



FACTS AND FIGURES

Why create functional airspace blocks?

The FABEC area

The partners

The programme

The objectives

FABEC governance

The feasibility study

Other FABs in Europe



Why functional airspace blocks?

At present, the European air traffic management system is fragmented. Air traffic control in Europe is provided by 36 different air navigation service providers. All use different technical systems and operational procedures. European airspace is mainly organised on a national, rather than multinational, basis.

This leads to inefficiency, high costs and unnecessary additional flight length for the airlines, generating excessive gas emissions. In spite of the current economic downturn, experts predict that air traffic in the FABEC area will continue to grow to reach close to 8 million flights/year by 2018 (compared to 6 million flights in 2008).

The rationalisation of the European network must therefore take place without delay to accommodate the announced traffic levels in a safe, effective, and environmentally friendly manner - while reducing costs. This improvement must ensure effective cooperation between civil and military users who share the airspace.

To meet the future needs and challenges of a growing air transport industry, the European Commission launched the Single European Sky (SES), Europe's air traffic management rationalisation programme, in 2004. The restructuring of European airspace into **functional airspace blocks** is the backbone of SES.

A functional airspace block is a portion of airspace extending over several countries that is managed in an integrated fashion, in line with the actual needs of the airspace users. In a FAB, the provision of air navigation services and related ancillary functions are optimised and/or integrated. Air traffic flows are not constrained by national boundaries. This leads to greater efficiency. FABs must demonstrate their overall added value on the basis of cost-benefit analyses. They will allow for flexible forms of cooperation between air navigation service providers. In a FAB, States retain their respective national sovereignty.

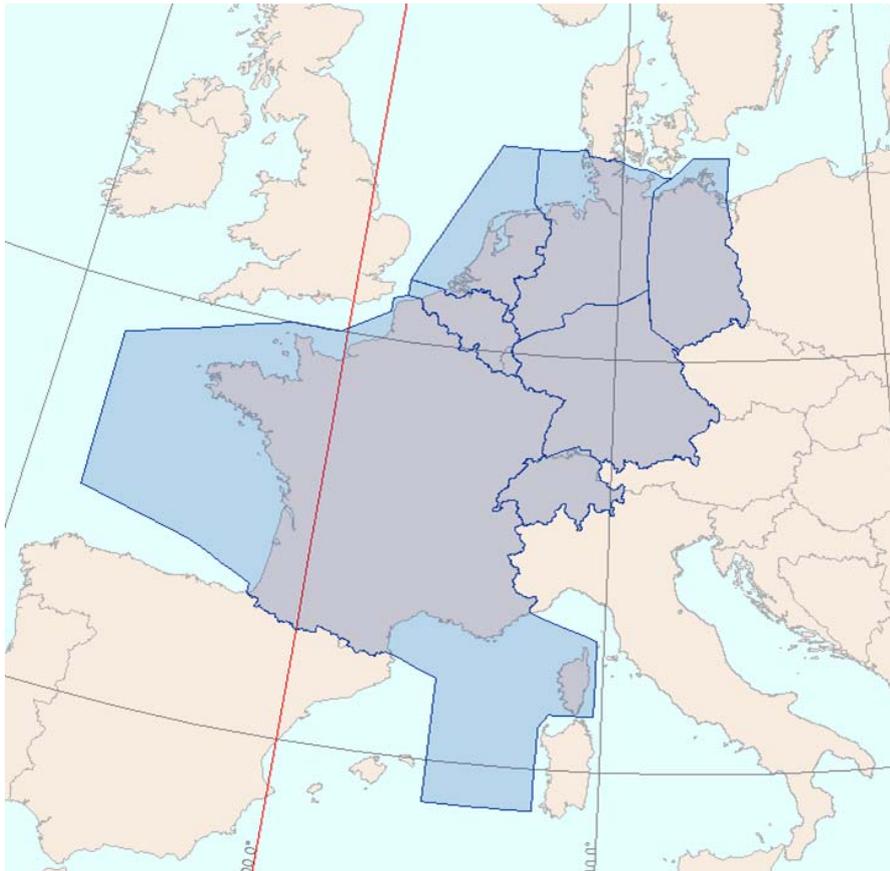
38 States are currently committed to the SES initiative:

- the 27 Member States of the European Union;
- the 9 countries that form part of the European Common Aviation Area signed in 2005: Norway, Iceland and the states of the former Yugoslavia;
- Switzerland and Morocco, which have signed a bilateral agreement with the EU.

