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The Single European Sky: an analysis of its past, present and future

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Introduction

This work has the purpose to go through the creation and evolution of the Single European Sky. I will explain the causes that brought the European Commission to adopt this legislative framework and its structure and functioning.
I will then proceed to explain the role of the European Union Aviation Safety Agency (EASA) and EUROCONTROL as two important bodies playing a role in the safety and oversight and operational domains respectively within this complex regulatory framework.
In the second chapter instead, I will shed a light on the first evolution of the Single European Sky: SES II in 2009 and SES 2+ (still pending the approval of the Parliament and the Council). This evolution brought several changes such as a Joint Undertaking of research and innovation activities, called SESAR JU, the extension of EASA's competencies and the introduction of Functional Airspace Blocks, with the main aim to enhance the financial, economical and environmental performance of Europe's Air Navigation Services to reach the aim of a bigger fluidity in the European Air Traffic. This amendment also included a "comprehensive EU-wide Performance Scheme in order to focus on the service supply in general instead of focusing only on airspace. To coordinate some operations at the network-level the figure of a Network Manager was introduced.
The third chapter is dedicated to what is happening in the current present, starting from the new proposal made in 2020 by the Commission headed by Ursula Von Der Leyen, considering as well the impact that the COVID-19 Pandemic had on European aviation. I will also go through the proposal to amend EASA basic regulation and the current situation of the European Air Traffic Management.
Finally, the fourth and last chapter will be about the fallacies in the system, thus the liability aspect which remains unclear, the issue of fair competition that is enhanced by the unequal division of the FABs, the problem of integration and also the dilemma of the shared competences in the matter.

Chapter 1 - The SES I

1.1 Historical Background

Throughout 1999 the high number of delayed flights has caused a crisis which led to congestion in the European airspace. The main causes of this crisis are to be found in the Kosovo conflict that lasted until 1999, in the unavailability of Yugoslavian airspace and the implementation of a new route network (ARN V3).

Therefore, in December 1999 the European Commission sent out a communication to a High-Level Group composed both of civil and military authorities competent in the field of Air Traffic Management (ATM) in the Member States. The report that emerged from this synergy, which was completed by the end of 2000, constituted the first embryo of the Single European Sky, a European legislative framework that aims to set up a strong European Community in the scope of the ATM, to enhance the efficiency and the safety, promoting the introduction of new systems and new technologies and increasing the interoperability between the National Service Providers of the Member States.

In 2001, the European Commission adopted proposals for a Single European Sky posing the basis for a regulator for air traffic management that would be common to all the Member States of the European Union plus Norway and Switzerland[1].

[1] CRESPO, DE LEON (2011: 5).

1.2 The Four Legislative Pillars

The pillars that constitute the structure of the Single European Sky are four Basic Regulations, specifically N° 549/2004, 550/2004, 551/2004 and 552/2004.

Regulation N°549/2004 was designed to boost safety standards and efficiency of the general air traffic in Europe, to improve Air Traffic Management (ATM) system capacity and reduce air traffic delays. Namely, its main scope is defined by Article 1 of the latter, specifically in Paragraph 1:

> The objective of the single European sky initiative is to enhance current safety standards and overall efficiency for general air traffic in Europe, to optimise capacity meeting the requirements of all airspace users and to minimise delays. In pursuit of this objective, the aim of this Regulation is to establish a harmonised regulatory framework for the creation of the single European sky by 31 December 2004.

This regulation establishes that Member States must nominate an entity as their National Supervisory Authority (NSA) which is independent of air navigation service providers (ANSP).

According to it, there must be cooperation between civil and military aviation.

EUROCONTROL, considering the mandates agreed by the Single Sky Committee, takes part in the development of implementing rules which fall within its scope. This body is made up of two delegates from each Member State of the European Union (both civil and military), as well as observers from other States and EUROCONTROL.

Each delegation from a Member State is regarded as one committee member.

The SSC is chaired by a European Commission official. At the request of a member or on his or her own initiative, the Chairman may decide to invite experts to speak on specific topics.

Furthermore, it created an Industry Consultation Body, composed of representatives of ANSP, associations of airspace users, airports, aviation industry and professional staff representative bodies.

With reference to the Single Sky Committee, the Commission will present to this committee the policy and regulatory actions that will be implemented. Specific questions might be investigated through working groups reporting to the SSC, if necessary. As a result, the Committee guarantees that the interests of all types of users are appropriately considered.

The Committee's deliberations are kept private. The principles and criteria governing public access to the Committee's records are identical to those outlined in Regulation (EC) No 1049/2001 whose aim is established in Article 1 of the latter:

> "(a) to define the principles, conditions and limits on ground of public or private interest governing the right of access to European Parliament, Council and Commission documents provided for in Article 255 of the EC Treaty in such a way as to ensure the widest possible access to documents,
> (b) to establish rules ensuring the easiest possible exercise of this right, and
> (c) to promote good administrative practice on access to documents".

The Commission, in cooperation with EUROCONTROL, is responsible for the examination of the performance and has four main objectives: comparison and improvement of air navigation services; assistance to ANSP in the delivery of required services; improvement of alignment between airspace users, ANSP and airports; enhancement of safety, efficiency and capacity[2].
Anyway, this regulation does not pre-empt the Member States from applying needed measures for the protection of safety and policy interests.

Regulation N°550/2004 defines standard requirements to guarantee that air navigation services are delivered in a safe and efficient manner throughout the European Community, on a continuous and interoperable basis. Furthermore, it establishes a standardised certification system and regulation for the identification of service providers. Its aim is highlighted in Article 1, Paragraph 1:

> Within the scope of the framework Regulation, this Regulation concerns the provision of air navigation services in the single European sky. The objective of this Regulation is to establish common requirements for the safe and efficient provision of air navigation services in the Community.

Each National Supervisory Authority must perform its duty in compliance with the Regulation and synergy with the ANSP. Nevertheless, the National Supervisory Authority can select qualified entities that will be in charge of surveys and inspections.
Regarding the licensing of controllers, this Regulation promotes the harmonisation of the licensing of air traffic controllers and the mutual recognition of the licenses between the MS. Particularly this aspect is monitored by Regulation N° 2015/340 for Technical Requirements and Administrative Procedures relating to Air Traffic Controllers' Licenses, which repealed Regulation N°805/2011.
Regulation N° 550/2004 also sets the standards for common requirements for the provision of air navigation services, including safety, suitability, quality organisational structure and human resources.
Furthermore, all provision of ANS within the European Community must be certificated by MS. Certificates include rights and obligations of ANSP alongside common requirements and safety provisions.
For what concerns the exclusivity within specific airspace blocks under their responsibility, MS need to designate an Air Traffic Service Provider certified by the Community. ANSP can also collaborate with other service providers certified by the European Community. Moreover, for transparency, they need to publish their financial accounts and submit them to an audit.
The charging scheme instead, is based on the costs incurred by the service providers for the use of the airspace, this is regulated respecting the principles listed here: the full cost of provision of ANS is to be shared among airspace users; the costs are assessed according to the ICAO Regional Air Nav-

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[2] With the introduction of the SES II regulatory framework, Regulation (EC) 549/2004 of the European Parliament and Council was amended by Regulation (EC) 1070/2009 of 14 November 2009.

igation Plan, European Region; the costs of different ANS have to be determined separately; cross-subsidy between different ANS is to be allowed only for justified reasons; transparency must be guaranteed.
Requirements described by Regulation 1794/2006, Common Charging Scheme for Air Navigation Services have been repealed by Regulation 391/2013[3].
Regulation Nº 551/2004 aims at enhancing the cohesion of the European Union airspace. To do so, all the national flight information regions (FIRs) should be merged into a single portion of airspace, air traffic services will be provided following the same rules. As expressed by Article 1, Paragraph 1:

> Within the scope of the framework Regulation, this Regulation concerns the organisation and the use of airspace in the Single European Sky. The objective of this Regulation is to support the concept of a progressively more integrated operating airspace within the context of the common transport policy and to establish common procedures for design, planning and management ensuring the efficient and safe performance of air traffic management.

The concept of FIRs was established by the Chicago Convention and it defines specific sectors of airspace that have the objective of covering air route structures.
According to the International Civil Aviation Organisation (ICAO), internal airspace should be delineated according to the need for efficient service instead of being related to national boundaries.
The Single European Sky also established a single European Upper Flight Information Region (EUIR), which covers the upper airspace falling under the scope of the EU and, where needed, also the airspace of third countries.
Airspace has to be reorganised in terms of optimum control areas, therefore based on the operational efficiency and not of national frontiers.
According to this regulation, the upper airspace will be organised into functional airspace blocks (FABs), concept that will be described later. This competence belongs to the MS, EUROCONTROL can be summoned for technical advice alongside the Single Sky Committee.
MS and EUROCONTROL should as well take proper measures for the management of the civil-military air traffic service.
Coordination between the civil and military authorities is necessary to guarantee efficiency and safety[4]
Regulation Nº 552/2004 has two main objectives: the first one aims at achieving interoperability between the different entities which take part to the European ATM network by establishing an harmonised cooperation and

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[3] With the introduction of the SES II regulatory framework, Regulation 550/2004 was amended by Regulation (EC) 1070/2009 of 14 November 2009. This decision was taken in order to enhance the authority of the National Supervisory Authority (NSA) and to boost the establishment of the Functional Airspace Blocks (FABs).

[4] With the introduction of the SES II regulatory framework, Regulation 551/2004 was amended by Regulation (EC) 1070/2009 of 14 November 2009. This decision was taken for the sake of an improved freedom of movement and in order to optimise the use of scarce resources.

the second one being the introduction of new agreed and validated concepts of operations and technology in the ATM system.

According to this piece of regulation, the entities of the European ATM must meet two kinds of requirements: general requirements for seamless operation, support for new operational ideas, safety, civil/military collaboration, environmental restrictions, and rules controlling the logical architecture and development of systems; specific requirements on airspace management systems and procedures, air traffic flow management systems and procedures, air traffic services systems and procedures, ground-to-ground, air-to-ground, and air-to-air communications systems and procedures, navigation procedures, surveillance systems and procedures and aeronautical information services systems and procedures.

The two-fold goal of this piece of regulation is explained by Article 1, Paragraph 3:

> The objective of this Regulation is to achieve interoperability between the different systems, constituents and associated procedures of the EATMN, taking due account of the relevant international rules. This Regulation aims also at ensuring the coordinated and rapid introduction of new agreed and validated concepts of operations or technology in air traffic management.

The implementing rules for interoperability must determine the specific requirements, especially in terms of safety; they shall describe the specific conformity assessment procedures regarding the use of constituents alongside the verification of systems; finally, there is the need to specify the conditions of implementation including the date of compliance.
There are also community specifications such as European standards for systems designed by the European standardisation bodies or, specifications developed by EUROCONTROL for what concerns operational coordination between different ANSPs.
The safeguards are to be found in the National Supervisory Authority, which when finds an anomaly in the essential requirements for interoperability, following the principles of conformity/verification, can restrict or prohibit the application. In this case, the MS must inform the European Commission: if the latter decides that the measures are not justified, the State in question must withdraw the measures[5].

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5 With the introduction of the SES II regulatory framework, Regulation (EC) Nº 552/2004 of the European Parliament and Council was amended by Regulation (EC) 1070/2009 of 14 November 2009. This happened to avoid the overlapping of different administration and to improve the implementation of the ATM Master Plan.

1.3 EASA

The European Union Safety Agency (EASA) was established in 2002 by Regulation (EC) Nº 216/2008 of the European Parliament and the Council and has the aim of setting a standardised level of safety in civil aviation by implementing common safety rules and measures. Formerly, EASA's responsibilities were carried out by the Joint Aviation Authorities[6] (JAA), which system ceased in 2009.

JAA's legal personality was founded in Dutch law and it had a great degree of autonomy despite being a branch of the European Civil Aviation Conference.

EASA and JAA differed in the fact that EASA is a Regulatory Authority and uses the National Aviation Authority to implement its Regulations, while the JAA was to be identified more as a club and it did not have any force of law at source, as it relied upon the NAAs in question.

The main problems of the JAA were the lack of transparency and of a political leadership. Furthermore, the JAA was unable to reach the synergy of the European standards required for the Single European Sky to work. So, the EU decision was concretised in 1998: its aim was to create a new EU agency which resembled the configuration of the Federal Aviation Administration (belonging to the U.S Department of Aviation), that could implement the harmonisation of civil aviation regulation in Europe. Despite, the urge to implement this new body it was not until 2003 that EASA was launched, with Regulation (EC) Nº 1592/2002, its scope is highlighted in Article 1, Paragraph 1:

> a) the design, production, maintenance and operation of aeronautical products, parts and appliances, as well as personnel and organisations involved in the design, production and maintenance of such products, parts and appliances;
> b) personnel and organisations involved in the operation of aircraft.

