

**The Concept of Functional Airspace Law Blocks and Applicability in South
America and Southern Africa**

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Dedication

In memory of my grandparents who are always with me deep inside my heart. Also dedicated to Paul Popa for all his support not only toward me but for the whole family, of which he is the head, and finally to my partner Rebecca Fulbeck for all her help and for being my unconditional support.

Declaration

I declare that this dissertation is my original work and that it has not been submitted for award of a degree at any other University or Institution.

Signed:

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Date:

Introduction

The following mini dissertation aims to discuss the characteristics of a new system of airspace arrangement in Europe known as Functional Airspace Blocks (FAB). It aims to provide a general idea of the system, describe the way it works, and evaluate the possible benefits on the implementation of this model. Areas related to FABs will be also discussed, in addition to the regulatory instruments which have established this system and the organizations responsible for its creation, implementation and legal framework. The FAB background will be observed with a critical look into its conception, with the purpose of determining whether the concept is an innovative one or whether it has foundations or is a fundamental restructuring based on other systems used previously - either conceptually or practically. The impact of its application will be determined with a special focus on possible sovereignty infringement as a result of particular characteristics of the system. Additionally, this study will examine hypothetically whether the application of FABs in other regions outside of Europe, is possible or necessary.

FABs are demarcated areas defined by a number of regulations that govern the way in which FABs are created and implemented. The aim of these is: a better redistribution of European airspace, with a final objective of a Single Sky over the old continent.

The congestion of the airspace in Europe and the way that air traffic is managed on the continent has pushed institutions like the European Commission to find a solution with the aim of guaranteeing the highest level of safety, the increase of capacity and the reduction of delays.

The European Commission has presented FABs as the solution to the congestion problems but its implementation has not been easy. Delays on the application and startup of the system have been continuous, as a number of questions and uncertainties have been put on the table.

One of these concerns is related to sovereign as countries have expressed uneasiness related to the way FABs will function. The omission of national boundaries to make it effective present a problem, and sovereignty is one of the most delicate topics - even though sovereignty over airspace is customary international law and it is protected by important international law instruments such as the Chicago Convention of 1944. However, states are always very sensitive when the topic discussed.

Another concern related to FABs is the effectiveness of the concept as, even though it has been presented as a new and revolutionary solution, some characteristics of it are simply a rehashing of past intentions or, even worse, past failures. In an attempt to review the novelty of the FAB concept, other systems will be described and studied in conjunction with past ideas of the International Civil Aviation Organization (ICAO) and EUROCONTROL.

Following the description of the FAB concept, and all the areas related to it, the possible application of the concept in regions like South America and Southern Africa will be considered. A brief description of these region's integration institutions and the examination of them will be provided, with the aim of finding the most appropriate model for the hypothetical implementation of FABs. It will be established whether the application of FABs will be feasible and necessary according to the necessities of the air transport in those regions, or not.

Chapter One

Concept, description, regulatory organization and legal frame work of Functional Airspace Blocks.

The European continent possesses possibly one of the most congested air traffic spaces on the planet. With such a high concentration of states on a relatively small territorial extension (which implies different technical and procedural mechanisms regarding navigation) the safety of the air transportation industry is compromised, which limits capacity and, above all, adds additional cost to this sector.¹

Airspace in Europe is divided into approximately 670 sectors. Pilots currently have to change frequency and enter into contact with different air traffic controllers (ATCs) when flying through each of these sectors. According to EUROCONTROL information, the time from one Air Navigation Service Provider (ANSP) to another can vary from 7.2 minutes to 39.5 minutes between Belgocontrol and the Spanish Airports and Air Navigation provider.²

Airspace in Europe is fundamentally distributed by the Flight Information Regions, (or FIRs, which are different portions of airspace that are under the service of an ANSP.³) and Upper Flight Information Regions, (or UIRs, which are FIRs but only for Upper Airspace.⁴) Upper airspace is understood as part of the airspace above a vertical limit⁵. The states' obligation to provide Air Traffic Services (ATS) is outlined by the UIRs. Although the International Civil Aviation Organization (ICAO) does not require alignment between the FIR/UIR and national borders, this is often the pattern employed, despite the fact that this is not the most

¹ http://ec.europa.eu/transport/modes/air/single_european_sky/fab/index_en.htm (accessed 03 March 2013)

² Mihetec*, Steiner and Jakšić (2012) 7 Analysis of Expected ATM Process Changes in Central Europe 62.

³ http://www.eurocontrol.int/lexicon/lexicon/en/index.php/Flight_Information_Region (accessed 10 June 2013).

⁴ Ibid.

⁵ Ibid.

favourable system to be used and that it simply contribute to the congestion of the European sky.⁶

Van Antwerpen explains that the European Commission named three major reasons for the overfilling of airports and air routes in Europe. The first relates to air traffic control capacity. Jet aircraft are used more frequently by the operator, and this has contributed to increased delays as the air traffic controllers (ATC-controllers) cannot cope with the overload that this produces. In addition, the pressure that results from the high amount of competition between airlines, forces them to increase the flying frequency by using smaller aircraft, which increases the amount of work done by the ATC structure. Another factor arises from the fact that, as the ATC organizations do not have the ability to cope with the amplified number of flights, congestion has become worse.⁷

Airspace capacity is limited by pre-planned routes based on fixed networks and these circumstances complicate its management. For example: critical delays occur as a result of the congestion generated by points where fixed routes connect along the way. The European Commission initiative of the Single European Sky is intended to deal with situations such as those expressed above and aim to change the way in which Air Traffic Management (ATM) is arranged in Europe.⁸

As a result of these issues, the European Commission came up with the idea of implementing Functional Airspace Blocks (FABs) which arose with the purpose of solving, or at least minimizing, the problems that air traffic in Europe is experiencing. FABs are also the instruments intended to be used to develop the principal aim of the European Commission of a Single European Sky: to unify airspace on the old continent, leaving behind its fragmentation.⁹ [The intention of this is to handle the growing volume of air traffic more effectively, which is becoming more and more of a problem in the European sky.]

⁶ Eurocontrol European Commission's Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

⁷ Antwerpen (2002) 27 Air and Space Law 90 at 99.

⁸ Antwerpen (2002) 27 Air and Space Law 90 at 100.

⁹http://ec.europa.eu/transport/modes/air/single_european_sky/fab/index_en.htm (accessed 3 March 2013).

The term FAB first appeared in the final report of a study conducted by Wilmer, Cutler and Pickering in 2000, concluding that European Airspace should not be subordinated by geographic boundaries, and the term “functional airspace blocks” should be used to refer to a possible new way of arranging the airspace in Europe. However, it did not expand more on this as the study insinuated that the FABs should take place in the second package of the Single European Sky (SES) legislation.¹⁰

In 2001, in an attempt to implement an SES, the European Commission proposed a draft regulation on the organization and use of airspace, and this regulation defined FABs as:

*“An airspace block based on operational requirements, reflecting the need to ensure more integrated management of the airspace, regardless of existing boundaries”.*¹¹

The regulation also proposed that FABs:

*“Efficiently support the existing and future pattern of air traffic, ensure the maximization of the efficiency of European airspace with each airspace block, take into account human and capital investment of various ANSP, minimize transition costs of Area Control Centres, ensure coherence between configurations of upper and lower airspace”.*¹²

Additionally, the Commission proposed that FABs should also be used in lower airspace and that the creation of FABs should be determined by the decision of the entire community (in a top down approach). This proposal was opposed by the European Council, even though the Commission had the support of the European Parliament, as the Council believed that no more than the member states engaged in an FAB should come to a decision about its conception, so responsibility should stay primarily with the member states (in a bottom up approach). However, in the existing framework, the top down and the bottom up

¹⁰ Eurocontrol European Commission’s Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

¹¹ Mihetec*, Steiner and Jakšić (2012) 7 Analysis of Expected ATM Process Changes in Central Europe, 62 at 64.

¹² Regulation (EC) No 551/2004 of the European Parliament and of the Council (2004).

approaches are used in combination to regulate the different aspects of the FAB establishment.¹³

Article 5 of the Airspace Regulation (551/2004) is the perfect example of this combined approach, as it establishes that the member states have the obligation to reconfigure their upper airspace into FABs. However, it does limit FABs to the upper level, so member states forming an FAB can agree on their limit. Airspace Regulation (551/2004) is one of the four Regulations of 2004 of the first SES package.¹⁴ The others regulations are:

The Framework Regulation (549/2004)

The Service Provision Regulation (550/2004)

The Interoperability Regulation (552/2004)

The SES 1 package's general purpose is to increase the safety and efficiency of ATM, improve capacity and keep delays to a minimum.¹⁵

The SES Regulations of 2004 propose that FABs are to be created on the basis of operational requirements without giving consideration to national boundaries and integrated management. They reiterate the necessity for creating standard general principles in order to have uniform FABs. Invoking the creation of uniform FABs could mean that all FABs should have identical characteristics or that the FABs should have some kind of uniformity in them. However, it is necessary to remember that there is no restriction upon the member states in the upper limits of the FABs. And FABs, by definition, should provide spatially demarcated airspace, demarcation in time, and airspace where air navigation services are provided, as well as airspace planned on the basis of operational requirements, regardless of national boundaries.¹⁶

According to the SES Regulations of 2004 the precise requirements for the implementation of FABs are as follows:

¹³ Mihetec*, Steiner and Jakšić (2012) 7Analysis of Expected ATM Process Changes in Central Europe, 62 at 64.

