



**Agenda Item 6: Assessment of operational requirements in order to determine the implementation of communications and surveillance (CNS) capabilities improvement for en-route and terminal area operations**

**REGIONAL ATM COOPERATION: THE FABEC EXAMPLE**

(Presented by SITA)

**SUMMARY**

This information paper presents the concept of Function Airspace Blocks (FABs), and how it can contribute to enhanced ATM integration and harmonization in Europe. As an example, it describes the case of FABEC, in the core area of the European Airspace, and how the FABEC ANSPs (Air Navigation Service Providers) launched a common procurement project to fulfill the obligations of the European Union's Regulation on Data Link Services.

**1. SES and FABs**

1.1 The Single European Sky (SES) initiative is a major initiative undertaken by the European Union to foster the efficiency of Air Traffic Management (ATM) in Europe. The SES proceeds notably by way of regulations and has with the following objectives:

- a) To enhance current safety standards;
- b) To enhance overall efficiency for general air traffic in Europe;
- c) To optimize capacity meeting the requirements for all airspace users; and
- d) To minimize delay (1).

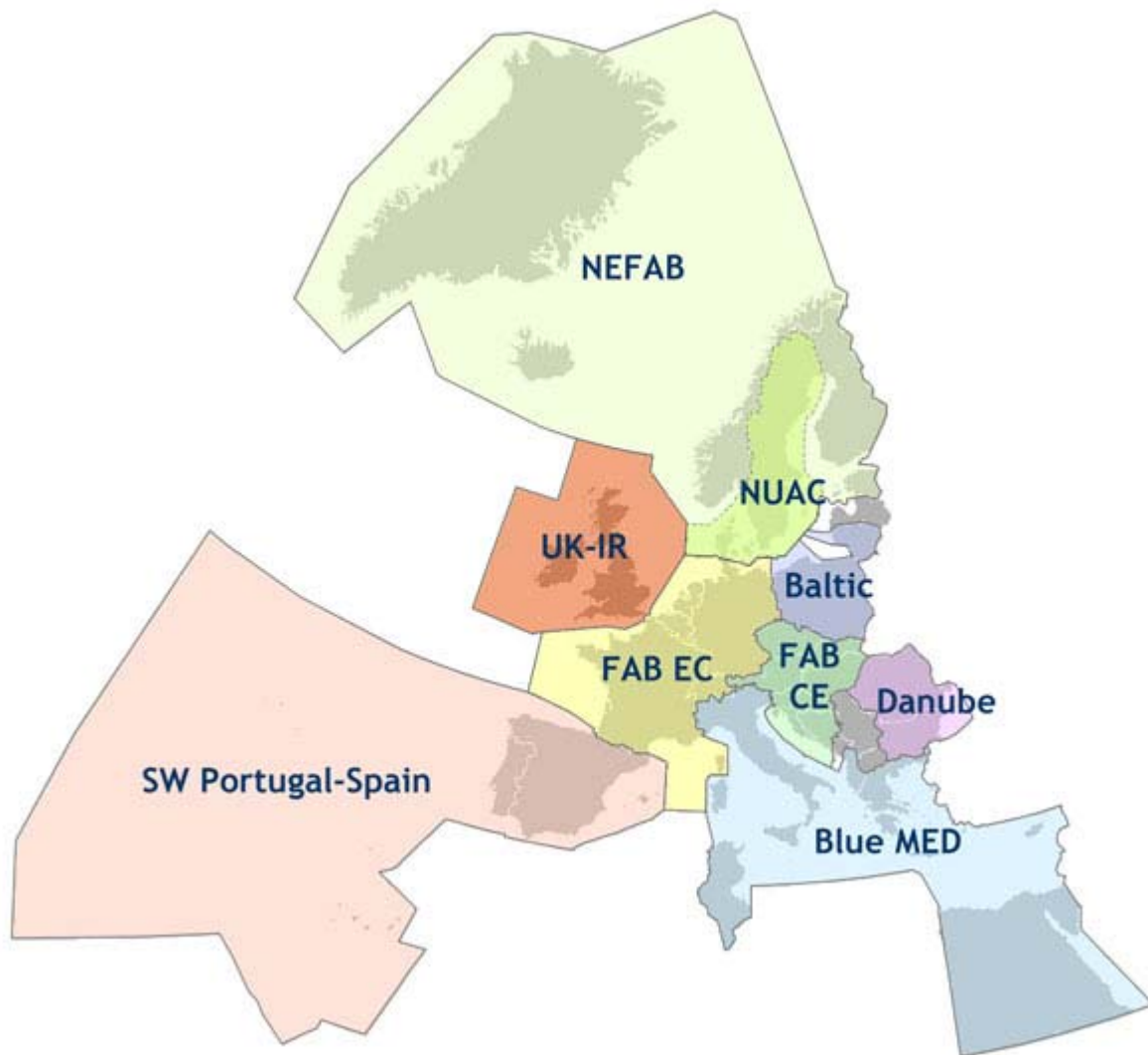
1.2 Among the key issues addressed by the SES is the fragmentation of the European airspace, notably among national boundaries. *“Air Traffic Control in Europe is provided by 36 different air navigation service providers. All use different technical systems and operational procedures. European airspace is mainly organized on a national, rather than multinational, basis (2)”*

