Clear skies ahead

WITHOUT REGULATION AND PLANNING EUROPEAN AIR TRAFFIC CONTROL IS FLYING INTO AN UNCERTAIN AND UNSAFE FUTURE. VICTOR AGUADO, EUROCONTROL DIRECTOR GENERAL, HAS THE SOLUTION.

KEY FACTS

- Over the last six years ATM has made major improvements in safety and efficiency.
- Increased demand on airspace can only be managed with a pan-European, industry-wide effort and harmonised regulation.
- Europe urgently needs to defragment its air services and come up with a plan for the future.

Over the last few years many of the problems in European air traffic management have been ironed out and the service has improved greatly. At the same time, safety is better and costs have fallen.

However, there are still many improvements to be made, especially in the light of increasing traffic in Europe's airspace. Most importantly, air traffic control (ATM) is being upgraded across Europe and Eurocontrol is overseeing planning for the entire aerospace network. Meanwhile, efforts to standardise ATM regulation and develop a master plan to handle traffic in the future are going well.

One of the most important tools that Eurocontrol has implemented is the measurement of ATM performance. Metrics are now in place for all the main ATM business drivers, including capacity, cost-efficiency and safety.

The shortcomings of the past

Six years ago, safety, though of a high standard, was marred by deficiencies that were later seen to have almost caused three ATM-induced accidents in as many years.

Capacity shortages resulted in airport and airspace delays across the continent and airlines were paying hundreds of millions of euros in financial penalties.

AUTHOR

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Costs were not sufficiently contained and in 2001 and 2002, following a decrease in air traffic growth due to terrorism, war and world health concerns, this led to unstable route charges.

Meanwhile, institutional development stalled. The ratification of Eurocontrol's revised convention and the accession of the European Community to Eurocontrol were blocked by a bilateral dispute unrelated to air traffic management.

Improved performance

Aviation safety has steadily improved over the last six years. The rate of accidents per million operations of Western-built jets fell by 40 per cent worldwide from 1999 to 2005, and in Europe accident rates fell by some 23 per cent.

Meanwhile, capacity has been brought into line with demand, resulting in the virtual elimination of ATM delays. Delays fell by 75 per cent between 1999 and 2005, while traffic grew by 15 per cent. Air traffic flow management en route delays are now close to the economic optimum of one minute per flight on average.

At the same time, costs have been reined in, which resulted in a 13 per cent reduction in air navigation en route unit rates from 2003 to 2006. This amounted to savings of approximately €1bn over three years.

The institutional dimension has also achieved much more stability. With the removal of legal obstacles, accession to Eurocontrol was signed in 2002. The Single European Sky regulations came into force in April 2004, albeit in an amended version, and some 17 responsibilities have since been added.

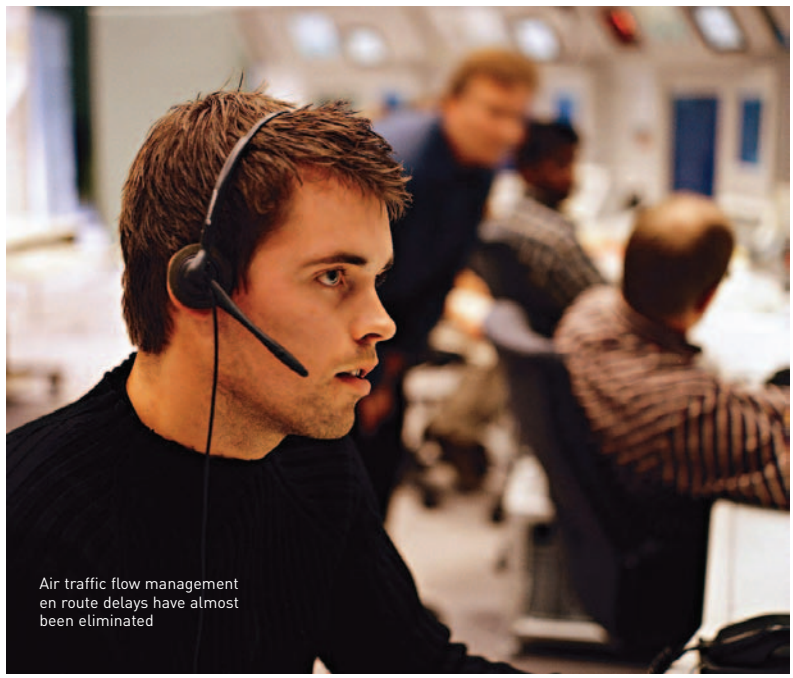
Europe has therefore successfully delivered major performance improvement thanks to the involvement and commitment of all major ATM stakeholders, including states, military authorities, the EC, air navigation service providers (ANSPs), airlines, airports and manufacturing.

Dealing with tomorrow's traffic

With air traffic in Europe forecast to grow at 4 per cent annually, traffic can be expected to double within the next 20 years. This means that major improvements to Europe's current system are needed.