¹⁴ Mihetec*, Steiner, and Jakšić (2012) 7Analysis of Expected ATM Process Changes in Central Europe, 62 at 65.

¹⁵ Ibid.

¹⁶ Ibid.

“Be supported by a safety case; Enable optimum use of airspace added value, including optimal use of technical and human resources, on the basis of cost-benefit analyses; Ensure a fluent and flexible transfer of responsibility for air traffic control between air traffic service units; Ensure compatibility between the configurations of upper and lower airspace; Comply with conditions stemming from regional agreements concluded within the ICAO; Respect regional agreements in particular those involving European third countries.”¹⁷

There have been different circumstances that have affected the establishment of FABs, such as a lack of unanimous definition, sovereignty concerns appearing among the member states, different government systems, the need for military co-operation, financial and technical support, and human resources development.¹⁸ These circumstances have slowed the process to the point that the European Commission has had to adopt a new SES package with the intention of reinvigorating the situation.

In 2009 the European Commission adopted the Single European Sky II Regulation (SES II) which complemented the SES I. The SES II came to focus on: performance regulation, unifying safety structures, creating opportunities for new technology and management capacity of any growth.¹⁹

The SES II in its amendatory Regulation (EC) No 1070/ 2009 set up a deadline for member states to establish operational FABs by the fourth of December 2012. Such establishment had to be made by agreement between the member states (with responsibility over the airspace) which are part of the FAB, or by declaration (if the area where the FAB is falls under responsibility of only one state). It also established the necessity to have procedure modification of the airspace blocks and contended the procedure in which a state can remove itself from the block. Additionally, it does not differentiate between upper or lower airspace, and refers to them as compatible airspace configurations.²⁰

¹⁷Mihetec*, Steiner and Jakšić (2012) 7Analysis of Expected ATM Process Changes in Central Europe, 62 at 66.

¹⁸Eurocontrol European Commission’s Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

¹⁹Ibid.

²⁰Mihetec*, Steiner and Jakšić (2012) 7Analysis of Expected ATM Process Changes in Central Europe, 62 at 67.

The European Commission received nine FAB initiatives, which were integrated by twenty seven states, and the format in which they were agreed upon differs from one to the other considerably. For example, Functional Airspace Block Central Europe (FAB CE) covers upper and lower en-route airspace whereas others cover only upper airspace.²¹

The FAB dimensions vary greatly from one another. An FAB initiative can, for instance, be thirteen to thirty two times bigger than a smaller FAB. The largest FAB initiative regarding controlled flight hours comprises thirty seven percent and the largest FAB initiative regarding the size of the controlled charging area, is the North European Functional Airspace Block (NEFAB). The smallest initiative, which is the Baltic FAB, accounts for only two percent of controlled flight hours. The Danube is the smallest initiative regarding the size of the controlled charging area.²²

Of the nine FABs, five of them are composed of only two member states. FAB Central Europe involves seven member states. Functional Airspace Block Europe Central (FAB EC) and NEFAB contain six member states respectively.²³

As mentioned before, the deadline to fully establish FABs was the fourth of December 2012.²⁴ Although every one of the nine groups has achieved a degree of development in different areas, only two have been established and notified to the European Commission²⁵. Those are the Danish-Swedish and the British-Irish FABs, which are working and running in a truly operational sense.²⁶

²¹Mihetec*, Steiner and Jakšić (2012) 7Analysis of Expected ATM Process Changes in Central Europe, 62 at 68.

²² Eurocontrol Evaluation of Functional Airspace Block Initiatives and their contribution to performance improvement (2008) Final Report.

²³ Ibid.

²⁴<http://www.4-traders.com/news/European-Commission-There-is-no-single-market-without-a-single-European-airspace--16746567/> (accessed 19 April 2013).

²⁵<http://www.ainonline.com/aviation-news/ain-air-transport-perspective/2012-12-10/eu-states-miss-deadline-functional-airspace-blocks> (accessed 18 April 2013).

²⁶<http://www.4-traders.com/news/European-Commission-There-is-no-single-market-without-a-single-European-airspace--16746567/> (accessed 19 April 2013).

The commission expressed that the failure to meet the deadline by the majority of the countries involved has been as a result of excessive and unnecessary overprotection of national interests, such as sovereignty and national security.²⁷

Control over these matters is not affected by the SES regulations, and the member states still have the faculty to ensure sufficient and adequate airspace for the education and training of their Armed Forces. Any problems regarding sovereignty have to be addressed in the FAB agreements between member states.²⁸

FAB agreements would facilitate the management of air traffic. Moreover, the capacity of air transportation could increase because of the better traffic fluency.²⁹ A more efficient use of existing space would have a direct impact on better organization of the airspace and the air traffic management. This would have a direct impact by increasing capacity and optimizing the positioning of the communication system, which would lead to improved distribution of the workload over the airspace, which, in turn, would lead to an indirect but positive impact on the increase in capacity.³⁰

Airspace Regulation (551/2004) also proposes the increasing of safety and, with FAB, it would be increased as the ANSP would operate on the basis of unified operational rules requirements with each service provider using similar equipment, training schools employing unified methods and all other support functions standardized, so defragmentation will have a positive impact on safety³¹

As a result of the benefits of an integrated approach towards safety, and the adoption of practices of each Air Navigation Service Provider across FABs, a

²⁷ <http://www.4-traders.com/news/European-Commission-There-is-no-single-market-without-a-single-European-airspace--16746567/> (accessed 19 April 2013).

²⁸ Eurocontrol European Commission's Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

²⁹ The South East Europe Functional Airspace block Approach Working Group (SEE FABA WG) The Working Group on SEE Functional Airspace Block Approach (2006).

³⁰ Administration de la Navigation Aérienne de Luxembourg, Belgocontrol (Belgium), Air traffic control for Germany (DFS), Air traffic control for France (DSNA), Air traffic control for the Netherland (LVNL), Eurocontrol and sky guide (Switzerland) Creating the Functional Airspace Block Europe Central Feasibility (2008) Study Report.

³¹ http://ec.europa.eu/transport/modes/air/single_european_sky/fab/ (accessed 6 June 2013).

single safety management organization could be implemented with an expert base sufficient to make a common operational procedure which could also increase the levels of safety.³²

³²Mihetec*, Steiner and Jakšić (2012) 7 Analysis of Expected ATM Process Changes in Central Europe, 62 at 65.

Chapter Two

Impact on the sovereignty of states implementing FABs

In order to understand the impact of Functional Airspace Blocks (FABs) on the sovereignty of the states involved, it is necessary to define the concept of sovereignty.

Sovereignty is understood in a variety of ways. There is an inclination to agree that it represents entire or superior control over a territory. However, in present times, it is difficult to find general agreement on what sovereignty represents, due to the fact that the world is constantly evolving. Technological and communicative developments have created a globalized environment, bringing doubts over a precise description of sovereignty, or even the idea, from some academics, that sovereignty cannot be encompassed in a definition.³³

Dan Philpott states that the concept of sovereignty, as was conceived in early modern Europe, and used in most modern definitions, has been based on this fundamental principle: “*Supreme authority within a territory*”.³⁴ From this principle stems the concept of sovereignty as: “Supreme domination, authority, or rule; the supreme political authority of an independent state”.³⁵ It is possible to say that states have become accustomed to such authority, and it has often been necessary to maintain their status as state. In any case, it is believed that sovereignty is becoming more and more a legal fiction, as integration and globalization is making this world a world without borders.³⁶

The United Nations is the organ which demonstrates the importance of reducing the control of the characteristic concept of sovereignty of government (with complete control over its territories and its people).³⁷ An example of this is the United Nations intervention or sanctions over sovereign states when these cause human rights violations.

³³Dodge (2009) 35 Journal of Space Law 5 at 8.

³⁴<http://plato.stanford.edu/entries/sovereignty/> (accessed 30 August 2013).

³⁵Black's Law Dictionary 1430 ed. 8 (2004).

³⁶Dodge (2009) 35 Journal of Space Law 5 at 12.

