Position Paper

Capacity increases and enhanced Efficiency in European airspace for punctual air traffic

Proposals for tensified initiatives on the part of the European Union and its member states

February 2019

BDL
Bundesverband der Deutschen
Luftverkehrswirtschaft

Initial situation

The increased number of delays and flight cancellations especially in 2018 with their massive consequences for air traffic and the entire national economy clearly demonstrates the need for action in multiple areas. At a summit on the 5th of October 2018, the federal government, federal states and the air traffic industry agreed on 24 measures. Delays and cancellations, however, are not an exclusively German issue. Many major air traffic locations in other European countries are also experiencing this development. Although the year 2018 offered several extraordinary factors such as the strikes by air traffic controllers in Southern Europe, unusual weather conditions, partially dramatic increases in traffic volume as well as the integration of former Air Berlin (connections, aircraft and crews) into other airlines, capacity bottlenecks and delays in Europe are not a new phenomenon. Meanwhile substantial structural problems exist: The steadily increasing demand in European passenger and cargo air traffic has led to massive growth in the entire industry. This growth is now revealing the capacity limits at both air and ground level. To varying extents, the therefrom deriving bottlenecks are existent in all infrastructural components including air traffic control, airports as well as security and border controls, all of which lastly produce negative effects especially for passengers.

Action required in European air traffic control

The demand for increased capacity in Europeans controlled airspace is known since the end of the 1990s. Related measures for capacity increases and enhanced efficiency have been initiated by the European Union under the headline "Single European Sky (SES)". In particular, the goal of respective orders from 2004 and 2009 was to make better use of present capacity in airspace management, dismantle national fragmentations, introduce new technologies, procedures and processes and to thereby improve the performance and efficiency of European air traffic control services as a whole. As a result of SES, air traffic control and European airspace should be newly organized across state borders, further optimized and also experience a bundling of traffic flows.

Although initial measures actually brought improvements in European airspace efficiency, further action is still required. Following most recent prognoses, Eurocontrol is expecting an ongoing increase in capacity bottlenecks due to an air traffic growth by about 53 percent in Europe until 2040. Around 16 million flights per annum will then be performed in the European sky, equaling more than 44,000 flights per day. Eurocontrol points out that the current European airspace capacity is not prepared for such growth rates and that about seven times more flights than today will then be affected by major delays, if the relevant framework conditions are not adjusted appropriately. Due to its central location, Germany is regarded as especially affected to this air traffic development.

What must be done in European air traffic control?

Concerning potential measures for efficiency increases, national air navigation service providers are facing regulative and legal hurdles, mainly on European level. The airspace architecture study commissioned by the European parliament and the European commission in 2018 provides important advice for the operative organization of European airspace in the future that remains to be implemented gradually but also as soon as possible by air traffic control services, European states and the Network Manager.

To enable a sustainable expansion of European airspace capacity, modern air traffic management and its efficient usage, intensified initiatives from the EU and its member states are required especially in the following fields:

Establishment of need-oriented staff resources and flexible deployment of flight controllers

Air traffic in recent years repeatedly revealed that the system underlies fluctuations in demand and thus offers substantial planning insecurities, triggered among other things also by exogenic factors (financial crisis, economic growth, political crisis with change of traffic streams, etc.).

However, air navigation services, just like all other system partners including airports, airlines, ground handling and security service providers, must be capable of deploying a need-oriented number of flight controllers. A multitude of factors play a role for the deployment of need-oriented personnel resources: Besides tariff and operational regulations, technical equipment of air navigation service providers and possibilities of workforce usage, flexibility in the deployment of available flight controllers is a major factor for the calculation of personnel requirement. It is equally important to perform traffic forecasts and estimate the derived staff requirements as precisely as possible. Furthermore, lengthy recruitment and training times as well as the currently extremely specialized education considerably restrict the subsequent versatility of available flight controllers.

