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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

**Building the Single European Sky through functional airspace blocks:
A mid-term status report**

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A mid-term status report**

(Text with EEA relevance)

Air traffic control is the backbone of civil aviation. It provides the **infrastructure** for the 25,000 daily flights, flown by some 5,000 commercial planes between 100 major airports in the Community. Air traffic controllers are in permanent contact with pilots flying at a speed of 800 km/h ensuring a safe and efficient flow of air traffic. The cost of air traffic control amounts to about €7bn [1], constituting some 6% of total costs of an average flight.

Liberalisation of the aviation industry forced air carriers to reorganise in a global market. It left air traffic control as the only link in the aviation value chain organised and operated **at a national** scale. In view of the expected growth of aviation in the coming twenty years, the traditional strategy of piecemeal reactions offering technical solutions in a consensus based environment is no longer deemed sufficient to deal with this challenge satisfactorily.

Aviation is a quintessential cross-border activity. Yet air traffic management is organised in a **fragmented** way. Every time a plane enters the airspace of a Member State, it is serviced by a different service provider on basis of different rules and operational requirements. The fragmentation impacts on safety, limits capacity and adds to cost. Moreover, it slows down the decision making process necessary to introduce new technology and to tailor services to customers' needs.

Like any other industry, air traffic control therefore needs to be **more functionally devised** on a regional basis. Airspace is to be organised following operational requirements regardless of national boundaries in 'functional airspace blocks'. Under the single European sky legislation, Member States are under the legal obligation to enter into such regional forms of integrated management. [2]

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[1]　Figures for 2004, taken from Performance Review Report 8, Brussels, 2006.
[2]　Article 5 of Regulation (EC) 551/2004 of the European Parliament and the Council of 10 March 2004 on the organisation of the airspace in the single European sky (the "Airspace regulation"), OJ L 96, 31.03.2004, p. 10.

Two and a half years after the agreement on the adoption of the single European sky legislation[3], the European Commission would like to **assess progress** made towards the establishment of functional airspace blocks. As functional airspace blocks are a key element to the success of the Single European Sky, it is important to explain the objectives of this approach, to give indications on results expected by 2008 and beyond, and to clarify the roles of the different stakeholders, also in view of assessing the need for the amendment of the current legislative framework.

1. **FRAGMENTATION HAMPERS A MODERN AND CUSTOMER ORIENTED AIR TRAFFIC CONTROL SYSTEM**

Fragmentation of the European airspace into 27 national air traffic control systems **hampers** a safe and cost efficient service provision.

(1) Each service provider functions in its legal and institutional environment with national airspace rules and operating procedures. This leads to **diverging performances** in terms of safety, capacity and cost-efficiency.

(2) Even the big EU Member States turn out to be **global dwarfs** in terms of size of controlled airspace. In addition, the size of air traffic centres which they are operating appears to be suboptimal, with a multiplicity of technical systems and high maintenance costs. The cost of fragmentation amounts to as much as **one billion** euros[4]. The relative lack of fragmentation is one major element helping to make the US air traffic management system twice as efficient as that of the EU.

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[3] In addition to the Airspace regulation, the Single Sky legislation includes the following basic acts:
-Regulation (EC) No 449/2004 of the European Parliament and the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the "Framework regulation"), OJ L 96, 31.03.2004, p.1;
-Regulation (EC) No 550/2004 of the European Parliament and the Council of 10 March 2004 on the provision of air navigation services in the creation of the single European sky (the "Service provision regulation"), OJ L 96, 31.03.2004, p.10;
-Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European air traffic management network (Interoperability regulation), OJ L 96, 31.03.2004, p.26.

[4] Solar Alliance, 2005, the impact of fragmentation in European ATM/CNS, Bagshot, 80 p.