The first SES regulations came into force in April 2004, with the aim of initiating the redesigning of European Air Traffic Management (ATM) as a flexible, harmonised and seamless network, independent of national boundaries. The second SES legislative package (SES II) is more ambitious and represents a significant step forward in improving the performance of European aviation by providing binding targets in the key areas of safety, network capacity, flight efficiency, cost-effectiveness and environmental sustainability. SES II reinforces in particular the concept of Functional Airspace Blocks. States should create their respective FABs by 2012.

The FABEC area

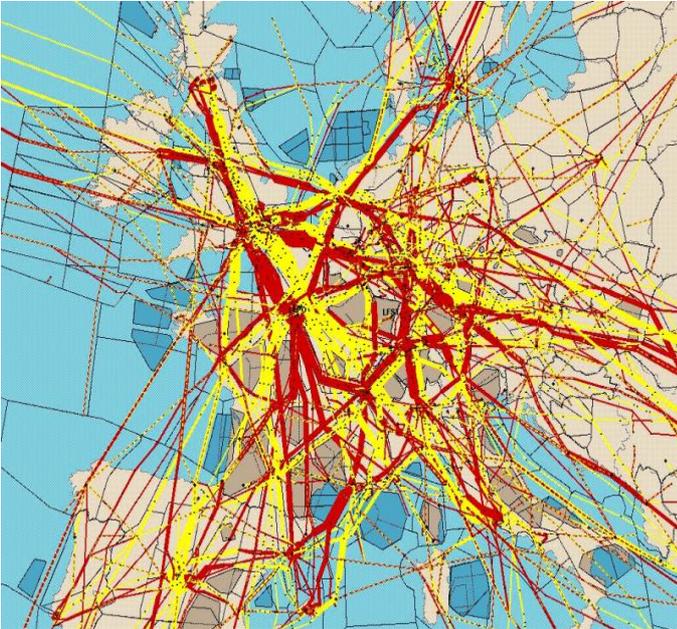
The Functional Airspace Block Europe Central - FABEC - covers the airspace of six States (Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland) located in the core of the European continent. This airspace is one of the busiest and most complex in the world. Most of the large European airports and major civil and military airways are located in this area. Owing to its size and central position in Europe, FABEC is a cornerstone of the Single European Sky.



FABEC airspace is characterised by:

- a complex and dense ATS route network;
- a dimension of 1.7 million km², equating to 9% of the surface area of the European continent;
- 6 million flights per year (2008 figures), equating to 55% of all European air traffic;
- a forecast traffic growth of 50% between 2006 and 2018, resulting in close to 8 million flights by 2018;
- about 410 military/special areas;
- some 370 control sectors;
- 14 air traffic control centres (Brussels, Bordeaux, Brest, Marseille, Paris, Reims, Bremen, Munich, Karlsruhe, Langen, Maastricht, Amsterdam, Geneva and Zürich);
- some 240 airports operating instrument flight rules (IFR);
- 3 major intercontinental hub airports (Paris, Amsterdam, Frankfurt) and proximity to the London airports;
- total revenues of EUR 3,128 million.

