



position paper

European Low Fares Airline Association

Airspace Manifesto

**ELFAA's view on how to save
5 billion euro, 12 million tonnes of CO₂
and 21 million minutes of flight delays
in the European airspace every year**

March 2008

SUMMARY OF RECOMMENDATIONS

REGULATORY EFFICIENCY

By **2010** – adopt a European ATM (Air Traffic Management) constitution, encompassing all aspects of European ATM. End Eurocontrol's involvement in the EU regulatory process. Create a single European Aviation Authority (EAA), for all aviation issues, including ATM and safety, with national civil aviation authorities scaled down and integrated into the EAA as its regional offices. The EAA publish an ATM Manual, such that all ANSPs and users operate to the same set of rules. Reduce the number of airspace users' consultation committees to one (Users' Consultation Body).

NON-DISCRIMINATION

By **2010** – commit in the European ATM constitution that regulation will not discriminate between airlines on the basis of business model.

COST-BENEFIT ANALYSIS

By **2010** – oblige ANSPs and regulators to present audited cost-benefit analyses of all proposals for infrastructure investments and ATM standards.

OPERATIONAL EFFICIENCY

By **2010** – introduce System Wide Information Management (SWIM).

By **2013** – deliver adequate additional capacity by bringing Europe's ATM into the low cost digital age, through the introduction of digital surveillance and data communications. Phase out civilian use of expensive primary radar service. Reduce military airspace by 25% and increase civil access to the remaining military airspace by 50%.

By **2020** – at least double current capacity through the implementation of the "4D Precision Trajectory ATM system", with responsibility for air vehicle separation formally passed to aircraft; ATC managing flow control on the ground. Enable a dynamic European airspace with access for civil and military aircraft to all areas – protection zones being generated in real time when required. Eliminate 100% of fixed military airspace.

OPENING OF THE MARKET

By **2010** – introduce robust economic regulation of ANSPs at European level, through effective performance management with benchmarking.

By **2013** – as a natural consequence of the above operational advancements, open the market, i.e., introduce competition in the market for ATM services, which will lead to "natural defragmentation" and increased efficiency. Economic regulation should no longer be required in this liberalised market.

SUMMARY OF EXPECTED BENEFITS

SAFETY

By **2013** – at least a four-fold improvement in safety.

By **2020** – at least a ten-fold improvement in safety.

QUALITY

By **2013** – elimination of 75% of the current European route network inefficiency. Reduction of average ATFM delay per flight to 0.5 minutes.

By **2020** – full elimination of European route network inefficiency and ATFM delays allowing all flights to operate on optimum trajectories.

ENVIRONMENT

By **2013** – saving of at least 9 million tonnes of CO₂ annually (some 10% of emissions over EU airspace).

By **2020** – saving of at least a further 3 million tonnes of CO₂ annually.

COST

By **2013** – reduction of ATM unit costs in Europe by at least 50%.

By **2020** – reduction of ATM unit costs in Europe by at least 75%.

INTRODUCTION

Eurocontrol recorded more than 10 million flights in European airspace in 2007. Low fares airlines (LFAs) account for over 30% of scheduled intra-EU passengers and almost 20% of aircraft movements in the Eurocontrol area. They represent the fastest-growing segment of the industry, with aircraft movements growing 25% between 2006 and 2007, against the industry average of approximately 5%. Consequently, LFAs are vitally interested in safety, operational efficiency and cost efficiency of air traffic management (ATM) in Europe, as well as in a timely delivery of adequate additional capacity.

The European LFA sector has been able to grow at a phenomenal pace over the past 15 years as a result of the constant search for efficiencies in all areas of the business, the implementation of innovative cost-saving measures, and the focus on ancillary services generating additional revenues. LFAs have also managed to encourage most of their suppliers to seek efficiencies and lower their costs. In a liberalised industry in which prices keep falling, maintaining profitability requires the cost base to also decrease.

Worryingly, the cost of ATM in Europe continues to grow, currently exceeding €7 billion per annum. The vast inefficiency of air navigation service provision and its associated regulatory setup, which the European Low Fares Airline Association (ELFAA) estimates at around €5 billion annually, undermines the efforts of European LFAs to continue making air travel widely affordable.