**Graph 1 : Basic operational statistics of air navigation service providers
(relative data 2004)**
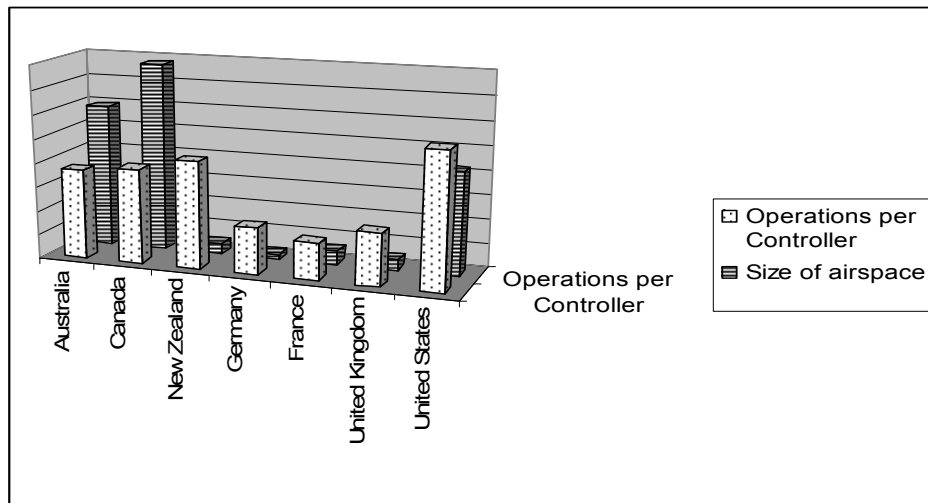
Source : GAO-05-769, ATO Annual Performance Report and PRR 2005 for France.

Size of controlled airspace in 000 km², excluding oceanic airspace, except for France.

(3)   Air traffic control is provided from some 50 en route units or air traffic control centres, and hundreds of approach centres and towers. Airspace is divided into **more than 650 sectors**[5]. Each change of sector obliges the pilot to change frequency and to contact the next air traffic controller[6]. Functionality of sector design is limited to national borders. Transfers of flights between centres are regulated through an extensive exchange of letters of agreement.

(4)   Flexibility in sector management is, in the best case, limited to the centre level. Each sector needs to be permanently manned by a team of air traffic controllers, who require some two to four years to become fully operational on a reasonable number of sectors. This results in relatively **low productivity** rates with air traffic control productivity ranging between 0.1 and 1.6 flight hours per air traffic control hour[7].

(5)   **Safety levels** between service providers vary significantly. Only one third of Member States is currently in a position to provide satisfactory incident reports, which form the basis of any safety management policy.

(6)   The small scale of operation is also an obstacle to the swift introduction of **new technologies**. As air traffic management is a niche market in global terms, equipment manufacturers have few incentives to develop new technologies. Service providers historically showed little interest in interoperability and preferred tailor made systems

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[5]   Community providers only; data taken from Performance Review Report 8, Brussels, 2006.

[6]   Transit times per service providers (servicing several sectors) vary from 7.2 minutes for Belgocontrol to 39.5 minutes for AENA, the Spanish service provider.

[7]   Benchmarking reports of the Performance Review Unit (ACE 2003, p. 69) indicate that only 15 out of 68 ACCs participating succeed in controlling more than one flight hour per hour air traffic control. However, as official working hours are used, productivity during effective working time is presumed to be considerably higher.

instead of increasing commonality by adapting off the shelf solutions to air traffic management needs.

Airline companies suffer from low profit margins and require opportunities to develop their businesses. This increases **cost pressure** and the **need for flexibility** in every link in the value chain. A substantial increase of performance and flexibility is required from air traffic management. The goal is to strengthen the competitiveness of the European aviation industry by ensuring that costs are contained as the system is developed to accommodate continuously growing traffic.

Regular reports from the Performance Review Commission, international comparisons and independent studies demonstrate the high costs associated with fragmentation. Output of air traffic management in the Community could improve significantly if it could **increase its scale** of operations, like any other industry.