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1 Eurocontrol, Performance Review Commission (PRC); Evaluation of Functional Airspace Block (FAB) initiatives and their Contribution to Performance Improvement; September 2008.

2 FABEC Facts and Figures, March 2010.

1.3 The SES addresses the fragmentation issue by proposing a restructuring of the European Airspace into Functional Airspace Blocks (FABs). A FAB is creating an integrated airspace extending over several countries, with an optimized management that adapts to the actual needs of the airspace users. The SES will use FABs as key building blocks to a seamless, flexible and harmonized airspace in Europe. 9 FAB initiatives are currently under way, summarized in the following picture.



*Source: Eurocontrol, September 2009.*

1.4 The Functional Airspace Block – Europe Central (FABEC) covers the airspace of Belgium, France, Germany, Netherlands, Luxembourg, and Switzerland. It also includes the Eurocontrol Maastricht Upper Airspace Centre, responsible for Air Traffic Control in the upper airspace of the Benelux countries and northern Germany.

1.5 FABEC is located in the core area of the European Continent, and covers one of the busiest and most complex airspace in the world. It includes three major European intercontinental airport hubs (Paris, Frankfurt, and Amsterdam) and involves close to 55% of the European air traffic. FABEC currently hosts 14 air traffic control centers, and about 240 airports operating under IFR.

## 2. **The SES Implementing Rule on Data Links Services**

2.1 The SES operates by way of European Regulations, which have legal value for the European Union member states. Regulation 29/2009, enacted in January 2009, represented a key milestone for the SES. This regulation mandates the use of Controller Pilot Data Link Communication (CPDLC) in the upper European airspace (above FL 285) over an ATN/VDLm2 communication infrastructure.

2.2 Regulation 29/2009 defines stringent implementation dates. New aircraft have to be equipped with suitable avionics as of January 2011, while current aircraft need to be retrofit by January 2015 at the latest. Regarding ANSPs, the CPDLC service must be offered in the Western Europe airspace by February 2013, while the rest of the European Union airspace must comply with the Regulation by February 2015. The FABEC countries are part of the 2013 batch.

2.3 In order to comply with this Regulation, an ANSP has to consider the following points:

- a) Deploy a VDLm2 infrastructure, covering the airspace under the ANSP's authority, and evidencing the level of performance and availability required by the Regulation;
- b) Deploy an ATN service, enabling the routing of CPDLC information to and from aircraft;
- c) Interface the A/G ground communication infrastructure with the flight processing systems in the control centers;
- d) Test and validate the service, in such a way that a successful application can be submitted to the NSA - National Supervisory Authorities or EASA(as defined in basic regulation EC 550/2004);
- e) Define the operational context and procedures in which CPDLC will be successfully used by ATCOs (Air Traffic Controllers).

