Single European Sky

SUMMARY
Building on the achievements of the internal market and the need to cope with growth in air transport and congestion, the European Commission launched the Single European Sky (SES) initiative in 1999. Its core objective is to reform the architecture of air traffic control in the EU in order to meet future capacity and safety needs, through improving the overall performance of air traffic management and air navigation services.

Two SES packages have been adopted: SES I, which set the principal legal framework, and SES II, which aimed at tackling substantial air traffic growth, increasing safety, reducing costs and delays and the impact of air traffic on the environment. Nonetheless, European airspace remains heavily fragmented and SES is experiencing significant delays, in particular in terms of achievement of its performance goals and deployment of its basic elements such as 'functional airspace blocks'.

In order to speed up its implementation, the Commission undertook a review of the SES legal framework, and in June 2013 presented an SES2+ package. While airline associations welcomed the initiative, trade unions have been much more critical on certain provisions. The European Parliament, which has underlined the need to push ahead with SES implementation, adopted its first reading position on the SES2+ package in March 2014. In December 2014, the outcome of the Transport Council somewhat reduced the ambitions of the Commission’s initial objectives. However, progress on SES2+ remains blocked over the disputed question of its application to Gibraltar airport. The adoption of the package still requires the approval of both the Council and the European Parliament.

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Background

European skies confronted with increased traffic and management challenges

Air transport has experienced substantial growth in recent decades, which in turn has led to congestion and delays. From 348 billion pkm\(^1\) in 1995, passenger transport by air reached 577 billion pkm in 2012, i.e. an increase of 65.8%. Though well behind cars (4,613 billion pkm in 2012), air transport is the second best performing transport mode in terms of passengers, ahead of buses and coaches (526 billion pkm) or railways (418 billion pkm). Air transport is also the mode that experienced the most significant growth over this period, in relative terms.

Such an increase has put a strain on air traffic management. Air navigation services in Europe have historically operated primarily within national borders, with each Member State establishing its own air traffic management (ATM) system. Based as it is on national sovereign airspace, ATM in Europe is still very much dominated by national monopoly service provision. European airspace remains heavily fragmented today. For some authors,\(^2\) such a mode of organisation is sub-optimal for at least two reasons. First, Member States' territory may be too small to allow for efficient and cost-effective air traffic management. Second, it is not conducive to smoothly accommodating growing traffic flows.

<table>
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<th>Air traffic management</th>
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<td><strong>Air traffic management</strong> (ATM) can be defined as 'the aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations'. <strong>Eurocontrol</strong> (the European Organisation for the Safety of Air Navigation – see box on page 5) describes ATM as consisting primarily of three distinct activities: <strong>Air traffic control</strong> i.e. 'the process by which aircraft are safely separated in the sky as they fly and at the airports where they land and take off again'; <strong>Air traffic flow management</strong> i.e. 'the activity that is done before flights take place', and <strong>Aeronautical information services</strong> that are charged with compilation and distribution of all aeronautical information (e.g. safety, navigation) necessary to airspace users. <strong>Air navigation service providers</strong> (ANSP) refers to any public or private entity providing navigation services for general air traffic. These can include air traffic services, communication, navigation and surveillance services, meteorological services for air navigation and aeronautical information services. Less well-known than other key players in the air transport sector, such as airlines and airports, ANSP are also defined as the bodies which are charged with, on behalf of the state or a group of states, keeping control of air traffic movements and flows (both on the ground and in flight) within a defined block of airspace.(^3)</td>
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The fragmentation of European skies

Comparison of ATM provision between Europe and the United States\(^4\) for 2012 (see figure 1) shows that for a total continental airspace which is similar geographically, the US controls more flights with fewer air traffic controllers (though the difference may be narrower depending on the definition used for controllers\(^5\)) and fewer en route facilities.\(^6\) The US air traffic management system appears to be more efficient than that of Europe, as it handles more than twice the number of flights\(^7\) for a near similar cost\(^8\) from only a third as many control centres. However, while this comparison highlights that many issues in Europe revolve around the level of fragmentation of its airspace and its impact on ATM performance, interpretation of differences also has to take into account definition issues (see above) or specific distinct features of the two systems. In Europe, for instance, countries' military needs are taken care of within their respective national airspace, while in the US they are dealt with by a single service provider.
Consequently, the number of restricted and segregated areas\(^9\) is higher and more scattered in Europe than in the US, with quite a number of them located in Europe's core areas while in the US the equivalent areas tend to be located along the coastlines. The difference between the two systems in this regard potentially affects their respective ATM performance.