2. THE COMMUNITY APPROACH: REDUCE FRAGMENTATION AND LIMIT ITS EFFECT

Greater portions of airspace need to be operated as one single operational entity. Functional airspace blocks are the tool to reduce airspace fragmentation so as to enhance current safety standards and overall efficiency, to optimize the steadily growing capacity requirements of all airspace users and to minimise delays by managing the traffic more dynamically. These objectives can only be achieved through an **increase of the scale** of operations, regardless of national borders.

2.1 Transformation of a patchwork into functional airspace blocks…

The establishment of functional airspace blocks constitutes in the very first place a **legal requirement** laid down in Article 5 of the Airspace regulation. This requirement should be read **in the light of other provisions** of the single sky legislation[8]. In addition, other air transport legislation, such as the Community air traffic controller licence[9], is also to be considered in light of the functional airspace block requirement.

This demonstrates the importance of the concept of functional airspace blocks. They are the **toolbox** with institutional, operational, technical, economic and social instruments to tackle fragmentation of airspace at its roots to meet users' expectations. So will implementing rules increase the interoperability of equipment. The Community air traffic controller licence will facilitate cross border personnel management by harmonizing competences. Focusing on airspace problems leaving aside underlying realities and limitations on the ground risks being counterproductive.

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[8]   In particular, Article 5 of the Airspace regulation must be read together with Articles 1 and 2.25 of the Framework regulation on the single sky objectives and on the definition of functional airspace blocks, respectively; with Articles 2, 8, 9 and 10 of the Service provision regulation on, respectively, the conclusion of agreements between national supervisory authorities, certification and the mutual recognition of certificates, designation procedures and on the relation between service providers.

[9]   Directive 2006/23/EC of the European Parliament and of the Council of 5 April 2006 on a Community air traffic controller licence, OJ L 114 of 27.04.2006.

This implies that the definition of functional airspace blocks involves a **collaborative decision making** exercise where all stakeholders have a role to play. While Member States have to provide the continuous political backing, the bulk of the technical work will need to be performed by the service providers. Staff will be involved to make best use of their expertise and to manage change. Finally, airspace users will influence the process so that the outcome will be best tailored to the needs of the aviation community.

Functional airspace blocks may also be conceived as a continuous defragmentation **process** whereby service providers gradually tend to a more optimal scale for their operations. This opens possibilities for tackling different aspects of fragmentation in differing timeframes, even within differing cooperation constellations. The optimal scale of operations in its turn is relative to technological possibilities and transition costs, whereby smaller blocks may, in a later stage, merge into bigger ones.

2.2 … through a 'bottom up' process

Under the current wording of Article 5 of the Airspace regulation it is for the **Member States** to establish functional air space blocks. Nonetheless, they have to ensure that these functional blocks shall, inter alia: (a) be supported by a safety case; (b) enable optimum use of airspace, taking into account air traffic flows; (c) be justified by their value added, including optimal use of technical and human resources, on the basis of cost benefit analysis; (d) ensure a fluent and flexible transfer of responsibility for air traffic control between air traffic units, (e) ensure compatibility between configuration of upper and lower airspace; (….).

As a consequence, Member States bear responsibility to bring about defragmentation in calling upon their continuous political support and the economic levers at their disposal. This is called the '**bottom-up** approach'.

The bottom up approach results from a delicate **compromise** between the European Parliament and Council. Whereas Parliament sought initially to introduce a 'top-down' approach, Council was of the view that the necessary restructuring for establishing functional air blocks was best left to Member States

In order to broker a compromise, the Commission issued a specific declaration in the conciliation committee in December 2003 where the single European sky package was adopted. **After five years**, the Commission would **review** the 'bottom up' procedure. This review may be accompanied by appropriate proposals if results achieved from the bottom-up approach are deemed insufficient.