While its objectives are better explained by Article 2 paragraph 1:

> The principal objective of this Regulation is to establish and maintain a high uniform level of civil aviation safety in Europe.

and paragraph 2 (especially by commas a, b and c) :

> (a)to ensure a high uniform level of environmental protection;
> (b)to facilitate the free movement of goods, persons and services;
> (c)to promote cost-efficiency in the regulatory and certification processes and to avoid duplication at national and European level;

The transition was smooth and in the beginning EASA was to oversee the certification and maintenance, while the JAA still detained the task of licensing and operations. In the end, the main reasons for the decline of JAA were three: the aforementioned lack of a legal authority, the poorly transparent

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[6] The JAA was set up as an 'associated body' part of the European Civil Aviation Conference (ECAC) with the so-called Cyprus Agreement of 11 September 1990.

democratic organisation and the problem of accommodating extra-EU states in the participation to the management of the European Aviation (a problem that however persists and that will be discussed later).
With these problems contributing to the already precarious situation of JAA EASA acquired new competencies aside from its previous scope to cover Flight Operations and Flight Crew Licensing with the new EASA's Regulation (EC) Nº 216/2008 whose primary objective as expressed by Article 2, Paragraph 1 is: "[…] to establish and maintain a high uniform level of civil aviation safety in Europe".
EASA has several responsibilities such as advising the EU on the drafting of new pieces of legislation, developing and implementing safety rules also monitoring the MS. Type-certification of aircraft and decisions concerning the design, manufacture and maintenance also falls within EASA' responsibilities.
It also needs to certify personnel and organisations which take part in the operation of aircraft, the ones which provide pan-European ATM/ANS services and finally it needs to certify organisations operated by third countries responsible for ATM services. Part of EASA's responsibilities is also the authorisation of non-EU operators and safety analysis and research, including the drafting of the Annual Safety Review.
The tasks of the agency instead are to ensure the highest possible levels of safety and environmental protection helping the European legislature to set common standards; to check upon their uniform application in Europe and to enhance the spread of the standards at the global level.
EASA is entitled also to adopt various types of acts such as binding individual decisions as it has the power to grant aircraft type certificates and to inspect and to investigate; it also has the right to issue non-binding documents like guidance material, certification specifications and can present opinions regarding essential requirements to the European Commission.
Since September 2003, EASA is an independent body of the European Community and it acquired its legal personality. EASA's headquarter is in Cologne, where it has been established in 2004. With the consent of the MS, it can also set up local offices in the territories concerned.

EASA's representation is held by the Executive Director. He is entitled to take decisions and adopt acts concerning environmental protection and safety.
He is the manager of the agency and as such is responsible for inspections and investigations and had the duty to prepare and implement the budget programme and has the responsibility for what involves the personnel.
EASA regulation also created an independent Board of Appeal which has to check up on the work of the Executive Director and ensure that the application of European legislation is correct.

The Agency's Management Board is in charge of defining EASA's priorities, establishing the budget and appointing the Executive Director. It also adopts the working procedures to be followed by the Agency and EASA annual report and work programme (which needs the approval of the European Commission).

The Management Board is made up of one representative of each MS and one representative of the Commission. It also elects a Chairperson and a Deputy Chairperson to be selected among its members. The term of office is renewable and is of three years.
The Management Board is assisted by the Advisory Board, which is made up of organisations that represent manufacturers, aviation operators, aviation personnel, maintenance industry and training organisations.
At the moment EASA employs around 400 professionals, each of them assigned to several directorates. The main tasks are assigned to the "Rulemaking", "Certification" and "Approval&Standardisation" directorates.
EASA's budget is funded by the European communities, fees paid for the Agency's certificates and from publication and training.
The procedures applied by the Agency are transparent and are used for the adoption of opinions, guidance material and acceptable means of compliance. The use of these procedures guarantees the employment of relevant expertise and wide consultation and representation of all interested parties.
Special procedures are contemplated in the case of the need to take immediate action towards safety problems. It works in the same way for individual decisions.
To grant continued safety oversight, EASA is authorised to conduct investigations.
The European Strategic Safety Initiative (ESSI), was an aviation safety partnership in Europe promoted by EASA. Its objective was to ensure safety n Europe in 2007-2017 through analysis of safety data, coordination with safety initiatives and the implementation of cost-effective action plans. Now, the functions previously carried out by ESSI were reallocated to the bodies which are part of the European Safety Risk Management (SRM) regulated by the Agency.

1.4 EUROCONTROL

EUROCONTROL is a civil-military organisation operating at the pan-European level. It supports European aviation and it is invested in the implementation of the EU's vision for a Single European Sky, more specifically for what concerns the Air Traffic Management performance.

EUROCONTROL is to be identified as an intergovernmental organisation, which counts 41 MS (counting the European Community) and 2 States with observer status (Israel and Morocco).

It is regulated by an international convention. At the moment the "Revised Convention", which is the one in force, is undergoing a process of ratification (pending ratification by Turkey).

The Convention provides for EUROCONTROL to be governed by three bodies:

- the EUROCONTROL Commission is one of the two governing bodies, it is the Permanent Commission and it is formed by the high-level State representatives. It carries out several tasks among which the drafting of EUROCONTROL's general policy, the approval of the annual budget and the five-year programme, it takes care of the Contract Regulations, Financial Regulations and of the Agency and the Staff Regulations, it is furthermore in charge of appointing the Director-General. Being the highest decision-making body, it also has to make the final point in matters of the Agency's annual accounts. After the Multilateral Agreement relating to Route Charges concluded in 1981, the Permanent Commission is now referred to as the "enlarged Commission";
- the Provisional Council is the other governing body and it is made up of the Directors General of Civil Aviation and it represents the MS. It carries out the implementation of EUROCONTROL's general policy previously drafted by the Permanent Commission and prepares the work for the latter ;
- the Agency is EUROCONTROL's executive body and it is in charge of performing tasks enlisted by the Convention or drafted by the Permanent Commission or by the Provisional Council. It is headed by its Director-General which has the duty to manage the Agency, he can formulate proposals to be passed by the decision-making bodies of EUROCONTROL in a matter of the execution of the tasks.
- Furthermore, EUROCONTROL counts several other entities which assist the three main bodies. They shall monitor the transparency of the Agency's work and enhance dialogue and coordination in certain areas of the Organisation. Among them we find:
- The Air Navigation Services Board is composed of representatives of the military, ANSP, airspace users and airports of the MS. Its main function is to boost the participation of air navigation stakeholders in the decision making process and in planning the budget, taking into consideration the final decision making by the Member States.

- The Audit Board is made up of six professional auditors chosen by six States based on a rotation system and stays in charge for four years, instead, half of the body is renewed every two years. The Audit Board has two main duties
  - to check the Agency's annual financial statements and the ones of the Pension fund and to take care of the administrative part of the route charges system;
  - to supervise the work of the Agency and report the level of transparency to the Permanent Commission through the Provisional Council.
- The Civil-Military Stakeholder Committee (CMSC) was created with the fusion of the former CMIC and AAB groups into this single body. It has the task to report to the Provisional Council and the Director-General.
- The CMSC represents the final stage of consultation in matters of operational and technical contents. It ensures a balance between civil and military users, taking into consideration also national security and defence interests. Industrial stakeholders also participate in this decision-making process.
- The Maastricht Coordination Group is made up of high-level representatives of Belgium, Germany, Luxembourg and the Netherlands, which all together form the Maastricht Upper Area Control Centre (MUAC). Its task is to coordinate the position of the four states in a matter of the air traffic services provided in their area of competence.
- The Military ATM Board (MAB) assists the Provisional Council and when required provides advice to the Director-General. It is formed by senior military officers of the MS. It plays a key role in balancing the civil-military ATM performance partnership and takes part in this decision-making process. It collaborates with the CMSC in drafting and implementing harmonised military positions in a matter of ATM/CNS, to enhance coordination between the other key European organisations. This body is assisted by the Military Harmonisation Group (MILHAG), which is also, within their scope, a stakeholder sounding board for the Agency's Civil-Military Division. The MILHAG is formed by senior military experts of the MS, military representative of interested non-MS and organisations may also attend as observers.
- The Standing Committee on Finance (SCF) is made up of financial experts of the MS and has to take care of the budgetary and financial issues of EUROCONTROL.
- The Pension Fund Supervisory Board (PFSB) has the task to manage the Pension Fund and it is made up of four representatives of the MS, four representatives of the staff and a Director-General who does not have voting rights.
- The Performance Review Commission (PRC) provides an independent and clear performance review and a target setting system, supporting, therefore, the actual European ATM system. It reports to the Permanent Commission through the Provisional Council and is assisted by the Performance Review Unit (PRU).

- The Internal Audit Unit (IAU) assists the Agency in helping senior management to organise an effective system of internal controls. The IAU ensures: the transparency of financial and operational informations; the efficiency of programmes; the preservation of assets; the compliance with laws, procedures, policies and bureaucracy; the balance of risks.

CHAPTER 2

SES II and SES II+

2.1 The Single European Sky II (SES II)

In 2009, the second regulatory package on the Single European Sky (SES II) was approved, shifting the SES's target from capability to overall efficiency and performance. Its main goal is to enhance the economic, financial and environmental standards of the ANS in Europe. Three main changes were introduced: a comprehensive EU-wide Performance Scheme, the figure of the Network Manager to supervise actions at the network level and a revision on the role of Functional Airspace Blocks (FABs) in order for them to also have a part in the provision of services.
The Performance Scheme was introduced with the Commission Regulation (EU) Nº 691/2010 with which the European Commission adopted a system of performance target based on cost-efficiency, capacity and environment. This shift requires elaborated national or (FAB-level) performance plans operated by the National Supervisory Authorities to contribute to the overall European performance.
The FABs have the goal of enhancing cohesion between the ANSPs and the NSAs in order to set standardised procedures which aim at common procurement, training and enhanced efficiency of ATCs resources.
The Network Manager, instead, is a figure which has the duty to manage the ATM network functions, such as airspace design and flow management and also the supervision of scarce resources like transponder code allocations and radio frequencies. It has been defined by Commission Regulation (EU) Nº 677/2011 and up to 2019 is carried out by EUROCONTROL.
The SES II has a five pillars structure: the first pillar is to be found into the Single European Sky Air Traffic Management Research (SESAR) which constitutes the technological element, the second pillar is represented by the reinvention of the FABs and the introduction of a network manager (role that is performed by EUROCONTROL as mentioned before), the third pillar is held by EASA which, as will be addressed it the next part, saw its competences extended especially for what concerns safety, the fourth pillar being represented by the airports and the fifth and last one based on human factor.
Although the premise of a Single European Sky already in 2004 was to place its bet on performance, it was only with the SES II, through Regulation Nº 1070/2009 that the MSs agreed to put the competences in the hands of the European Community. Regulation Nº 1070/2009 amended the four original pillars of the 2004 Legislative Framework, for the sake of a better cooperation and cohesion between the MSs in terms of performance and safety. In fact, the main objective is stated in Paragraph 1 of the Regulation:

> The objective of the single European sky initiative is to enhance current air traffic safety standards, to contribute to the sustainable development of the air transport system and to improve the overall performance of air traffic management (ATM) and air navigation services (ANS) for general air traffic in

> Europe, with a view to meeting the requirements of all airspace users. This single European sky shall comprise a coherent pan-European network of routes, network management and air traffic management systems based only on safety, efficiency and technical considerations, for the benefit of all airspace users. In pursuit of this objective, this Regulation establishes a harmonised regulatory framework for the creation of the single European sky[7].

Therefore, the Performance Scheme is based on three specific goals which are: the environmental target, which concerns the carbon-neutrality of aviation growth; the capacity target, which aims to prevent significant disruptions and indirect costs for airspace users and their passengers as a result of ANS delays; and finally the cost-efficiency target which will ensure gradual increases in unit prices while keeping route charges relatively constant over time[8].
In terms of flight efficiency, the SES performance scheme includes choosing the shortest route between departure and destination in order to avoid overflying military zones and States which have a higher en-route charge, but also for sky congestions and meteorological reasons.

[7] Regulation (EC) 1070/2009.

[8] GAUBGARTNER, FINGER (2014).