Efficiency of ATM in Europe is structurally undermined by the fact that airspace is organised according to political boundaries. The number of, mainly State-owned, service providers is actually higher than the number of States. The majority of air navigation service providers (ANSPs) are therefore too small to realise economies of scale. Additionally, internal inefficiency and low productivity further unnecessarily inflate ANSPs' cost bases and, effectively, unit rates charged to users. They also negatively impact on the quality of service offered by ANSPs.

The vast inefficiency of the European ATM system stems in large part from incompatible and uncoordinated capital investment by Europe's ANSPs, making no use of their potential collective bargaining power, and consequently artificially inflating prices of ATM equipment, to the detriment of airspace users who ultimately bear the cost. These inefficiencies are the consequence of the ANSPs' failure to undertake proper cost-benefit analyses for all investments, coupled with the lack of pressure on ANSPs to present a strong business-case before embarking on infrastructure investments. Additionally, ANSPs operating in a full cost-recovery environment have a perverse incentive to increase their expenditure, in order to maximise their turnover and profit.

Significant differences between European ANSPs in terms of efficiency and productivity result in unit rates throughout Europe ranging from some €15 to almost €80 in 2008. The relative performance of a few well-performing ANSPs (not necessarily those with lowest unit rates), as well as the fact that unit costs in Europe are nearly twice as high as in the United States, are clear evidence that there is scope for improvement for most ANSPs.

User charges are agreed annually in Eurocontrol's Enlarged Committee for Route Charges, in which national government representatives can often be easily confused with their ANSP colleagues. The practice of rubber-stamping each other's unit rates is prevalent. Inequities in the system include any under-recovery by providers in previous years (even resulting from strike actions by their own staff!) being clawed back from users in subsequent charging

periods. This is no longer acceptable in the competitive environment in which aviation operates today.

The long-awaited and strongly urged defragmentation of European air navigation service provision has not advanced so far. The concept of Functional Airspace Blocks (FABs), proposed in the original Single European Sky (SES) legislation, and strongly supported by ELFAA, has become bogged down due principally to the adoption of a bottom-up approach, whereby the decision to create FABs was left with States and ANSPs.

Airspace fragmentation leads to significant inefficiencies in the European route network design, offering – at best – a higher level of efficiency in domestic networks. Eurocontrol's Performance Review Commission (PRC) estimated the cost to users of the 440 million km of unnecessary route extensions in 2006 at a staggering €2.2 billion, and the environmental cost at 4.7 million tons of CO₂.

Additionally, 11% of flights in Europe in 2007 were delayed – up from 10% in 2006. Air traffic flow management (ATFM) delays increased from an average of 1.9 minutes per flight in 2006 to 2.1 minutes per flight in 2007, leading to a total system delay of some 21 million minutes. This period of time would suffice for 70 short-haul aircraft to operate efficient schedules within Europe for one year! Average ATFM delay per flight is expected to exceed 3 minutes in summer 2008, and forecasts for the 12 months of 2009 are for between 2.1 and 3.2 minutes. Overall performance of the European ATM system is clearly declining.

Disappointing environmental performance of the European ATM system is directly linked to its inefficiency. It is estimated that unnecessary route extensions, sub-optimum flight profiles, delays, holding patterns, and other inefficiencies of the system, result in some 12 million tonnes of avoidable CO₂ emissions annually (or roughly 12% of current emissions in EU airspace). LFAs have made huge efforts to deliver industry-leading environmental efficiency, including investing in modern fleets and optimising their operations in order to minimise fuel use and emissions per passenger kilometre. LFAs would like to see similar efforts being made by Europe's ATM service providers.

Finally, airspace users in Europe have on several occasions been forced by the regulators to pay for the introduction of costly – but not necessarily most effective in the longer term – ATM standards.

European LFAs are not prepared to accept further rationalisations by national governments, ANSPs and Eurocontrol, leading to the reform of the European ATM system being slow and protracted. European ATM thinking needs to rid itself of the memory of where we have come from and concentrate on where we want to get to! It is time for brave decisions and a visionary approach. ATM in Europe must be revolutionised in the interest of the European economy, the travelling public and the environment.