2.3 Member States must deliver...

In this context, Member States bear direct responsibility for the establishment of the necessary institutional arrangements. A strong independent regulator in particular is a precondition for the smooth functioning of the block as one 'regulatory' continuum. Member States can contribute to **regulatory convergence** in the blocks, e.g. in applying ICAO standards or Community legislation.

Collaboration between national supervisory authorities in view of regional arrangements is well established in some projects, but is only in an embryonic stage in others. Ideally, these regional arrangements should **mirror the structures** of the blocks as proposed by the Member States involved, especially as evidence points out that smaller Member States may have difficulties to establish strong (economic) regulators[10].

Within this institutional set-up, Member States should ensure that airspace **users**, both civil and military, are appropriately involved and consulted in a continuous process, so that their needs are at the core of initiatives.

Member States are to ensure that **service providers** conceive functional airspace blocks that fulfil the legal requirements on safety, functionality and added value. Especially with regard to the added value leading to the optimal use of human resources, it is important that staff is actively involved in the integration process. This best practice is the only way to make best use of the available expertise, fairly distribute the burden and gain acceptance.

While it must be recognised that integrated airspace and technological management are genuine challenges, finding adequate solutions with **tangible results** within the five years window of opportunity is the acid test for the bottom-up approach. If discussions on technical issues linger on, it is an indication that the political and economic pressure by Member States is not sufficient and that the bottom-up approach needs to be adjusted.

3. MID TERM ON FUNCTIONAL AIRSPACE BLOCKS: WHERE DO WE STAND?

3.1 Discussions have lifted off….

In all Member States work is underway. As these are grassroots initiatives in the framework of the bottom-up approach, they differ in form and ambition[11].

Graph 2: Overview of ongoing discussions on functional airspace blocks[12]

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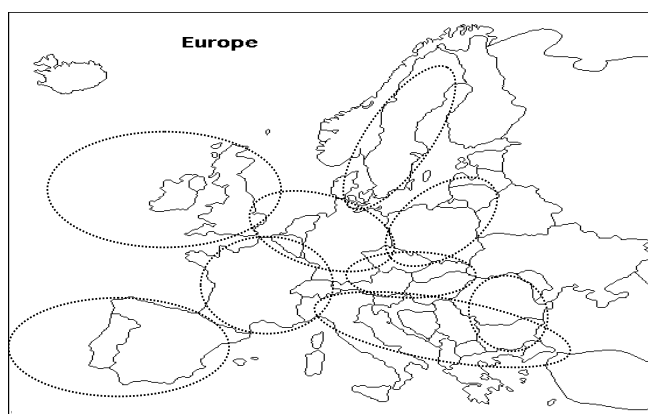
[10]   Eurocontrol, Performance Review Commission, 2006, p.70.
[11]   In annex a more comprehensive overview of current initiatives is given.
[12]   Graph established on the basis of information by states received mainly through the Single Sky committee.

With regard to **territorial coverage**, air navigation service providers have started exploratory discussions on the feasibility of functional airspace blocks in most of the Member States. Sweden and Denmark are involved in the Northern Upper Area Control project (NUAC), to which Norway, Finland and Estonia may become associated; Central FAB includes Belgium, the Netherlands, Luxembourg, Germany and the Maastricht Upper Area Control centre, managed by Eurocontrol. There are three blocks with a larger and a smaller partner: the Iberians, the United Kingdom and Ireland, and Poland and Lithuania. The SEE FABA project is re-establishing links in the Balkan region. Finally, four Member States of the original eight remain from the Central European Air Traffic Service project (CEATS)[13].

Initiatives spread **beyond EU** borders. This demonstrates the open character of the functional airspace block approach. Every player is looking for the model which fits best his particular situation. He may tackle different aspects of fragmentation with a different set of partners.

The exceptional case of SEE FABA[14]

The South East European Functional Airspace Block approach (SEE FABA) is of a particular nature. It promotes regional cooperation in the Balkan and offers the opportunity to reopen the Kosovo airspace. The Stability Pact for South Eastern Europe and the Commission took the lead and offered the **political framework** in which collaboration between the states could get firm grip[15].