2.1.1 The Performance Scheme

The Performance Scheme is one of the main features of the SES II package, it was initially set up with Regulation Nº 691/2010. The latter had the objective of switching the ANS approach to a performance-oriented one, basing itself on a strengthened cooperation between the MSs and on binding FAB performance plans, as explained by Paragraph 2:

> The performance scheme should contribute to the sustainable development of the air transport system by improving overall efficiency of the air navigation services across the key performance areas of safety, environment, capacity and cost-efficiency, in consistency with those identified in the Performance Framework of the ATM Master Plan, all having regard to the overriding safety objectives[9].

This Regulation was then repealed and replaced by Regulation (EU) Nº 390/2013.
In order to be clear, it is fair to shed a light on the origin of such Performance Scheme, which embryo is to be found in the first SES package in 2004. As already mentioned in the first chapter, first SES Regulation was to be supported by four pillars: the first one concerning technology falling therefore in the scope of SESAR (which will be discussed later), the second one about safety and managed by EASA, the third one being capacity and the last one being performance. The latter called for the creation of a Performance Review Commission (PRC).
In May 2007 the PRC published the Performance Review Report about the ATM in Europe in 2006. This document analysed the efficiency of the system and proposed to measure the performance using concrete indicators[10].
This Performance Scheme was then integrated in the second SES package in 2009, which set up the first reference period (RP1) for the achievement of the objectives.
Anyways, the Performance Scheme is a crucial element to aviation safety and efficiency. In fact, it aims to enhance European safety efficiency by identifying the most significant risks to aviation safety and taking steps to mitigate them. The SES Performance Scheme aims to set and enforce binding goals for Member States in order to provide improved air navigation services at lower costs. Flights would be cheaper as a result of the Performance Scheme's benefits.
The Performance Regulation creates a new framework for improving the safety performance of National Supervisory Authorities (NSAs), Air Navigation Service Providers (ANSPs), and network functions at the national/FAB and EU levels through goal setting and continuous monitoring. At the mo-

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[9] Commission Regulation (EU) Nº 691/2010.

[10] Performance Review Commission, 10 May 2007, *Performance Review Report covering the calendar year 2006*.

ment, the Regulation and its amendments identify safety performance indicators (SPIs) that should be tracked at both European and national levels[11].

[11] ROELEN, KLOMPSTRA (2012).

2.1.2 The Airport Capacity Observatory

Another important pillar of the SES II is the airports' one. Policymakers and airport stakeholders are asked to make decisions and to operate at a high level institutionally-wise. However, the *status quo* revealed the lack of harmonisation and standardisation in terms of indicators and measures, due to the variety of perspective of the stakeholders involved.
Furthermore, airports are gradually evolving into transparent and agile business organisations that are increasingly recognising the value of airport benchmarking as a useful airport management practice and decision-making tool. Airport benchmarking entails the sharing of comparable and harmonised data between airports in a seamless, reliable, and mutually beneficial manner in order to make effective management decisions and proper-long term planning. On the other side, we need to rethink the Collaborative Decision Making (CDM) as an instrument of cohesion an information sharing. The real-time sharing of information between Air Traffic Management, airlines, and airport operators, in order to allow the best use of limited resources and give more flexibility in the decision-making process, is a major prerequisite for the smooth and proper implementation of the CDM principles.
Furthermore since air transportation is by definition a network industry, airports cannot function in isolation. Extensive research has been done to explain the interdependencies and complexities of network modelling and analysis caused by the propagation of local phenomena to a system-wide stage.
Therefore, in response to the needs of airport management and policy formulation, the construction and implementation of a technological infrastructure and organisational system in the form of a European airport observatory has been proposed, and it is currently being implemented within the framework of the "Aviation Policy Knowledge Resources based on Observatory Networks (APRON)" research project.
The main targets of the Observatory would be:

- to recognise and verify the airports' criteria for the decision-making and policy-making processes;
- to carry out the policy formulation process verifying and collecting existing data and information;
- to bring together and harmonise current data and knowledge from a variety of sources and related stakeholders;
- to create a web-authoring information system that allows for the dissemination, usage, collaborative sharing, and web-based review of information from the airport observatory;
- to create a physical space for communication and cooperation, backed by an emerging/expanding network of participating airports (i.e., airport observatory) that will embrace and support the airport observatory concept;
- to form a preliminary "critical mass" of airports that will be involved in the construction and operation of the observatory network.

The strategic tasks and most important issues for meeting these needs are:

- the creation and adoption of a collaborative structure that will facilitate the development, activity, and maintenance of a network of airports that will participate in the European Airport System Observatory;
- the definition and adoption of a collaborative framework that will facilitate the establishment, operation, and maintenance of a network of airports that will participate in the European Airport System Observatory;
- the establishment of a "critical mass" of airports capable of causing a "snowball impact" to ensure continuous availability of complete, reliable, and relevant information, as well as creation of the necessary methodological, technical, and organisational infrastructure, in order to not only ensure the efficient use of the information that will be made available, but also to ensure that the information will be made available in a timely manner, but also to ensure the observatory network's self-sufficiency.

In terms of the airport observatory's possible user groups and use cases, this project aims to create a single, robust air transport data information center with a versatile and open-ended approach to meet the needs of a wide range of stakeholders.

There is no single consumer of air transportation and airport data, and data requirements differ greatly depending on the form of stakeholder, public versus private sector, and the intent of use or decision-making domain.

In this case when we speak of stakeholders it is meant transport policy makers, national aviation authorities, airport managers, airline operators, airspace research institutions or consulting agencies, airport associations and international aviation organisations in general, financial organisations and European citizens and passengers[12].

[12] ZOGRAFOS, MADAS (2006).

2.1.3 The Single European Sky ATM Research (SESAR)

The SESAR project is a technical cornerstone of the European Commission's Single European Sky Air Traffic Management (ATM) Initiative to modernise ATM. This project has a tripartite structure: the research and development (R&D) part is carried out by the SESAR Joint Undertaking, the deployment part is led by the SESAR Deployment Manager and, finally, there is the European ATM Master Plan, which gathers and organises both R&D and Deployment necessities.
Just before the current pandemic, the European ATM Master Plan was introduced. The massive loss of air traffic caused by the pandemic, as well as the pace at which the aviation industry recovers, will necessitate re-evaluation but the key elements that have been identified, especially those supporting the environment, will remain true.
The SESAR project was developed by Council Regulation Nº 219/2007 in response to growing air traffic delays and the need for new ATM solutions, and after the effective completion of the SESAR definition process. As explained by Art.1 Paragraph 1:

> In order to manage the activities of the development phase of the project to modernise air traffic management in Europe and to enhance safety, (the SESAR project), a Joint Undertaking is hereby established, known as 'SESAR Joint Undertaking' (the Joint Undertaking)[13].

Although substantial ATM R&D was being carried out in Europe at both the European and national levels, there was no agreed-upon strategy for developing and implementing promising research findings. Furthermore, it was unclear how to prioritise solutions that improved overall network efficiency over those that improved local performance.
The Regulation outlined three phases of the SESAR project, each led by a different agency, with the aim of organising all European ATM research toward a common goal:

- The SESAR Consortium completed the definition process (2005-2008) with the aim of delivering a European ATM Master Plan (MP) by 2008. The aim of this MP was to establish a research, growth, and implementation plan for ATM solutions in Europe in order to meet SES performance goals.

- The SESAR JU, a public-private partnership formed by this Regulation, is in charge of the production and validation of the required ATM solutions during the development process. The initial plan was for this period to last from 2008 to 2013.

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[13] Regulation of the Council, 27 February 2007, 219/2007(EU)), *on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR)*.

- The validated ATM solutions will be developed and implemented on a wide scale in the implementation process, which is scheduled to take place between 2014 and 2020[14].

The Master Plan (MP) drafted by the Council in 2009 transferred many responsibilities to the SESAR JU such as updating the MP with the new developments and new solutions both for research and for a new road map, in the meanwhile all the stakeholders were to be consulted.
In the end, only a part of the MP was ready by 2013 to switch to the development phase, therefore the decision was to extend the SESAR JU until 2024.
Because some ATM solutions were ready by 2013, and because a timely, organised, and synchronised deployment of these solutions is the fastest path to achieving ATM modernisation and SES performance objectives, the SESAR Deployment Manager role was established in 2013.
The Deployment Manager's primary role is to oversee the execution of Common Projects.
The Common Projects are mature SESAR JU ATM solutions that are deemed appropriate for the "achievement of the critical operational changes" in the European ATM network, where organised and synchronised implementation across the network is needed.

[14] BOLIĆ (2021).

2.1.4 EASA's extended competencies

The EU expanded the common aviation safety rules and EASA's corresponding obligations to aircraft operations, aircrew licensing, and training in 2008 with Regulation (EC) Nº 216/2008; this Regulation expanded the field of Union competence to include air operations, flight crew licenses and aircraft used by third-country operators into, inside, and outside the Community. In 2009, the EU passed a second expansion of the common rules governing aerodrome operations, air navigation facilities, and air traffic control Regulation (EC) Nº 1108/2009. The Regulation's requirements lay the foundations for specific, standardised, and legally binding rules for aerodrome operations and operators, air traffic control, and the provision of air navigation services.

On September 11, 2018, Regulation (EU) 2018/1139 of the European Parliament and of the Council came into effect, extending the area of European Union competence to include the entire aviation environment and strengthening the European aviation framework as a whole.

All unmanned aircraft, regardless of their operational mass, are now subject to the Basic Regulation. Only certain small tethered aircraft mentioned in Annex I of the Basic Regulation will remain under national jurisdiction.

The design of airspace structures is also specifically included in the Basic Regulation, which is not considered a service but rather a particular Member State role.

The European Commission adopts aviation safety rules based on professional opinions given by the EASA. The Commission monitors compliance with the rules on a daily basis with the help of EASA, which conducts regular inspections in all Member States. If safety flaws are discovered and not resolved, enforcement action can be taken.

This may include the termination of certificate reciprocal recognition or the imposition of penalties on certificate holders.

The responsibility for issuing certificates was also assigned to EASA rather than Member States. For example, the EASA is solely responsible for aircraft certification and other aeronautical items. Certificates are also issued by the EASA for organisations based in third countries.

National authorities in Member States, on the other hand, continue to grant individual certificates to aircraft, as well as most organisations and staff based on their territory, under the supervision of EASA. All certificates issued under EU law are valid in all EU Member States, ensuring a consistent level of protection for passengers and a level playing field for operators.

In the EU, aviation safety is often based on a reactive mechanism that examines accident and incident causes in order to prevent recurrence. This is done in accordance with established guidelines for accident and incident investigations.

Accident investigations are supplemented by a proactive framework, commonly referred to as safety management, that takes a systemic approach to safety[15].

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[15] MYNYUK (2017).

The Basic Regulation continues to exclude aircraft engaged in military, customs, police, search and rescue, firefighting, border control, coastguard, or similar activities or services, as well as a number of aircraft mentioned in Annex I to the Basic Regulation.

2.1.5 Functional Airspace Blocks (FABs)

By definition, the Functional Airspace Blocks (FABs) are airspace blocks established regardless of State borders, which base their function upon operational needs, air navigation services and related functions. They are performance-driven and are integrated with the goal of implementing enhanced cohesion among ANSPs or where necessary, an integrated provider in each FAB.
The implementation of the FABs was supported originally by Regulation Nº 550/2004, the established goal is to achieve the necessary capacity and efficiency of the ATM network within the SES while maintaining a high safety standard and contributing to the general performance of the air transportation system as well as considering the environmental impact.
The EUROCONTROL Report on the European Commission's Mandate on the subject lays out the criteria for the development of Functional Airspace Blocks (FAB). It recognises improvements in flight efficiency within each FAB, resulting in substantial cost savings for operators and environmental benefits.
According to EUROCONTROL, one-quarter of European route extension problems can only be resolved by working through FABs, implying the need for a strong and efficient network management and design mechanism at the European level.
Currently, as wanted by Regulation Nº 551/2004 and Art. 9 of Regulation Nº 1070/2009, nine FABs were established as they were thought to be the best mean of integration. These are:

- UK-Ireland FAB;
- Danish-Swedish FAB;
- BLUE MED FAB (Cyprus, Greece, Italy and Malta);
- Danube FAB (Bulgaria, Romania);
- FAB CE (Austria, Bosnia & Herzegovina, Croatia, Czech Republic, Hungary, Slovakia and Slovenia);
- FABEC (Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland);
- North European FAB (Estonia, Latvia, Norway and Finland);
- South West FAB (Portugal and Spain).

