

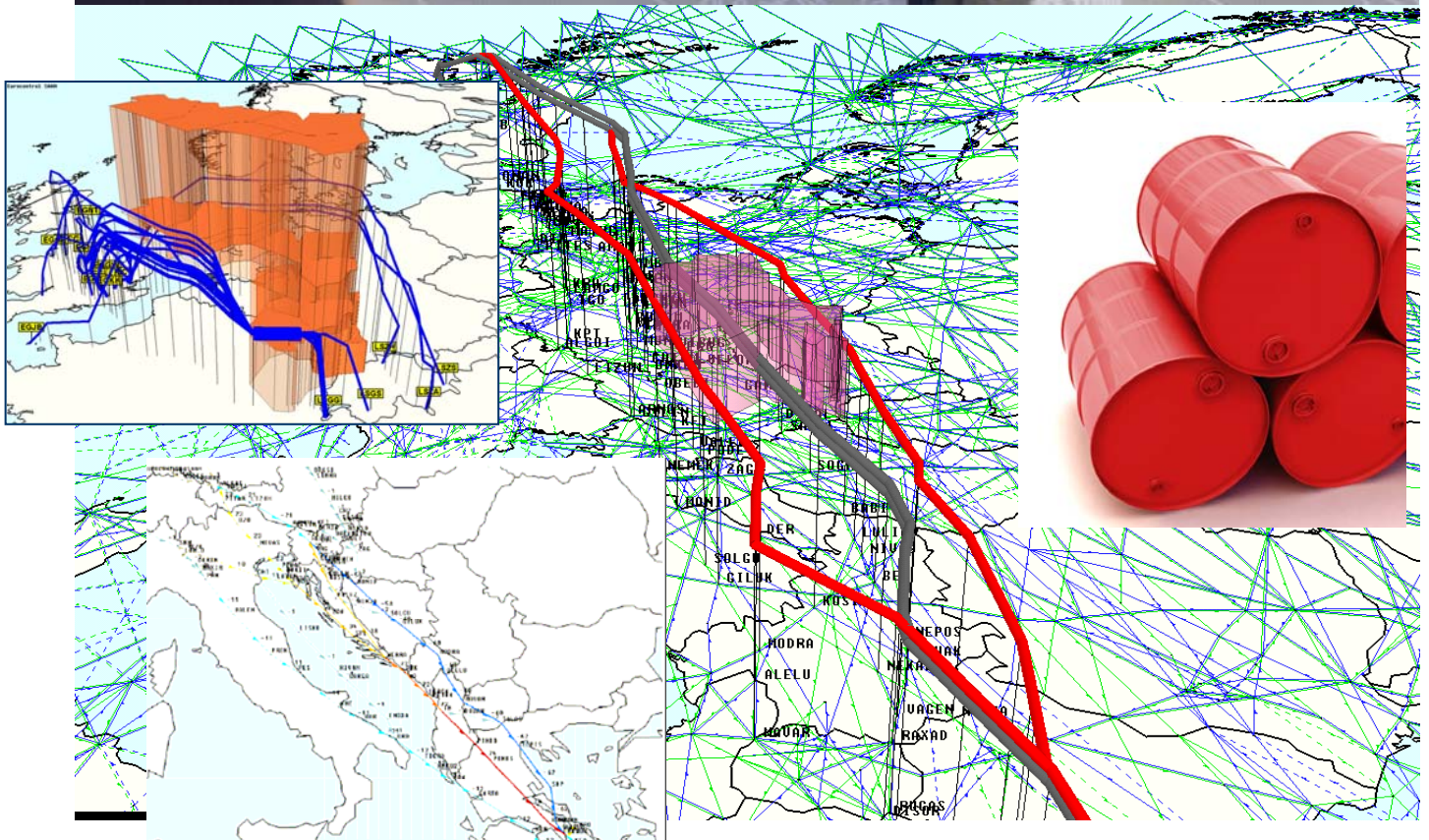


IATA/EUROCONTROL/CANSO



FLIGHT EFFICIENCY PLAN

Fuel and emissions savings



FOREWORD

Over the past 9 years air navigation service providers, State civil and military aviation authorities, airlines and airports and EUROCONTROL have worked closely together to improve the performance of the European Air Traffic Management Network. Between 1999 and 2007, while traffic grew 25%, the “effective capacity” of the network increased by 53% reducing total enroute ATFM delays by 66%. In parallel, routes flown were shortened on average by approximately 4 km. Together these improvements generated 3.5 million tons of CO2 savings per year.

However, we have much more work ahead of us and time is of the essence. The oil price per barrel topped US\$145 this summer and remains today at over US\$100. We expect an industry fuel bill of US\$186 billion and IATA estimates airlines will lose US\$5.2 billion this year. At IATA’s recent AGM in Istanbul, member airline CEOs asked IATA to take swift and effective action to limit the financial impact of record fuel prices.

As a result, IATA, CANSO and EUROCONTROL have agreed to work in an even closer partnership along with airlines, airports and ANSPs to identify solutions and launch operational actions that will lead to fuel and emissions savings in the short term. This is above and beyond the measures that IATA and its Member airlines have already taken to reduce fuel burn.

Pan-European problems require pan-European solutions. Our Flight Efficiency Action Plan builds on the solid foundations of current work undertaken by the Air Navigation Service Providers, States, Airports and EUROCONTROL to improve European airspace design and network management and is in line with our common objective of a Single European Sky

The implementation of the improvements foreseen in this Flight Efficiency Plan is expected to bring benefits evaluated at approximately 470.000 tons of fuel/year, 1.555.000 tons of CO2/year and corresponding to almost 390 million Euro/year.

The fuel crisis is a catalyst for much-needed change. By working together we can make a difference in ensuring this industry’s financial and environmental sustainability.

*David McMillan
Director General
EUROCONTROL*

*Giovanni Bisignani
Director General and CEO
IATA*

*Alexander ter Kuile
Secretary General
CANSO*

FLIGHT EFFICIENCY PLAN