After a preliminary study phase, the directors-general of the states decided to launch a feasibility phase to seek solutions in the form of integrated management to the forecasted traffic growth of up to 30% a year. The **European Common Aviation Area Agreement** extends the Community aviation market to all partner countries, which will apply the Community acquis, including single European sky regulation. The definition phase should deliver concrete results by 2009, so as to put the countries in a position to decide on the preferred options and start implementing them.

The preparation of blocks runs through different **phases**. Most projects have passed through a 'scoping phase' to give a rough identification of the options. Most of the initiatives currently are in the feasibility phase analysing added value of the integrated management, the appropriate model and the ways to achieve it. Some initiatives discern a separate validation phase. Cost benefits are necessary ingredients and may be integrated in the feasibility or validation studies.

Intensity of these studies varies significantly in terms of efforts and involvement of stakeholders. Some service providers invest tens of full time equivalents to validate preliminary findings of feasibility studies to make sure that in-house expertise is put at the disposal to achieve the best results in all issues covered. Moreover, as the whole exercise is about increasing performance levels of air navigation service provisions, some projects devote specific work packages on 'stakeholder care', while others only foresee 'information'.

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[13]   These four states signed on 8.06.2006 a statement intended to give a fresh impetus to the CEATS agreement of 1997, originally signed by eight states.
[14]   http://ec.europa.eu/transport/air/single_sky/framework/see_faba_en.htm
[15]   Albania, Bosnia–Herzegovina, Bulgaria, Croatia, Romania, Serbia, Montenegro, the Former Yugoslav Republic of Macedonia along with the United Nations Interim Administration Mission in Kosovo (UNMIK) are involved with the support of Greece, Italy, Eurocontrol, ICAO and NATO.

Intensity of the preparatory efforts and appropriate involvement of staff and users are indicators of the **political commitment** of both Member States and service providers towards functional airspace blocks. This commitment has, in some Member States, taken the shape of a formal agreement between Member States or an official request to air navigation service providers to ensure compliance with single sky provisions; in other Member States, political support is expressed by an explicit role of national supervisory authorities in feasibility studies.

3.2 … but are only the starting point for integrated management

Projects are in an **early phase** and may still change membership, approach, coverage, etc. They involve a varying number of service providers, ranging from two to eight. Norway and Finland are observers to NUAC. Together the initiatives nearly cover the whole EU territory.

Early indications are that tangible results of these functional airspace blocks in terms of cost reduction and capacity increase are modest at this stage. While the integration of airspace is a gradual process that must take its time, **more ambition** is required to generate higher benefits.

As the current projects all envisage an **integration of upper and lower** airspace and hence cover the full scope of air navigation services, there is considerable room for improvement and integration of resources management, possibly also through consolidation of centres[16].

Furthermore, on the basis of the notified initiatives, the scale of operations would increase by **a factor four** for the main operational indicators. By comparison, the average US centre[17] controls more than 70% of the average number of flight hours controlled by an entire block in the EU. Each block currently contains more than seven area control centres. This gives an indication of the **limited flexibility** in the internal organisation of individual centres in terms of personnel management and functional sector design.

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[16]   Detailed information on centres is given in Annex I.
[17]   Data concern the average of the area control centres of Albuquerque, Cleveland and Indianapolis, which were deemed most comparable to European centres.

