Council of the European Union

Brussels, 17 December 2015
(OR. en)

15408/15

Interinstitutional File:
2013/0186 (COD)

AVIATION 170
TRANS 413

COVER NOTE

From:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	16 December 2015
To:	Mr Jeppe TRANHOLM-MIKKELSEN, Secretary-General of the Council of the European Union
No. Cion doc.:	COM(2015) 663 final
Subject:	REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the implementation and progress of the Single European Sky during the 2012-2014 period (Text with EEA relevance)

Delegations will find attached document COM(2015) 663 final.

Encl.: COM(2015) 663 final

EUROPEAN
COMMISSION

Brussels, 16.12.2015
COM(2015) 663 final

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation and progress of the Single European Sky during the 2012-2014 period

(Text with EEA relevance)

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation and progress of the Single European Sky during the 2012-2014 period

(Text with EEA relevance)

1. Introduction

Aviation is a key driver of economic growth, employment and trade and has a significant impact on the EU's economy and the life and mobility of its citizens. As such, it plays an important role in delivering on the Commission's priorities, particularly 'Jobs, Growth and Investment', 'the EU as a Global Actor' and 'Energy Union'. As a fundamental component of the aviation system, air traffic management (ATM) and – specifically, the development and implementation of the Single European Sky (SES) – makes an important contribution in this context. It addresses challenges related to connectivity, competitiveness, safety and the environment. ATM is an industrial activity that ensures the safe separation of aircraft and the smooth and orderly flow of air traffic. It involves many stakeholders, including air navigation service and system providers, aircraft operators, airports and the aeronautical manufacturing industry.

The essential role of ATM in the aviation value chain relates not only to its primary safety objective. The entire ATM system is financed by the charges paid by airspace users. Furthermore, as a lack of capacity in air traffic control can cause delays, ATM has an impact on the quality of the service airlines provide to passengers and freight customers (40 % of all departure delays are directly or indirectly caused by ATM and weather factors). Last but not least, ATM has an impact on the environment, as longer air routes lead to higher emissions and fuel costs for airspace users (ATM accounts for 6 % of aviation-related CO_2 emissions).

Since the launch of the SES initiative in 2000,[1] two packages of legislation have been adopted and almost fully implemented. They aim to reduce the fragmentation of European airspace and increase capacity by introducing additional rules on safety, airspace management, cost transparency and interoperability. The legislation adopted in 2009 by the Council and European Parliament (SESII),[2] which is intended to accelerate the implementation of a truly Single Sky from 2012 onwards, is now being implemented and its results can therefore be measured.

In accordance with Article 12(2), (3) and (4) of Regulation (EC) No 549/2004, this report provides an update on the general state of play of the SES initiative and the accompanying legislation over the 2012-2014 period. In particular, it provides information on the measures

[1] COM(1999) 614 final of 06.12.1999
[2] Regulation (EC) No 1070/2009 of 21.10.09

that have been taken since the Commission's previous report to the European Parliament and the Council.[3]

2 Achievements relating to performance

2.1 First reference period of the SES performance scheme (RP1 – 2012-2014)

In Europe, air navigation services are, in most cases, provided by fully state-owned monopolies. The monopolistic nature of air navigation services requires strong economic regulation, and this is provided by the SES performance scheme[4].

As regards safety, there have been no fatal accidents in which ATM was a contributing factor since 2011. The number of serious incidents has been falling since 2010 and marked improvements have been made in safety management. However, the ATM system is not very transparent because targets are restricted to processes and do not measure safety performance as incidents are not automatically reported.

With regard to the environment, horizontal enroute flight efficiency (shorter routes) improved slightly in 2013 (5.11 %) but did not meet the target (4.92%). In 2014, flight efficiency stood at 4.9 %, falling short of the target of 4.67 % for the first reference period. Airspace users (airlines) sometimes preferred to fly the cheapest routes (in terms of charging zones) rather that the shortest.

With respect to capacity, good progress has been made in reducing capacity delays. In 2012 and 2013, the EU-wide target was met. In 2013, en route air traffic flow management (AFTM) delays decreased by 15 % compared with 2012, as traffic volumes fell by 1.3 %. By contrast, the ATM sector failed to achieve the network target of reducing delays to 0.5 minutes per flight in 2014. This was owed partly to weather conditions, but also social unrest and poor contingency planning to manage the knock-on effects. En-route ATFM delays occurred mainly in Cyprus, France, Germany, Poland and Spain.