³⁷Dodge (2009) 35 Journal of Space Law 5 at14.

More and more, the idea of complete sovereignty is becoming diluted, but sovereignty still plays an important role in International Law and Air Law. Sovereignty of airspace is established in important Air Law instruments such as the Paris Convention and the Chicago Convention. These are the perfect instruments to determine what sovereignty over airspace means in view of understanding the effect of FABs on Europe.

There is no doubt that the big wars of recent times have contributed to rapid technological development in air travel, which has created a range of possibilities, as opening the sky to humanity forces the law to keep a similar pace and to incorporate the idea that the sky should be unlocked to all, but in a controlled manner without forgetting sovereignty. The Outer Space treaty, in which the principle of *res communis* (common heritage of mankind principle) was applied, is an example of space being opened to mankind.³⁸ Article II (Outer Space Treaty) states that:

*“Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”.*³⁹

This article did not follow principles of sovereignty. However, liberation such as this would take much more time to become a reality for the national airspace of states, as they are really careful of protecting national interest and for security reason.⁴⁰

After the end of World War I, the aviation industry had developed in such great proportions that its ruling on an international level was necessary. For this reason, in 1919, through the time of peace negotiation, a convention took place to create rules related to international legislation regarding Airspace. This is known as the Paris Convention of 1919, which established the status of complete sovereignty of states over their airspace (which is the space above a defined territory).⁴¹

³⁸Dodge (2009) 35Journal of Space Law 5 at 13.

³⁹Outer Space Treaty Art 2.

⁴⁰Dodge (2009) 35 Journal of Space Law 5 at 12.

⁴¹Heere, (1999) 24 Air & Space Law 70.

The development of Public International Law continued with the creation of the International Civil Aviation Organisation (ICAO) which is one of the most significant instruments of Air Law established under the Chicago Convention of 1944. The Chicago Convention established and ratified that states maintain supremacy over their airspace, as the Paris convention did before.⁴² During the conferences two more conventions were signed: the International Air Service Transit Agreement and the International Air Transport Agreement in which the “Freedoms of the Air” were established.⁴³

Both the Paris Convention and the Chicago Convention followed the Roman conceptualisation of sovereignty over airspace, as they were of the idea that whoever owns the soil also owns everything above it and below it. Although this used to be applicable to individuals, states have now taken the same approach as ancient times.⁴⁴

Sovereignty over the air has become customary International Law and its recognition is not in doubt. Even though it is difficult to find a unanimous definition of sovereignty internationally, it is clear that sovereignty is related to control of a state over its domestic affairs, without relegating the limitations set up by international law.⁴⁵

As mentioned before, states are accustomed to the idea of control that sovereignty offers and when states are requested to relax or give away part of that authority, it becomes complicated for them to accept any plan or idea that treads upon the supreme control that is exercised under their power. Perhaps this is why sovereignty in the international aviation environment is one of the areas that has been more strongly regulated than other areas and, for this reason, it is not surprising that one of the biggest concerns of state parties on the implementation of Functional Airspace Blocks has been national sovereignty.⁴⁶

⁴²<http://www.flightglobal.com/pdfarchive/view/1957/1957%20-%201799.html> (accessed 30 August 2013).

⁴³http://www.redress.org/downloads/publications/Prof_Dr_Michael_Milde_for_REDRESS_June_2008_2_.pdf (accessed 27 July 2013).

⁴⁴Dodge (2009) 35 *Journal of Space Law*, 5 at 19.

⁴⁵Mark (2007) 32 *Air and Space Law* 425 at 426.

⁴⁶Schubert (2003) 28 *Air & Space Law* 32 at 46.

Functional Airspace Blocks are an important tool for the rearrangement of ATM in Europe. However, their creation has been discussed extensively by the political branches affected.

One of the issues that arose was the fear of the possibility of the European Commission taking control of European Airspace and deciding the limits of the FABs by itself, which could be seen as a violation of state's sovereignty as it could contradict the Chicago Convention.⁴⁷ Article 1, for example states that:

"The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory".⁴⁸

However, such a situation has not materialized, as Article 5 of the Airspace Regulation (551/2004) establishes that member states forming an FAB can agree on their limit.⁴⁹ Additionally, the establishment of FABs has to be made by agreement between the member states (with responsibility over the airspace) which are part of the FAB, or by declaration (if the area where the FAB is, falls under responsibility of only one state) as the amendatory Regulation (EC) No. 1070/ 2009 establishes.⁵⁰

Another area in which the sovereignty topic has arisen is the Service Provision Regulation, as some country members have found the creation of cross-border zones problematic. In their view, it causes a limitation to their sovereignty. This is partly due to the unexplored complexity of the FAB concept, which has led to doubts among member states.⁵¹

The Service Provision Regulation allows Air Navigation Service Providers (ANSPs) to operate across their own borders, which has opened the door for the European Commission to address the fragmentation problem in the European Sky. It has been determined that fragmentation is an important contributor to Air Traffic Management's poor execution and, for that reason, the Single Sky

⁴⁷ Dodge (2009) 35 Journal of Space Law 5 at 19.

⁴⁸ Chicago Convention on International Civil Aviation.

⁴⁹ Regulation (EC) No 551/2004 of the European Parliament and of the Council (2004) Art 5 par 4.

⁵⁰ Regulation (EC) No 1070/2009 of the European Parliament and of the Council (2009) Art 9a par 3.

⁵¹ Van Houtte, (2004) 41 Common Market Law Review 1595 at 1609.

Legislation has created these mechanisms with the intention of implementing a more cohesive situation.⁵²

Van Houtte states that the Single Sky Legislation was conceived with the aim of providing an alternative to air navigation users who require the services of ANSPs in the range of the European Union, and not only suppliers in their own country.⁵³ ANSPs are expected to comply with requirements to operate across their own borders. Those compliances are based on certification mechanisms that were introduced by the Service Provision Regulations, which are to be managed by national authorities.⁵⁴

Cross-border air navigation services have a range of opportunities to operate outside their own country due to the certification mechanisms established by the Single Sky Legislation. In order to provide an extra push to this development, the “Functional Airspace Block” concept was launched by the Airspace Regulation. Van Houtte is of the opinion that this concept simply highlights the fact that ANSPs should have responsibilities over areas that fulfil operational requirements to ensure the best utilization of the airspace, regardless of national borders, and taking into consideration traffic flow.⁵⁵

Cross-Border Airspace Planning was one of the legislations that European Parliament was eager to accelerate, as it was fundamental to the establishment of Functional Airspace Blocks.⁵⁶

Franklin Mark described Functional Airspace Blocks as the new fragmentation of the European Airspace and proposed that the responsibility to establish them is under the member states of the European Union and, as such, establishment must be done by mutual agreement. Additionally, responsibility over the airspace where the FAB is formed belongs to those who agree on its creation, so it does not affect the sovereignty of those involved.⁵⁷

⁵²Van Houtte (2004) 41 Common Market Law Review 1595 at 1607.

⁵³Van Houtte (2004) 41 Common Market Law Review 1595 at 1608.

⁵⁴ Van Houtte, *supra* n, 52.

⁵⁵Van Houtte, *supra* n, 53.

⁵⁶Van Houtte (2004) 41 Common Market Law Review 1595 at 1610.

⁵⁷Mark (2007) 32 Air and Space Law 425.

Article 28 of the Chicago Convention in conjunction with Annex 11 (Air Traffic Service) of the Chicago Convention allows the ANSPs to provide their service across borders.

Article 28 establishes that states have the responsibility to provide air navigation services over their airspace territory⁵⁸. Article 28 paragraph (a) stipulates that a state should:

“Provide, in its territory, airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time, pursuant to this Convention.”⁵⁹

Annex 11 of the Convention expands on this and establishes that states must “arrange” an Air Service Provider.⁶⁰ This can be done by the state itself, using the assistance of other countries, or through entities established in another country. Annex 11 clearly explains that this can be done without any deprivation of sovereignty.⁶¹ It asserts that:

“Contracting States shall determine, in accordance with the provisions of this Annex and for the territories over which they have jurisdiction, those portions of the airspace and those aerodromes where air traffic services will be provided. They shall thereafter arrange for such services to be established and provided in accordance with the provisions of this Annex, except that, by mutual agreement, a State may delegate to another State the responsibility for establishing and providing air traffic services in flight information regions, control areas or control zones extending over the territories of the former.”⁶²

Although the responsibility regarding air service lies mostly with states alone, there are numerous states that will use the services of other states or entities

⁵⁸ Eurocontrol European Commission’s Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

⁵⁹ Chicago Convention on International Civil Aviation Art 28 par (a).

⁶⁰ Mark (2007) 32 Air and Space Law 425 at 428.

