

CONTACT US

Being it socio-economic assessments for merging Air Navigation Service Providers (ANSPs), developing new or restructured airspace design, development of PANS-OPS or similar projects, Ramboll's AirNav methodology is here to help.

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AIRNAV

AIRSPACE MANAGEMENT AND OPERATIONS

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All forecasts for the aviation sector point in the direction of continued growth for the coming decades. Therefore, increased airport capacity and increased airspace capacity and efficiency, with respect to the airspace management and control, is required.

Never before have governments and Air Navigation Service Providers (ANSPs) been under such pressure to deliver a high level of airspace infrastructure at the lowest possible costs while at the same time reducing flying times and CO₂ emissions.

The European Union has launched the Single European Sky initiative. Its aim is to increase capacity and rationalize airspace management in order to reduce airspace congestion and minimize CO₂ emissions. Similar initiatives are discussed in other parts of the world that suffer from insufficient airspace capacity and management.

To address these issues and optimize the airspace design and management, Ramboll has developed

AirNav

In 2009 Ramboll was commissioned to produce a socio-economic analysis of a proposed functional airspace block (FAB) uniting Danish and Swedish airspace in one common FAB and with one common Air Traffic Management (ATM) organization. The results were highly successful and today the Danish and Swedish ANSPs are merged on the basis of Ramboll's research and planning activities.

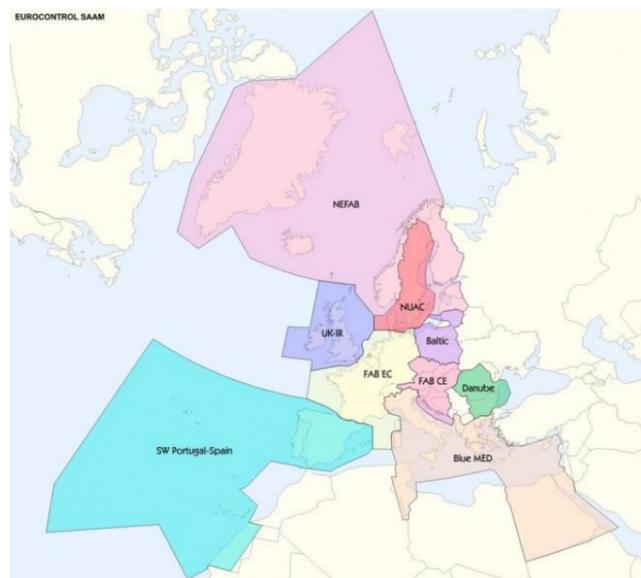
Ramboll developed the **AirNav** methodology and approach. It has been further developed in order to establish a common Nordic and Baltic ANSP cooperation comprising Norway, Finland, Estonia and Latvia.

The **AirNav** methodology includes a highly sophisticated assessment of socio-economic impact including possibilities for saving travel time for the passengers and reduction of operational airline costs as well as calculation of values related to environmental impact and savings expressed in monetary terms.

The approach and model is based on international and particularly EU and EUROCONTROL standards and models for optimization of airspace management and capacity.

Airspace design

The optimization of airspace in the FABs requires a redesign and organization of the Flight Information Regions (FIR) and Sectors in a flexible crossborder distributed network in order to optimize flight routes and, in the longer run, to substitute the present controlled flights by "free flight" procedures. Ramboll and our ATM partners have the expertise to carry out such airspace optimization.



Uniting the functional airspace blocks of different countries have several benefits.



Optimized airspace design ensures increased capacity with existing facilities and optimized operations.



Evaluate changes and optimize your schedules for the benefit of passengers, carriers, handlers and the airport.

PANS-OPS development

The objective of airspace design is to ensure an efficient, flexible and dynamic airspace structure, based on multi-option routings. The PANS-ATM provides procedures for air navigation services, based on ICAO Doc. 8168 and 4444.

As advanced navigational capabilities become more sophisticated, demands for airspace development expertise and professional terminal/en-route procedure designs become increasingly important.

Because of that, a constant need for airspace and airfield optimization design is required. A need that combines optimization and safety solutions with emerging procedures such as Performance Based Navigation (PBN) and both Optimized Profile Descents (OPD) and Optimized Profile Climb (OPC) in an environmental and cost-effective solution.

Furthermore, most airspace must be redesigned from time to time. This is driven by a need for greater capacity, restructured or new Navigational Aids, changed aircraft operator or request from a new aircraft fleet. Also environmental perspectives can entail such needs.

Ramboll and its partners have the expertise to carry out such advanced studies and design tasks.

The benefits of AirNav

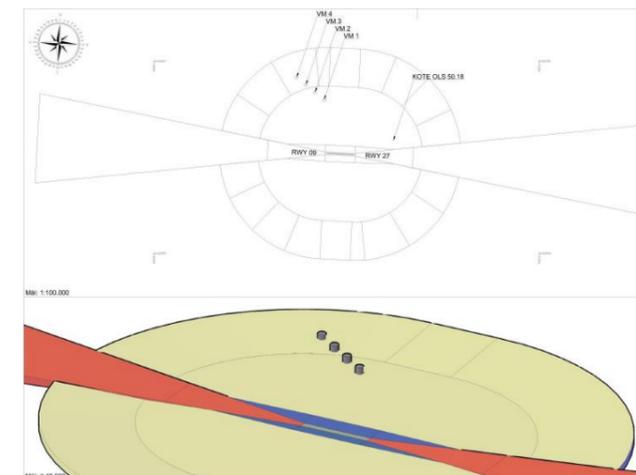
The benefits of using the AirNav approach are plentiful. Ramboll's spearhead expertise and wide spectrum of aviation related services and knowledge will ensure that all aspects are taken into consideration.

This provides the basis for a holistic solution, which benefits all parties involved, being it airports or ANSPs.

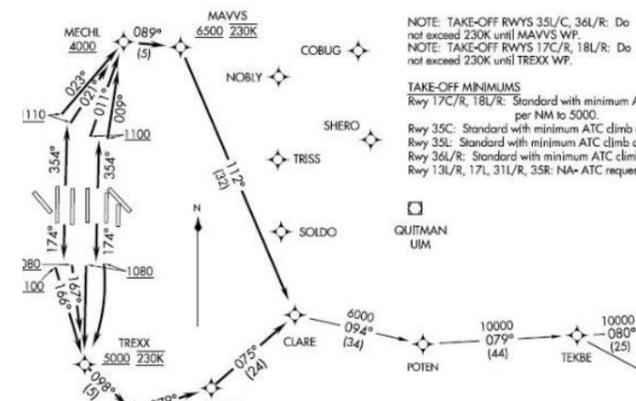
Direct benefits from using AirNav include for instance:

- ◆ Reduced flying time, delays and congestion
- ◆ Increased airspace capacity with existing facilities
- ◆ Operational improvements
- ◆ Evaluation of financial implications of future airspace infrastructure
- ◆ Evaluation of changes in schedules, procedures, etc.
- ◆ Optimizing flying time, operational costs and emissions based on a "gate-to-gate" principle

AirNav – The optimized approach to airspace management and design



Penetration of Obstacle Limitation Surfaces might enduce the need for new PANS-OPS, in this case the construction of four 200 meter high windmills.



Outtake of AIP showing departure procedures.



Preparing airports and airlines for the future.

Please contact us in regard to any questions you may have regarding AirNav.

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