Against this background, the following measures are viewed as essential for the creation of need-oriented staff resources:

To avoid staff-related bottlenecks and to cover traffic peaks as well as cyclical fluctuations, an increase in flexibility regarding flight controller deployment must be achieved.

The issuing of licenses within Europe must be simplified (additional flexibility could be created by facilitating the use of foreign flight controllers, for example through abolishing the obligation of German language skills for controllers in the lower airspace).

Allow flight controllers a more sector-independent acquisition of authorizations, thereby enabling more flexible deployment. The goal must be to refrain from the concept of sectors in the upper

European airspace and to create the necessary regulative framework conditions for this development. Resolute standardization of technologies, interfaces, systems, processes and professional trainings.

A shortening of the regulatory period for air navigation service providers is needed to estimate traffic volume and therefrom derived staff requirements as realistically as possible for optimized planning of personnel and resources.

Under the above stated preconditions, optimized personnel reserves could be efficiently planned by agreement between air navigation service providers and airspace users, thereby adequately taking fluctuations in air traffic into account.

Automatization of air navigation services

Air navigation services should be automatized in major areas and be assumed by information and communication technology with the goal of further enhancing efficiency and safety:

Air traffic controllers could then increasingly focus on monitoring tasks.

Extensive automatization would help create more capacities and dismantle current restrictions, which currently result especially from the number of air traffic control sectors and long training periods (keyword: demand for air traffic controllers).

Using the new possibilities of digitalization and automatization, the European and German air traffic control systems and processes could be harmonized with the effect of substantially reducing retraining efforts between sectors and control centers.

Overall, an increased density of delay-free traffic, less infringements of separation and an enhanced airport utilization rate would be achieved.

The foundation for the realization of further extensive automatization steps and the operative harmonization between European air traffic control systems ("interoperability"), created in the context of the SESAR's research and development activities, must be evaluated on the basis of the existing ATM masterplan with regard to positive effects on productivity and future airspace capacity and then experience a rapid and resolute implementation.

Optimize cross-border cooperation

Air navigation services in Europe are nationally organized, meaning that they generally operate with their own systems. The so-called Functional Airspace Blocks (FABs), basically created as a precursor of the SES in this respect, could only achieve minor positive effects so far and did not fulfill the expectations regarding aspired capacity increases. Potentials of digitalization could be exploited here. The implementation of new systems for automatized data exchange in management of international traffic flow and civil-military airspace coordination could lead to significant

improvements. In this way, an even more effective coordination of European airspace could substantially facilitate flight planning.

Besides the thereby alleviated coordination work of the Network Manager, supportive efforts with the aim of integrating national air navigation services into an actual cross-border service are needed from the states themselves.

Expand civil-military integration

The flexible usage of military airspace must be further maintained and expanded. National successful projects such as the integration of civil-military air navigation services into German control centers should be intensified on a Europe-wide level to realize a uniformity in working procedures and a common operational concept among all European air navigation service providers. This includes topics such as the matching of military practice times as well as seasonal peaks in civil air traffic. Cross-border traffic concepts taking military demands into due consideration should be supported by increased diplomatic initiatives.

Close cooperation between all partners is necessary

The elaboration of all measures and implementation steps for capacity increases and enhanced efficiency in the European airspace must be performed in close and equal cooperation between all systems partners including the airspace users.

Contact

German Aviation Association (BDL)
Matthias von Randow
Executive Director
– House of Aviation (Haus der Luftfahrt) –
Friedrichstrasse 79, 10117 Berlin, Germany

E-mail: matthias.randow@bdl.aero
Phone: +49 (0)30 520 077 160

The German Aviation Association (BDL) was founded in 2010 as a joint representation of the interests of the German air-transport sector. Members of the association are airlines, airports, German air traffic control and other aviation service providers. These companies employ more than 180,000 employees. Air transport in Germany enables mobility for more than 200 million passengers a year and contributes to the transport of goods worth more than €200 billion to strengthen Germany as a business location.