2.4 Furthermore, the same data link infrastructure must be used for air traffic control communications, for example CPDLC, and airline operational communication (AOC), due to avionics constraints. The deployment and operation of an Air/Ground data link communication infrastructure must therefore consider how to handle AOC data which will be using this infrastructure.

## 3. **The FABEC Approach**

3.1 When considering the challenges associated with the Regulation on Data Link Services, ANSPs may ponder two strategies: make the infrastructure, or buy it. The "Make" strategy is typically adopted by ANSPs that want to own and operate all of their CNS systems. It amounts to purchasing or developing the various elements of the data link infrastructure, to be then deployed, commissioned and operated by the ANSP technical staff. The "Buy" strategy consists of contracting a Commercial Service Provider (CSP) to deploy and operate the data link infrastructure and provides as a communication service to the ANSP.

3.2 ANSPs in favor of a “Make” strategy would need to face the high costs of designing, developing, integrating, validating and commissioning all elements of the A/G data link infrastructure. They would be also facing the issue of connecting with Communication Service Providers (CSPs) anyway, for the proper handling of AOC traffic. This why SITA developed the concept of a VHF partnership, by which SITA outsources its data link network to the ANSP. As a result, the ANSP will own and operate the infrastructure. The ANSP would, in this concept, benefit from a well-proven and fully validated network of stations, available now, in such a way that the ANSP can meet the stringent deadlines imposed by the European Regulation. In return, SITA would contribute to the operating costs of the infrastructure, which conveys also the AOC traffic.

3.3 The FABEC ANSPs have opted for such a partnership approach, and decided to proceed with a common procurement in that regard. A public call for tender was issued in 2010. The whole procurement process was led by the French ANSP, DSNA, and closely supported by the ANSPs of the three Benelux (Belgium, Netherland and Luxembourg) nations and Switzerland (Germany’s DFS had already established a partnership with SITA in 2004). The advantage for the FABEC ANSPs was to base the data link equipment on the same products up front, define single equipments to be commonly procured, and obtain economies of scale thanks to the size of the FABEC market.

3.4 In January 2011, the partnership contract was awarded to SITA, and the contract was signed in March 2011. The legal instrument takes the form of a framework contract defining all items that are common to all FABEC ANSPs, notably the technical solutions and its various elements for VDLm2, ATN, test systems, and training. Every ANSP that wishes to deploy the infrastructure will then establish a subsequent contract with SITA, addressing the features that are specific to this ANSP.

3.5 The ANSPs of France (DSNA) and Switzerland (Skyguide) have each established a subsequent contract with SITA, where common activities relevant to both ANSPs are conducted in a joint manner, thereby meeting the expectations of the framework approach. Notably, validation activities are undertaken commonly by both ANSPs and SITA. The Factory Acceptance Testing (FAT) of the VHF radio stations and the ATN routers was successfully completed in December 2011, and the SAT of the ATN routers for Skyguide has been also completed.

#### 4. **Conclusion**

4.1 The Single European Sky initiative, undertaken by the European Union, calls for the definition of Function Airspace Blocks (FABs) that will foster the defragmentation of the European Airspace. FABs are also a way for ANSPs to launch common procurements of CNS systems, as evidenced by the FABEC framework contract of Air/ground data link systems. This approach makes it possible for the FABEC ANSPs to meet the obligations resulting for the European Regulation on Data Link services, in a cost effective manner while meeting the Regulation deadlines. SITA has been selected by the FABEC ANSPs as their data link partner. This kind of partnership is a real win-win solution between ANSPs and a service provider such as SITA. For more information, please contact Mr. Patrick Geurts, [Patrick.Geurts@sita.aero](mailto:Patrick.Geurts@sita.aero).

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