The FABEC area - Airspace density

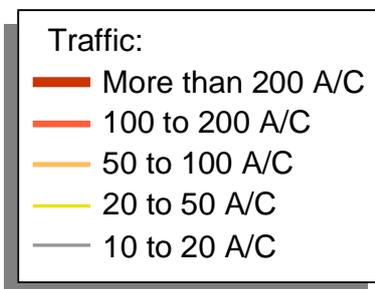


FABEC - Crucial role in the European civil air traffic network

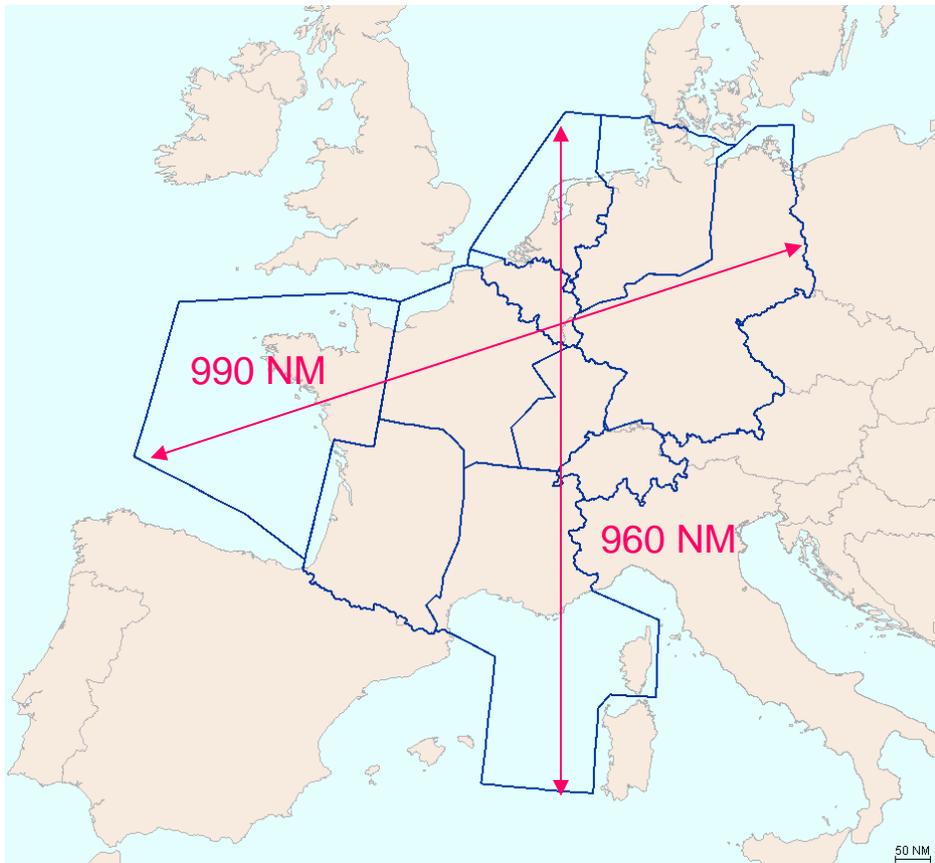
The core area of Europe has one of the highest air traffic densities in the world and is characterised by closely interlaced civil and military routes.

(Source: EUROCONTROL SAAM)

Traffic flows on route network - The complex and dense FABEC ATS route network records particularly dense traffic on some routes. The chart shows high traffic density in the central core area and also surrounding the major airports in Paris, Amsterdam, Frankfurt, Munich, Brussels and Zürich.



The FABEC area - Airspace dimensions, FIRs and UIRs



With a total dimension of 1.7 million km², the FABEC airspace has a dimension of 960 nautical miles (or 1,780 km) from north to south and 990 nautical miles (or 1,835 km) from eastern Germany to western France.



FIRS and UIRs

The FABEC airspace comprises the flight information regions (FIRs) of Bremen, Langen, Munich, Amsterdam, Brussels, Paris, Reims, Marseille, Bordeaux, Brest, the upper information regions (UIRs) of Hannover, Rhein, Brussels, France and the FIR/UIR of Switzerland.

These FIRs and UIRs contain around 240 airports with instrument flight rules (IFR) operations, some 410 military/special areas and around 370 control sectors.



The partners

The FABEC programme is driven by civil and military partners of six States:

- **High-level officials from the Ministries of Transport and Defence of Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland**
- The seven civil air navigation service providers designated in these countries:
 - o Belgocontrol, Belgium
 - o Direction des services de la Navigations aérienne (DSNA), France
 - o DFS Deutsche Flugsicherung, Germany
 - o Administration de la Navigation aérienne (ANA), Luxembourg
 - o Luchtverkeersleiding Nederland (LVNL), the Netherlands
 - o EUROCONTROL Maastricht Upper Area Control Centre (MUAC)
 - o skyguide, Switzerland.
- The **military air navigation service providers** (skyguide (CH); DFS and the German Air Force (D); the Royal Netherlands Air Force (NL); the Belgian Defence (B and LUX) and DIRCAM (FR).