As regards cost-efficiency, during RP1 air navigation service providers (ANSPs) were able to reduce their cost bases because of lower-than-planned traffic volumes. Actual costs were each year between -3.4% and -5.9% lower than planned costs (or determined costs). As a result of lower air traffic levels, the actual en-route unit costs were 0.4% higher than EU-wide target for 2014.

The setting and meeting of targets under the SES performance scheme was heavily dependent on traffic volumes and forecasting. In RP1 air traffic volumes remained almost unchanged from 2007 levels and there was a gap between anticipated and real traffic growth. This led to lower-than-planned revenues for ANSPs. Traffic volumes also had a major influence on the meeting of all targets. The fact that performance targets were not met in 2014 despite lower-than-planned traffic indicates that more work needs to be done in the second reference period (RP2 – 2015-2019).

[3] Report from the Commission to the European Parliament and the Council on the implementation of the single sky legislation: time to deliver (COM/2011/0731 final)
[4] Commission Regulation (EU) No 691/2010 of 29 July 2010

The European ATM sector remains fragmented and the costs of its services are comparatively high. The unit cost of air navigation services is particularly high, with users pay around EUR 10.5 billion annually (in user charges, delay costs and flight inefficiencies). These high costs result mainly from the fragmented service provision and infrastructure, antiquated technology and low productivity in this labour-intensive industry (labour amounts to 63 % of costs).

2.2 A strengthened network – the contribution of the Network Manager

The Network Manager for the EU ATM network made a key contribution to operational network performance (particularly in the areas of capacity and flight efficiency) from 2012 to 2014. The Network Manager function has developed from a theoretical concept into a successful entity recognised by stakeholders that brings tangible daily performance benefits to the EU network and to neighbouring countries.

The governance of the Network Manager is industry-led[5] and it closely involves all operational stakeholders. The Network Manager contributed directly to curb en route delays below the target level in the capacity plans declared by EU member states. The objective was met each year of RP1, with a 10.7 % reduction in 2012, 13.7 % in 2013 and 13.3 % in 2014. Though the average en route delay was above the target of 0.5 minutes per flight in 2014, delays would certainly have been higher in 2014 (which was also the year air traffic returned to growth) without the Network Manager's contribution.[6]

Coordination at network level reduced the effects of unexpected events, such as a series of strikes in 2013 and 2014 in some Member States, especially in France, (responsible for 13.6 % and 13.4 % of total en route delays, respectively, in those years) which had a significant negative impact on delays and flight efficiency as aircraft were re-routed to avoid the affected area. In 2014, network level coordination also limited the effects of major disruptions to the European network resulting from the crises in Ukraine (Russia's annexation of Crimea and the downing of flight MH17), Libya, Syria and Iraq.

2.3 Insufficient progress on functional airspace blocks (FABs)

The nine FABs, which had to be established by 4 December 2012, have now been established. However, the FAB operational objectives have not been achieved regarding the optimisation of airspace and resources, which in turn generates inefficiencies in the entire European air traffic management system and extra costs of close to €5 billion a year. These costs are passed on to airlines and their customers and result in increased journey times, delays and emissions. Infringement proceedings have been initiated against 23 Member States.

The underlying concerns continue to prevail. For many FABs, namely, these are the failure to achieve optimised air navigation services in FABs, to have FABs based solely on operational requirements regardless of national borders and to enable optimum use of the airspace in a FAB.

[5] Network Manager activities are governed by the 'Network Management Board', which is made up of representatives of the operational stakeholders.
[6] Network Manager annual report 2014, p.12

Since then, a few Member States have introduced appropriate corrective measures. Others have put together credible implementation plans which should deliver significant positive results in the medium term, e.g. making a clear political commitment to implement advanced operational strategies to optimise the use of airspace. A complete resolution of all problems does not appear in sight, however.

3 Technological modernisation of the SES

3.1 Interoperability

One of the key objectives of the SES[7] is to harmonise and achieve interoperability between the systems, constituent parts and associated procedures of the European ATM network, and to ensure that new operational concepts or technology relating to ATM are introduced in a coordinated manner.