⁶¹ Eurocontrol European Commission’s Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

⁶² Annex 11 to the Convention on Civil Aviation (2001) ed. 13 Art 2.1.1.

which are based in other states, to supply those services in their airspace, or in part of it.⁶³

Furthermore, the Service Regulation, which is the European Commission Regulation handling the FABs, proposes “complete and exclusive sovereignty to states over the territory above them”⁶⁴ based on what is stipulated in Article 1 of the Chicago Convention. The Service Regulation also expresses that member states are expected to:

*“Retain their responsibilities towards the ICAO within the geographical limits of the upper flight information regions and flight information regions entrusted to them by the ICAO on the date of entry into force of this regulation.”*⁶⁵

There is no other mention regarding sovereignty in the Service Regulation.⁶⁶ This is, perhaps, because cross-border services provision, as such, is not seen as a threat to states’ sovereignty, as for many years Air Traffic Services (ATS) have been delegated from one country to another. Despite that, it is important to note that FABs represent a much bigger area. However, it is clear that ANSPs can operate regardless of national borders without any violation of a state’s sovereignty.⁶⁷ This is an operative designation in which a service provider is obliged to perform according to the rules of the designating state, with the supervisory instruments designed to guarantee that the execution of what is required is done in accordance with its regulatory structure.⁶⁸ Francis Schubert explains that sovereignty is about ownership of airspace, not about service provision.⁶⁹

There are currently a range of authorized air navigation service providers in Europe; from Finland to France, Norway, Sweden and Switzerland, It has also occurred between The United States and Canada, and between Tonga and

⁶³Mark (2007) 32 Air and Space Law 425 at 428.

⁶⁴Chicago Convention on International Civil Aviation Art 1.

⁶⁵Regulation (EC) No 551/2004 on the organization of the airspace in the single European sky Art 3 par 4.

⁶⁶Mark (2007) 32 Air and Space Law 425 at 426.

⁶⁷Schubert (2003) 28 Air & Space Law 32 at 46.

⁶⁸Annex 11 to the Convention on Civil Aviation (2001) ed. 13 Art 2.1.1

⁶⁹Schubert (2003) 28 Air & Space Law 32 at 47.

Samoa with authority given to New Zealand to provide air navigation services. Importantly, there has not been a single concern related to sovereignty.⁷⁰

As mentioned, the establishment of multi-country FABs must be done with agreement of the states concerned, and states, in principle, will not enter into an agreement that affects them adversely in some way.⁷¹ Accordingly, the SES Regulation does not affect or limit the sovereignty of the states or their security. Defence necessities must be fortified in the agreement when establishing and developing an FAB.⁷²

Security and defence policies are the responsibility of each member state and each one of them has different requirements regarding their Armed Forces. Member states do not only have sovereignty over their territory, but also responsibilities regarding public order, internal security and defence affairs which are to be acknowledged by the FAB agreements.⁷³ The member states still have the faculty to ensure sufficient and adequate airspace for the education and training of their Armed Forces. Any problems regarding sovereignty would have to be addressed in the FAB agreements between member states.⁷⁴

It is important to highlight that provision of air navigation services by other states or organizations can be done, but without detriment to the sovereignty of the states establishing an FAB.⁷⁵ The different FAB agreements in Europe reflect a general approach of reconciling the rights of every contracting state of sovereignty over the airspace over their territories, while respecting what is established in the Chicago Convention of 1944. An example of this is the Preamble on the FAB Central Europe (Austria, Bosnia & Herzegovina, Croatia, Czech Republic, Hungary, Slovak Republic, Slovenia) which states:

⁷⁰ International Civil Aviation Organization, Civil Air Navigation Services Organisation (2013) Perspective Report.

⁷¹ Eurocontrol European Commission's Mandate to Support the Establishment of Functional Airspace Blocks (2005) Final Report.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Ibid.

“Recognizing that the conclusion of an Agreement regarding the establishment and implementation of a Functional Airspace Block shall not prejudice the principle that every State has complete and exclusive sovereignty over the airspace above its territory or the capacity of every State to exercise its prerogatives with regard to security and defence in its national airspace.”⁷⁶

Another example is that of Article 3 of the North European FAB (Estonia, Finland, Latvia, and Norway) which asserts that:

“The provisions of this Agreement shall be without prejudice to the sovereignty of the Contracting States over their airspace or their rights and obligations under the Chicago Convention and other instruments of International Law.”⁷⁷

As can be seen, the Single Sky Regulations has established that the security and defence of the states are clearly the responsibility of the state members and each of them has their own policies and characteristics, which makes police units and military components different from one country to another.

Airspace is viewed as a common resource and states have sovereignty over the airspace above their territory. Additionally, they have responsibility regarding public order, security and defence. The member states possess the right to take necessary action to ensure training and sufficient education regarding airspace in the military contingent, which will not be limited by the Single Sky Regulations.

State’s sovereignty is not affected by the FABs as states retain full control over their national airspace and the power to regulate it with complete awareness of what is happening in it.

⁷⁶ Agreement on the Establishment of Functional Airspace Block Central Europe (2012).

⁷⁷ North European Functional Airspace Block Agreement (2012) Art 3.

Chapter Three

Are Functional Airspace Blocks a new concept?

Europe is under a big challenge regarding the reorganization of its airspace, as its fragmentation seems to overload its capacity to deal with the amount of air traffic which, in turn, creates a chain of problems in the aviation industry in general. In order to find a solution, various studies have been conducted. The solution seems to be a series of airspace blocks in which a unified traffic management system will operate on behalf of certain groups of countries with Air Service Providers (ANSPs) operating from one country to another. Such an idea is controversial, as doubts regarding its feasibility have arisen. Some are of the idea that this concept is just a reiteration of past attempts with a different name.

As it is known Europe has experienced a massive increase of movement in its airspace over the last two decade. Air Navigation Services (ANS) are under immense pressure, as the number of flights is in a continual ascending curve. This implies an escalating number of difficulties and challenges which will not be controllable for much longer for the already overextended ANSPs which are regularly incapable of accommodating the traffic demand.⁷⁸

The incapability of the ANSPs to manage European air traffic flow, because of the above mentioned, has created a chain of complications which has resulted in delays and financial losses to all airspace users, as the operational costs skyrocket. All of this has occurred in an already beaten European aviation industry.⁷⁹

In an attempt to solve these problems the European Commission launched the Single European Sky (SES) package which is comprised of a number of Airspace regulations. One of the most fundamental aims of these regulations is the creation of a new airspace environment, enlarging the physical structure of the critically fragmented European Airspace, using Functional Airspace Blocks as a major tool to do this.

⁷⁸Schubert (2003) 28 Air & Space 32.

⁷⁹Ibid.

Functional Airspace Blocks (FABs) were first defined in Regulation (EC) no. 549/2004 of the European Parliament and of the Council of 10 March 2004 and were amended after by Regulation (EC) no.1070/2009 of the European Parliament and of the Council of 21 October 2009 which states the Blocks should be:

*“airspace block based on operational requirements and established regardless of State boundaries, where the provision of air navigation services and related functions are performance-driven and optimised with a view to introducing, in each functional airspace block, enhanced cooperation among air navigation service providers or, where appropriate, an integrated provider”.*⁸⁰

Article 9a establishes more concrete requirements for the implementation of FABs by member states.

The first is to guarantee the best use of airspace to facilitate air traffic management. The second is to comply with the regulation established in Article 6 of airspace regulation no.551/2004. Finally, the economic rateability of the application of the system must be proved, including technical and human resources. The Article calls for a transfer of responsibility from air traffic control to the air traffic service unit in the best possible manner. It also promotes affinity between the different airspace configurations and flight information, and states that the regional agreement under the International Civil Aviation Organization (ICAO) must be respected.⁸¹

The Functional Airspace concept has been a very controversial topic, but, undoubtedly, it is an idea that has appeared as a feasible solution to the problem of congestion in European Airspace. The question that arises is whether this concept is a new concept or whether it has been used in the past - either in a conceptual manner or in a practical way.

According to Francis Schubert, this concept is unique but only regarding the name “FAB”. This is due to the fact that modern aviation, in institutions like the

⁸⁰ Regulation (EC) No 1070/2009 of the European Parliament and of the Council (2009) Art 2.25.

⁸¹ Regulation (EC) No 1070/2009 of the European Parliament and of the Counsel (2009) Art 9a par 2 a, b ,c ,d, e, f, g and i.