The fragmentation of European **airspace**, divided into more than 650 sectors under national air traffic control systems, has negative implications in terms of cost-efficiency and on the environment. According to the European Commission, it imposes extra costs of around €5 billion per year, and adds 42 kilometres in distance to the average flight, leading aircraft to consume more fuel and generate more CO\(_2\) emissions, and worsening delays. The related extra costs are then passed on to business and passengers, so hampering the sector's competitiveness. It is estimated that air traffic control costs currently represent between 6 and 12% of the price of a plane ticket.

**Future trends**

The challenges stemming from the fragmentation of European airspace are likely to become even more salient in future years, given that traffic is expected to continue to grow significantly.

A Eurocontrol medium term forecast (i.e. up to 2020) shows as the base scenario\(^10\) that flight growth for the 2014-20 period will average 2.5% per year. However, it will be uneven across Europe. In percentage terms, growth will be much weaker in western Europe, while Turkey for instance will experience the highest growth rates (7.2% average annual growth rate over the years covered). Looking at the forecast only for the EU28 Member States, the average annual growth rate stands at 2.2% for the base scenario, ranging between 3.3% for the high-growth scenario and 0.9% for the low-growth scenario. In absolute terms, France, Germany, Italy, the UK, and Spain in particular will remain the busiest states when it comes to IFR (instrument flight rules) movements.

Looking 20 or more years ahead, Eurocontrol built up different scenarios regarding the development of air transport. According to the 'most likely' scenario, Europe will have 50% more flights in 2035 than in 2012. This increase corresponds to an average annual growth of 1.8%, or around half the rate observed in the 40 years to 2008. In comparison, the 'weakest scenario' indicates just 20% more flights in 2035.

European skies and airports are at risk of saturation, with the risk that if nothing is done, travellers will be confronted with delays and cancellations on an unprecedented scale, a large proportion of the potential demand for flights will go unmet, and usual congestion costs could increase by around 50% by 2050.

According to a 2014 European Parliamentary Research Service study on the Cost of Non-Europe in the Single Market in Transport and Tourism, ‘the cost of air traffic

### Figure 1 – US/Europe ATM key system figures (2012)

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<th>2012</th>
<th>Europe</th>
<th>USA</th>
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<tr>
<td>Geographic area</td>
<td></td>
<td>11.5</td>
<td>10.4</td>
</tr>
<tr>
<td>(million km(^2))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of civil en route air navigation service providers</td>
<td>37</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>No of air traffic controllers (ATCOs in Ops)</td>
<td>=17 200</td>
<td>=13 300</td>
<td></td>
</tr>
<tr>
<td>Total staff</td>
<td></td>
<td>=58 000</td>
<td>=35 500</td>
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<tr>
<td>Controlled flights (IFR) (million)</td>
<td>9.5</td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>No of en route centres</td>
<td>63</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>ATM/CNS (in billion euros, 2011)</td>
<td>8.4</td>
<td>7.8</td>
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management fragmentation has been estimated at between €1.5 billion and €5.0 billion per year by different sources, by summing up a large number of marginal costs.

**Single European Sky framework**

Building on the achievements of the internal market and the need to cope with growth in air transport and congestion, already a source of concern in the 1990s, the European Commission launched the Single European Sky (SES) initiative in 1999, underlining that the EU could not maintain frontiers in the sky where they had been removed on the ground.

The SES objective is to reform the architecture of air traffic control in the EU, in order to meet future capacity and safety needs. This should be achieved through improving the overall performance of air traffic management (ATM) and air navigation services (ANS), with the specific aims of increasing airspace capacity threefold (so reducing delays), improving safety performance tenfold, reducing by 10% the environmental impact of flights and reducing ATM costs by 50%.