In 2011, new interoperability rules were adopted: two providing a framework and requirements for surveillance performance and interoperability, and the other increasing the available number of voice channel frequencies by reducing the voice channels spacing from 25 kHz to 8.33 kHz.[8]

In addition, some existing rules were updated by amending regulations, either to clarify specific provisions or to address any issues with implementation[9].

For the Data Link Regulation, there was a major setback with regard to data communications when the selected technical system (Data Link VDL/2) demonstrated serious performance problems, casting doubts over its usability in the operational environment. In the short term (next five to ten years) there is no alternative to the technology itself, but the EASA report and on-going studies at the SESAR Joint Undertaking investigate possible optimised implementation or technical fixes to the issue with VDL/2. Results are expected by mid-June 2016.

Promoting and safeguarding the interoperability of the European ATM network has proved challenging in the multi-stakeholder ATM environment, especially when it comes to implementation. Overall programme management could have been more efficient (as illustrated by the Data Link case), a sound business case has not always been made for deploying new ATM technologies,[10] e.g. as argued by airspace user associations (airlines) in the case of the deployment of ADS-B transponders mandated by the SPI Regulation (EU) No 1207/2011 and the relevant means of compliance were not always available in time to the

[7] Regulation (EC) No 552/2004.

[8] Commission Implementing Regulation (EU) No 1206/2011 laying down requirements on aircraft identification for surveillance for the single European sky; Commission Implementing Regulation (EU) No 1207/2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky; Commission Implementing Regulation (EU) No 1079/2012 laying down requirements for voice channels spacing for the single European sky.

[9] The ADQ Regulation (EU) No 73/2010 was amended to taken into account amendments in the referred ICAO SARPS (standards and recommendations); VCS Regulation (EU) No 1079/2012 was amended to clarify an ambiguous Article.

[10] This is illustrated by the case of ADS-B transponders in the SPI Regulation.

operators, as was the case with the EASA Certification Specifications and Acceptable Means of Compliance needed for the same ADS-B transponders.

The issues with the effectiveness of the SES interoperability framework prompted the Commission, before launching the SESAR programme, to appoint a Deployment Manager to monitor, oversee and manage the deployment of new ATM technologies and functions (see Section 3.2), and to work more closely with EASA (see Section 4.2) to ensure the necessary means of compliance would be available when the new regulations were adopted.

3.2 Technological challenge – development and deployment of SESAR

There have been major developments in the SESAR project since the last reporting period, including the transition from the development to the deployment phase and further developments in the SESAR partnership.

The European ATM Master Plan was first updated in 2012 ('Edition 2') and is a key tool for SESAR development, providing a basis for the timely, coordinated and efficient deployment of new ATM technologies and operational procedures. A second review of the European ATM Master Plan was launched at the end of 2014 by the SESAR Joint Undertaking (SJU). The final proposal for the 2015 Master Plan update was delivered by the SJU at the end of June 2015 and is expected to be approved by the SJU Administrative Board by the end of 2015. The 2015 update aims to create closer links between development and deployment activities. It also incorporates the SESAR vision of achieving high-performing aviation in Europe by 2035 and the SESAR 2020 work programme. The SESAR vision builds on 'trajectory-based operations'. This means that air navigation services allow aircraft to fly their preferred routes without being constrained by airspace configurations.

In June 2014, the EU extended the duration of the SJU to the end of 2024. This effectively extends the SESAR development phase. The EU also allocated an additional budget of EUR 585 million to the project from the Horizon 2020 programme.[11] The purpose of the extension was also to renew the SESAR public-private partnership underpinning the Joint Undertaking in order to allow the accession of a wider number of stakeholders. It provided the occasion for adjusting its priorities through its SESAR 2020 multi-annual work programme.

In May 2013, the Commission established the SESAR deployment framework[12] under Article 15(a) of Regulation (EC) No 550/2004. This framework displays a three-level governance: a policy level, for which the Commission is responsible; a management level, for which the Deployment Manager is responsible; and an implementation level within which the Commission selects implementation projects to carry out the Common Projects in line with the implementation programme. The framework provides for the definition of Common Projects and the establishment of the Deployment Programme'. The first Common Project[13] adopted in June 2014 identifies a first set of ATM functionalities to be deployed in a timely, coordinated and synchronised way so as to achieve the essential operational changes stemming from the European ATM network.