This **Flight Efficiency Plan** in 5 Points has been developed to ensure that urgent actions are taken and commitment is sought to further implement operational measures that can lead to fuel savings in the short term. It provides accelerated support to the airlines operating in the European airspace during these times of fuel crisis and open the way to a long and solid partnership between the organisations on the actions required to continuously improve and optimise the European Air Traffic Management Network. This Flight Efficiency Plan builds on the accelerated implementation of the measures already approved by the EUROCONTROL Provisional Council, currently put in place by all ATM actors, and included in the Dynamic Management of the European

Airspace Network Programme (DMEAN), Airspace Action Plan, the Airspace Management Improvement Initiative, the Terminal Airspace Improvement Initiative and the Airport Programme. This Plan will ensure continued and balanced performance improvement for flight efficiency, capacity and emissions.

This **Flight Efficiency Plan** calls for a partnership approach between Airlines, Air Navigation Service Providers, Airports, States Civil and Military Authorities and EUROCONTROL.

The plan builds on two main areas:

- *Ensure a tangible improvement of the European airspace design for both en-route and terminal areas;*
- *Ensure a tangible improvement of airspace and airport utilisation*

The five action points of the Flight Efficiency Plan (further described in the subsequent sections of this document) are:

1. **Enhancing European en-route airspace design** through annual improvements of European ATS route network, high priority being given to:
 - Implementation of a coherent package of annual improvements and of shorter routes;
 - Improving efficiency for the most penalised city pairs;
 - Implementation of additional Conditional Routes for main traffic flows;
 - Supporting initial implementation of free route airspace.
2. **Improving airspace utilisation and route network availability** through:
 - Actively support and involve aircraft operators and the computer flight plan service providers in flight plan quality improvements;
 - Gradually applying route availability restrictions only where and when required;
 - Improving the utilisation of civil/military airspace structures.
3. **Efficient TMA design and utilisation**, through:
 - Implementing advanced navigation capabilities
 - Implementing Continuous Descent Approaches (CDAs), improved arrival/departure routes, optimised departure profiles, etc.
4. **Optimising airport operations**, through:
 - Implementation of Airport Collaborative Decision Making
5. **Improving awareness of performance**