Graph 3: Increase in scale through ongoing functional airspace blocks initiatives[18]
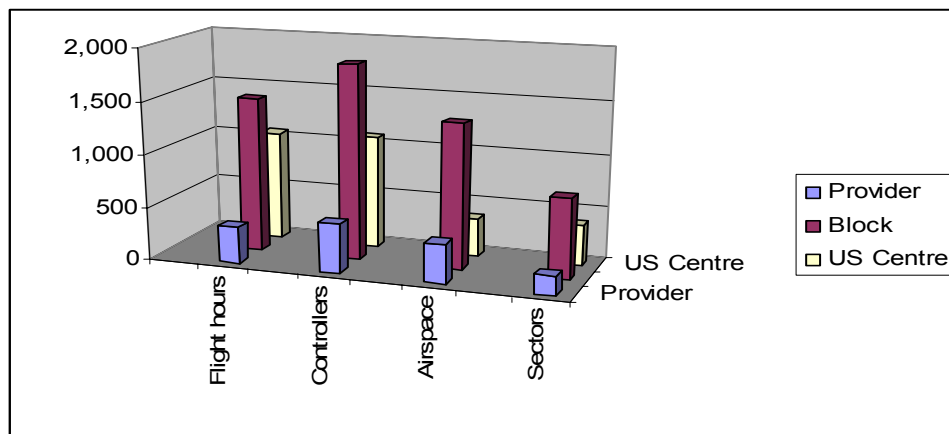
(1) For calculation purposes, Norway and Finland have been included.

(2) "US centre" acts as a benchmark and refers to data taken from the Performance Review Commission Report (2003), '*A comparison of performance in selected US and European En-Route centres*', Brussels, 98 p. + annexes.

This information indicates that the drive towards functional airspace blocks can not merely be the sum of all existing technical and human resources. The establishment of functional airspace blocks means **a strategic rethinking** of the organisation of air navigation services at a regional level to bring about added value, as required by the single European sky legislation and requested by users. The process of strategic rethinking is not yet at the required speed in all Member States to deliver concrete results by 2008.

4.   How will the Commission assess the initiatives in 2008?

By the end of 2008, the Commission will assess how much progress has been made on basis of the legal requirements in the context of the broader single sky objectives. In this respect, users expect that defragmentation will lead to a **significant increase in performance** in terms of safety, capacity and cost-efficiency.

Building functional airspace is not a window dressing exercise. Blocks should not merely constitute the mere sum of the components. Member states should be able to demonstrate how the quantitative changes have translated into a **qualitative leap** in service provision, not only in terms of flight efficiency, but also in terms of cost-effectiveness with at least the same level of safety as today.

Member States are to deliver **roadmaps** towards integrated management with concrete measures and firm timetables. In addition, there appears to be considerable scope for **immediate action**. Indeed, some service providers already are progressing in some fields as harmonization of operational concepts, regionally tuned investment plans, joint procurement or common training. A swift defragmentation also can be achieved in the fields where

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[18]   This graph is representing the sums of the individual service providers.

services are liberalised. This currently is the case for CNS, AIS[19] and training for air traffic controllers.

However, the scope for immediate cost reductions could be limited by transition costs and the long investment cycles in the air traffic management industry. In this context, it appears to be important to stress how **performance indicators** will be put in perspective:

(1)   the order of magnitude of cost reductions will be assessed in view of increase of service quality or functionality, e.g. avoidance of number of choking points;

(2)   reductions are expected to grow in time in view of decreasing transition costs;

(3)   economies of scale depend on the relative sizes of the partners or the size of the airspace under integrated management;

(4)   service providers which already have consolidated in a national context may have less scope for cost saving solutions than other providers.

In order to avoid delay in generating cost-savings and increasing quality and capacity of the system, the Commission will take due account of the combined effect of short and long term measures adopted in the framework of the bottom-up approach to assess its efficiency and the need to review it.

On the basis of intensity and approach of current initiatives, it is clear that Member States need to speed up efforts to obtain **robust and meaningful** results by end 2008.

5.   COMMUNITY SUPPORT

The Commission supports the effective establishment of functional airspace blocks with different policy tools.