[11] Council Regulation (EU) No 721/2014
[12] Commission Implementing Regulation (EU) No 409/2013.
[13] Commission Implementing Regulation (EU) No 716/2014.

The Deployment Manager was established in 2014 based on a governance that is industry-led. Its most challenging task is developing and implementing the Deployment Programme, which should identify and organise all implementation projects and initiatives necessary for implementing the first Common Project, while taking account of the business decisions of the operational stakeholders'.

Around EUR 2.5 billion of EU financial support (from the Connecting Europe Facility (CEF)) has been earmarked for SESAR deployment for the 2014-2020 period. The Deployment Manager has assembled, coordinated and presented an initial group of over 100 proposals for implementation projects under the preliminary Deployment Programme. The first call for proposals for 2014 Connecting Europe Facility (CEF) funding closed in March 2015[14]. The selection and award process is expected to be finalised in the final quarter of 2015. The synchronised deployment of SESAR solutions will then begin.

In order for the first and subsequent Common Projects to be deployed on time, it is essential that the relevant standards and rules on coordination at International Civil Aviation Organization (ICAO) level are established promptly. To this end, a specific European group on standardisation was created in 2014. It is comprised of the European standardisation organisations (CEN, CENELEC, and ETSI), Eurocae, EASA and Eurocontrol. With regard to global interoperability, the US Federal Aviation Agency and the Commission have made substantial progress in their cooperation under the SESAR and NextGen ATM modernisation programmes to assess harmonisation in the US.[15] Moreover, the SESAR project continues to also attract attention in other non-EU states. The SJU and the Commission have signed memoranda of cooperation in the field of ATM with countries such as Singapore, Mexico and Japan. Preliminary discussions are also taking place with the United Arab Emirates and Central American countries.

3.3 Remotely-piloted aircraft systems (RPAS) and cybersecurity

Remotely-piloted aircraft systems (RPAS) are a new phenomenon in ATM. Following a consultation on the future of RPAS as conducted by the Commission between 2011 and 2012, the European RPAS Steering Group (ERSG) proposed a roadmap for the safe integration of civil RPAS into the European aviation system.[16] The aim is its initial integration into that system by 2016. Subsequent Commission initiatives, (the Communication on "opening the aviation market to civil use",[17] and the Riga Declaration[18]) set out a series of concrete measures, including the possibility of adopting a European regulatory framework covering all relevant areas to make the operation of RPAS safe and secure. The Commission is gradually implementing these measures, and RPAS-related legislative proposals will form an important part of the forthcoming 'Aviation Package'.

[14] Commission Decision C(2014) 1921, OJ C 308, 11.9.2014, p. 5.
[15] NextGen-SESAR State of Harmonisation Document, December 2014: http://www.sesarju.eu/sites/default/files/documents/reports/State-of-Harmonisation.pdf?issuusl=ignore
[16] http://ec.europa.eu/growth/sectors/aeronautics/rpas/index_en.htm
[17] http://ec.europa.eu/transport/modes/air/doc/com(2014)207_en.pdf
[18] http://ec.europa.eu/transport/modes/air/news/doc/2015-03-06-drones/2015-03-06-riga-declaration-drones.pdf

One of these measures, covering the R&D required to integrate RPAS into civil airspace, has been assigned to the SESAR Joint Undertaking (SJU) and is now fully integrated into the ATM Master Plan 2015 and the SESAR 2020 programme published in 2015.

On cybersecurity, SES-related activities mainly include R&D. These are aimed at successfully integrating the "cybersecurity by design" principle into the SESAR technology and systems before they are deployed and developing an appropriate governance and institutional framework for the whole EU ATM network.