International ICAO, has always been of the opinion that airspace agreements should not be limited by territorial boundaries.⁸²

ICAO is an organization within the United Nations that has the task of developing safety procedures and improving International Civil Aviation in a cohesive manner all around the world. ICAO concentrates on the creation of standards and regulations in specific areas such as regularity, safety, security, efficiency and environmental protection.⁸³ It was created in 1944 by the Chicago Convention and came into being on the 4th April 1947. In the same year, it became linked to the Economic and Social Council (ECOSOC) of the United Nations.⁸⁴

ICAO had the idea that air traffic services could provide their services from one state to another, for a long time before the idea was put into place by the European Commission, as can be seen in the Annex 11 which explains.⁸⁵

“The delineation of airspace, wherein air traffic services are to be provided, should be related to the nature of the route structure and the need for efficient service rather than to national boundaries.”⁸⁶

“Agreements to permit the delineation of airspace lying across national boundaries are advisable when such action will facilitate the provision of air traffic services.”⁸⁷

It is necessary to remember that the principle foundation of FABs is that they are implemented without regard to national borders and with the utilization of a single Air Navigation Service Provider for the group of states that agree on the formation of an FAB. So it is clear that the fundamental aspects of FABs are not new.

The European Civil Aviation Conference (ECAC) is an intergovernmental organization which is part of ICAO family. It was founded in 1955 and currently has 44 state members. Its purpose is related to safety and development of the

⁸²Schubert (2003) 28 Air & Space 32 at 37.

⁸³<http://www.icao.int/about-icao/Pages/default.aspx> (accessed 6 September 2013).

⁸⁴<http://www.icao.int/publications/Pages/doc7300.aspx> (accessed 8 September 2013).

⁸⁵Schubert (2003) 28 Air & Space 32 at 37.

⁸⁶Annex 11 to the Convention on Civil Aviation (2001) ed13th Art 2.9.1.

⁸⁷Annex 11 to the Convention on Civil Aviation (2001) ed13th Art 2.9.1, note 1.

European Air Transport System in a coordinated way.⁸⁸ Francis Schubert discusses that it also recognize the advantage of cross-border service provision in the 1990s, using this provision as its own approach. This can be seen in the ECAC Strategy for the 1990s, signed by the Transport Ministers in Paris on the 24th of April 1990, which states that⁸⁹ *“particular efforts should be made to dissociate the limits of the sectors from national boundaries, whenever this is operationally beneficial.”*⁹⁰

EUROCONTROL, which has the same inclination of the ECAC but with its own approach, has implemented a similar idea to be the fundamental factor in the Air Traffic Management (ATM) programme of Europe.⁹¹ It says that, *“the airspace of the ECAC States shall, for ATM purposes, be considered a continuum and shall not be constrained by national boundaries.”*⁹² It also explains that *“while some ECAC States have concluded cross-border airspace agreements, the present organization of airspace, which is not sufficiently flexible, must be improved and is not to be constrained by national boundaries. By removing the ATM constraints imposed by national boundaries, airspace capacity can be managed more effectively.”*⁹³

It is evident that this “new” FAB concept is simply a revised proposal of the past understanding of cross-border concepts put into practice irregularly before.⁹⁴ However, in the interest of finding deeper roots of what has been presented by the European Commission as “a new and revolutionary concept”, it is perhaps necessary to go back in time to where the integration process in Europe started, because, at the end of the day, the FAB concept is a tool of integration used by the European Commission to achieve its final aim - which is the Single European Sky. Although the main problem is airspace congestion in Europe, solving it will also strengthen European integration and trust between its states.

N.A Van Antwerpen explains that European Integration was set in motion by the European Coal and Steel Community in 1952, it had the intention of avoiding

⁸⁸<https://www.ecac-ceac.org/>(accessed 5 September 2013).

⁸⁹Schubert (2003) 28 Air & Space 32 at 37.

⁹⁰Paris ECAC Strategy for the 1990s app 3 par 8.

⁹¹Schubert, supra n, 89.

⁹²Eurocontrol ATM Strategy for the years 200+ (2000) 2 par 2.3.1.

⁹³Ibid.

⁹⁴Schubert (2003) 28 Air & Space 32 at 39.

fragmented groups with their own form of control, masking military potential and avoiding possible warlike intention. They aimed to avoid this by promoting common control of the system.⁹⁵ Ratification of the European Atomic Energy Community (Eurotom) in 1958, which at that time had the aim of coordinating state participants to use nuclear power in non hostile activities⁹⁶, was a step forward toward integration. This coincided with the ratification of the European Economic Community (EEC) in the same year. The latter treaty was of a wider range and perhaps more important, as the others were limited to very specific areas.⁹⁷ Undoubtedly, the treaty on the European Union in 1992 was the one that created the most significant changes and took European integration to another level, as it opened the door for the establishment of a common market. This eradicated barricades between the state members, as rules and regulations are common between the member states regardless of national frontiers. FABs aim to play their role in the European Sky in this fashion.⁹⁸

There is a theoretical connection between the FAB concept and the European integration process, which started through the idea of integration. The idea of FABs as a system appears as an innovative notion with the idea of being used as a tool to finally open the door to a European open sky. However, it may be that the large numbers of agreed FABs simply reiterate the fragmented system of the past.⁹⁹

The Commissioner for Energy and Transport between 1999 and 2004, Loyola de Palacios, said that the current European airspace is segmented into small inefficient blocks for which a variety of Air Traffic Controllers (ATC) are used. This has resulted in a number of consequences arising from such delays, the increase of costs and safety issues among other things. It was the same as far back as the 1960s where the airspace was crowded with many different multinational systems.¹⁰⁰

⁹⁵Van Antwerpen (2002) 27 Air & Space 90.

⁹⁶http://ec.europa.eu/energy/nuclear/euratom/euratom_en.htm (accessed 11 September 2013).

⁹⁷Van Antwerpen, supra n, 95.

⁹⁸Ibid.

⁹⁹<http://www.airtrafficmanagement.net/2012/12/a-future-for-fabs/> (accessed 5 December 2012).

¹⁰⁰http://www.aviationtoday.com/av/commercial/Single-European-Sky_1179.html#UjGs1T_hdpl (accessed 27 July 2013).

It seems that the purpose of the FAB concept is simply to deal with the fragmentation problem referred to by Loyola de Palacios, with the difference that, in theory, the FABs will reduce the workload to a more manageable number of sectors. This would seem to be an advantage, but as the number of FABs increased to nine, contrary to a much better alternative of 3 or 4 at the most, a problem arose. The problem is that those nine were created as a result of political interests rather than functional distribution of the European Sky. This leads to the situation that an FAB concept, whether new or not, results in the system arriving at the same situation as before with the difference that the fragmentation of the airspace as a result of old territorial divisions, is replaced by FAB fragmentation.¹⁰¹

It is clear that the FAB concept is more of the old legacy with a modern cover, as the European Commission is trying to eradicate fragmentation with the utilization of blocks that, in the end are a new form of fragmentation.¹⁰²

There is a tendency towards pessimism regarding the SES and its tools (FABs). This pessimism arises from the notion that the “new” revolutionary concept is not new at all, but rather a process that started in the 1960s with EUROCONTROL, and has been reformulated and given new terminology to disguise the ultimate goal: to cease fragmentation.¹⁰³

EUROCONTROL was created in 1960. This European organization was created for the safety of Air Navigation.¹⁰⁴ EUROCONTROL has attempted to create harmonized European Airspace median programmes like the European Air Traffic Control Harmonization and Integration Program (EATCHIP) with the objective of integration between the civil and military management of the state members. Later on, the European Air Traffic Management Program (EATMP) was created, which was the successor of the EATCHIP. The Central Flow Management Unit (CFMU) was another system with the intention of monitoring the traffic flow and

¹⁰¹ <http://www.airtrafficmanagement.net/2012/12/a-future-for-fabs/> (accessed 26 Jun 2013).

¹⁰² Ibid.

¹⁰³ <http://business.highbeam.com/435594/article-1g1-154866362/beyond-sticks-and-carrots-even-the-most-brilliant-idea> (accessed 25 August 2013).