In certain cases, the amendments state that the apprehension and challenges faced when driving through this area.
The SES is a method for creating a connected sky; however, it is not without flaws.
Technically, there are still nine federal bodies that make up the EU.
Members of the European Union, as well as a number of neighbouring countries.
The FAB system, which covers both the civil and military sectors, has implications for aviation's fiscal, safety, environmental, technical, and institutional aspects, with the development of FABs remaining a key component of the SES. Despite a "regulatory obligation to make optimal use of airspace in

terms of capacity and flight quality, as well as an obligation to provide optimised air navigation services across the EU" within the prescribed time frame, this has yet to be accomplished three years later.

CHAPTER 3

AMENDED SES II+

3.1 The new SES proposal

Starting from the premise that the Single European Sky initiative was launched in order to boost the overall efficiency and synergy of all the ANS at a pan-European level, it follows that it is worth keep following this path.
Nevertheless, this proposal, launched in 2009 by the European Commission presided by the president Ursula Von Der Leyen, encounters several difficulties in its implementation.
There are two main problems:

- The first one is to be found in the "insufficient efficiency of Air Navigation Service (ANS) provision". In fact, ANS provision is considered inefficient when it comes to cost and flight efficiency and capacity[16].
- The second problem regards the fragmentation of the ATM system. Despite the implementation of borderless FABs, this still represents a challenge for the SES II+. This is because 27 national authorities make up the European ATM system, each of them exercising authority over more than one hundred ANSPs and each of them creating their own rules, training their staff in different ways and following different procedures from each other. This is why FABs are said to be not yet performance oriented and the figure of the Network Manager is still severally limited.

These problems are rooted in several causes; starting from the first one the matter resides in the fact that ANSPs have a natural monopoly which is far bigger than the onzwhich would allow the project to reach a balance of power. Moreover, operations conducted by the latter do not have a great focus on clients, indeed, many ANSPs do not have a transparent relation with the clients, which should in turn understand their role in the air traffic system, furthermore they should be more aware of their environmental responsibility which still concerns the focus on the customer[17]. Instead, focusing on the second problem of a fragmented ATM systems, it has to be recognised that since each FAB has its jurisdiction and it is not clear when competences are of the MSs or of the EU, not all of them are performance-oriented and consequently the NM cannot perform a prominent role in their organisation.

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16 This data is to be compared with the US air traffic system, which is served by only one service providers and controls 70% more flights, employing 38% less staff compared to the EU.

17 ANSP mission and objectives — the emphasis needs to be on safety, capacity, cost-efficiency, customer-focused service, and increasingly, environmental responsibility, i.e. the expectations of the air navigation service. Government policy needs to address some fairly fundamental questions – "why does the ANSP exist?" ; "who is it to serve?" and "what is expected from the ANSP?".

Considering Article 58, 90 and 100[18] of the Treaty on the Functioning on the European Union (TFEU), it is clear that MS have shared competence for what concerns the scope of free movement (air travel included), however it seems like MS alone are not able to ensure the optimal building of capacity and safety alongside the reduction of ATM related services. Nevertheless, MS recognised that the fragmentation of the European airspace wanted by the first two versions of the legislative frameworks created several problems. In order to solve the problems aforementioned, stating from the first one, the EC has identified several policy options:

- to take care of the support services it is deemed necessary a structural and /or functional separation of them; if functional separation will be chosen, ANSPs will have to organise as a separate business unit and organise internally the service provision; otherwise, in the case of a structural separation, assets and staff management would be transferred to a different organisation detached from the core ANSP. However, the EC thinks that the best solution is the structural separation as is more prone to stimulate competition between ANS and to reduce costs for air operators;
- for what concerns the lack of customer focus and therefore the customer needs, the EC proposed an improved "consultation and sign-off on certain investment plans by airspace users, plus to give airspace users groups a role in ANSP governance". Here both options would reach a desirable outcome, however while a governance board would be more beneficial, it would carry a higher risk, therefore the option of improved consultation and sign-off represent a safe choice.
- in order to render effective the regulatory role of NSAs the plan is to create a synergy between the EU and a group of experts, alternately it is proposed an institutional or functional separation of NSAs from the ANSPs. The first one carries higher political risks but also greater advantages. The second is not as risky but is considerably less beneficial, hence the first choice is to be preferred.
- finally, in the field of the performance scheme it would be crucial to reduce MSs involvement in setting the goals and the PRB should be instead supervised by the Commission, alternatively boost the inclusion of the MSs with a nomination of the members of the PRB but without the practice of Comitology[19], in order to speed up the process. However if nothing is done in this field it would be impossible to reach the prefixed targets. Here the outcomes of the options would be ultimately similar, however if the first option would be not welcomed by MSs, the second one is deemed too risky by the EC in matter of control. Therefore, if the choice is to be based on the less risky option, the EC will definitely opt for the first one.

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[18] The second paragraph of the Article goes as follows: 2. The European Parliament and the Council, acting in accordance with the ordinary legislative procedure, may lay down appropriate provisions for sea and air transport. They shall act after consulting the Economic and Social Committee and the Committee of the Regions.

[19] The Comitology is a set of procedures through which the European Commission exercises the implementing powers conferred on it by the EU legislator, with the assistance of committees of representatives from MSs.

In order to solve the second area of problems, regarding the fragmentation of the ATM system, there is a set of solutions:

- to cover the lack of FABs in being performance-driven and their insufficient added value it would be optimal to create some targets and criteria that could be advisory to the latter, or to change their organisation in a more flexible one or to adopt a "top down approach" creating a new figure envisaged by the PRB and by the NM. Here, the first option presents several risks at the political level and it would be very hard to implement, the second one is seen as the safest choice, as long as a deadline is set for revising the FAB concept.
- To boost the figure of the NM instead the more approachable solutions would be to simplify EU strategic matters and charge the industry with the task concerning the operational governance field, to create a joint undertaking as for the R&D department (SESAR JU) in order to support the figure of the NM or to include EUROCONTROL and consequently centralising the service provider "including airspace in a broader sense". MS would still retain their right of veto for what concerns matters of sovereignty, but operational governance would be instead managed by industry. The option to expand EUROCONTROL's competences would be the best choice in terms of efficiency and capacity, however it should be combined either with the idea of a JU or with the operational governance carried out by industry.

3.2 The impact of COVID-19 on the aviation system

Many sectors of the economy are affected by exogenous factors when it comes to internal consequences: among them one of the most affected is the air traffic system one. This is because the aviation system is threatened on various sides, such sudden and steep decreases in the numbers of flight, flights cancellation, bans and strict norms to follow.
In order to have a term of comparison I will briefly describe the effects that had the SARS outbreak in 2003 according to the data yield by the International Air Transport Association (IATA). In fact, if due to the SARS epidemic the passenger kilometres (RPKs) revenue per month decreased of 35% for what concerns the Asia-Pacific airlines, COVID-19 pandemic caused disastrous consequences for the international ATS.
In March 2020 the 98% of global passenger revenues were mainly derived by transport markets and many airlines had to stop their activity completely.
The peculiarity is that COVID-19 pandemic has spread far quicker than SARS. The majority of the airlines kept operating a normal schedule but soon they were blocked by severe restrictions. According to IATA this might be the biggest crisis that this sector found itself to face[20], with airlines share prices having grown of almost 25% since the beginning of the outbreak.
COVID-19 implications on regional air traffic has been assessed by Airport Council International which speaks in place of more than 500 airports in 46 European countries shown a decrease of 13.5% of passengers (which amount to about 67 million) only in the first three month period of 2020, in place of the forecasted increase of 2.3% passenger growth, there was instead a total decrease of 187 million passengers in Europe's airport throughout the entire year, while concerning the financial side, there was a loss of €1.320 million only in the first quarter of the year, coming from lower aeronautical and non-aeronautical revenues and other correlated services.
EASA, as the EU regulator for aviation safety with certification, overusing and support responsibilities for Member States, has taken a strong position on the matter from the start of the pandemic, to help mitigate, as much as conceivable, the devastating impact of the COVID-19 on the aviation sector.
EASA has been working on a number of fronts in this regard. To begin with, by assisting in the maintenance of basic air connection required for the quick shipment of critically needed medical equipment and other important supplies, as well as citizen repatriation when national borders were eventually closed.
Second, by aligning exemptions granted by national authorities and advising on how to organise safety oversight in situations where in loco inspections are not possible due to public health measures and restrictions on freedom of

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[20] "[…] the crisis is deeper and longer than any of us could have imagined[…] (Alexandre de Juniac, IATA's Director General and CEO), *Airlines continue to burn through cash* in Airlines.IATA, 8 October 2020

movement; and third by assisting in the prevention of the virus's spread on board aircraft.
Taking into considerations the pandemic's debilitating effect, EASA enacted several measures aimed at assisting the aviation industry, Members States and NAAs, as well as actions designed to maintain a high and uniform level of safety which remains the primary goal. To put such measures in place, EASA employed all the instruments available under Regulation Nº 2018/1139, including those that were used for the first time.
The aviation industry's capacity to maintain business continuity was severely harmed by the adoption of lockdown measures and creeping border closures by governments throughout the world. At the same time, the airline sector needed to keep running so that individuals could be repatriated to their home countries, medical evacuations could take place, and critical cargo goods, such as medical equipment, could be transported. EASA has made a number of steps to make all of those activities as easy as feasible.
As soon as January 2020, at the start of the outbreak, in accordance with Article 76 (6) of Regulation 2018/1139 EASA issued a non-binding safety information bulletin (SIB), called 2020-02 (SIB). In fact, according to Regulation 2018/1139, Art. 76:

> "The Agency shall react without undue delay to an urgent safety problem falling within the scope of this Regulation by:
>
> (a) determining corrective action to be taken by natural and legal persons in respect of which it acts as the competent authority and by disseminating related information to those persons, including directives or recommendations, where this is necessary to safeguard the objectives set out in Art.1; the Agency may also issue safety bulletins containing non-binding information or recommendations addressed to other natural and legal persons involved in aviation activities; […]".

The SIB also advised airlines and airport operators to encourage crew members and airport workers to monitor passengers with respiratory illnesses who had recently visited China or had contact with people who had recently returned from China.
The SIB also advised airlines flying to impacted countries to provide Universal Protection Kits to their crew members to help with potentially contagious cases. The SIB also urged airlines and airport operators to work with public health authorities to track down passengers in the case that illness has been verified on a flight.
Aside from assisting the aviation sector, EASA has actively helped EU MS and national aviation authorities by offering guidance, technical assistance, and coordination when needed in its role as the coordinator of the European aviation safety system. As the aviation sector and MS prepare for the gradual restart of aviation activity in the time ahead, this effort will be continuous and enhanced.
Another problem born with the consequences of the COVID-19 outbreak is that of the social distance and the subsequent lockdowns which led to the closures of flight schools. This represented and issue for the people working

in the field such as pilots, airport staff and air traffic controllers because of the difficulty of renewing their certificates or the impossibility to complete their preparation courses.
Fortunately, in Europe, Art. 71(1) of the Regulation 2018/1139 allows MS to grant temporary exemptions from the applicable requirements in the event of urgent operational needs or unpredictable events, among which COVID-19 outbreak is classified, provided that those circumstances or needs cannot be adequately tackled by other means and providing, however, that safety is maintained, if required, via the use of mitigating measures.
To secure that expansions granted by different MS are consistent, EASA sent recommended templates for exemptions in the areas of air crew, aircraft continuing airworthiness, air traffic controllers and air operations to national competent authorities. So far, all exclusions granted by MS have generally followed the EASA guidelines. Such exemptions are usually given for a limited time frame, which usually is no longer than eight months in a row.
The Agency also published safety directives 2020-01 and 2020-02, with different addresses, with the goal of reinforcing the public's and aviation stakeholders' perceptions of the necessity for preventive steps to avoid the spread of the COVID-19 illness through air transport. The operators certified in harmony with Commission Regulation 956/2012 are addressed in Safety Directive Nº2020-01 as a "reaction to an urgent safety problem" under Art.76(6)(b) Regulation 2018/1139:

> "determining safety objectives to be achieved and recommending corrective action to be taken by national competent authorities and by disseminating related information to those national competent authorities where this is necessary to safeguard the objectives set out in Art.1[…]".