The implementation of the improvements foreseen in this Flight Efficiency Plan is expected to bring benefits evaluated by EUROCONTROL at approximately 470.000 tons of fuel/year, 1.555.000 tons of CO2/year and corresponding to almost 390 million Euro/year

ACTION POINT 1 ENHANCE EUROPEAN AIRSPACE DESIGN

The European Community's Single European Sky (SES) legislation identifies, in Article 6.1 of the SES Airspace Regulation, the need for "*route and sector design to ensure the safe, economically efficient and environmentally friendly use of airspace*".

To ensure a continuously improved performance, the EUROCONTROL Provisional Council (PC) adopted two important targets related to the operational performance of the European ATM network:

- *A flight efficiency target that requires a reduction in the European average route extension per flight of **two kilometres per annum until 2010 with subsequent emissions reductions**;*
- *A network average en-route delay target of **1 minute/flight** for the **Summer season** (May-October) till at least 2013.*

The airspace development in Europe over the past decade enabled an increase in capacity higher than the traffic growth, while maintaining safety standards. In parallel with the capacity increase, more efficient routes were implemented. Currently, the European ATS route network is only 3.6% longer than the Great Circle (for intra-European flights).

All these improvements were the result of the co-operation between States, Civil and Military Authorities, ANSPs, airspace users and EUROCONTROL.

The future challenges in terms of traffic growth and flight efficiency are high. There is a clear need for more support at political level and commitment towards the implementation of a coherent package of improvements benefiting both flight efficiency and network capacity.

The current oil prices crisis and the immediate need to support the airline industry, through specific ATM measures, to go over these difficult times, requires accelerated action in the improvement of the European ATS Route Network.

The feasibility of creating an efficient pan-European ATS Route Network aligned with major flows and independent of national boundaries, as requested in the PRR 2006, was already proven through the development of the Advanced Airspace Scheme (AAS) route network. The further development and gradual implementation of the AAS route network will represent a major step towards enhanced ATM capacity and improved flight efficiency.

The existing plans have the potential to further improve the performance of the European ATM network, if fully implemented. In order to achieve this, there is a clear need for:

- Commitment to a co-operative approach to European network airspace design, implementation and management;
- Commitment to implementation from all partners;
- Commitment to increased co-operation and operational partnership at European network level.

The EUROCONTROL Route Network Development Sub-Group (RNDSG) will ensure the coordination of the enhanced route network design actions, as undertaken by the Air Navigation Services Providers and the State authorities involved. The activities described hereafter, contained in the Airspace Action Plan approved by the EUROCONTROL Provisional Council, will contribute to the achievement of the urgently needed airspace design improvements.

DESCRIPTION ACTION POINT 1

1. Ensure the gradual implementation of the Version 6 of the European ATS Route Network, through a consistent set of annual airspace improvement packages, between 2008-2010;
 - o A consolidated set of approximately **400 improvement packages**, initiated by all RNDSG Members, representing more than 2000 routes and 50 re-sectorisation projects, will be co-ordinated through the RNDSG process and implemented for the Summer seasons 2008-2010.
2. Improving flight efficiency for the most penalised city pairs in Europe;
 - o As a priority objective, the current actions aiming at improving the **top 50 city pairs with the total highest route extension (i.e. volume of traffic and route extension) will be accelerated**. Solutions will be explored with the ANSPs to improve flight efficiency to the largest possible extent, without impacting safety and capacity. These solutions will be introduced between 2008-2010 and deployed through the annual set of improvements.
3. Implementation of additional Conditional Routes (CDRs) for the main traffic flows;
 - o Distinct action will be taken to ensure the implementation of additional CDRs through major military areas that will serve important traffic flows; this action will take into consideration the findings related to the most penalised city pairs.
4. Ensure support to the initial implementation of free route airspace in different parts of Europe;
 - o Several States and Air Navigation Service Providers plan the introduction of free route airspace in the short-medium term. From a European network airspace design perspective, this approach will be encouraged and the required support will be provided to accelerate implementation and to encourage other States to implement similar actions. These actions are already on-going.