In addition to the six participating countries, the **United Kingdom** is also linked to FABEC as a collaborative partner. This link testifies to the close interaction of FABEC airspace with UK airspace, in particular with the main airports in the London area.

Furthermore, FABEC will also concentrate on optimal connectivity with adjacent FABs, so that a true pan-European perspective can be taken.

FABEC PERSONNEL

The FABEC civil air navigation service providers employ a total of 17,700 people - which represents 43% of the total personnel employed Europe-wide.

Of these 17,700 employees, 5,400 are air traffic controllers.

(Source: ATM Cost-Effectiveness (ACE) 2007 Benchmarking Report, May 2009)

The FABEC programme

FABEC is a performance-driven programme with precise targets, which are fully in line with the performance targets set at European level. FABEC improvement initiatives are also aligned with the main European developments (e.g. SESAR). Owing to its central position in Europe, FABEC will be a major contributor to the overall success of the Single European Sky.

The FABEC implementation phase was launched in November 2008 among the civil and military air navigation service providers and the State authorities. Several expert task forces are putting together operational, technical, legal, financial and regulatory improvements that will address the fragmentation of the network. The overarching aim of this phased implementation is to deliver tangible benefits to the aviation community as early as possible and reinforce cohesion between the partners - a key ingredient for success. A first step proposed is the redesigning of the airspace to address bottlenecks. This is scheduled to be implemented by the end of 2013.

A feasibility study report, delivered in summer 2008, reported that FABEC would improve air traffic management performance in the area. The report foresees that 50 per cent growth in air traffic volume can be handled by 2018 at the same high level of safety. In addition, delays per flight will be kept low, and emissions will be reduced. A cost-benefit analysis shows a potential benefit for airspace users of EUR 7,000 million by 2025.

In November 2008 the six States signed a Declaration of Intent and the air navigation service providers signed a Framework Agreement.

Forming the main institutional framework for the construction and implementation of FABEC, a FABEC Agreement will be ready for signature in 2010, and enter into force after its ratification in the different States. This is foreseen for 2012.

FABEC milestones at a glance

Launch of the FABEC Feasibility Study - November 2006

Delivery of FABEC feasibility study - July 2008 - after several months of detailed analyses by over 230 experts, the FABEC feasibility study not only concludes that FABEC is feasible and necessary, it also lays the groundwork for the implementation phase by performing, to a great extent, the FABEC definition phase.

Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland sign Declaration of Intent - November 2008 - the FABEC States make a formal commitment to build a functional airspace block.

Belgocontrol, DSNA, DFS, ANA, LVNL, MUAC and skyguide sign Framework Agreement - November 2008 - the civil ANSPs define the first and immediate cooperation arrangements for the FABEC programme.

FABEC implementation phase launched - November 2008. Maintaining the positive cooperation momentum achieved during the study phase, the programme structure and management principles are agreed. The objective is to facilitate the implementation, as early as possible, of gradual improvements to the ATM framework.

FABEC Agreement - Signature foreseen for 2010; entry into force foreseen for 2012.

FABEC operational - This is foreseen for 2012.

FABEC objectives

The overarching objective of FABEC is to deliver substantial performance improvements in the air navigation domain. In line with the objectives of the Single European Sky, the signatories of the FABEC Declaration of Intent have agreed on aspirational goals in the following key areas:

Safety

FABEC will make every effort to ensure an improved safety level. Despite the civil traffic growth, the current absolute number of ANS-induced accidents and risk-bearing incidents will not increase or may even decrease.

Capacity

FABEC should offer airspace capacity to satisfy the demand for increased civil air traffic in the range of 50% from 2005 to 2018, taking into account the currently agreed delay target of max 1 min per flight as well as the military needs.