The measures contained in this Regulation aim at preventing the spread of COVID-19 and are rooted in the elected safety objective of minimising risks to passengers and the general public as a result of operations from airports in affected areas with a high risk of COVID-19 infection transmission by aircraft.
EASA also published Safety Directives (SD) 2020-02, in line with Regulation 2018/1139 Art.76(6)a mentioned earlier.
Under this Directive set, third country operators are required to adopt the same measures recommended to EU Commercial Air Transport (CAT) operators in the aforementioned SD 2020-01 when it comes to commercial air transport of passenger to or subjected to the provisions of the Treaty on the EU. Furthermore, as Annex 1 to SD 2020-01 and SD 2020-02, a list of airports deemed to be located in regions of high transmission risk has been released and is constantly updated.
The Agency and the European Centre for Disease Prevention and Control (ECDC) released a joint aviation health safety protocol on 21 May 2020, providing guidance to airport operators, plane operators, NAAs, and passenger on how to smooth the operations for "a safe and gradual restoration of passenger transport', according to the measures issued to minimise the risk of SARSCoV-2 transmission in the aircrafts as much as possible.

3.3 The proposal to amend EASA basic regulation

As explained previously, through a reform of the industry providing ANS, the SES program intends to enhance the overall efficiency of how European airspace is organised ad administered.
The revised proposal for a Regulation of the European Parliament and of the Council on the implementation of the Single European Sky[21] aims to update and restructure the present legislation on the Single European Sky, in light of experience.
The roots for this proposal are to be found in Article 100 (2) of the Treaty of Functioning of the European Union:

> The European Parliament and the Council, acting in accordance with the ordinary legislative procedure, may lay down appropriate provisions for sea and air transport. They shall act after consulting the Economic and Social Committee and the Committee of the Regions.

This competence follows the principle of subsidiarity and proportionality which grant the Union the right to act in this field.
ATM, in particular, has been governed by Union law since 2004, which cannot be changed unilaterally by MS. ATM impacts the whole European Union's airspace by definition, because cross-border movements of people, commodities, services and capital are fundamental to aviation.
This is the reason why Regulation (EU) 2018/1139, whose proposal for amendment has been put forward by the Commission in COM(2020) 577 final on 22 September 2020, cannot be amended by the MS only.
Following as well the principle of proportionality, the plan does not go beyond what is required to fulfil its goals, namely, ensuring that Performance Review Body (PRB) functions be carried out with the required independence, competence, and resources. The proposed modifications to Regulation (EU) 2018/1139 should thus take the form of a Regulation, which is to be adopted by the European Parliament and the Council in accordance with the normal legislative procedure. Because this Regulation is not one of the acts to be recast, it should be submitted separately from the modified recast proposal [COM(2020) 579].
The proposed Regulation establishes a permanent organisation dedicated to performance evaluation, ensuring the required impartiality and expertise. It is suggested that judgments made by the Agency serving as PRB be subjected to appeal to a specific body within EASA, namely the Appeal Board for Performance Review, in order to provide for a prompt legal review, without prejudice to the competencies of the Court of Justice.
It also establishes the composition of, as well as the essential conditions for, the entities and function holders that will enable the Agency to serve as a PRB. The modified recast proposal [COM(2020) 579] specifies the responsibilities and authorities to be conferred on the Agency for these objectives.

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[21] [COM(2020) 579].

They include evaluating and approving designated air traffic service providers' performance plans, providing recommendations to the Commission on the Network Performance Plan, monitoring performance, and verifying air traffic service providers' unit prices.
It would be desirable for the Union to discuss with EUROCONTROL the transfer of technical expertise and essential performance-related data in order to optimise the Agency's functioning as a PRB, perhaps by modifying the two parties' current High-Level Agreement.
Basically, Regulation (EU) 2018/1139 is amended in several points. First of all it does not mention anymore the four pillars of the first package of the SES as it refers to the amended SES2+ and clearly includes the new entities introduced with the latter, such as the PRB which is now mentioned in the new Article 93 of the Regulation, where the old one goes as:

> The Agency shall, where it has the relevant expertise and upon request, provide technical assistance to the Commission, in the implementation of the Single European Sky, in particular by:
> (a) conducting technical inspections, technical investigations, and studies;
> (b) contributing, in matters covered by this Regulation, in cooperation with the Performance Review Body provided for in Article 11 of Regulation (EC) No 549/2004, to the implementation of a performance scheme for air navigation services and network functions;
> (c) contributing to the implementation of the ATM Master Plan, including the development and deployment of the SESAR programme.

The new one holds as follows:

> 1. The Agency acting as Performance Review Body (PRB) shall have the tasks and exercise the powers set out in [Amended SES2+]. 2.
> 2. Where it has the relevant expertise, whether or not in its capacity as PRB, the Agency shall, upon request, provide technical assistance to the Commission, in the implementation of the Single European Sky, including on the performance and charging scheme, in particular by:
> (a) conducting technical inspections, technical investigations, reviews of compliance, studies and projects;
> (b) contributing to the implementation of the ATM Master Plan, including the development and deployment of the SESAR programme.

This, is applied to many more articles which instead of mentioning EASA only as an entity providing assistance and technical expertise to the commission, now consider the Agency as a proper PRB with its own power, tasks and independency.
Section IIa, which has been inserted during the amendment process outlines the composition of the PRB and the function of each entity.
Art.114 of the amending proposal explains how the Agency serving as PRB must have the following resources to carry out its performance review:
- A Regulatory Board for Performance Review;
- A Director for Performance Review;
- An Advisory Board for Performance Review;
- Appeal Board for Performance Review.

Furthermore, it explains the functioning of every single unit and their tasks.

The Regulatory Board for Performance Review must assist the Director for Performance Review and when appropriate comment and amend his/her proposals, the body also has to submit its opinion to the Management Board on the procedures carried out by the latter such as the appointment and nomination of the Director for Performance Review and his or her removal from office[22].

The Regulatory Board for Performance Review will be made up of nine voting members and one non-voting Commission representative. Each member must have a backup. The Chairperson of the Advisory Board for Performance Review shall be one of the members. A member of the Management Board is not permitted to serve on the Performance Review Regulatory Board. The term of office for members and alternates should five years, with the possibility of extension.

The members and their alternates are appointed by the Management Board on a proposal from the Commission, under approval of EUROCONTROL.

Furthermore they should not represent the interests of their MS of origin but must act independently under the purpose of this Regulation.

By a two-thirds majority, the Regulatory Board for Performance Review elects a Chairperson and a Deputy Chairperson from among its voting members. If the Chairperson is unable to fulfil his or her responsibilities, the Deputy Chairperson will take over. Moreover, the Chairperson's and Deputy Chairperson's terms of office shall be two and a half years and renewable. If their participation on the regulatory Board for Performance Review ends at any point during their term, their term in office will automatically end on that date.

The body is summoned upon request of the Chairperson and must meet at the lowest twice a year. The request for a meeting can also be made by one third of its members or by the Commission. Any person who can provide a useful advice may take part to the meetings and at the end of them EASA shall provide the secretariat for the Regulatory Board for Performance Review.

The voting procedure follows a simple majority rule, in which nor the Director nor observing members shall have a right to vote.

Concerning the Director for performance review, his term of office is of five years. During the nine months previous the end of his mandate, the Commission shall examine especially his overall performance and the tasks and goals concerning performance review in the following years.

The Director for Performance Review is held responsible for the attainment of the goals regarding performance review in harmony with Amended SES2+. He also is responsible for the legal representation of EASA in matters of performance review, for the budgetary decisions and for recommendations and decisions taken in respect of the tasks.

The Advisory Board composition is outlined in Art.114(j) and it includes one senior representative for each MS and a backup, and one non-voting representative of the Commission and its alternate.

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[22] Following respectively Article 98(2a) and Article 114g(2) for appointment and 114g(6) for removal.

The members of the Advisory Board for Performance Review will elect a Chairperson and Deputy-Chairperson. If the Chairperson is unable to execute his or her duties, the Deputy-Chairperson will take his or her place. The Chairperson's and Deputy-terms Chairperson's of office are two and a half years long and renewable. If their participation on the Advisory Board for Performance Review ends at any point during their term, their tenure will immediately end on that date.

Instead, the Appeal Board for Performance Review is responsible for deciding on appeals against the decisions referred to in Amended SES2+. It shall be summoned when is needed.

The Performance Review Appeal Board will be made up of six members and six alternates chosen from current or former senior staff of the national supervisory authorities mentioned in Article 3 of Amended SES2+, competition authorities, or other Union or national institutions with relevant aviation experience. The Chairperson of the Performance Review Appeal Board will be chosen. The Members are appointed by the Management Board, on a proposal from the Commission in accordance with the Regulatory Board for Performance Review. Their mandate lasts up to five years and it can be renewed only once.

The Appeal Board has to adopt and publish its rules of procedures and the Commission is to be notified of any significant change to these draft rules of procedure. Within three months after receiving the notification, the Commission may issue an opinion on the regulations.

CHAPTER 4

4.1 The issue of fair competition

Throughout the last decades, the EU institutions have become more prone to enhance Europeanisation, but MSs have become more protective of the last vestiges of full sovereign control they retain over fields in which they still have the power to legislate in harmony with the EU Treaties. The Single European Sky, an audacious idea but far from a success, exemplifies this tension. The Union has attempted to push its project with different elements belonging to the EU law in which it has some type of authority in order for it to be accepted. The Union has different kinds of competences in which range we find shared competences, exclusive competences and competences aimed at supporting MSs. According to Article 3(1)(b) of the Treaty on the Functioning of the European Union (TFEU), competition is one of the European Union's exclusive competencies, whereas the internal market and transportation are shared competences:

> 1. The Union shall have exclusive competence in the following areas: […]
> (b) the establishing of the competition rules necessary for the functioning of the internal market […].

The TFEU also has a section on competition regulations (Title VII). Monopolies are only permitted in Europe if they do not have an impact on the internal market, according to one of the fundamental principles of European law. Because the Air Navigation and Air Traffic Service (ANTS) is supplied by a monopoly with the potential to impact commerce between Member States and so infringe on Article 102 TFEU, the Union has decided to implement the SES as part of its efforts to improve fair competition. While it is obvious that remedies are required, the SES ideas are unlikely to improve fair competition.

The SES will not promote fair competition since the supply of ANTS has the characteristics of a natural monopoly, as it would be prohibitively expensive for many ANTSs to provide their services over the same region. As a result, in the air traffic management industry, a market-based approach to competition may not be appropriate. Furthermore, in order for such a system to operate, coordination would be required, which would raise the cost and perhaps exceed the benefits of a competitive market. Furthermore, due to the unique features of the air transportation industry, not every firm would be able to supply these services.

Opening the pitch to a level playing field might have devastating implications, such as a decrease in maintenance and safety precautions. Furthermore, Member States may opt not to invest in the service provider, leaving it with limited resources. Despite the fact that State assistance is forbidden un-

der Article 107 TFEU, paragraph 1[23], most Member States are presently shareholders or owners of the Air Navigation Service Provider (ANSP), allowing them to circumvent the prohibition.
As a result, the States cannot cease investing in the firms since the ANSP/ANSs must continue to get financial assistance in order to maintain, repair, and eventually upgrade old equipment.
The Commission noted in its 2013 report on the SES[24] that it aims to open the air sector to fair competition while maintaining safety and environmental standards. The Commission expects that by expanding the market, new commercial possibilities would emerge. Only a few services will be split in order to allow new businesses to compete. Support services such as meteorology and communication, for example, will be accessible to competition, but core air traffic control services will be monopolised.
Regulation is critical in order to avoid ANSPs from discriminating against consumers by charging more for foreign flights than for domestic flights. To put it another way, if the system is not regulated, competition will be compromised. The majority of Member States have put in place a framework to verify that the costs are reasonable.
The number of suppliers for key ANS services will not reduce to one in each FAB, which would have brought the EU system closer to the US system but would have resulted in one country's "supremacy" over an entire FAB. For a variety of reasons, Germany will not be the exclusive provider of air traffic control services in the FABEC. On the one hand, the Chicago Convention mandates that each Member State supply an ANSP; and, while not explicitly specified, the ANSP has usually been of the same nationality as the Member State. The Commission, on the other hand, does not want one ASNP to dominate each FAB.
The SES does not aim to create a totally new regime in which just one ANSP provides services to the whole FAB, as stated in Article 8 of Regulation 550/2004:

> In respect of functional airspace blocks established in accordance with Article 5 of the airspace Regulation that extend across the airspace under the responsibility of more than one Member State, the Member States concerned shall jointly designate one or more air traffic service providers, at least one month before implementation of the airspace block.

Finally, because most ANSPs are State-owned, it is possible to claim that Member States will never agree to completely relinquish their sovereign sovereignty.
With the exception of Eurocontrol, which has a unique status, the ANSPs are currently protected since they are the only firms with the privilege of delivering services over a country's airspace. Because the work of an air traffic

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[23] "Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market".