The very limited progress to date of the SES project, mainly attributable to national governments' and ANSPs' reluctance to participate in the process of reform, has prompted the European Commission to initiate a revision of the original SES legislation. This "SES II" needs to be highly ambitious and visionary, going beyond the rather conservative recommendations by the High Level Group for the Future of Aviation Regulation. It must start from the premise that ATM can be reformed quickly and effectively. ELFAA calls on the European legislators to include the following proposals in SES II, and to take them into consideration in all decisions impacting European ATM.

REQUIRED ACTIONS

Regulatory efficiency

ELFAA believes that safety and performance of ATM can be enhanced by an appropriate regulatory set-up. The current regulatory framework surrounding the ATM system in Europe is highly inefficient and opaque. Lines of responsibility are blurred between the European Commission, the European Parliament and the Council, the European Aviation Safety Agency (EASA), Eurocontrol, etc. This leads to significant delays in decision-making and reduces accountability for decisions.

ELFAA therefore proposes that the European Parliament and the Council adopt, by 2010, an “ATM constitution for Europe”, a high level (so that it does not require frequent amendments) piece of legislation covering all aspects of ATM, and containing a delegation to adopt, and amend as necessary, an “ATM Manual”, i.e., technical implementing regulations.

Oversight of the implementation of the ATM constitution, as well as the adoption of and the amendments to the ATM Manual, should, by 2010, be performed by EASA, renamed European Aviation Authority (EAA), and organised as a central European civil aviation authority, similar to the Federal Aviation Administration (FAA) in the United States, with regional offices in EU Member States. National civil aviation authorities should be transformed into regional offices of the EAA and should be significantly scaled down in order to minimise inefficiency. EAA should be responsible for all aviation-related matters, including ATM and safety.

The ATM Manual should be developed by the EAA assisted by airspace users and expert consultants, financed through the EU transport budget. The current (lengthy and ineffective) formal regulatory assistance to the European Commission by Eurocontrol would no longer be required, although Eurocontrol would be allowed to bid for expert assistance to the EAA, alongside other suppliers of such services.

There can be no doubt that the proliferation of consultative bodies, whether to the Commission, Eurocontrol, EASA or whatever other body, serves to compound the existing inefficiency of the ATM system and its governing regulatory framework. All calls to rationalise these have, to date, failed to yield any significant improvement. What is required is constructive engagement of users in the decision-making process. ELFAA calls for all advisory functions by European airspace users to be performed within the framework of a Users' Consultation Body (UCB), ensuring constructive engagement in decision-making. The UCB should be the single formal advisory body on behalf of users to the European Commission, EAA, Eurocontrol, SESAR, and other bodies / projects as necessary. Engagement with the UCB should necessarily be at a stage at which decision-making can take account of the needs of users, who are directly impacted by regulatory decisions and, after all, bear the full cost of their implementation.

Eurocontrol has not shown itself to be in a position to contribute to the necessary de-fragmentation and modernisation of the European ATM system. Organisation and overall efficiency within Eurocontrol call for urgent reform. It has grown over time to become a large, expensive and very inflexible organisation. Its cost base amounts to some 10% of total ATM cost in Europe and shows no sign of reducing. It would not be appropriate, therefore, to assign to Eurocontrol any responsibility for the rationalisation of European ATM with a view to increasing its operational efficiency and cost-effectiveness.

Eurocontrol's existing expertise, including in the area of airspace design, could be utilised in future ATM systems, although Eurocontrol would need to compete for the provision of such services with commercial suppliers. ELFAA further suggests that Eurocontrol's Experimental Centre be either funded by governments or privatised and encouraged to compete for long term research contracts put out to tender by the SESAR Joint Undertaking and the EAA. This would ensure the necessary efficiency of the provision of such expert advice, while preserving the know-how developed by Eurocontrol and its Experimental Centre over the years.

Non-discrimination

Through their use of secondary and regional airports, as well as by avoiding busy traffic areas around major hubs, European LFAs make the most efficient use of available airport and ATM capacity in Europe. Coupled with further efficiencies to the system delivered through efficient seat configurations and high load factors, this also results in significant environmental gains.