Cost-effectiveness

Given the expected levels of growth, FABEC and other European programmes should, over the next 10 years, enable an overall reduction of a quarter in real average unit costs. On the military side, a decrease in ATM cost will be realised.

Flight efficiency

FABEC will significantly contribute to increasing flight efficiency by improving routes, flight profiles and distances flown.

Environment

FABEC will considerably reduce the environmental impact per flight by improving routes, flight profiles and distances flown, in line with broader European programmes.

Military mission effectiveness

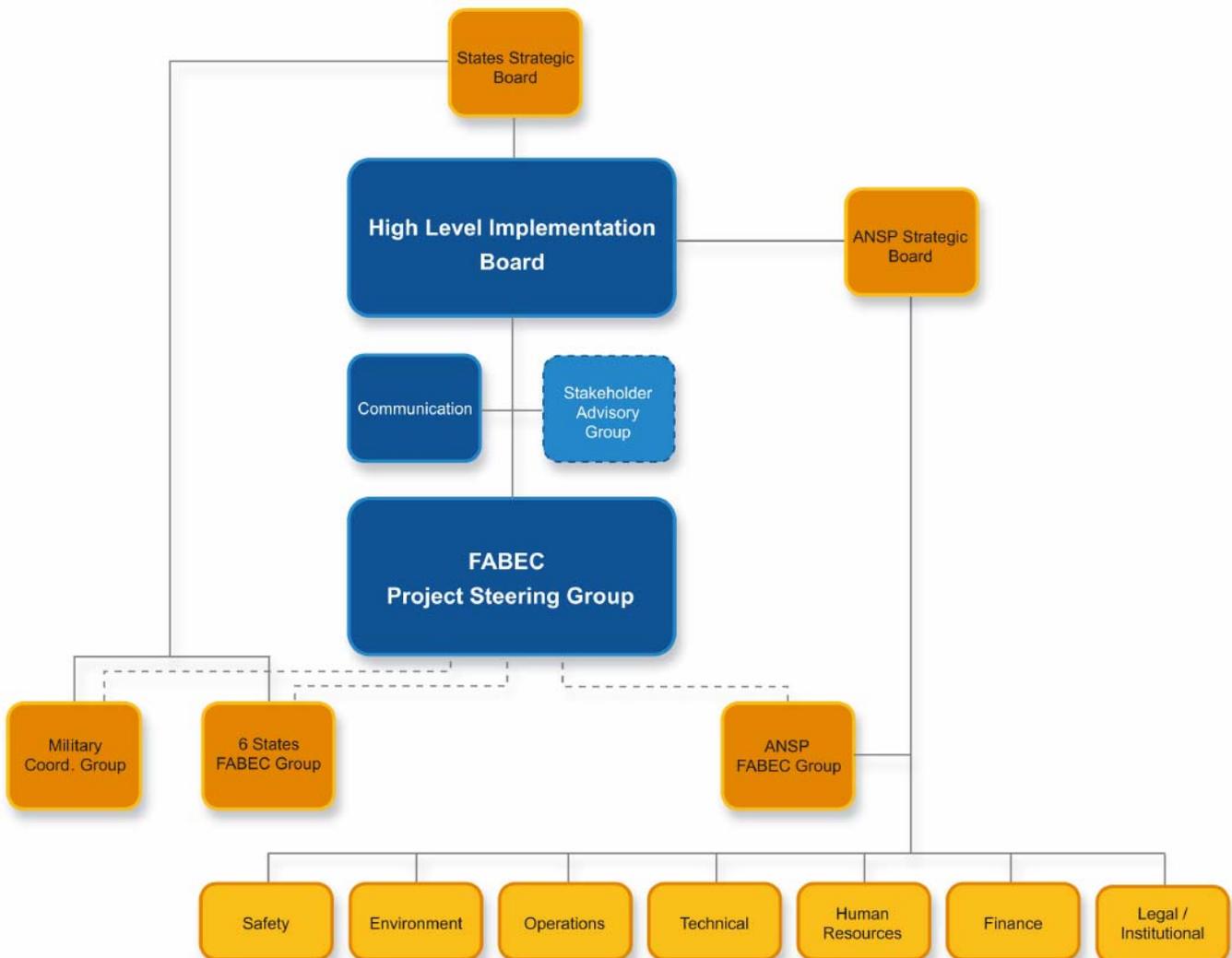
FABEC should significantly contribute to improving military mission effectiveness by improving training capabilities and readiness postures, as required by the States. When military missions need to be segregated, FABEC initiatives will allow them to be realised in suitable areas while keeping reasonable distances from the airbases.