4 Institutional, regulatory and related developments

4.1 SES bodies and fora

Several SES-related bodies have been set up since 2011 and are operating successfully. In 2014, the designation of the Performance Review Body (PRB) has been extended in time[19] The role of the PRB is to assist the Commission, in coordination with the national supervisory authorities (NSA), and to assist the NSAs on request in the implementation of the performance scheme, which includes inter alia performance targets for Member States. Eurocontrol has been appointed Network Manager until 2019[20] and has performed the network functions and coordinated the response to crisis situations (see Section 2.2). The NSA Coordination Platform (NCP), as a forum for NSAs, contributes to the exchange of best practice and common solutions between NSAs on SES implementation. The Industry Consultation Body (ICB), established under Regulation (EC) No 549/2004, provides a common opinion to the Commission on SES initiatives and legislative proposals. Another consultation body that reports to the Commission is the Expert Group on the Social Dimension of SES, which remit is being modified and will continue to provide advice to the Commission under new terms of reference in 2015, with a sharper focus on the impact of SES on human factors.

For the technical pillar of the SES, the SESAR Joint Undertaking was created in 2007,[21] with Eurocontrol and the EU as founding members. It was set up to ensure the modernisation of the European ATM system by coordinating and concentrating all relevant research and development efforts in the EU. With regard to the deployment phase, the SESAR Deployment Manager was appointed by the Commission in 2014.

4.2 A new task for EASA

The SESII package extended the competencies of EASA to include ATM and aerodromes.[22] In the first phase (2009-2011), the existing SES Regulations on safety were integrated into the EASA structure. In the second phase (2012 onwards), the rules were supplemented and amended to accommodate a wide-reaching, holistic aviation regulatory framework. The main regulatory standards adopted include ‘Common requirements for air navigation service

[19] 2014/672/EU
[20] COM(2011) 4130 final
[21] Council Regulation (EC) No 219/2007.
[22] Regulation (EC) No 1108/2009.

providers',[23] 'Safety oversight of air traffic management',[24] 'Air traffic controller licensing',[25] 'Automated collision avoidance systems'[26] and 'Standardised European rules of air'.[27]

From 2013, EASA also started to support the Commission in its early reporting on the implementation of the SES (in accordance with Article 12(1) of Regulation (EC) No 549/2004). It was also involved in the activities of the SESAR Joint Undertaking to review safety cases and carried out the safety oversight of the Network Manager.

4.3 Coordination with the military

Although SES is geared toward civil aviation and therefore does not cover military operations and training, military organisations do have considerable interest in SES and are implicated by it to a large extent. From the outset, the military has shown a willingness to support SES as much as possible and to be involved in the implementation of its technical pillar, SESAR. The main military interests relate, on the one hand, to the need to access the European airspace for training and operational purposes without major constraints, in accordance with the principle of the 'Flexible Use of the Airspace (FUA).'[28] On the other hand, military organisations are seeking to minimise the cost of equipping their fleets to SESAR standards. To this end, the military are exploring the possibility to either equip their fleet with SESAR standard solutions or negotiate other "acceptable means of compliance".

To better manage the military community's coordination of views relevant to SES, the European Defence Agency's (EDA) Steering Board asked EDA to facilitate the coordination of military views on SES and SESAR deployment. This political step was mirrored by the (Foreign Affairs) Council on 18 May 2015. EDA is coordinating its SES and SESAR-related activities with NATO in order to obtain the necessary policy and technical advice. Meanwhile, coordination with Eurocontrol will provide EDA with technical support on civil-military ATM interoperability.

4.4 SESII+

In June 2013, the Commission proposed an update to the SES Regulations, named the SESII+ initiative,[29] to further develop some changes brought in by the 2009 SESII package and update other aspects to take account of technical progress. The proposal also includes changes which, if adopted, would make the existing rules more performance-based as well as introduce certain limited market measures (i.e. proposing the separation and tendering of some support services)

In addition to eliminating any overlapping areas and finalising of a number of SESII arrangements, the SESII+ proposal includes the following major policy areas:

---

[23] Commission Implementing Regulation (EU) No 1035/2011 on requirements for air navigation service providers.
[24] Commission Implementing Regulation (EU) No 1034/2011 on safety oversight in air traffic management.
[25] Regulations (EU) Nos 805/2011 and 340/2015 on air traffic control licencing.
[26] Regulation (EU) No 1332/2011 on an automated system for airborne collision avoidance.
[27] Commission Implementing Regulation (EU) No 923/2012 laying down the common rules of the air.
[28] Regulation (EC) No 2150/2005 laying down common rules for the flexible use of airspace.
[29] http://ec.europa.eu/transport/modes/air/single_european_sky/ses_2_en.htm

