Passengers and airlines are having to pay the price of volatility – higher costs and longer delays

Over the last few years ANSPs have cut their costs in line with the European Union’s ATM performance and charging schemes. The EU penalizes States if their ANSPs fail to meet targets for cost efficiency, safety, delay and environmental performance. As capacity investment has been reduced, so has the flexibility to meet sudden increases in traffic demand. As a result, airlines and passengers have seen the number of delays increase as a direct result of insufficient capacity on the ground and in the air. In 2017 5.3% of en route flights were delayed compared with 4.8% in 2016, continuing a five-year trend of increasing delays.

So what’s the solution to Europe’s air traffic volatility problem?

It is now clear that the current application of the EU’s performance and charging schemes are not appropriate for such a volatile aviation sector. While direct air navigation charges have been reduced, airlines are having to pay more for ATM services as a result of the costs incurred in increased delays. We need to find a new way to build more flexibility into the European ATM system, allowing ANSPs to develop spare capacity in an efficient and flexible way so when there are sudden demands on the system there are the people and systems in place to manage them. This means building an air traffic system-of-systems, with improved information sharing among all stakeholders so capacity levels can be more accurately predicted and managed in a cooperative way.

Predicting future demand on the air traffic system is becoming increasingly difficult

Europe’s air navigation service providers (ANSPs) are having to manage wild fluctuations in demand at national and regional levels, with some area control centres experiencing 50% traffic hikes at peak periods while others are seeing traffic levels fall. Variations are most pronounced in Europe’s busy core air traffic area. While the figures for high-level traffic growth forecasts are generally accurate, ANSPs can no longer rely on them for accurate resource planning, especially in areas such as staffing requirements and equipment investment.

Causes of traffic volatility

- Weather
- Geopolitical events
- Military activities
- Airline flight planning systems
- Disruptive airline behaviour
- Unit rates
- Social conflicts
Volatility – a new and growing concern for all aviation stakeholders

Volatility has become the new norm – political instability, wilder weather, disruptive business models. Volatility is real and measurable. Its impact on the air transport industry is a major source of concern for aircraft operators, regulators and stakeholders. Over the past decade political instability on the borders of Europe – especially in Ukraine and the Middle East – has led to major diversions in air traffic routings across the continent. Climate change has brought more storms to northern Europe and alternating drought and flood conditions to the south. Increased competition among airlines has delivered further levels of unpredictability as traditional, seasonal timetables have given way to short term schedules with more frequent variations. New city pairs have appeared and old pairings disappeared.

Why haven’t ANSPs been able to provide more flexible responses to changes in demand?

ANSPs are committed to maintaining and improving safety – no matter how wild the peaks and troughs in demand. Adding overtime, changing shifts, recruiting and re-training controllers is all adding extra capacity. Capital investment programmes are under review. Increased cooperation with the Network Manager has meant new procedures are in place to help reduce flight delays. But the fundamental problem remains. Due to pressures on costs, ANSPs have had to closely match their resources to current levels of demand and have therefore reduced their reserves of capacity. When sudden, unexpected changes in demand occur there are no longer the resources available to deal with them.

The biggest problem is finding the right number of controllers to manage sudden unpredictable levels of traffic – a lack of sufficient staffing levels accounted for 60% of all air traffic flow management delays in 2017. But it takes up to five years to train a controller and this makes it impossible for ANSPs to react quickly to traffic fluctuations. Weather disruption is the next most common cause of delays, responsible for 23% of delays in 2017, while industrial action contributed to 10% of the total delay.

Examples of the effect of volatility on the ATM system

Airline flight planning systems are designed to plan optimum routes but the reality is often different. They can include sudden sharp turns to avoid regulated airspace, yoyo flights to avoid delays, or longer routes to take advantage of lower unit rates. These are flights that the pilot will never actually fly, but ANSPs have to plan for. They contribute to overloads in some sectors, while other sectors which have made provision to handle planned flights, face unused capacity. In already-busy airspace, they trigger flow restrictions to ensure safe operations, squeezing capacity elsewhere.