¹⁰⁴ <http://www.linkedin.com/company/eurocontrol> (accessed 10 August 2013).

rationalization on the use of en-route airspace.¹⁰⁵ En-route airspace is *"the volume of airspace outside terminal areas, where the climb, cruise and descent phases of flight take place and within which various types of air traffic services are provided."*¹⁰⁶

Another EUROCONTROL system was the Maastricht Upper Area Control Centre (MUAC), which was created 41 years ago and operated by EUROCONTROL on behalf of Belgium, the Netherlands, Luxembourg and part of Germany. The MUAC provided air traffic control for the upper airspace (higher than 24,500 Or 7.500 metres). This demonstrates the cross-border idea of the FAB concept being utilized in the past.¹⁰⁷

Similarly, EUROCONTROL, in collaboration with Austria, Bosnia and Herzegovina, Croatia, the Czech Republic, Hungary, Slovenia, the Slovak Republic, and a northern part of Italy, reached some success with the Central European Air Traffic Service programme as it unified the airspace of central Europe and the Balkans.¹⁰⁸ This programme was conceived in the early 1990s and, as the CFMU unified ATC systems for upper airspace, maintained safety levels and increased capacity and efficiency.¹⁰⁹

These initiatives launched by EUROCONTROL were certainly the precursor of the SES and the FAB concept and achieved a certain level of success but, because of the number of European of jurisdictions and territorial overprotection, the benefit did not extend sufficiently enough to open the sky in Europe - despite the influence of the EUROCONTROL support (which consisted of 29 members at that time), the CEATS with its members and the European Community.¹¹⁰

There was a perception that EUROCONTROL was lacking in its ability to rise above the crisis that has affected European sky for such a long time. This is possibly because there was not enough regularity or because it did not have the

¹⁰⁵ http://www.aviationtoday.com/av/commercial/Single-European-Sky_1179.html#UjGs1T_hdpi (accessed 27 July 2013).

¹⁰⁶ Eurocontrol Standard document for radar surveillance in en-route airspace and major terminal areas (1997) Art 3.1.2.

¹⁰⁷ <http://www.eurocontrol.int/content/maastricht-uac> (accessed 12 September 2013).

¹⁰⁸ Eurocontrol, supra n 106.

¹⁰⁹ https://www.eurocontrol.int/ceats/public/standard_page/programme.html (accessed 13 September 2013).

¹¹⁰ Eurocontrol, supra n, 108.

power to enforce its initiatives with force. The European Commission came to the conclusion that, due to its political mandate, effective decision making and enforcement mechanisms, it was in a better position to be a more effective than EUROCONTROL and that only a major plan with further reach in its design would succeed. As a result, the European Commission decided to try to solve the problem by developing the SES.¹¹¹

A high level group was created by the Commission, comprising civil air traffic authorities as well as military representatives of the member states which had the support of the transport ministers, the heads of states and the European Parliament.¹¹²

The high level group had the contribution of airspace users, ANSPs, airports, equipment manufacturers, professional staff organizations and trade unions, among others, working alongside. It was put together by the European Commission with the intention of bringing their recommendations into the debate. During the course of 2000, the high level group worked on a report which was finalized in November. In which it was concluded that airspace should be considered a common resource and its management should be done as one single element: a merged management of the civil and military aviation of air traffic, and the creation of interoperable equipment and new technology.¹¹³

The report mentioned FABs which were presented as a new idea but in reality, as mentioned, they are just the remaking of old ideas in new ways, using them as a major instrument for the creation of an SES.¹¹⁴

In conjunction with the work of the high level group preparing their report, an amount of studies took place related to air service provision with the aim of evaluating technical aspects of it. Contact with stakeholders and trade unions was constant, as the European Commission wanted to solidify relationships with

¹¹¹Schubert (2003) 28 Air & Space 32.

¹¹²Van Houtte (2004) 41 Common Market Law Review 1595 at 1601.

¹¹³Ibid.

¹¹⁴ Single European Sky- EUROCONTROL Mandates 4 study for the European Commission on the Regulation of Airspace and Design (2001) page 9.

the sectors, while preparing for the results of the high level group and the elaboration of legislative proposal. At the end of 2001, the functional methods for reaching the SES arrived with the Commission's proposal, forwarding the creation of framework regulations dealing with different aspects of the "new" idea. Finally, by the 20th of April 2004, after two year, of discussion, the regulations came into force, forming the SES package.¹¹⁵ As mentioned before, the SES package was amended by the SES 2 package in 2009.

Without a doubt, the foundation of FABs emerged from past systems with their conceptual principles attached to Airspace Instruments such as the Chicago Convention and its Annex. New or not, FABs are affected by the same circumstances that affected past attempts to unify the European Sky. The lack of political will and individual interests cause this new attempt to be yet another fragmentation system, making FABs part of a repetitive cycle.

¹¹⁵Van Houtte (2004) 41 Common Market Law Review 1595 at 1601.

Chapter Four

Functional Airspace Blocks Applicability in South America and Southern Africa

In addition to what has been presented, it is of the intention of the writer to analyze a hypothetical implementation of FABs South America and Southern Africa, taking into consideration whether such implementation could be possible and, if this is the case, whether such implementation would be necessary. The main questions to consider are: Could these two regions with their own characteristics and own circumstances implement this system that is costing Europe greatly (in effort and expense) and would this make a positive impact on the development of civil aviation in South America and Southern Africa?

In an attempt to discuss the situations mentioned above with the best clarity possible, the application of FABs on South America and Southern Africa will be discussed separately - starting with South America.

The South American subcontinent, which is considered to be a continent on its own, is compiled of twelve sovereign states (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname and Venezuela) and two others: French Guiana (an overseas department of France) and the Falkland Islands (British overseas territory).¹¹⁶

South America has three major international organizations. The first is the Andean Community (In Spanish: Comunidad Andina de Naciones CAN), which is a customs union agreement integrated by Bolivia, Colombia, Ecuador and Peru and was, ratified in 1969 by the Cartagena Agreement.¹¹⁷ The second is the Southern Common Market (In Spanish: Mercado Comun del Sur MERCOSUR), which is in similar to the CAN and is a customs union agreement integrated by Argentina, Brazil, Paraguay, Uruguay, Venezuela and, now, Bolivia. MERCOSUR

¹¹⁶<http://www.worldatlas.com/webimage/countrys/sa.htm> (accessed 5 September 2013).

¹¹⁷<http://www.comunidadandina.org/Quienes.aspx> (accessed 5 September 2013).

was established by the Asuncion Treaty in 1991.¹¹⁸The CAN and MERCOSUR have been contemplating forming a union between the two entities, and signed a Framework agreement for free trade between them in 1998. This was the first movement towards unity.

In addition to these two blocks, there is a third major player, which is the Union of South American Nations (UNASUR), created in 2008 and integrated by the twelve sovereign states of South America. This political organization supports the integration of the continent thus creating a unified community similar to the European community.¹¹⁹

UNASUR has joined in the process of the unification of CAN and MERCOSUR. The integration process has seemingly taken strength and some believe that a unified organization can be implemented within a decade.¹²⁰ However, what is closest to reality is what is currently in operation. In order to try to apply the concept of FABs to South America, it is probably best to base the application on one institution.

MERCOSUR is possibly the ideal integration institution, as its common market air transport offers the best conditions. This is due to the fact that its treaty opens the door to special conditions for transport in the region. Article one of the Asuncion treaty establishes that:

“The coordination of macro-economic and sectorial policies between the State Parties of foreign trade, agricultural, industrial, fiscal, monetary, exchange, capitals, services, customs, transportations, communications and others to be agreed upon, aiming the adequate competitiveness conditions between the State Parties.”¹²¹

This Article aims to create coordinated political and economic coordination between the state members. Transport is one of the areas highlighted in this article, given that a common market would not be possible if what is traded could not be moved between countries. The deficiency of roads as well as a lack of

¹¹⁸<http://www.mercosur.int/> (accessed 5 September 2013).

¹¹⁹<http://www.unasur.org/inicio/organizacion/historia> (accessed 5 September 2013).

¹²⁰<http://www.comunidadandina.org/Prensa.aspx?id=3331&accion=detalle&cat=NP> (accessed 6 September 2013).

¹²¹Asuncion Treaty (1991) Art 1 par 3.

railway infrastructure added to the fact that South America has a larger territorial extension in contrast to Europe (which has a relatively small territorial extension with a high concentration of countries), makes air transport the best approach to take.¹²² However, lack of political will is affecting the air transport in the region as, from the moment of the creation of MERCOSUR, sub - working groups were created. The fifth and sixth are related to transport, but there is not a group dedicated to air transport area nor is it included in the other groups.¹²³

Surprisingly, the only agreement being applied to the air transport region is not part of MERCOSUR - even though the participants were part of the original corpus of MERCOSUR (including Peru and Chile). This agreement is the Fortaleza Agreement of 1996, which is an open sky agreement with only the first, second, third and fourth freedom of the air (freedom of the air is what was established by the 1944 Chicago Convention and its Annex) granted with some exception to specific routes. However, Article 1 and 2 of the Fortaleza Agreement established that the fifth and sixth agreement could be included with authorization of the states implicated.¹²⁴

This is a very restricted agreement, as some routes were taken out of the agreement. Additionally, some freedoms were subject to bilateral agreements and it did not really open the skies as Cabotage (the transport of goods or passengers between two points in the same country by an aircraft registered in another country¹²⁵) was not included. However, it is a first attempt to reach a reasonable level of integration in airspace in South America and Article 18 of the agreement provides the possibility for the softening of this restriction, as it established that regulations of the agreement are to be in constant revision.