LFAs, born of the successful liberalisation of market access, designed to increase competition in the EU air transport market, positively welcome competition, seeing it as the most effective regulator. Where regulation is unavoidable, it should not discriminate between airlines on the basis of business model.

Cost-benefit analysis of all proposals

The proposed European ATM constitution should oblige ANSPs, as well as regulators, to present full cost-benefit analyses for all proposals, including R&D, infrastructure investments, and the introduction of standards. Such analyses should be audited and commented on by independent economic analysts, prior to their submission for approval to airspace users.

The guiding principle for all cost benefit analyses must be that only those enablers that contribute directly towards improved ATM performance, safety, and reduced cost, should be considered for R&D expenditure and further development. Another such principle must also be that ANSPs coordinate investments in the framework of a single European ATM development project.

The vision for the future ATM needs to be both revolutionary and pragmatic, giving all users equal access to the ATM system. Future ATM must also be significantly more cost-effective and environmentally-friendly than the current system and must be driven by the requirements of users. This calls for a careful balance between a desire to create an ultra-modern system and the need to limit investments in new technology to those absolutely indispensable to meet projected capacity requirements. Future ATM also needs to take account of the need to ensure worldwide electronic interoperability, without increasing the cost of the system to users, and the necessity to require all air vehicles to be equipped to the same standards as commercial aviation aircraft, in order to enhance safety.

Operational efficiency

The past decade has shown that it is possible to decouple air traffic growth from the expansion of airport capacity in Europe, as LFAs have been able to better utilise the abundant available capacity at regional and secondary airports (contrary to popular belief, there is sufficient

runway capacity in Europe to cater for future growth, although potential is limited at many hub airports). Similarly, ELFAA believes that it is possible, and indeed necessary, to visibly decouple the increase in available ATM capacity from the overall ATM cost increase and the increase in the number of ATM personnel. Currently a significant component of the avoidable cost of ATM is due to ANSPs investing and maintaining incompatible equipment, which also indirectly hinders workforce mobility and encourages low productivity. Europe therefore needs to deliver additional airspace capacity under a single project, driven by the genuine requirements of users, rather than manufacturers. This will help decouple the capacity increase from the overall ATM cost and workforce increase, and will enable the system to realise economies of scale.

The ongoing SESAR project has the potential to deliver these benefits, provided it is designed and implemented in a disciplined, cost-focused, and user-oriented way. Standardised, less human-intensive infrastructure throughout Europe will allow for significant capital expenditure savings in the system, and will also result in greater workforce mobility and productivity. SESAR further needs to prioritise expenditure in order to ensure that only those enablers are considered that contribute directly towards improved ATM performance, safety, and reduced cost. R&D solutions, as well as business benefits to airspace users, must be delivered in a timely manner, to make the investment worthwhile.

The greatest risk to SESAR's ability to deliver tangible benefits to users appears to be that R&D is left entirely to ATM hardware and software manufacturers, leading to them delivering systems which may not be the most efficient or cost-effective. Instead, users should be allowed to drive SESAR towards low cost digital surveillance and data communications methodology, and a net-centric approach to flight management – System Wide Information Management (SWIM). This will enable dramatic cost reductions, even before the “4D Precision Trajectory ATM system”, built around the self separation principle, is introduced in 2020.

ELFAA strongly believes that existing technology will allow ATM to enter the low cost digital age in the very near future. The successful deployment of future SESAR concepts depends upon the immediate and reliable interchange of aviation data through SWIM – a net-centric approach to ATM, which should be introduced already in 2010. All actors should be required to access SWIM data and be able to communicate with each other through the system. In order to enhance safety and security of air traffic management, all air vehicles (including military) should be required to transmit their unique ICAO identifier at all times, enabling the system to track all vehicles, eliminate duplicate flight plans and, through SWIM, give visibility of all aircraft tracks and, ultimately, flight path intentions.

By 2013, the low cost digital ATM system should be completed with the introduction of digital surveillance (replacing the far more expensive primary radar) and data communications (replacing less reliable and less safe voice communications). This will deliver additional capacity required to meet the needs of all Europe's airspace users until at least 2020. A low-cost digital surveillance system covering the entire European airspace should be provided separately from ANSPs, via a 10-year tender organised by the EAA, specifying conditions of and prices for the service. ANSPs would therefore be users of information delivered by the provider of surveillance services to SWIM, instead of providing such services themselves.