**Two packages adopted (SES I and SES II)**

The SES framework is based on two main packages.

The **SES I package**, launched in 2004, set the major legal framework for SES. It consists of four regulations, mostly designed to improve safety and to restructure airspace on the basis of traffic instead of national boundaries.

A revision of these regulations was proposed in 2009 (the **SES II package**), with the objectives of tackling the challenge of substantial growth in air traffic, increasing safety, and reducing costs, delays and the impact of air traffic on the environment. The SES II package was built on four policy pillars:

- The **performance** pillar introduced EU-wide performance targets in the areas of safety, cost efficiency, capacity and the environment. Moreover, it required national supervisory authorities to establish national performance plans, or plans covering an entire functional airspace block (FAB)\(^1\) (see figure 2), to contribute to these targets. Already established under the SES I package, national supervisory authorities (NSAs) have a major role to play in the implementation of SES, in particular in terms of supervision of safe and efficient service provision, implementation of commonly agreed rules, and preparation, oversight and monitoring of the performance plans of air navigation service providers (ANSPs). The performance pillar also made the creation of FABs mandatory. Since 2010, Eurocontrol has been tasked

![Figure 2 – The Functional Airspace Blocks (FABs)](Source: European Commission and Eurocontrol, 2013.)
with assisting the European Commission in setting up and managing the performance scheme for air navigation services.

- The safety pillar introduced increased responsibilities for the European Aviation Safety Agency (EASA) to ensure that common safety rules are applied across the EU.
- The technology pillar focuses on the SESAR project, which is working to provide a new generation Europe-wide ATM system.
- The airport capacity pillar aims at improving capacity, notably through the establishment of an Airport Observatory.

Implementation

The SES initiative has delivered some results, such as some reduction in air traffic delays (although this may in part be related to reduction of traffic due to the financial crisis), the maintenance of safety levels, and a halting of the constant growth in ATM costs.

However, SES is experiencing significant delays, in particular in the achievement of the performance goals and the deployment of its basic elements such as FABs. None of the FABs that were to be set up by the binding deadline of 4 December 2012 by the Member States are yet fully operational; most of them appear to fulfil formal requirements instead of delivering the expected synergies and economies of scale. In July 2014, the European Commission formally requested 18 Member States, belonging to six different FABs, to act to optimise the implementation of FABs and air navigation services. Moreover, recent audits in Member States have shown that inadequate resources and expertise have in many cases hampered NSAs, stopping them from fully and independently performing their oversight duties.

Single European Sky 2+ (SES2+)

Building on past experience, without departing from the original objectives and principles, the European Commission has undertaken a revision of the SES legal framework, with a view to speeding up its implementation. In June 2013, it proposed the SES2+ legislative package, consisting of the recast of the four main regulations creating the SES and the amendment of the Regulation on the European Aviation Safety Agency (EASA), accompanied by a Communication entitled 'Accelerating the implementation of the Single European Sky'.

Aiming to improve oversight, safety, performance and competitiveness, the main elements of the package include reinforcement of the NSAs' independence through organisational and budgetary separation of the NSAs from the ANSPs they supervise, as well as a strengthening of the performance scheme, by making target-setting more independent, transparent and enforceable (currently Member States have the final say in this regard), with a stronger role for the Commission, allowing also for the tailoring of national targets at local level. It also plans the opening-up of certain support services such as meteorology, aeronautical information, communications, navigation and surveillance services, traditionally bundled with ATM provision, to competitive
tendering under normal procurement rules, although the core of air traffic control would remain unaffected. More flexible rules may be established for FABs allowing for better cooperation among service providers, and for them to turn into industrial partnerships. A reinforcement of the role of the network manager (exercised by Eurocontrol) is also foreseen. Additionally, SES2+ aims to clarify the role of the different EU-level organisations so that the Commission focuses on economic and technical regulation (performance scheme, charging, FABs, etc.), with EASA acting as its agent on drafting and oversight of technical regulation, and Eurocontrol focusing on operational activities, in particular as network manager.