- Strengthening the independence of national supervisory authorities (NSAs) through increased separation and independence from the air navigation service providers (ANSPs) and reinforcing the role of the PRB to make it fully independent from all stakeholders subject to the performance scheme, including Eurocontrol;
- increasing the efficiency of support services (e.g. communication, navigation, information) through separation and market opening to stimulate innovation and create new business opportunities;
- focusing ANSPs on customer needs through improving their governance to ensure better consultation and by enabling airspace users to play a part in signing off ANSP investment plans;
- Making the Functional Airspace Blocks (FABs) a more performance-oriented and flexible tool, based on industrial partnerships, to achieve the SES performance targets; and
- reinforcing the role of the Network Manager through gradual extension and introduction of an industry-led governance system.

The European Parliament delivered its first reading position in March 2014 and the Council agreed its general approach in December 2014. The next stage is for the proposal to be debated in trilogue discussions (informal meetings between the European Parliament, Council and the Commission). Delays in adoption are due to the political dispute between Spain and the United Kingdom over Gibraltar.

5 The pan-European and global perspective

5.1 The contribution of Eurocontrol to SES

As EU legislation evolved so as to include, for example, rules on charging and performance review and air traffic flow management, Eurocontrol has gradually begun performing tasks under SES legislation.

From 2010, the organisation has been allocated three major tasks:
- providing technical support to the Commission and EASA to help them implement regulatory measures;
- acting as a Performance Review Body to help the Commission develop and implement the performance scheme; and
- acting as Network Manager for ATM network functions.

Eurocontrol also plays an important role in the SESAR Joint Undertaking's activities as, along with the EU, it has been a founding member of the organisation since 2007.

While the SES policy framework is growing, there is increasing overlap between the roles of the EU (and EU bodies) and Eurocontrol (e.g. with regard to policy, regulatory matters, safety and support to States. To provide a general framework for cooperation, the EU and Eurocontrol concluded a High Level Agreement,[30] which recognises the contribution that each organisation makes to European ATM. In particular, the respective roles of the EU as

[30] Council Decision (2013/36/EU) of 29 October 2012 on the signing, on behalf of the Union, and provisional application of the Agreement providing a general framework for enhanced cooperation between the European Union and the European Organisation for the Safety of Air Navigation

single pan-European regulator and that of Eurocontrol in providing technical support to help achieve SES policy objectives were reaffirmed in the agreement.

In 2013, Eurocontrol members decided to start a process of modernisation and reform of the organisation in order to adapt to the changing ATM environment in Europe. Depending on the outcome, such an adaptation may yield considerable benefits and, having regard to the EU governance and rules in the areas concerned, would enable Eurocontrol to continue enhancing technical and operational support to SES activities in the future.

5.2 Relations with non-EU countries

Agreements with third countries such as the the European Common Aviation Area (ECAA) Agreement with Norway, Iceland and Western Balkan states[31], the Common Aviation Area Agreements signed with Georgia and Moldova and the Euro-Mediterranean Aviation Agreements signed with Morocco, Jordan and Israel make possible their gradual integration into SES initiatives. Some other countries without aviation agreements are also involved in the work of the Network Manager e.g. Turkey.

The objective of the above-mentioned arrangements is to bring performance improvements to all countries involved and to perfect the de-fragmentation of European airspace.

Cooperative arrangements at operational level with ANSPs from key partners of the EU (the US, Canada, Brazil, China, Japan, ASEAN countries, Australia…) will be promoted by the Commission as a significant part of tasks of the Network Manager in order to manage better intercontinental traffic to/from the EU and improve the performance of the European ATM network.

5.3 Relations with the International Civil Aviation Organization (ICAO)

The Commission's cooperation with ICAO on ATM is very important, especially in relation to global ATM interoperability. ICAO adopted the Global Air Navigation Plan at its 12th Air Navigation Conference in November 2012. The Commission has committed itself to supporting ICAO in implementing the plan and the Aviation System Block Upgrades (ASBUs) included in it. To this end, the Commission takes the necessary steps when it comes to contributing to the work of ICAO, including as regards the coordination with other relevant European (non-EU) bodies and organisations. Moreover, as regards the setting of rules, the Commission strives to achieve, where appropriate, synchronisation with ICAO provisions in support of a global ATM standardisation roadmap advocated by ICAO.