These objectives will be translated into a set of performance targets, which will be monitored on an annual basis. The FABEC performance targets will be brought into line with performance targets at European level.

FABEC governance

FABEC aims to federate all the actors of the air navigation sector, whether they are States (Ministries of Transport and Defence) or civil and military air navigation service providers.

To maintain the momentum and drive the programme forward the CEOs of the civil ANSPs take the lead in the key functional domains. A number of standing committees at Director level support and advise the CEOs (Standing Committees for safety, environment, operations, technical matters, human resources, finance and legal and institutional matters).





The FABEC feasibility study

In line with the objectives of SES, the FABEC feasibility study, delivered in summer 2008, has demonstrated that FABEC has the potential to do away with the current fragmentation of the European air traffic management system and implement notable improvements in the key areas of safety, environmental sustainability, capacity, flight efficiency, cost-effectiveness and military mission effectiveness.

The study concluded that in view of the increase in traffic forecasted for the next decade and the need to improve flight efficiency by offering the most direct routes, air traffic management in the area should be provided on a cross-border, multinational basis rather than nationally. It shows that without FABEC, air traffic will be confronted with major problems such as high delays, a decrease in flight efficiency and an increase in emissions.

The feasibility study has identified a set of cooperation areas taking into account the contributions from all partners: States, civil and military ANSPs. If implemented, these initiatives will make a significant contribution towards the goals of the Single European Sky as the airspace will increasingly become a continuum for its users.

Clear benefits will be delivered and a considerable step will be made towards meeting the stated performance targets. The study has proven that FABEC is feasible and also necessary if future challenges are to be met in the core area of Europe.

The following table sets out the expected contribution of FABEC in the key areas. In addition to these concrete results the experts concluded that military mission effectiveness will improve.

The FABEC feasibility study - Main results

	SITUATION IN 2018 WITHOUT FABEC (COMPARISON 2006/2018)	SITUATION IN 2018 WITH FABEC (COMPARISON 2006/2018)
SAFETY	Safety will be maintained, but growth will be limited.	The current safety level can be maintained despite traffic growth.
CAPACITY	It will not be possible to accommodate the demand expected in 2018.	There will be sufficient capacity to meet the expected traffic demand (50% traffic increase, reaching a total of 8 mill. flights/year).
DELAYS	33% of flights will be delayed owing to a lack of ATC capacity.	1% of flights will be delayed. The average delay per flight will go down from 17 to 6 minutes.
COST EFFECTIVENESS	Economic cost-effectiveness will decrease owing to high delays and sub-optimal cooperation.	The target of 17% reduction of the real en-route unit cost can be met. This will amount to a benefit of EUR 7 billion for the airspace users by 2025.
FLIGHT EFFICIENCY	Without FABEC, flight efficiency will deteriorate. The direct route extension will amount to 6.1% of the distance flown.	Flight length will be reduced by 17.4 Km (9.4 NM) on average.
ENVIRONMENT	Fuel burn and emissions will increase due to sub-optimal flight efficiency. Direct route extension will result in each flight burning an extra 260 kg of fuel on average, resulting in an additional 816 kg of CO ₂ and 2.5 kg of NO _x being emitted per flight.	Fuel burn will be reduced by 72 kg per flight, leading to a reduction of 226 kg CO ₂ and 0.7 kg NO _x /flight.