Ultimately, only if South America concretes its integration process with possible union between CAN, UNASUR, and MERCOSUR and if this combined new

¹²²Masedo (2008) Thesis for Degree of Master in Industrial Engineering and Management, Universidade do Porto page 17.

¹²³ Asuncion Treaty Annex 5 Working Groups of the Common Market Group (1991).

¹²⁴Masedo (2008) Thesis for Degree of Master in Industrial Engineering and Management, Universidade do Porto page 23.

¹²⁵ The American Heritage Dictionary of the English Language (2000) ed. 4th.

institution aims to unify the South American Airspace, would an idea like the FABs be necessary.

To determine the necessity, it is important to evaluate the current situation of South American Airspace and its current challenges. The air transport industry in South America has experienced a significant increase in demand as a result of the economic growth that the regions have experienced recently. This has led to a very feasible air transport sector if it is compared to other periods in the past. This has led to the complete utilization of the available airport infrastructure and aircraft.¹²⁶ The demand grew between 2006 and 2009 in average of five percent with a 17.1 percent of growth in 2011 which doubled the world growth. The capacity on offer from the airlines also increased in a substantial manner as new aircraft were acquired. This is according to the Air Transport Association (IATA) annual report.¹²⁷

However, it is believed that this growth in the air transportation in South America could start decreasing if infrastructure capacity is not addressed. One of the main problems is the airports' capacity, as most of them are lagging in their ability to respond to the growth that the market has experienced, and in the proposed growth in the years to come. If the situation is not addressed immediately, the growth of the last decade will stop and perhaps ease off.¹²⁸

Since the beginning of the 1990s, a process of modernization has taken place in airport infrastructure. This is as a result of the operational transfer of the sector to private institutions as inversion in the sector was necessary. In other instances, the process of modernization has been done with the participation of the public and private sector jointly or, as in Venezuela solely by the national government. The process of modernization has been delayed as some governments have decided to retake control of the sector, which, accordingly, has not contributed to the development of the infrastructure.¹²⁹

¹²⁶Corporacion Andina de Fomento Diagnóstico estratégico y propuesta para una agenda prioritaria (2011) Paper.

¹²⁷International Air Transport Association (2011) Annual Report.

¹²⁸<http://centreforaviation.com/analysis/latin-america-growth-could-slow-if-infrastructure-challenges-are-not-addressed-90067> (accessed 10 September 2013).

¹²⁹Corporacion Andina de Fomento, supra n, 126.

A relevant example is the situation in Brazil where the airport networks have a huge inversion deficit, with state installation working above its capacity and poor quality services being provided. The situation has become worse because Brazil has experienced a surge in air traffic as the country has experienced economic growth over the last few years. All this could get much more complicated, as the country is hosting the Football World Cup in 2014 and the Olympic Games in 2016.¹³⁰

The Latin America Airline Industry (ALTA) has expressed its concern over the situation, because Latin America's infrastructure has not developed sufficiently to cover the demand. The result of this is that 30 percent of the airlines are operating from congested airports. The situation is only going to get worse as the demand has been predicted to increase, and there are not enough projects being proposed for the construction of new airports.¹³¹

A new airport opened in Bogota recently. However, it will not improve the situation of congestion, as the new airport has the same capacity as the old airport which is below the necessary capacity. The same situation is present in the Lima and Buenos Aires Airports.¹³² Roberto Kriete, the ALTA president, said that in China there are currently almost a hundred projects to construct new airports, while in all of Latin America, there are only 16.¹³³

In addition to the overcrowded, inefficient and insufficient airports, Air Navigation Services Providers rely on outdated equipment with procedures that are not in accordance with the new aircraft that airlines are using in the region.¹³⁴

Air Navigation Services are largely operated by the military sector or civil aviation authorities. In both cases it is done successfully if the operation is exercised through autonomous entities. Unfortunately, when ANS are under military control with dependency on national government, ANS lack efficiency, infrastructure and

¹³⁰Corporacion Andina de Fomento Diagnóstico estratégico y propuesta para una agenda prioritaria (2011) Paper.

¹³¹<http://www.iata.org/pressroom/pr/Pages/2013-04-18-01.aspx> (accessed 11 September 2013).

¹³²<http://centreforaviation.com/analysis/latin-america-growth-could-slow-if-infrastructure-challenges-are-not-addressed-90067> (accessed 10 September 2013).

¹³³ IATA, supra n, 131.

¹³⁴ CAPA, supra n, 132.

operative capacity. In the majority of South America, this is the situation, with ANSPs lacking adequate equipment and adequate personnel. Language barriers also exist, as in some cases the personnel do not speak English so are incapable of adequate verbal communication with aircraft crew.¹³⁵

Another concern is the Air Traffic Control infrastructure which is not modernised as the ATC equipment is almost obsolete and inefficient, with a shortage of controllers, according to Robert Kriete.¹³⁶

An additional concern is the possibility that new aircraft fleets cannot be used to their full potential and, in some cases are not used at all, if important updates are not made to the ATC infrastructure in the region.¹³⁷

Common Regulations are also very important, as airlines in the regions present difficulties regarding competitiveness as civil aviation authorities have not made the necessary progress in the harmonization of regulations in the sub continent. An example of this is the impossibility of carriers to transfer crews between their subsidiaries.¹³⁸

A combination of all these points was discussed in 2012 in a Forum in Panama with the ALTA Airline leaders, where concern was expressed as growth could stop and achievement of the region regarding traffic growth, as currently being experienced, will not be sustainable in the years to come. As discussed in the Forum, without coordination between main players in the field, like civil aviation authorities, airports, and airlines, the infrastructure will be insufficient to manage the traffic growth thus affecting the airspace industry financially.¹³⁹

South America clearly wants to sustain a substantial increase in its air traffic, with more and more people travelling by air as the main objective. Renovation of the general infrastructure is required to sustain the traffic growth, but it is

¹³⁵ Corporacion Andina de Fomento Diagnóstico estratégico y propuesta para una agenda prioritaria (2011) Paper.

¹³⁶ <http://www.ainonline.com/aviation-news/ainsafety/2012-12-03/latin-america-calls-continued-safety-push> (accessed 15 September 2013).

¹³⁷ Ibid.

¹³⁸ <http://www.iata.org/pressroom/pr/Pages/2013-04-18-01.aspx> (accessed 11 September 2013).

¹³⁹ <http://centreforaviation.com/analysis/latin-america-growth-could-slow-if-infrastructure-challenges-are-not-addressed-90067> (accessed 10 September 2013).

impossible not to notice the difference to the situation in Europe, where the main concern seems to be how to cope with the immense volume of air traffic in the region combined with the challenges of the geographic characteristics of the airspace on the continent. This is not a situation that concerns South America as there are a much small number of countries spread over a big territorial expanse. Implementing FABs in the region seems unnecessary as there are more imminent challenges in the region in terms of guaranteeing growth of airspace transportation.

Perhaps the creation of a Single Sky or an Open Sky would mean the liberation of the national markets among the members of MERCOSUR with the idea of creating stronger blocks with a capacity to reach agreements with other integration organs like the European Union with a degree of flexibility, meaning that more South American airlines could get traffic rights to and from Europe.¹⁴⁰

However, it is evident that the first plan of action for the growth of South America Airspace transportation would be to improve the air transport platform with the main focus being an increase of the capacity of the airports, autonomous ANSPs, improvements in equipment and technology used, and common rules and procedures for the region. The region clearly has a long way to progress in order to maybe one day get to the point of needing a new airspace organization, regardless of national boundaries, as Europe has been forced to do.

So, if the moment is not right for South America, would the FABs be necessary or applicable in another region like Southern Africa?

Africa is the largest continent after Asia and the second largest populated with 54 countries seated in its territory (including West Sahara which, even though it is a member of the African Union (AU), is not a fully recognized state, as Morocco claims sovereignty over its territory).¹⁴¹ The African countries major integration entity is the AU, which replaces the Organisation of African Unity (OAU) with the

¹⁴⁰Masedo(2008) Thesis for Degree of Master in Industrial Engineering and Management, Universidade do Porto page 26.