[24] "Report on the Annual Report on EU Competition Policy".

control provider is very complicated and needs skill, exposing the industry to fair competition is unlikely to increase the number of providers.

4.2 The liability aspect

Clearly fair competition is crucial, but without a robust and clear liability framework, certain businesses may be unable to engage into a contract with one State while continuing to supply services in another. If a new firm attempting to provide services in another nation lacks a clear understanding of its rights and duties, it will have to do research to determine what sorts of liability claims it could face, increasing its expenses.

A second key question is whether a foreign ANSP will be subject to a dual liability obligation. It appears very improbable that a government transferring authority to a foreign ANSP will agree to have that ANSP's legislation govern any dispute emerging from the connection. A few questions might be whether an ANSP would be required to comply with another State's regulation if it offer services in its airspace or whether it will be held liable under its own State's tort laws, or the other State's tort laws or both. These are only a few of the numerous issues about ANSP responsibility under the SES that have yet to be answered.

Immunity is another potential issue. Controllers, for example, are government officials in most Member States, including France and Sweden, which limits their culpability per se. In Germany, the United Kingdom, and Italy, however, the ANSP is a private company, which implies that such controllers will no longer be protected by State responsibility and will be held personally accountable.

The lack of uniform provisions on liability standards is thus a key flaw in the European ATM safety legislation. As a result, not only is the efficient allocation of safety-related risks not coordinated in the European regulatory framework, but this legal fragmentation also has an impact on the potential for technological safety research, making liability a significant issue in the enhancement of aviation safety. The next sections look at these challenges by focusing on air traffic service delivery as the implementation phase of safety regulations and standard establishing as the rule-making phase.

As specified also by Reg 550/2004 and as aforementioned, ANSP need a certification produced by the competent NSA, which ensures that competences and requirements are met.

This administrative action intends to safeguard the public's interest in the safe operation of ATMs by examining the subjective qualities of potential suppliers first. Certificates define service providers' rights and duties with respect to safety, with the goal of assigning ATM tasks exclusively to well-established organisations that can assure safety in beforehand, as well as responsibility and insurance coverage in the event of an accident.

Because these standards are identical to all Member States, the validity of these certifications is mutually recognised throughout Europe, allowing for the free movement of these specific services throughout the EU within the appropriate limitations of safety regulations. To achieve this aim, National Supervisory Authorities must monitor providers' consistent compliance with the standards and conditions set forth in the certifications, allowing the ad-

ministration to have the last say on the degree of safety that should be guaranteed in air navigation services.
However, in order to ensure efficient free movement of services within the EU under the mutual recognition system, this certification role must be harmonised. From this perspective, the execution of safety standards may play a critical role in determining the acceptable level of safety that should be ensured: prospective providers can strive to be recognised as ANSPs if they demonstrate they have the means and resources to meet these requirements.
Furthermore, service providers' liability and insurance coverage assurances should be as more similar as possible between MS, so that reimbursement for any harm does not constitute a legal impediment to the free flow of services. This obligation on air navigation services reflects the liability rules outlined in the directive on internal market services, which require authorised service providers to be covered by appropriate professional liability insurance based on the nature and scope of the risk they pose by providing specific services.
In the creation of an integrated European ATM, the fragmentation of liability legislation in the SES is a major roadblock to legal clarity. Eurocontrol first raised this issue in 2005 in connection with the establishment of EU Functional Airspace Blocks (FABs) and the provision of air navigation services, emphasising the need to clarify the responsibilities of States, service providers, organisations, and individuals involved in the ATM regulatory framework. SES, like EU regulations on other services of general interest, has established a functional separation between service provision and supervision, at least at the functional level, in order to improve transparency and clarify the responsibilities of both service provider and NSA.
In the European airspace, framing responsibility implies putting cross-border service provision in a new framework, one that is based on FAB operational performance rather than national sovereignty. As a result, the international model of ATS delegation as a State-to-State agreement is transferred into a new legal framework that requires operational coordination throughout all of Europe's airspace. Different liability models can have an impact on FABs' capacity to provide the same level of service. In order to overcome challenges in the implementation of FABs and the cross-border supply of air traffic services, the Eurocontrol Performance Review Commission urged the EU Commission to address sovereignty and liability concerns.
Regs. (EC) 1070/2009 delegates the monitoring of air navigation service providers to Member States' consent, as well as the management of instances involving non-compliance with the applicable common standards on ANS and, in particular, responsibility, to collaboration among National Supervisory Authorities.
This regulatory model wants to promote a flexible approach rooted in the agreements between delegating states and air service providers, by directly designating a foreign service provider (without delegation), and by the mechanism of joint designation of a single service provider by interested States, where an FAB extends across the territory of more than one Member State. Sub-delegation of duties by interested air service providers is also an option.

However, this system does not grant liability, in facts MS rely on international laws: the instance of joint designation, the liability regime is determined by the location of the harm. Liability is still governed by national laws if it occurs in a country's sovereign airspace; however, when a cross-border service provision dimension exists, the agreement should charge liability either on contracting States so that every State is liable over its territory or otherwise on the designated service provider itself recognising a subsidiary liability of concerned States , but it also has the option of charging liability on the designated service provider.
Finally, in the case of sub-delegation, the sub-delegation contract should provide compensation clauses to ensure that the designated air service provider will be indemnified for all the cost reimbursed to the territorial State in respect of damages caused by the sub-contractor. This means that even though the SES outlines a common regulatory framework for ATM, the liability regime in ATS is governed by contractual decisions based on national rules. It is apparent that as long as advances are made, flexibility in approach must be maintained.

4.3 The problem of integration

The FABs are one of the most important components of the SES effort, since they aim to reduce the inefficiencies – in terms of safety, capacity, and cost – that come from European airspace fragmentation. FABs are viewed as an explicit bottom-up route to eventual European airspace unification. They want to strengthen ANS for a number of agency airspaces by bringing their ANSPs closer together. "Each FAB is unique and confronts unique political, operational, technological, and economic challenges[…]" says the underpinning concept[25]. The scope, timeframes, and methodologies of FAB projects vary greatly. The European Union's worries about efficiency must be viewed in perspective. The demand for ANS is derived from the demand for airline services, which varies significantly depending on factors such as the performance of European macroeconomies. Due to economic recessions and, in particular, the Eurozone crisis, the average cost of ANS in Europe has tended to decline in recent years, but projections indicate that with macroeconomic recovery, the cost of ANS will rise, at least temporarily. The European Union's worries about efficiency must be viewed in perspective. The demand for ANS is derived from the demand for airline services, which varies significantly depending on factors such as the performance of European macroeconomies. Due to economic recessions and, in particular, the Eurozone crisis, the average cost of ANS in Europe has tended to decline in recent years, but projections indicate that with macroeconomic recovery, the cost of ANS will rise, at least temporarily. Despite the fact that airspace is a shared resource, air traffic management in Europe is largely fragmented. When a plane enters a Member State's airspace, it is served by a separate ANSP, which operates under distinct regulations and operational needs. Each supplier acquires custom-made equipment, and the majority of them run their own training schools and support operations. This fragmentation has an influence on safety, capacity, and, most importantly, cost. Despite the potential benefits for Europe as a whole, the drive to a Single European Sky has proven difficult. Efforts to solve this, or at the very least ameliorate the situation, have mostly consisted on "regional" airspace reforms including increased integration of comparable, nearby systems. Nevertheless as also mentioned in the previous subchapter, even if FABs were introduced to reduce disparities, enhance safety and security and represented an opportunity for MS to contrast the progressive centralisation of power carried out by the Union, actually there integration is far from being achieved.

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[25] EUROCONTROL Performance Review Commission (2008).

4.4 The current situation

Currently the Trilogue is still ongoing, in order to reach a compromise that will satisfy both the requests of MSs and the aims of the Union.

4.4.1 The Commission and the Council's Position

On September 2020 the Commission released a document in which explained the approach assumed in relation to the SES 2+ proposal. In relation to the COVID-19 pandemic, and whether it was or not the right moment to propose such reform, the Commission explained how the European ATM system is in need of a boost, to do so an efficient regulatory change ,like the one outlined in the SES2+, is crucial. Furthermore this proposal constituted a key part to support the European Green Deal proposed by the Commission in December 2019 as regards the diminution of CO2 emissions and the enablement of new, smoother routes. Since the Proposal was blocked in 2013 because of the disagreement over the Status of the Gibraltar airport between Spain and the United Kingdom,[26] it was updated seven years later but pursuing the same objectives that were mentioned in the previous chapters *i.e*: safety, cost-efficiency, and the diminution of delays and unnecessary emissions. Concerning the vertical unbundling of support services for ATM it will be in the hands of the MSs the decision whether to acquire these services under market conditions. In the case of terminal air traffic services, airport operators have the option, subject to a Member State's previous decision to allow this procurement in the case of services for "approach control". As a result, providers can choose to continue providing all services in an integrated manner, but they can't stop other providers from offering competitive services.
This will be accomplished by making operational data inexpensively available to other providers, allowing for cross-border data services and competition on a European data service market. In the end, this market would enable the construction of "capacity on demand", i.e., more flexible provision of monopoly air traffic services.
As of 2030, the development of a market for data services will result in cost savings.
As regards the role of EASA as PRB instead the Commission confirms its strict link with the performance scheme.
To begin with, national supervisory agencies will no longer be responsible for drafting and submitting performance plans to fulfil mandated performance objectives. Instead, air traffic service providers would be responsible. As a result, each air traffic service provider develops his or her unique strategy. The projected expenditures for all air navigation services delivered during a reference period for which the Commission will first set Union-wide performance objectives are included in this plan.Second, instead of submitting performance plans to the Commission, as is now the case, they will be

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[26] The Gibraltar airport was contended between Spain and United Kingdom because of its strategic location, but this problem does not exist anymore since the United Kingdom left the European Union with the Brexit.

submitted to the PRB or the national supervisory authority.
The PRB evaluates and approves en route air navigation services performance plans. The performance plans for terminal air navigation services are evaluated and approved by national supervisory bodies.As a result, air traffic service providers who provide both types of services would need to submit two different performance plans.
This will result in a new task distribution for the PRB and national economic regulators. They should also work closely together within the new Performance Review Advisory Board to encourage technique and best practice exchanges. If a Member State so desires, the PRB will be able to function as a regulator for terminal services as well. In places where EASA is the aviation safety authority, this option already exists.
Finally, the change will expand the number of ways to appeal judgments made by economic authorities.
The Commission, moreover, enhance the strengthening of the European network, and this will be achieve through the implementation of new functions like the optimisation of airspace, air traffic flow and capacity management which will be placed under the supervision of the Network Manager.
Finally, in relation to safety with the approval of the EASA Basic Regulation in 2018, a number of safety-related issues from the initial draft were rendered obsolete. This is true, for example, of the air navigation service providers' safety certification procedure.
Given that EASA or national responsible authorities are in charge of safety supervision, incorporating safety goals in the performance scheme is also deemed superfluous. This, however, will not jeopardise safety: safety authorities will need to verify that air traffic service providers' performance plans conform with safety regulations. The performance program will also continue to track safety indicators.

Parliament's position on the Commission's proposal is more supportive compared to the reluctancy of the Council, confirming that the national borders currently have too much influence on the airspace and also that enhancement of safety and a fairer cost-efficiency balance, this current setting is also causing more pollution due to the "zig-zag" routes.
This position is also advocated by the International Aviation Transport Association (IATA), which in turn critiqued the approach assumed by the MSs.