Other FABs in Europe

In recent years, the following initiatives have been launched to create FABs in Europe:

BALTIC FAB - Poland, Lithuania

BLUE MED - Italy, Greece, Cyprus, Malta (Tunisia, Egypt and Albania as Associate Partners, Kingdom of Jordan as observer)

DANUBE FAB - Bulgaria, Romania

FAB CENTRAL EUROPE - Austria, Czech Republic, Croatia, Hungary, Slovak Republic, Slovenia, Bosnia & Herzegovina

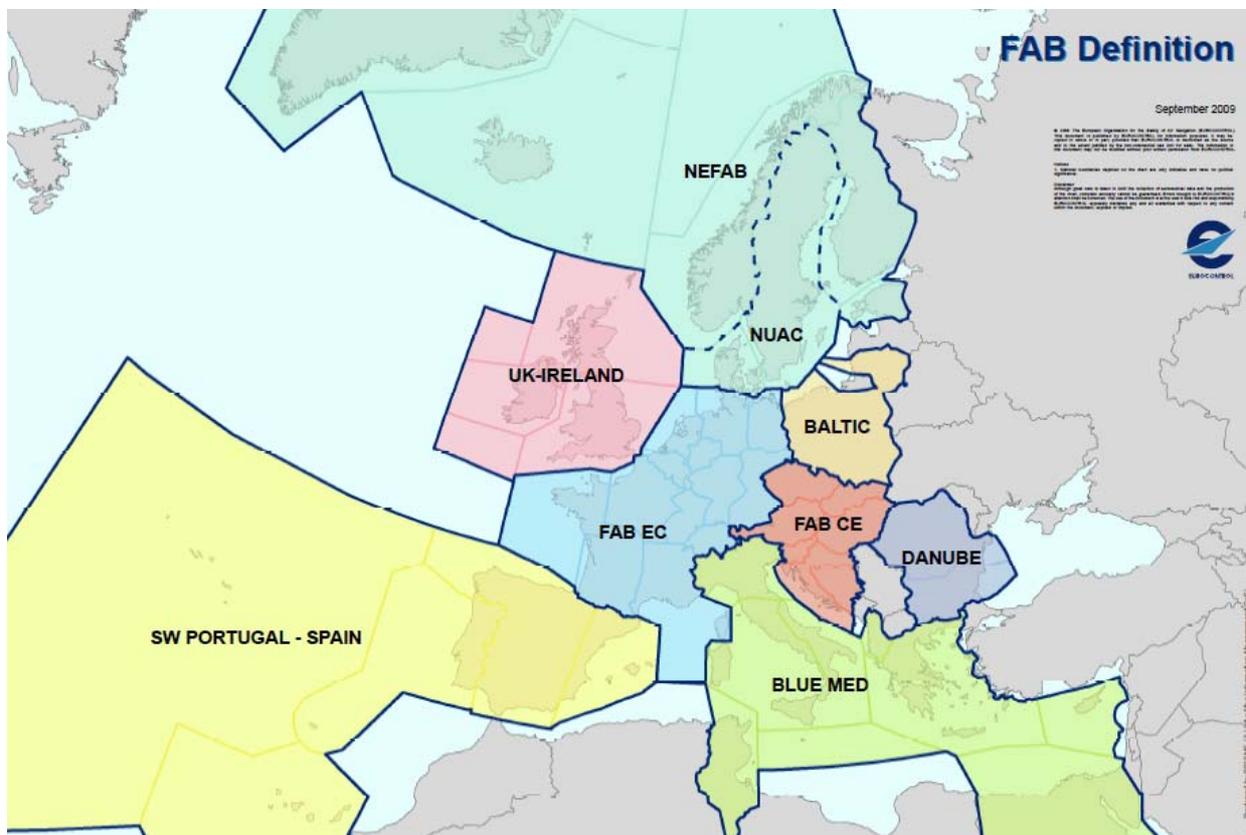
FAB EUROPE CENTRAL - France, Germany, Switzerland, Belgium, Netherlands, Luxembourg, (United Kingdom as collaborative partner)

NUAC PROGRAMME - Denmark, Sweden

NEFAB - Norway, Finland, Estonia, Iceland, Denmark, Sweden

SW PORTUGAL-SPAIN FAB - Spain, Portugal

FAB UK- IRELAND - United Kingdom, Ireland



Source: EUROCONTROL, September 2009