5.1   Legal tools

The Community has put in place the appropriate regulatory framework to **promote cross-border** service provision. Integration of service provision will further be facilitated by complementing legislation. Recently legislation was adopted in the field of certification, flexible use of airspace, air traffic controller licences and airspace classification [references]. Legislation on air navigation charges and interoperability is in the final phases of adoption. Also legislation outside the direct single sky remit is of particular relevance, like Directive 2003/42/EC of the European Parliament and of the Council 13 June 2003 on occurrence reporting in civil aviation[20].

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[19]   CNS: communication, navigation and surveillance; AIS: aeronautical information services.
[20]   OJ L 167 of 4 July 2003

In the course of 2007, the Commission will prepare a **package of amendments** to the Single Sky legislation, also with the view to extending functional airspace blocks, the European Upper Information Region and route and sector design to lower airspace. Common general principles for the establishment and modification of functional airspace blocks will be developed in a later phase in view of growing experience.

5.2 Guidance tools

In order to raise awareness and facilitate implementation, a series of guidance tools were developed. A mandate was issued to **Eurocontrol** with the aim to identify the main issues to be addressed in establishing functional airspace blocks[21]. Another concrete contribution is the model agreement between Member States on a functional airspace block by the cross border provision of air traffic services focus group. In addition, Eurocontrol could further develop a methodology for airspace design adapted to the regional situation in order to increase functionality, regardless of national borders.

Outside the Eurocontrol remit, the UK presidency organised a specific seminar on the topic[22]; social partner organisations adopted a report on the implications of functional airspace blocks[23].

5.3 Financial support

Through the Community programmes on **Trans-European Networks**, priority will be given to projects related to the creation of functional airspace blocks, in particular through feasibility studies and civil-military cooperation. Beyond the financial incentives which are given, Community funding also constitutes an added value in forcing the stakeholder community to streamline the activities and work towards commonly agreed goals in function of a competitive aviation industry.

The establishment of functional airspace blocks and **SESAR** become interrelated, as bigger blocks provide for a bigger **critical mass** to speed up the pace of effective implementation of technological innovation induced by the industrial programme. Finally, the Commission will continue to pursue ways to finance common projects designed to benefit the Community ATM network.

5.4 Dialogue

The Industry Consultation Body and Air Traffic Management group of the social dialogue committee on civil aviation are the **discussion forums** where all technical and social aspects related to the establishment of blocks can be discussed. These forums not only raise the issues which are important in the integration process; they also could flag up problems which may need to be solved through Community intervention.

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[21]   Eurocontrol, 2005, *Final report on European Commission's mandate to support the establishment of functional airspace blocks*, 120p with annexes
http://www.eurocontrol.int/ses/gallery/content/public/docs/pdf/ses/FABMandateFinalReport310505.pdf
[22]   http://ec.europa.eu/transport/air/single_sky/framework/functional_airspace_fr.htm
[23]   http://www.jatmwg.org/Detail.asp?ID=344

Industry and social partners use these places to monitor ongoing initiatives and exchange information between different types of stakeholders, also in view of ensuring consistency of network effects and effective interfaces between different blocks. **Social partners** are in the unique position to take their fate in their own hands: they set the social agenda and may come to contractual relations on the management of change.

Exchanges of views with Member States are organised within the **Single Sky committee**, the committee which assists the Commission with regard to the adoption of implementing rules in the single sky context. The committee may be called to give an opinion in the case that difficulties arise between two or more Members States concerned by a block.[24]

5.5 External policy

As from the adoption of Single Sky, the extension of its principles to other European states has been a constant policy to make best use of the airspace as a **continuum**. Initiatives to establish blocks are not only taken in countries which have concluded agreements with the Community, most of these in the framework of the European Common Aviation Area, like the Balkan countries, Switzerland and Norway. Also in regions covered by other programmes, like the European Neighbourhood and Partnership Instrument for the European neighbourhood area, countries have expressed their interest in cooperation in the form of functional airspace blocks.

6. CONCLUSIONS

Under the "bottom-up" approach embodied in the Airspace regulation **Member States** bear responsibility to tackle fragmentation at its roots.