6 Economic and social impact of the SES

During the three-year period 2012-2014, there were no major developments in the ATM sector from the economic and social viewpoints. The structure of this industry remained stable consisting of national service providers operating 63 air traffic control centres and employing 57.000 professionals, including 16.700 air traffic controllers. Over the period airspace users

[31] Albania, Bosnia and Herzegovina, former Yugoslav Republic of Macedonia, Montenegro, Serbia, Kosovo

paid around EUR 19 billion in air navigation charges. Depending on the type of airline, these charges represent between 6 and 10% of the airline's operating costs. These are significant costs that are ultimately borne by passengers and the call of airspace users to improve efficiency has been relentless.

The pressure exerted by the performance scheme in RP1 resulted in an important reduction of en route costs compared to the initial plans. Over the 2012-2014 period, the total actual en route costs were -940.2 M€$_{2009}$ lower than planned, also in response to lower than expected traffic levels. Most of these cost reductions were realized within air navigation service providers (-801.5 M€$_{2009}$), with savings in staff costs of -388.2 M€$_{2009}$, depreciation costs of -243.8 M€$_{2009}$ and other operating costs of -243.8 M€$_{2009}$. Since charges are set on the basis of planned costs, these cost reductions would allow air navigation service providers to retain or even increase their ex-ante surplus to an overall actual average return on equity of 10.7%. In turn, airspace users would have to pay 1.1 EUR billion more than planned over the 2012-2014 period as result of adjustment mechanisms related in particular to the traffic risk sharing, costs exempt for cost sharing and the variation of exchange and inflation rates.

Social conditions and employment have been improving for air transport sector employees over the last years, including for ATM. However industrial action continues to take place in the ATM sector, in particular in France, while in other countries the social peace has been constantly guaranteed through a constructive employer-employee dialogue. Even a small-scale strike led to major disruption in the network, causing massive flight delays, inefficiencies, with secondary impacts on business and the environment.

The Single European Sky has positively impacted ATM over the past years from an environmental perspective. This was mainly the result of the SESAR project. In fact, SESAR technology and operational improvements enables more direct flight paths and smooth descent and climbing. In this context, a major operational achievement was the start of the implementation of free routing in upper airspace allowing more direct routes, cost saving and reduction in CO_2 emissions.

7 SES vision and future challenges

The Commission aims to support the development of the European aviation industry by increasing its competitiveness, maintaining high standards and investing in innovation. The full implementation of SES and its different elements should continue to play a key role in achieving this objective.

Technology is likely to be the main driver in the development of the SES over the next two decades. However, this depends on the more efficient organisation of air navigation services on the basis of industrial partnerships and the introduction of further measures to reduce the fragmentation of European airspace. Industry should play a more effective role in the deployment of network-focused solutions, and common and virtual services. The global dimension of ATM also needs to be considered in order to optimise the performance of aircraft operations.

Strengthened social dialogue will be essential for ensuring efficient change management affecting human resources within the ATM sector, limiting industrial action.

Regulatory stability, meaning consistent and timely implementation of EU regulations, and effective regulatory market intervention are needed if monopolistic conditions persist among

ANSPs. Regulations should be developed following an approach based on a risk- and cost/benefit analysis, with the European ATM sector subject to independent economic and performance regulation that will continue to evolve, thus limiting state interference and adapting to the progress in market developments.

As regards the immediate next steps, action in the years 2015-2019 should focus on fully implementing SESII successfully and, starting to implement SESII+ once adopted, which is in the hands of the co-legislators. Continued investment in the SESAR project will help to bring about major improvements in the way the ATM system works in Europe. All stakeholders must continue to contribute to meeting targets relating to the key performance indicators (safety, cost-efficiency, capacity and environmental sustainability).

Furthermore, the SES should contribute to tackling new and existing challenges relating to looming airport capacity crunch, the integration of RPAS into non-segregated airspace and the resilience of the ATM sector to cyber-attacks.