¹⁴¹ <http://www.worldatlas.com/webimage/countrys/af.htm> (accessed 18 September 2013).

intention of an integrated and peaceful Africa accompanied by social and economic development.¹⁴²

Alongside the AU, other integration agreements are normally incorporated by countries of the same sub - region of the continent. These regions are: Northern Africa, Western Africa, Central Africa, Eastern Africa and the Southern Africa regions.¹⁴³

The Southern African region is comprised of Botswana, Lesotho, Namibia, South Africa, and Swaziland according to the United Nations (UN).¹⁴⁴ The same countries have integrated trade blocks called The Southern African Customs Union (SACU) which was established in 1910 and is the oldest Custom Union.¹⁴⁵

Another geopolitical block exists in the Southern African Region. This is the Southern Africa Development Community (SADC) integrated by the SACU countries. It includes ten other countries from the continent, with the objective of development in various sectors of the economic and social lives of the member states.¹⁴⁶

Specifically regarding Airspace, there is an institution in the region which aims to implement airspace integration. This body could potentially implement something similar to what is being implemented in Europe. Common Market for the Eastern and Southern Africa (COMESA) is an integration institution comprised of 19 sovereign states with the main focus of the formation of a large economic trade area to overcome difficulties that individual states face on their own.¹⁴⁷

In recent years, COMESAS has also shed light on airspace integration and development of the region, based on the International Civil Aviation Organization (ICAO) plan for the progressive replacement of growth-based air navigation support for satellite-based air navigation technology, allowing ANSs the opportunity to cover a much larger area with more efficient financial costs, thus

¹⁴² <http://www.au.int/en/about/nutshell> (accessed 18 September 2013).

¹⁴³ <http://unstats.un.org/unsd/methods/m49/m49regin.htm> (accessed 22 September 2013).

¹⁴⁴ Ibid.

¹⁴⁵ <http://www.sacu.int/> (accessed 22 September 2013).

¹⁴⁶ <http://www.sadc.int/about-sadc/overview/> (accessed 22 September 2013).

¹⁴⁷ <http://about.comesa.int/> (accessed 25 September 2013).

improving air traffic flow and safety. As a starting point, this arrangement created a collaborative framework to establish a unified upper airspace.¹⁴⁸

However, more than a legal framework and a regulatory entity are necessary, as financing is integral. Creating a new organisation of the airspace in the fashion of a Single Sky in the region would create an attractive financial environment for the private sector. Additionally the unification of airspace management could result in capital investment saving as unification would mean elimination of duplicated facilities and improvement on safety.¹⁴⁹

If this project were to come in to reality, it would be a good step for the unification of the Airspace in Africa with similarities to the European situation. However, the implementation of this project is not certain and the members of SACU - excluding Swaziland - are not necessarily members of COMESA, which would leave this group of countries from the Southern Region out of any discussion, unless the convergence of COMESA and SADC materialized. Currently there is a possibility for the integration of those systems and the East African Community countries.

All the country members of those three regional organizations are members of another regional organization, which makes the integration process in all the areas (and obviously in the airspace too), complex, as multiple membership implies administrative, economic and financial costs to the members. As all these organizations are created with similar aims, the unification of them would undoubtedly help to create a deeper integration and development of the whole region.¹⁵⁰

But what should be done specifically regarding airspace organization? Dr Johan van Vollenhoven, former Chief executive officer of South Africa Air Traffic and Navigation Service (ATNS) believes that, as soon as possible, African countries

¹⁴⁸ Africa Development Fund, COMESA Airspace Integration Project (2010).

¹⁴⁹ Africa Development Fund, COMESA Airspace Integration Project (2010).

¹⁵⁰ COMESA-SADC- The Economic and Social Research Foundation (2009) Regional Frameworks.

need to decide the approach to take regarding air traffic. This need to be either a regional approach or an individual national approach.¹⁵¹

New technology which is now available will help ATC systems to operate across borders and service whole regions, thus spreading the cost between states, improving on efficiencies and increasing safety, which is a wound that the African continent has not been capable of healing.¹⁵² According to Tony Tyler the Director General of the International Air Transport Association, statistics show that last year Africa had nine times the global accident average.¹⁵³

Naturally, concerns regarding sovereignty will appear but, as in Europe, those concerns could be dissipated. The benefits of uninterrupted flights along the continent are countless, as new technology could make this possible. ATNS believe that Africa only needs three sectors to manage the upper airspace.¹⁵⁴ ATNS considers that it is capable of providing its services to the Southern African Region as there is not the necessity of every country to possess its own ATC infrastructure.¹⁵⁵

Airlines want the benefit of more amalgamated airspace in the region, but countries must decide on this due to sovereignty over their airspace, and, as in Europe, political will is necessary for the implementation of blocks or sectors. Without it, the process can be very slow - as Europe has demonstrated. Intercontinental transport development needs to be on the agenda to help the expansion of the sector.¹⁵⁶

It is well known that Africa has infrastructure challenges to face and, as the African market is growing rapidly, implementation of regional blocks would be beneficial. In this case, Southern Africa as an entire functional block would allow

¹⁵¹ <http://www.engineeringnews.co.za/article/africa-must-make-big-airtraffic-control-decisions> (accessed 25 September 2013)

¹⁵² <http://www.engineeringnews.co.za/article/africa-must-make-big-airtraffic-control-decisions> (accessed 25 September 2013)

¹⁵³ <http://www.businessdailyafrica.com/Opinion-and-Analysis/Safe-airspace-key-to-Africas-growth--/-/539548/1461454/-/1531v6kz/-/index.html> (accessed 28 September 2013).

¹⁵⁴ Engineering News, supra n, 151.

¹⁵⁵ Ibid.

¹⁵⁶ <http://www.engineeringnews.co.za/article/africa-major-emerging-market-for-air-traffic-control-and-management-systems-2013-05-03> (accessed 26 September 2013).

ANS to operate with low cost, which is important for Africa as intra-Africa exports are growing. Aviation is a perfect tool, as it makes the region more attractive. Air transportation facilitates business and, as in Europe, Africa needs to ensure growth capacity in addition to safety. With the upgrade of ATC technology, Africa could aim to implement Blocks similar to those in Europe, resulting in reduced flight time and fuel expenditure, and one day, taking a step forward toward single infrastructure on the whole continent.¹⁵⁷

South America and Southern Africa are undoubtedly in a different situation regarding airspace as the geography, economic and sociopolitical situations are very different. It would be easy to assume that South America and Southern Africa present with similar characteristics, but these two regions have very specific needs. However, to deny that integration and common growth related to any area is not an improvement could be difficult, so a system like FABs out of Europe are possible as long these are created according to the needs of these regions, and at the correct time - without detracting from the primary necessities faced by the improvement of the air transportation sector.

¹⁵⁷ <http://www.engineeringnews.co.za/article/africa-major-emerging-market-for-air-traffic-control-and-management-systems-2013-05-03> (accessed 26 September 2013).

Conclusion

After an examination and description of the Functional Airspace Block concept, and subjects related to this system that reorganize the airspace structure in Europe, it is important to state some thoughts related to it.

It is obvious that, because of the air traffic situation in Europe, changes are necessary and the European Commission has made a big effort to come up with a solution that aids everyone and solves the compromising situation of traffic congestion.

FABs promise to solve the critical delay problems, bring financial benefit, increase safety and increase capacity in the sector among other things. However, it is difficult to say whether these will indeed be the end result of the implementation of FABs as, of the nine initiatives presented to the European Commission, only two of these are currently operational. This reluctance is motivated by different circumstances, as discussed.

One of the largest concerns has been the sovereignty implication regarding Air Navigation Providers operating cross-border, which has been discussed sufficiently in this study. There is no justification for such worries, as territorial sovereignty is clearly protected in international law and these blocks are not intend to relax the sovereignty of any of the state members. The Single Sky package and its amendments have made it clear simply avoiding going deep into the sovereignty topic as it should not enquiry father discussion at least related to territorial sovereignty. FAB simply is a tool to solve a problem that affects the whole continent.

This concept has been presented to everyone as a new solution. Perhaps that is why its implementation has not gone as smoothly as the European Commission has expected as it is easy to recognize that this “new” concept is not new at all and the only novel thing about its is the name. Accordingly, it is to be expected that member states have concerns, as the repetition of old ideas do not sound appealing. However, the fact that the concept is not new and that is based on

principles that the International Civil Aviation Organization (ICAO) put on the table many years before, and that different systems have used this before does not mean that it will not be efficient and that FAB systems will not meet their goals as those other systems attained a good degree of success.

Evidently FABs need to be evaluated as an effective way of dealing with the current situation. This created a question of how a system that has not been completely adopted and prove effectively could be implemented somewhere else.

The answer is that it cannot. The general idea could be utilized in some ways, as the experience in Europe can help South America and Southern Africa to create a system that adapts to their necessities when the time is right. There are other, more pressing problems that need to be solved in those regions first.

The FAB concept could be the solution to the congestion of the European sky as long as there is political will, as sovereignty concerns can be easily dissipated. Whether the concept is a repetition of past fragmentation issues is a situation that can only be probed once the whole system is operating. Conclusions can only be made at this point, and, perhaps, a reduction on the number of blocks could be the answer if it is the case that FABs are not operating optimally. Apparently, individual states interests have affected the implementation of FABs, but this system does not have to be a failure if there is enough desire to make it a success.

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