Functional airspace blocks are the means to transform the patchwork of fragmented systems into regional blocks. An increase in the scale of operations is the only way to boost performance. By 2008, Member States are to demonstrate **real progress** in defragmentation.

Nearly all Member States have started initiatives to establish such functional airspace blocks. However, big **discrepancies** in intensity of the efforts of Member States and their air navigation service providers are observed. In addition, all preliminary feasibility studies highlight the benefits for users in terms of an improved quality of service, but the first estimates of **effective cost reductions** appear to be marginal.

This could indicate that ambitions of current projects are quite limited. **Member States will have to increase efforts**, as independent studies and international comparisons have revealed possibilities to bring about considerable cost efficiency gains.

The Commission will evaluate in 2008 the efficiency of the bottom-up approach. It will assess the need for the **amendment of the current legislative framework** in view of concrete results.

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[24] Article 5(6) of the Airspace Regulation

Annex I: Basic indicators of current projects of functional airspace blocks (2004 data)

FAB	Member States involved (1)	Size of controlled airspace (km²)	Total flight-hours controlled	Total ATCOs in OPS *	Number of sectors	Number of ACC Units **
CEATS	AT-BH-HU-SK	241.400	505.952	624	4	4
Central FAB	BE-DE-LU-NL	740.995	1.970.480	2.138	5	8
FR - CH	FR-CH-(IT)	1.232.447	2.360.007	2.798	88	7
ES - PT	ES-PT	2.873.683	1.420.959	2.029	52	6
NUAC	DK-SE-(NO-FI)	1.917.000	1.003.812	1.294	5	9
SEE-FABA	AL-BH-BG-CR-FYROM-UNMIK-RO-SE-MO	1.371.520	1.546.980	2.516	15	11
BUL-ROM	BG-RO	399.120	353.998	775	22	3
UK-IRL	UK-IE	1.637.120	1.830.486	2.315	11	6
Sum		10.014.165	10.638.675	13.715	180	51
Average FABs ***		1.301.661	1.374.084	1.811	25	7
Average ANSP ****		372.240	347.505	466	18	2
Factor (2)		3,50	3,95	3,89	35	3,38
US Centre (3)		366.300,00	1.049.333	1.079	39	1

* ATCO in OPS = air traffic controllers in operations, providing air traffic control services

** ACC = Area Control Centre

*** FAB = functional airspace block

**** ANSP = air navigation service provider

(1) Insufficient information was available from Poland and Lithuania (Baltic Air Navigation Council); CY and EL did not indicate with which partners they intend to enter into discussions on a functional airspace block.

(2) Factor indicates the increase of scale and has been calculated as the proportion between the average at service provider level and the average at functional airspace block level.

(3) "US centre" refers to the average of three US area control centres (Albuquerque, Cleveland and Indianapolis) which were deemed most comparable to European centres. Figures were taken from Performance Review Commission Report (2003), '*A comparison of performance in selected US and European En-Route centres*', Brussels, 98 p. + annexes.

Annex II: Basic indicators at area control centre level - 2004 data

FAB	Size per ACC	As % of US centre	ATCOs per ACC	As % of US centre	Sectors per ACC	As % of US centre
CEATS	60.350	16%	85,6	24%	5,8	15%
Central FAB	92.624	25%	146,6	41%	15,9	41%
FR-CH	176.064	48%	219,3	61%	14,9	38%
ES-PT	478.947	131%	185,5	52%	9,8	25%
NUAC	213.000	58%	78,9	22%	5,9	15%
SEE-FABA	124.684	34%	125,5	35%	7,9	20%
BUL-ROM	133.040	36%	142,0	39%	7,3	19%
UK-IE	206.333	56%	140,8	39%	13,5	35%
Average	191.346	52%	148,9	41%	11,0	28%
US Centres	366.600	100%	359,7	100%	39,0	100%