4.4.2 The Council's Position

On 3 June 2021 the Council agreed its position on the reform proposed by the Commission, however, it takes a different position on the way in which the objectives of the SES2+ shall be achieved.
First, according to the Council's view, the NSAs should be independent from the ANSPs regarding monitoring of the performance. It takes a difference stance for what concerns the creation of new entities, as proposed by the Commission, suggesting instead that economic and safety oversight functions can be managed by the same administrative body. About the same matter, the Council consider sufficient only one certificate as the safety and the economic side are strictly interconnected: a stable financial situation is a crucial aspect for granting safety. Member States may opt to allow some air navigation services to be subject to market conditions. This enables them to guarantee that any deregulation of air traffic management is based on a comprehensive cost-benefit analysis and does not jeopardise air traffic management operations' safety or security.
In accordance with the subsidiarity and proportionality principles, national supervisory bodies and the Commission shall jointly review the performance of air navigation services. The Commission may appoint a performance review board (PRB) with an advising function to help in this process and verify that local goals are aligned with EU goals. Under the EASA, no new structures would be developed in this regard, as doing so would likely increase administrative expenses for users without providing any demonstrated advantages.
En route charges for air navigation services will remain unchanged: Member States will continue to determine their national unit prices in line with common criteria and the Eurocontrol multilateral agreement, which allows for the consideration of local conditions.
In accordance with the European Green Deal, the whole strategy increases environmental protection as a major performance area. When planning and evaluating the performance of air navigation service providers, environmental factors, including safety, should be a top focus.
Variable charges will be an option for Member States to employ in order to stimulate efficient flight supply and enhance environmental performance. In addition, the Council directs the Commission to investigate the possibility of changing tariffs across the EU. The research will allow for a thorough examination of many interdependencies and variables, including not just fuel consumption and trajectories, but also altitude and speed, non-CO2 impacts, and NOx emissions.
The Council's stance is to enhance the network viewpoint by introducing new network functions and assigning additional, clearly defined duties to the present network manager Eurocontrol, so that it can better contribute to the sustainable and efficient use of the airspace. These responsibilities include managing air traffic flows in order to optimise them from a network viewpoint, as well as coordinating and assisting network crisis management. Giving operational players, such as the military and industry, a prominent role will also allow for consideration of local and security issues.

Furthermore, the Council's stance reintroduces functional airspace blocks (FABs) as a foundation for improved cross-national collaboration and coordination. FABs have been in use since 2004 and have already enhanced the air traffic management network's performance. FABs will continue to be established on the basis of international agreements and will be optional. Holding on to these positions, the Council is ready to bring the matter forward for the final talk with the European Parliament.

CONCLUSIONS

The purpose of this thesis was to provide a general overview of the evolution of the Single European Sky, starting from the premises that led to its first draft, continuing with the explanation of the entities that permit its application, the legal basis that constitutes its main pillars and functioning and, concluding with the current situation and future perspectives on the matter. The peculiar legislative character of this normative framework make the Single European Sky the most dynamic project that was ever conceived in the field of air traffic management.

For sure it is defined by a continuous process of amelioration, which needs to keep up with the necessities and the challenges that aviation has to face, which, in turn, are in constant change.

In a European context which is in continuous evolution and which is striving for an perpetual growth of the centralisation of its power, the Single European Sky constitutes a useful mean of mitigation between the requests of the Union and the desire of the MSs to maintain the last remnants of their national sovereignty.

The Single European Sky constitutes a crucial tool to face the current crisis aviation is passing even if many aspects are not yet completely clear or agreed and the Trilogue is still ongoing.

A very important opinion on the future of aviation in general and on the SES2+ has been given by the Wise Persons Group (WPG)[27], which met on 14 April 2021 in order to shed a light on the main challenges and on the process of negotiation. The WPG reached their conclusions on aspects that space from the ATM stakeholders role to the Union role. Firstly, they expressed their concern on the fact that while all ATM parties have begun adopting some of the WPG's recommendations[28], others will require a change in the regulatory framework in order to build the appropriate institutions.

This extraordinary situation faced by the aviation sector, however difficult and regrettable, should be viewed as a chance to enhance the European ATM system and organisation. When traffic returns, this will offer advantages to the environment and all parties. About this, the WPG underlines that especially in light of the situation, European airspace/airspace users cannot withstand another network operational crisis (as in 2018 and 2019) after traffic has returned and European residents have resumed travel.

Any departure from the present provisions of the Single European Sky will set the sector back on its path to a fully functional, sustainable, and resilient European sky.

In order to reach the aims set by the SES2+ therefore the MSs, the ATM stakeholders, the EU institutions and the staff involved in this process should aim at improving the current legal framework.

It is also crucial for the actors to engage constructively in the talks on the

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[27] The Wise Persons Group is a body established by DG MOVE to provide recommendations for the direction that European ATM should take, in matter of the Single European Sky.

[28] Report of the Wise Persons Group - On the future of the Single European Sky (April 2019)

SES2+ recast proposal, emphasising the importance of sovereignty, security, defence, and safety considerations, which are at the heart of our aviation system and will always be protected regardless of policy action. It is fundamental to support an effective social debate on the Digital European Sky, as well as proper training and licensing rules. Finally, they shall work together as a team across Europe to make the European ATM network more efficient, environmentally friendly, and future-proof. This will allow the whole aviation industry to recover in a sustainable and timely manner.

In conclusion, there is still a lot of work to do and many challenges to face, and the debate on wether the SES2+ will constitute a proper solution to the current crisis is still open, for now we only can provide an analysis of this "difficult present and uncertain future".

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RIASSUNTO

Questa tesi ha il proposito di analizzare a fondo la creazione e l'evoluzione del progetto del Cielo Unico Europeo o Single European Sky (SES).
Analizzerò le cause che hanno portato la commissione Europea ad adottare questo quadro normativo, spiegando anche la sua struttura e il suo funzionamento. Procederò dopo a spiegare il ruolo di EASA, l'Agenzia Europea per la sicurezza aerea e il ruolo di EUROCONTROL, due importanti enti che giocano un ruolo fondamentale rispettivamente per ciò che concerne la sicurezza e per quando riguarda il dominio operazionale entro questo complesso quadro normativo.
Il secondo capitolo sarà invece dedicato alla prima evoluzione del SES, il SES II, emanato nel 2009 e del SES 2+, ancora in attesa di essere approvato dal Parlamento e dal Consiglio.
Tale evoluzione ha portato diversi cambiamenti come l'introduzione dell'impresa comune SESAR, l'estensione delle competenze di EASA e la creazione di blocchi funzionali di spazio aereo, i cosiddetti FABs, che hanno il principale compito di incentivare la prestazione economica, finanziaria e ambientale di servizi europei di navigazione aerea per raggiungere una maggiore fluidità del traffico aereo.
Tali cambiamenti includono anche uno schema di prestazioni a livello europeo con il fine di aumentare il focus sulla fornitura dei servizi in generale invece che solo sullo spazio aereo.
Per coordinare le operazioni a livello di network invece, è stata ideata la figura del Network Manager (NM).
Il terzo capitolo è dedicato agli sviluppi successivi, partendo dalla proposta della Commissione del 2020 con a capo Ursula Von Der Leyen, tenendo anche in considerazione l'impatto che la pandemia da COVID-19 ha avuto sull'aviazione Europea. Lo stesso capitolo tratterà anche dei cambiamenti subiti dalla regolamentazione base di EASA e della situazione presente del traffico aereo Europeo.
Infine il quarto capitolo e ultimo capitolo tratterà delle falle nel sistema, cioè il problema della responsabilità dell'Unione Europea e degli Stati Membri, che rimane ancora poco chiaro, del problema della concorrenza leale che è incentivata dalla diseguaglianza in riguardo la divisione dei FABs, del problema dell'integrazione legislativa e infine del dilemma delle competenze condivise.
Durante il 1999, l'alto numero dei voli che subirono ritardo causò una congestione e un collasso del traffico aereo Europeo. Le cause principali vanno ricercate nella guerra del Kossovo, nel blocco dello spazio aereo pertinente alla ex-Iugoslavia e all'implementazione di una nuova via aerea: la ARN V3.
Perciò nel Dicembre dello stesso anno, la Commissione Europea ha emanato una comunicazione alle autorità competenti nel traffico aereo sia civile sia militare che potessero scrivere una relazione su come si potesse risolvere la crisi. Tale relazione, terminata alla fine del 2000, ha costituito il primo embrione del SES. Nel 2001 poi, la Commissione ha emanato una proposta di legge basata su questa relazione per regolare il traffico aereo a livello comune per tutti gli Stati Membri, inclusi Svizzera e Norvegia.

I pilastri fondanti del SES sono le cosiddette quattro legislazioni base, ossia le N° 549/2004, 550/2004, 551/2004 e 552/2004. Esse garantiscono la sicurezza e l'efficienza del traffico aereo in Europea e stabiliscono la presenza di un' Autorità nazionale di vigilanza (NSA), indipendente dai fornitori di servizi di navigazione aerea (ANSP). EUROCONTROL supervisiona il funzionamento. Inoltre, viene stabilito il Comitato del Cielo Unico Europeo (SSC) che ha il compito di garantire l'implementazione delle politiche e assicurarne il funzionamento, le sue deliberazioni sono private con un funzionamento pressoché identico a quello definito nella Regolamentazione (EC) No 1049/200.
Per ciò che riguarda la licenza di controllore di volo invece, la Regolamentazione è la No 2015/340.
Inoltre questi quattro pilastri legislativi stabiliscono gli standard comune per la fornitura dei servizi, sicurezza e trasparenza, anche sotto l'aspetto finanziario. Per quest'ultimo, i costi sono determinati in base al piano di navigazione aerea stabilito dall'ICAO, l'Organizzazione Internazionale per il Traffico Aereo Civile. Viene stabilito anche il concetto di regione di informazione di volo (FIR) con la Convenzione di Chicago.
La coordinazione tra autorità civili e militari è necessaria per garantire efficienza e sicurezza ed è supervisionata da EUROCONTROL.
Infine, tali pilastri hanno anche l'obiettivo di assicurare l'interoperabilità tra le diverse entità che fanno parte del network e di introdurre nuovi concetti operativi e tecnologici. Le misure di sicurezza sono chiaramente stabilite dalle NSA.
EASA venne creata nel 2002 con la Regolamentazione (EC) No 216/2008 e ha il compito di supervisionare l'implementazione delle misure di sicurezza a livello Europeo. Essa ha anche il potere di adottare vari tipi di atti come decisioni vincolanti a livello individuale e di fornire linee guida entro il suo campo d'azione.
Dal 2003 EASA è un corpo indipendente della Comunità Europea, ed è costituita da un Direttore Esecutivo, una commissione di ricorso e un consiglio di amministrazione. Le procedure devono essere trasparenti e possono avvalersi dell'aiuto di esperti e consulenti per tutte le pratiche pertinenti.
EUROCONTROL è un'organizzazione civile/militare che opera a livello pan-Europeo per garantire l'implementazione del SES e per supervisionare la prestazione del traffico aereo.
Ha lo status di organizzazione intergovernativa e comprende 41 Stati Membri e due Stati osservatori (Marocco e Israele).
EUROCONTROL è governata da tre entità che sono la Commissione, il Consiglio Provvisorio (le entità governative) e l'Agenzia (entità esecutiva), comprende comunque anche altre entità che assistono i tre corpi principali: il corpo dei servizi di navigazione aerea, la commissione dei conti, un comitato composto da enti sia civili sia militari, il gruppo di coordinazione di Maastricht, il comitato militare, il comitato sulla finanza, il comitato riguardante il fondo pensione e la commissione per la revisione della prestazione.
Nel 2009 venne emanato il secondo quadro normativo del Cielo Unico Europeo (SES II), che spostò l'obiettivo del SES dalla capacità all'efficienza generale e alla performance. Con questo set legislativo vennero anche in-

trodotti lo schema di prestazione a livello europeo tramite il Regolamento No 691/2010 della Commissione, che ha il ruolo di regolare i costi, la capacità e tutelare l'ambiente, i FABs soprammenzionati col ruolo di incentivare la coesione tra i fornitori di servizi e l'autorità nazionale di vigilanza per garantire la standardizzazione delle procedure e delle licenze e infine la figura del Network Manager con il ruolo di supervisionare le funzioni della gestione del traffico aereo e il flusso di traffico, esso, fino al 2019, è stato un ruolo ricoperto da EUROCONTROL.
Il SES II ha anche abrogato i primi quattro pilastri originali in favore della Regolamentazione No 1070/2009 per garantire una migliore cooperazione tra gli Stati Membri in termini di prestazioni e sicurezza. In breve, lo schema di prestazione ha il fine di scegliere la rotta più breve tra partenza e destinazione in modo da evitare le zone militari , gli Stati che hanno una tariffa di sorvolo più alta ed evitare le congestioni aeree anche per ragioni meteorologiche.
Un altro importante pilastro del SES II è l'osservatorio per la capacità aeroportuale (Airport Capacity Observatory), il quale opera a livello istituzionale, anche se il problema principale è rappresentato dalla mancata armonizzazione tra i vari attori a livello di regole e indicatori.
Oltretutto, gli aeroporti si stanno gradualmente evolvendo in organizzazioni trasparenti e agili ma che non possono funzionare indipendentemente l'uno dall'altro. Infatti, in risposta al bisogno della gestione aeroportuale e alla formulazione normativa, è stata proposta la costruzione e l'implementazione di un'infrastruttura tecnologica e organizzativa nella forma di un osservatorio e al momento è in fase di implementazione, essa è conosciuta con il nome di APRON, ossia una fonte di risorse per l'organizzazione aeroportuale, sotto l'egida dell'Osservatorio.
Tale sistema mira a creare un centro di dati in riguardo gli aeroporti, in modo da agevolare il lavoro dei vari attori che partecipano al progetto del SES.
Il SESAR invece è un progetto tecnico che mira alla modernizzazione del sistema di gestione del traffico aereo. Tale progetto è composto da tre parti: il dipartimento di ricerca e sviluppo, il sistema di implementazione e il "master plan" che accomuna le necessità dei primi due elementi.
Il master plan venne introdotto prima della pandemia ed è per questo che il periodo di crisi causato da essa ha portato a una riconsiderazione degli elementi chiave che lo caratterizzano.
Il SESAR è nato grazie alla Regolamentazione del Consiglio No 219/2007, in risposta all'aumento dei ritardi dei voli e al bisogno di nuove soluzioni.
Nonostante il master plan sia stato abbozzato nel 2009, in realtà alla soglia del 2013 era pronto solo in parte, a seguito di ciò il SESAR JU venne esteso sino al 2024; anche se grazie a una precisa organizzazione di soluzioni atta a raggiungere la modernizzazione del traffico aereo e gli obiettivi prefissati dal SES, il "deployment manager" del SESAR venne stabilito nel 2013 con il ruolo di sorvegliare l'esecuzione dei progetti comuni, che altro non sono che soluzioni appropriate dall'organizzazione europea del traffico aereo, in risposta al bisogno di soluzioni sincronizzate a livello di network.