In the short to medium term, the Dynamic Management of the European Airspace Network (DMEAN) programme will aim to squeeze capacity out of current systems by applying a cost-benefit ratio of 1:9 to even the simplest scenario (33 per cent use of conditional routes as opposed to 67 per cent).

However, Europe's ATM system is unlikely to cope with demand after 2015. For the future, Europe will need to develop a next-generation ATM system. Mechanisms are already in place that should ensure success in dealing with such major changes:



Air traffic flow management en route delays have almost been eliminated

Improving efficiency by one-third during weekends would generate annual savings of around €130m per annum.

- **Pan-European strategic planning, programmes and functions.** This is Eurocontrol's core business and is well established with the ATM2000+ strategy and its recent updates, such as reduced vertical separation minima and the central flow management unit.
- **Regulation.** Eurocontrol safety regulatory requirements (ESARR) and the Single European Sky implementing rules are providing significant benefits.
- **Single European Sky.** The technical and operational implementation of the Single European Sky is going well. Meanwhile, the next-generation ATM system for Europe is also progressing. The Galileo programme is operating and the Single European Sky ATM Research (SESAR) programme is underway.

This is an industry-wide effort aimed at developing the system of the future, including more involvement from the aircraft and systems manufacturing industry. This next-generation system will also need to meet all the environmental challenges of the future. The essential output of the ongoing definition phase will be an ATM master plan for Europe.

Because of the need for a common ATM master plan for Europe, the SESAR definition phase requires involvement and commitment from all parties.

Once the ATM master plan is delivered, all parties will focus on their areas in the development and deployment phases of SESAR, for which

appropriate governance mechanisms are still to be put into place.

The work being carried out on pan-European strategic planning and regulation, as well as technical and operational implementation, is not being done in isolation. Worldwide cooperation is taking place. A global plan has been produced by the ICAO's 11th Air Navigation Conference, which benefited from strong European input.

Improving safety and efficiency

For users of Europe's air infrastructure safety and efficiency are essential to their global competitiveness. Evidence from Eurocontrol's performance review commission suggests there are significant deficiencies in safety, flight routing efficiency and fragmentation.

Safety still suffers from a lack of reliable indicators and data. Incident reporting and data sharing are not sufficiently developed as potential safety problems are not always shared due to a fear of prosecution. The implementation of a 'just culture' should be a prerequisite and admission and notification of errors must become a duty of aviation professionals. The ICAO's Annex 13 spells out that the purpose of accident investigation is to find the cause in order to prevent future occurrences, and not to apportion blame.

Recent studies from the performance review commission indicate that flight routing inefficiencies cost airspace users some €1.4bn annually. This is particularly apparent during weekends, when there are virtually no airspace restriction requirements. Improving en route horizontal flight efficiency by one-third during weekends would generate annual savings of around €130m per annum. Eurocontrol is launching an initiative to gain these benefits as early as possible.

Flying together

In 1960, Europe had an opportunity to create a single sky in the core part of Europe. However, this ambitious objective was not fully met, even though four states succeeded in establishing the Maastricht Upper Area Control Centre with Eurocontrol, one of the best centres in Europe.

At the end of 1999 another opportunity arose with the Single European Sky initiative. Although the current regulations will deliver benefits, the magnitude of the fragmentation issue will require considerably more ambitious goals in the future.

Eurocontrol's performance review commission has found that the fragmentation of air navigation service providers and control centres costs an additional €1–1.4bn per annum. ATM in Europe costs some €7bn, €5.8bn of which is for en route.

As a priority, ANSPs urgently need to be aligned in the context of the European ATM network to address the problems caused by fragmentation. Optimising parts of the network will not be good enough; an efficient pan-European network is essential. ANSPs represent 90 per cent of ATM costs and play a dominant role in ATM performance. Air navigation services therefore need to be aligned with commonly agreed performance goals.

An obstacle to defragmentation is the different ANSP models across Europe. Some states have government-run arrangements, others have a fully privatised service and there are all the possible options in between, such as corporations, state entities and government-owned companies. As a consequence, we are facing a patchwork of business drivers.

Thus, the question of comprehensive and rigorous organisation and governance needs to be tackled. Options for Europe range from simple benchmarking of service providers to a liberalised competitive market to ultimately having one provider for one sky.

One issue that still needs to be addressed is how to effect change, from the top down or the bottom up. 1999 saw a number of top-down development efforts. Then, with the benefit of hindsight and experience, bottom-up initiatives came into force. However, it is now clear that bottom-up drivers cannot remove fragmentation either. This is understandable, since defragmentation cannot come from the very players that may lose out in the process. Thus the two approaches, top-down and bottom-up, may be the right solution.

In any case, Eurocontrol is strongly committed to the full involvement of all stakeholders (mainly states and their military forces, ANSPs and staff associations) to address fragmentation.