Obviously, governments have a need to oversee their airspace with primary radar for security purposes, and this need will not diminish with the introduction of modern surveillance methods for civil air traffic, i.e., when the need for civil air traffic to have a primary radar service available ceases. However, since civil users should only pay for the surveillance they require and use,

governments should cover the entire cost of their primary radar service, as should be the case with the cost of essential State provision of air traffic control (ATC) for military aircraft. Whenever ATC of military traffic is offered by civil providers, governments should pay for it on standard commercial rates.

Further, after more than half a century of unprecedented political stability in Europe, it is inexplicable that large swathes of airspace are still reserved for the military. The rather disappointing results of the Flexible Use of Airspace initiative indicate that more decisive action is needed in order to eliminate this inefficiency. European governments should commit to reduce by 25% by 2013 the area of airspace exclusively reserved for military use and to increase civil access to the remaining military airspace by 50%. This does not mean that military access to airspace is reduced. Conversely, due to the agility of digital surveillance and the SWIM system, military activities can continue unabated, and, if necessary, increase, provided that civil and military players co-ordinate their activities and respect each other's priorities.

By 2020, SESAR-developed technology should lead to the introduction of the 4D Precision Trajectory ATM system, delivering at least double the current capacity. When operating autonomously, each aircraft will be responsible for self-separation from other air vehicles, with separation responsibility formally passed to the aircraft by ATC. ANSPs' en-route role will then be focused on managing air traffic flows, ATM systems, applications and tools. As ground and airborne automated systems will continually monitor aircraft separation standards, the role of air traffic control will change. Air traffic controllers will continue to have an important oversight role in en-route and terminal areas, and a more traditional role at airports. ATM managers and experts will continue to be responsible for system management, communications, integrating military and state flights so as to facilitate the military need for dynamic airspace reservations, and configuring the airspace to maximise traffic potential.

Therefore, with the introduction of the 4D-Precision Trajectory ATM system, there will no longer be any need for fixed military-reserved airspace. Traditional army and navy 'danger areas' can be partitioned when active. All air vehicles will have free right of passage except that military aircraft will be able to manoeuvre inside dynamic (moving) 4D parts of airspace blocked temporarily to meet their specific mission requirements. To maximise safety, all military and civil air vehicles should be electronically visible to each other and, in order to do so, military aircraft should be equipped, at government expense, with electronic tools enabling them to interact fully with the civil air traffic system.

Opening of the market for ATM services

COMPETITION: ELFAA strongly believes that competition is the best remedy, far superior to any regulatory measures aimed at improving the workings of the market. Competition leads to lower prices and better services, forcing efficiency, and leading in turn to consolidation in a market in which there are too many suppliers (as is the case with Europe's ANSPs). The cost of ATM in Europe can therefore be significantly reduced, and the quality improved, through increased efficiency of the system delivered "naturally" through the introduction of competition in the market.

ELFAA believes that a full opening of the market for the provision of air navigation services in Europe, and the privatisation of European ANSPs, are the natural consequence of the introduction of SWIM in 2010 and low cost digital surveillance and data communication in 2013.

With digital ATM (low cost surveillance and communications) it will not be relevant where an air traffic control centre is located. It will be possible for air navigation services over one EU Member State to be safely provided from another, particularly when data replaces a majority of voice communications.

The opening of the market to all EU-licensed ANSPs should be prioritised and delivered by 2013. The commercial pressures will give ANSPs a real incentive to lower their costs and seek efficiencies, including improvements in workforce productivity (which should be facilitated through the Community air traffic controller licence, standardised training and licensing), optimisation of the route network, and, eventually, consolidation.

This way defragmentation can be delivered “naturally”, guaranteeing operational efficiencies and cost savings through supranational service provision and airspace organisation, that reflects and facilitates major traffic flows rather than national borders. There would therefore be no need for more conceptual FABs, in resistance to which States have invoked national sovereignty and liability issues. Also, a FAB that would not generate efficiencies and cost savings would not be worth the effort and cost associated with the creation of it. It is preferable to leave to the market the decision as to which ANSPs should merge or closely cooperate. Only such business-driven “natural FABs” have the potential to generate tangible operational efficiencies and significant cost savings.