**European Parliament and Council**

In a resolution in October 2012, the European Parliament (EP) had already underlined the need to push ahead with the implementation of the SES and recalled the substantial economic benefits that it was expected to bring.

In March 2014, the outgoing Parliament adopted its first reading position on the proposal for a regulation on the implementation of the Single European Sky (recast) and on the proposal for a regulation amending Regulation (EC) No 216/2008 in the field of aerodromes, air traffic management and air navigation services.

Concerning the recast proposal, the EP called for swift implementation of the Regulation. As regards NSAs (renamed national Aviation Authorities), the EP tightened the provisions on their independence, confirming that they should be legally distinct and independent, in particular in organisational, hierarchical and decision-making terms, as well as having separate annual budget allocations. The national aviation authorities would have to comply with these provisions by the date of entry into force of the regulation, or at the latest by 1 January 2017. The EP also underscored the importance of promoting cooperation between national aviation authorities.

The EP additionally pointed out that there should be no statutory impediments to providers of support services that would prevent their ability to compete within the EU. However, before moving forward in the opening up of these services, the EP requested the European Commission to conduct a comprehensive study on the operational, economic, safety and social impacts of the introduction of market principles to the provision of support services, and to submit that study to the EP and Council by 1 January 2016. Parliament proposed that a ‘performance review body’ (PRB), functionally and legally separate from any service provider, be established as a European economic regulator under the supervision of the Commission, with effect from 1 July 2015. The compliance of the local performance plans and local targets with the Union-wide performance targets should be assessed by the Commission in cooperation with the PRB. The EP underlined that the Union-wide performance targets should be set with a view to ensuring that each functional airspace block retains sufficient flexibility to achieve the best results. Concerning the proposition to turn FABs into industrial partnerships, the EP stipulated that the latter should be separate from FABs, which are state initiatives and considered as a separate type of cooperation. Members pointed out that FABs need to be established, thus following the Commission’s approach for greater cooperation among service suppliers and airlines to get round national barriers.

Concerning the second proposal, the EP supported the proposed changes aimed at clarifying the division of tasks between the European Commission, the European Aviation Safety Agency and Eurocontrol.
At the Transport Council in December 2014, Member States agreed a position on the content and technical dimensions of the SES2+ file to make the European air transport system less fragmented and more competitive, with a view to opening trilogue negotiations with the Parliament. Their position somewhat reduced the ambitions of the Commission's initial objectives, a point which was acknowledged by the Commissioner for Transport, Violeta Bulc. On performance targets related to safety, the environment, capacity and cost-efficiency, Ministers introduced more flexibility to the process of setting EU-wide and local performance plans and putting them into practice, as well as a dialogue mechanism to be used by the different stakeholders. They also introduced greater flexibility into the way in which FABs are introduced.

Council took the position that opening support services to competition should remain voluntary and that air navigation service providers could keep on bundling support services with core air navigation services. Ministers, however, agreed that an independent study be carried out on the need to bring these support service providers under Eurocontrol's supervision or a group of air management service providers.

Ministers also required the independence of NSAs, as they will have to be separated, in terms of management, decision-making and hierarchy, from that of the service providers i.e. a functional independence rather than a legal or statutory one.

As for the amendments to the EASA Regulation, the Council focused only on the articles of the proposals directly related to the SES recast. Core issues such as EASA's role and status, including its name and the way it is funded, will be tackled separately during the comprehensive review of the Regulation expected next year.

Although the Latvian Presidency indicated its intention to pursue work on SES2+, progress on aviation files, including SES2+, remains blocked pending resolution of the disputed question of Gibraltar airport. Interinstitutional trilogue negotiations will be required to reconcile the positions of the EP and Council on the two proposed regulations.

