framework will be established and ensure support for industry. In the regulatory context, institutions will define what is expected taking into consideration the objectives of all stakeholders and based on mature technology and concepts. Industry, including the industry partnerships, will deliver against that objective, including deciding how it is best achieved and delivered. The result will be less complexity, faster decisions so as to improve effectiveness, and a more focused approach.

5. Network performance will be enabled by a step-change in the level, quality and consistency of information shared between all operational stakeholders, coordinated by the Network Manager function. Its foundation should be principally based on the development and implementation of a comprehensive SWIM framework. Operation plans for both the network and airports should be developed and integrated on an equal basis. Overall network performance should be prioritised over local performance but with passenger-centric trade-offs.

6. Public funds, including for SESAR research, industrialisation and deployment, offer important support for the modernisation of ATM, specifically in situations of negative business cases.

## On the ATM network

7. The Air Traffic Management (ATM) network serves the primary function of providing efficient air connectivity for people, goods and regions.

8. 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, smooth, sustainable, emissions-optimal operations for industry and other stakeholders on the ground and in the air.

9. 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.

10. 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 in the most sustainable and climate friendly way.

11. 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.

12. The ATM network needs to be managed in a passenger-centric way. This means that making trade-offs that benefit the passenger should be the norm and trade-offs favouring the system above the passenger should be the exception.

## Consolidation at airports

13. Operations at and around airports need to become sustainable and as climate friendly as possible, 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.

14. A collaborative approach to building an AOP and a culture where stakeholders invest in understanding each other's modus operandi and 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 centres where the common goal and the focus on the end user supersedes individual stakeholder/company interests.

15. It is a positive development that the "Ground Coordinator" concept has, at least partly, been recognised as the new modus operandi, supported by the upcoming implementing regulation on the Common Project 1.

16. The “Ground Coordinator” will contribute to multimodal connectivity not only by giving an overview of landside accessibility to airports but also by linking air travel to rail connectivity at airport platforms. The APOC should also become the key node to enhance the execution of operations which are as sustainable as possible, optimising the use of available capacity and managing decarbonised operations on a daily basis.

17. 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. We urge ANSPs to commit to integrating operations at airport platforms and to join APOCs to share data and make collaborative decisions in the tactical phase, as well as to jointly and transparently decide on capacity usage and planning in the pre-tactical phase.

18. 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, including the role and contribution of ATC in transitioning aviation towards sustainable operations 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, but must always include a performance based evaluation scheme (SLA’s). A longer term perspective might be that we move towards mutually agreed and aligned investment plans, including new technologies that allow for more capacity and more efficient use of existing capacity.

## Consolidation between airports and the network

19. The Airport Operations Plan (AOP) and the Network Operations Plan (NOP) are inherently linked. They both serve the same goal: on-time connectivity through sustainable operations 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.

20. Information must flow from the AOP to the NOP and the NOP back to the AOP for this to be a success.

    The investment plan of the Network Manager to transform the current Central Flow Management Unit system into a fully-fledged network coordination system must ensure a more balanced benefit from information sharing. The technology investment plan should enable all SESAR concepts to 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. 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.

    Indeed, when operations are consolidated on an airport platform basis, based on data sharing by local stakeholders under collaborative decision-making (CDM) the ANSP being a principal operational partner, the APOC will be able to deliver information to the NMOC that contains the best possible interpretation of the data. This will avoid the NMOC needing to devote resources to data interpretation.

21. 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.

22. The NMOC and the APOCs will also have a key role in meeting the main priority of passengers: arriving on time. The evolution from a "punctuality" focus on on-time departure to a "predictability" focus on on-time arrival will certainly be helped and supported by the collaboration described above and allow for user-driven priority setting, which is the result of a collaborative decision making process in the APOC. The Target Time of Arrival concept (TTA) should be implemented by the stakeholders, to facilitate on-time arrivals without unnecessary enroute holding.

23. Individual APOCs are complements to the Network Manager Operations Centre 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 centres.

## Consolidation between APOCs

24. Furthermore, local operations centres 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.

25. This fully fits in with the philosophy of putting the passenger at the centre of sustainable connectivity and operations.

26. There is a lot of non-ATM network related information available that can enhance the passenger experience and could be shared between airport platforms. This will be an important task for the mid-term future.

## Facilitating through operational processes and technology

27. ACI EUROPE encourages airport operators to set up Collaborative Decision-Making processes with all other stakeholders to develop coordinated operations for the sake of sustainable operations and the passenger experience. 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.

28. 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 and other APOCs. Different forms of electronic linking to the airspace network, and over time also to other APOCs, 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.

29. 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 and systems and make investments that serve collaborative operations.

30. The new institutional set up for the SESAR research and innovation should reflect the ambition of ACI EUROPE, with a good mix of hub airports, secondary hubs and airport networks. This SESAR research and innovation program should provide an ideal basis for the success of the European Green Deal. A true Single European Sky will see ATM make a key contribution to the EU climate policy and, as much as possible, to decarbonised operations on the ground, as well as becoming fit for the digital age. SESAR research and innovation should seek to develop sustainable operations on airport platforms as well as linking aviation operations to other transport modes through APOCs. This will help transform airports into sustainable, decarbonised connectivity hubs.

31. Airports have been very engaged in the deployment of mature SESAR tools, procedures and technology and will continue to be. SESAR deployment will be enhanced through the upcoming Common Project 1 (CP 1) implementing regulation, which will continue the investment foreseen in the Pilot Common Project implementing regulation (PCP) as well as further digitalisation of operations. By making the Airport Operations Plan (AOP) mandatory in some 40 major pan-European airports and by synchronising this AOP with the Network Operations Plan, the European Commission gives ACI EUROPE's Ground Coordinator concept full recognition. In CP1 this is complemented by a further and enlarged roll out of System Wide Information Management (SWIM).

32. Deployment should continue to 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. Airport operators have proven to be committed to deployment under those conditions. The EU should continue to make available to industry the financial means for the right sequence, harmonisation and synchronisation of deployment.

# Conclusion

Europe's ATM network requires reform and integration with airports, who themselves must see their operations become sustainable, decarbonised as far as possible, coordinated and consolidated through the Ground Coordinator concept. This is essential if traffic growth is to be absorbed in a manner which ensures sustainability, 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 and reliable service to consumers, as well as predictable and smooth and sustainable operations for industry and other stakeholders on the ground and in the air. The use of existing capacity must be maximised and developed, and operations coordinated, both in the ATM network and on the ground, in order for these goals to be achieved. Scalability of capacity in the air will be an option for tackling capacity issues both in general and in peak moments, but scalability of airport capacity is limited. Accessing and expanding the available airport capacity is often physically and politically complicated due to environmental concerns and the impact on neighbouring communities. 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, as well as between airport operations centres manned by all operational stakeholders, is essential for this process to work, and may be aided through the development of innovative operational processes and technology solutions.

AIRPORTS COUNCIL INTERNATIONAL

ACI EUROPE is the European region of Airports Council International (ACI), the only worldwide professional association of airport operators. ACI EUROPE represents over **500 airports** in 46 European countries. Our members facilitate over 90% of commercial air traffic in Europe: **2.5 billion passengers**, **20.7 million tonnes of freight** and **25.7 million aircraft movements** in 2019. In response to the Climate Emergency, in June 2019 our members committed to achieve **Net Zero** carbon emissions for operations under their control **by 2050,** without offsetting.

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