Con la Regolamentazione del Parlamento e del Consiglio No 2018/1139 le competenze di EASA sono state estese in modo da coprire l'intero territorio aereo pertinente all'Eurozona.
La Commissione si affida ad EASA per l'adozione di norme di sicurezza e conduce ispezioni negli Stati Membri, inoltre essa è responsabile per il rilascio di certificati e altri elementi pertinenti all'aeronautica.
D'altro canto, gli Stati Membri hanno ancora la competenza di garantire certificati individuali sul loro territorio, pur sempre sotto la supervisione di EASA. La regolamentazione soprammenzionata però esclude i velivoli militari, doganali, della polizia, di ricerca e salvataggio, dei vigili del fuoco, della guardia costiera e attività affini.
I blocchi funzionali di spazio aereo sono delle aree stabilite non in base ai confini fisici fra gli stati ma in base alle necessità dei vari Stati Membri. Stabiliti dalla Regolamentazione No 550/2004, hanno il ruolo di raggiungere l'efficienza e la capacità prevista dal SES e contribuiscono in generale alla performance del traffico aereo tenendo anche conto dell'impatto ambientale.
Secondo EUROCONTROL un quarto dei problemi riguardanti l'estensione delle rotte può essere risolto tramite i FABs. AL momento i FABs esistenti sono fra: Regno Unito-Irlanda, Svezia-Danimarca, Cipro, Grecia, Italia e Malta (BLUE MED FAB), Bulgaria e Romania (FAB del Danubio), Austria, Bosnia-Erzegovina, Croazia, Repubblica Ceca, Ungheria, Slovacchia e Slovenia (FAB dell'Europa Centrale), Belgio, Francia, Germania, Lussemburgo, Olanda e Svizzera (FABEC), Estonia, Lettonia, Norvegia e Finlandia (FAB NordEuropeo) e Spagna e Portogallo (FAB del Sud-Ovest).
Nonostante tali blocchi siano stati stabiliti per incentivare l'efficienza e la sicurezza ci sono ancora dei problemi strutturali da risolvere.
Partendo dal presupposto che il SES sia stato promosso per incentivare l'efficienza e la sinergia delle autorità vigilanti degli Stati Membri, ne segue che questo percorso deve essere continuato.
Nonostante ciò la proposta del SES2+ del 2009 incontrò due difficoltà principali: la prima riguardante l'inefficienza e incapacità di alcune autorità nazionali di vigilanza e l'altra concernente la frammentazione del sistema del traffico aereo. Tali mancanze sono dovute al fatto che molti fornitori di servizi a livello nazionale non hanno una relazione trasparente con i clienti e hanno un monopolio naturale, d'altro canto è pur vero che è presente un'incomprensione di competenze a livello di giurisdizione per ciò che concerne i FABs. Considerando gli articoli 58, 90 e 100 del TFEU, gli Stati Membri hanno delle competenze condivise con l'Unione ma sembra che senza una collaborazione i primi non riescano ad assicurare una costruzione ottimale di sicurezza e coesione.
La Comunità Europea ha perciò identificato diverse opzioni come organizzare una separazione strutturale che possa essere gestita in modo migliore, un'attenzione maggiore maggiore rivolta verso i clienti, una creazione di sinergia tra l'Unione Europea e un gruppo di esperti in alternativa an una separazione funzionale tra le autorità nazionali di vigilanza e fornitori di servizi e infine per ciò che riguarda lo schema di prestazione, sarebbe cruciale un ruolo più prominente del corpo di controllo della prestazione (PRB).

In riguardo alla frammentazione dei sistemi di gestione del traffico aereo ci sono due soluzioni: la prima sarebbe una nuova figura creata dal PRB e dal NM, seppure rischiosa a livello politico e di implementazione; la seconda tratta il miglioramento della figura del NM, perciò espandere le competenze di EUROCONTROL.
Il COVID-19 ha avuto un grande impatto sull'aviazione, secondo l'Associazione Internazionale del Trasporto Aereo (IATA), potrebbe essere stata la più disastrosa delle catastrofi per il sistema di traffico aereo.
In modo da mantenere un alto livello di sicurezza, che rimane il principale obiettivo, EASA ha impiegato tutti gli strumenti disponibili secondo la Regolamentazione No 2018/1139 per la prima volta, atti a monitorare i passeggeri sospetti di essere affetti da malattie respiratoria e a bloccare i passeggeri provenienti dalla Cina.
Come spiegato prima, tramite una riforma dell'industria che fornisce i servizi di autorità nazionale di vigilanza, il programma del SES ha proposto una riforma della regolamentazione base di EASA. L'idea era quella di trasformare l'Agenzia da mero consigliere della Commissione in un corpo di verifica di prestazione atto a indurre dei provvedimenti legali indipendentemente dalla Corte di Giustizia; secondo il nuovo Articolo 93 della Regolamentazione 2018/1139 infatti, EASA ha acquisito il potere di condurre ispezioni tecniche e revisioni di conformità e di contribuire all'implementazione del "master plan" includendo lo sviluppo e l'implementazione del programma SESAR.
Durante le ultime decadi, the istituzioni dell'Unione sono diventate più propense all' Europeizzazione ma gli stati membri sono diventati di conseguenza più protettivi in riguardo ai rimasugli di sovranità che continuano a esercitare, perciò facendo pressione sull'Articolo 102 del Trattato sul Funzionamento Europea, in riguardo alla competizione leale, l'UE tende a esercitare le proprie competenze a discapito dell'indipendenza degli Stati Membri. Infatti da quando nel 2013 la Commissione ha notato che espandendo il mercato ai voli esteri, c'è un dislivello di tariffe, ha deciso di intervenire. Infatti, la natura dei fornitori di servizi di traffico aereo ha la natura di un monopolio e difficilmente il mercato potrà adeguarsi.
In altre parole il sistema non è regolato in modo corretto e pertanto la competizione è compromessa, infatti, la maggioranza degli Stati Membri sono stati messi in condizione di controllare che le tariffe imposte siano in concordanza con quanto pattuito con il SES. Infine il problema concern anche il fatto che tali monopoli non saranno mai disposti a lasciare la loro sovranità. Dal momento in cui il settore del controllo del traffico aereo è molto complesso, esporre l'industria a una competizione leale, non renderà più semplice l'aumento dei fornitori di servizi.
Chiaramente la competizione leale è un aspetto fondamentale ma senza una robusta e chiara normativa sulla responsabilità alcune agenzie non sono in grado di fornire servizi in uno Stato fornendolo al contempo nel proprio.
Oltretutto bisogna sottolineare come un fornitore nazionale di servizi di traffico aereo sia sottoposto a una duplice responsabilità: difatti non è ben chiaro come funzioni il sistema di responsabilità quando si opera in uno Stato che non sia il proprio.

Anche l'immunità è un problema potenziale, i controllori di volo ad esempio, sono dipendenti statali in alcuni Stati Membri ma dipendenti privati in altri. La mancanza di uniformità sugli standard di responsabilità è dunque un grande problema nella legislazione sulla sicurezza a livello di traffico aereo europeo.
L'azione amministrativa intende salvaguardare l'interesse pubblico delle operazioni della gestione del traffico aereo esaminando le qualità soggettive dei fornitori di servizi.
Proprio perché i requisiti sono identici in tuti gli Stati Membri, la validità delle certificazioni è estesa a tutto il territorio europeo, chiaramente entro le norme stabilite dall'Unione.
Per quanto riguarda la creazione di un sistema integrato, la frammentazione della responsabilità è fondamentale che sia risolta. EUROCONTROL in primis ha tentato di sollevare la questione anche in relazione ai FABs e alla fornitura dei servizi enfatizzando il bisogno di chiarire le responsabilità degli Stati Membri. Dal canto suo il SES, in funzione delle regolamentazioni europee, ha stabilito una separazione funzionale fra la fornitura di servizi e la pertinente supervisione, in modo da migliorare la trasparenza delle responsabilità legali.
Ad ogni modo, questo sistema non garantisce tale trasparenza in fatto di responsabilità dal momento in cui ogni Stato Membro si basa sulla propria legge nazionale. Infatti, la responsabilità è vincolata da quest'ultima.
Infine anche nei casi di delegazione di responsabilità dovrebbe garantire che il sistema di responsabilità delineato dal SES sia basato sulle stesse normative e governato da decisioni contrattuali in relazione alle norme prefissate.
Sebbene i FABs siano una delle componenti più importanti del SES, ognuno di essi è effettivamente unico in riguardo all'operatività, alla politica, all'economia e alla tecnologia. Infatti le preoccupazioni dell'Unione Europea in riguardo all'efficienza sono legittime dal momento in cui ogni Autorità nazionalità di vigilanza dipende dalla situazione macroeconomica di ogni Stato.
Nonostante il fatto che lo spazio aereo sia una risorsa condivisa, il traffico aereo in Europa è ampiamente frammentato. Quando un aereo entra in territorio Europeo, viene servito da diversi fornitori che operano secondo diverse regolamentazioni e bisogni operativi. Chiaramente, tale influenza ha un impatto sulla sicurezza, sulla capacità e ovviamente sui costi.
Nonostante i potenziali benefici di un'Europa coesa, mantenere in piedi il SES si è dimostrato una prova difficile, pertanto, nonostante gli sforzi il progetto di progressiva centralizzazione di potere portato avanti dall'Unione per raggiungere la piena integrazione è ben lontano dall'essere raggiunto.
Al momento il Trilogo è ancora in atto per raggiungere un compromesso che soddisfi sia le richieste degli Stati Membri, sia gli obiettivi dell'Unione.
In particolare la Commissione e il Parlamento condividono pressoché la stessa visione che segue le direttive della proposta del SES2+. Dall'altra parte il Consiglio differisce in riguardo diversi aspetti, in particolare si distacca dall'idea di unire l'ente che gestisce NSAs e ANSPs, inoltre ritiene che un'unica certificazione sia sufficiente sia a livello economico sia a livello di sicurezza.

Inoltre perpetua la concezione secondo la quale le unità di prezzo debbano essere determinate in base alle regole nazionali e agli accordi multilaterali stipulati con EUROCONTROL. Infine, i FABs, secondo il Consiglio, continueranno a stabilirsi sulla basi di accordi internazionali volontari, come fatto sinora, dal momento in cui a suo avviso sono sempre stati fondamentali per la cooperazione e coordinazione a livello internazionale.
In conclusione, tutti gli attori che partecipano allo sviluppo del SES2+ dovranno impegnarsi per mettere in atto le politiche di protezione ambientale e di aumento della sicurezza.
Inoltre, il Wise Persons Group (WPG) ritiene che per raggiungere tali obiettivi sia necessario creare le istituzioni necessarie in modo da mantenere il recupero raggiunto finora evitando le crisi operazionali sperimentate nel 2018/2019, incentivando la resilienza del traffico aereo europeo.
Nonostante tutto, c'è ancor molto lavoro da fare e molte sfide da affrontare e il dibattito sul fatto se il SES2+ sia la soluzione ideale è ancora in corso, al momento possiamo solo fornire un'analisi su questo difficile presente e su un futuro incerto.