**Stakeholders' views**

Airline associations have generally been strongly supportive of the SES initiative, urging progress to be made in terms of implementation, recalling the negative impacts of fragmentation in terms of cost-efficiency, competitiveness, the environment and passenger service. Three associations – the International Air Transport Association (IATA), the Association of European Airlines (AEA), and the European Regions Airlines Associations (ERA) – published a Blueprint for the SES in which they recalled all the benefits that it should bring. In July 2014, IATA's Director General and CEO called for strong support for SES2+, underlining that European airlines are over-taxed, onerously regulated and suffer from a chronically mismanaged air traffic management system, insufficient airport capacity and high infrastructure costs.

On the other hand, trade unions, in particular the European Transport Workers' Federation (EFT) and 'Air Traffic Controllers European Unions Coordination' (ATCEUC), were very critical of the SES2+ package, taking the view that the priority is to achieve the already existing package adopted in 2009 and not to adopt a new one. EFT in particular pointed out that unbundling support services puts the ATM industry at risk, as in many countries they are part of the core business of ANSPs, considers that the performance scheme targets and forecasts are unrealistic and that cost reduction efforts mainly aim to cut jobs. Restating support for the SES in general but opposed to it being used as an instrument of further liberalisation, EFT welcomed the Transport
Council’s outcome. ATCEUC is also very critical, challenging the view that ATM has the main responsibility for delays by underlying the role played in this respect by airlines, circumnavigation of military areas, en-route winds and weather avoidance. ATCEUC further expressed concern that the new approach enshrined in SES2+ could only result in the destruction of the safety chain, and job cuts at a time when air traffic controllers are facing traffic growth.

Endnotes

1 Passenger-kilometre (pkm) is a unit of measurement corresponding to the following: 1 passenger transported a distance of 1 kilometre.


3 See endnote 2.

4 The data for Europe covers Eurocontrol states and does not cover oceanic areas or the Canary Islands.

5 According to figure 1, there are 23% more Air Traffic Controllers (ATCOs) in Europe than in the US. The comparison uses for 'ATCOs in operation' the CANSO (Civil Air Navigation Services Organisation) international reporting definition. However the gap reduces to 10% when account is taken of the US 'developmental' controllers who have nonetheless an active role in controlling traffic.

6 En route facilities can be commonly described as the facilities carrying out en route control of aircraft operating under instrument flight rules, and falling within their area of responsibility.

7 IFR stands for Instrument Flight Rules. IFR are defined by the relevant US Federal Authorities as the rules and regulations governing flight under conditions in which flight by outside visual reference is not safe. Flying under these rules is done by reference to instruments on the flight deck, and navigation performed by reference to electronic signals. IFR is to be distinguished from VFR, standing for Visual Flight Rules.

8 ATM/CNS stands for Air Traffic Management/Communications, Navigation, Surveillance.

9 Airspace areas where aircraft operations are confined or limited, often for military reasons.

10 The Eurocontrol report includes three forecast scenarios: low-growth and high-growth scenarios, and the (most-likely)‘base’ forecast. However, for a complete picture notably in terms of risk management, all three scenarios have to be considered.

11 According to Regulation (EC) No 1070/2009, a Functional Airspace Block is an ‘airspace block based on operational requirements and established regardless of state boundaries, where the provision of air navigation services and related functions are performance-driven and optimised with a view to introducing, in each functional airspace block, enhanced cooperation among air navigation service providers or, where appropriate, an integrated provider’. Nine FAB initiatives have been launched (see figure 2).

12 The ongoing dispute between Spain and the UK regarding sovereignty over Gibraltar blocked the negotiations on the SES recast, the question being whether the new legislation should apply to Gibraltar airport or not. The text of the December Transport Council notes that the question of application of the legislation to Gibraltar airport awaits the outcome of discussions between Spain and the UK. The UK voted against the adoption of a general approach at the December Transport Council and submitted a statement that only a ‘partial general approach’ could have been reached and that it ‘strongly objects to this dossier proceeding to trilogue on the basis of a partial general approach that includes any footnote saying that its application to Gibraltar is subject to the outcome of discussions between the United Kingdom and Spain or otherwise open to question’. The UK statement also indicates the possibility of it taking legal proceedings in the event the application of the regulation to Gibraltar airport is suspended.

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