ECONOMIC REGULATION: Until competition in the market for air navigation services is introduced in 2013, as a natural consequence of technology advancements, there is an urgent need to address the spiralling cost of European ATM provision. ANSPs should be subjected to robust and effective economic regulation at the European level as of 2010 at the latest.

Economic regulation should be performed by the European Commission, guided by airspace users in the UCB, and assisted by external analysts, for example a strengthened Performance Review Unit, independent of Eurocontrol and Member States.

The Commission should prescribe binding annual targets for various performance areas, including: i) route network efficiency improvements, leading to a reduction of the current inefficiency by 75% by 2013; and ii) maximum average ATFM delay per flight, decreasing to the level of 0.5 minutes by 2013. The Commission should apply an effective cap to the cost base, which providers are permitted to recover from users in the form of unit rate, any excess over the permitted level being for ANSPs and/or their shareholders to fund. The Commission should also set maximum levels of user charges, decreasing gradually in order to reduce, by 2013, the unit cost of ATM in Europe by at least 50% compared to the 2007 level.

BENEFITS

Improved safety of ATM

ELFAA believes that safety is chiefly a function of both the regulatory environment and the operational framework, and in particular, the continued development of ground and airborne electronic tools that will ensure the separation of all air vehicles. The implementation of ELFAA's recommendations in these areas will, therefore, deliver significant safety enhancements throughout European airspace.

Clear lines of responsibility and quick, effective decision making will enhance safety, as will modern, less human-intensive ATM technology, including modern surveillance and communication methods. By 2013, therefore, ELFAA estimates that safety can be improved at least four-fold. ELFAA further believes that with the introduction of the self-separation based 4D Precision Trajectory ATM system by 2020, it will be possible to deliver at least a ten-fold improvement in safety, in line with the SESAR target.

Improved quality of ATM

Economic regulation of ANSPs from 2010, competition in the market for core ATM services from 2013, the introduction of the low cost digital ATM system in 2013, and the increased civil use of military airspace by 2013 will deliver a significant increase in the quality of services provided by Europe's ANSPs. ELFAA estimates that commercial pressures and modern technology will help eliminate 75% of the current European route network inefficiency, and reduce average ATFM delay per flight to 0.5 minutes by 2013.

ELFAA concedes that the full optimisation of the European route network and the full elimination of ATFM delays may be achievable only following the introduction of the 4D Precision Trajectory ATM system in 2020.

Reduced impact of ATM on the environment

Environmental efficiency of the ATM system is directly linked to its quality. ELFAA therefore believes that the elimination of 75% of the current European route network inefficiency, and the reduction of average ATFM delay per flight to 0.5 minutes by 2013, will eliminate some 75% of the current environmental inefficiency of the system, leading to savings of 9 million tonnes of CO₂ annually (based on 2007 traffic), or some 10% of current emissions over EU airspace.

The remaining 25% of the environmental inefficiency, or 3 million tonnes of CO₂ annually (based on 2007 traffic), will only be eliminated once the 4D Precision Trajectory ATM system is introduced in 2020, delivering optimal flight patterns throughout Europe.

Reduced cost of ATM

ELFAA believes that economic regulation of ANSPs from 2010, competition in the market for core ATM services from 2013, the introduction of the low cost digital ATM system in 2013, and the increased civil use of military airspace by 2013 will deliver a reduction of the ATM unit cost of at least 50% by 2013, from the 2007 level.

Following the introduction of the 4D Precision Trajectory ATM system in 2020, ATM unit cost can be reduced by at least 75% from the 2007 level. This should deliver ATM system cost savings of at least €5 billion per annum, based on 2007 traffic. Provided that air traffic in Europe doubles by 2020 the savings would amount to more than €10 billion per annum.

CONCLUSION

This position paper sets ELFAA's high level vision for the future European ATM regulatory and operational framework. ELFAA strongly believes that it is possible to achieve the goals set out in this paper in a timely manner, and is willing to work with all stakeholders who demonstrate a genuine will to advance these goals. Europe's ATM system needs to be reformed quickly in the best interest of the European travelling public, the economy and the environment!