IMPLEMENTATION

- o The development and implementation of the measures listed above will be co-ordinated through the EUROCONTROL Route Network and Development Sub-Group and implemented by the Air Navigation Service Providers.
- o The Directors Operations of the European Air Navigation Service Providers will ensure a close oversight of these measures through the EUROCONTROL Operations Co-ordination Group.
- o Regular reports on the implementation progress will be made to the Air Navigation Services Board (ANSB) and to the EUROCONTROL Provisional Council as already requested for the Airspace Action Plan.
- o A EUR Airline Operations Group, with technical and operational support provided by EUROCONTROL, will be created to assess and review all European ATM network operational shortcomings and other airline operational requirements related to local and network ATM flight efficiency and capacity performance. The group will identify and work on best actions towards the improvement of the European ATM network operational performance.

BENEFITS

- o The full implementation of the actions above is expected to bring a reduction of the distance flown up to 0.1% per year. Potential savings equal to up to 4 Million NM/year, i.e. the equivalent of 24.000 tons fuel/year or 80.000 tons CO2/year or 20 million Euro/yr.

ACTION POINT 2

IMPROVING AIRSPACE UTILISATION AND ROUTE NETWORK AVAILABILITY

The European ATS route network improved over the past years and the routes implemented are currently only 3.6% longer than the Great Circle.

An initial assessment of the European ATS route network design, availability and utilisation indicates that flight efficiency could further improve by enhancing both route availability and utilisation.

The restrictions imposed on the utilisation of the European ATS route network contribute with approximately 0.4% to the airspace utilisation inefficiency. Measures must be envisaged to reduce this inefficiency to the largest possible extent, taking into account the need for continued safety of operations and capacity availability. A detailed assessment must be performed to investigate whether some of the existing restrictions are really required. It is also a need to evaluate the necessity to keep these restrictions on a permanent basis.

Above that, up to 0.3% of additional flight inefficiency is generated by the inappropriate use and co-ordination of civil/military airspace structures, mainly Conditional Routes (CDRs). This leads to the conclusion that there is a need to assess whether the current CDRs serve major traffic flows and if the CDR network does not contain inconsistencies that makes its use difficult. In order to resolve the existing CDR problems connected to airspace design issues, States and Air Navigation Service Providers must review their CDRs and remove the discrepancies affecting their smooth cross-border utilisation.

In addition, the availability and utilisation of the CDRs requires further improvements. These improvements can be achieved through the consistent application of

ASM/ATFCM scenarios, managed at network level. The ASM/ATFCM scenarios clearly have a high potential to improve both flight efficiency and capacity but they require a close co-operation at network level to exploit a maximum number of opportunities.

In addition to all above, there is a clear need to further improve the way in which the airlines themselves make use of the best opportunities offered by the ATS route network. Current indications show that the flight-planned routes in Europe are adding between 0.7% and 1% to the flight inefficiency. This represents quite a significant contribution to the evolution of the flight efficiency. The reasons for these differences deserve a more in-depth investigation. More support needs to be provided to the airlines to enable them to flight-plan the best available routes.

These actions require close partnership and co-operation between all parties involved and a more dynamic response from the airlines to the opportunities offered to them in terms of route utilisation.

The EUROCONTROL Route Network Development Sub-Group (RNDSG), the EUROCONTROL Airspace Management Sub-Group, the Operations and Development Sub-Group of the Operations Co-ordination Group, the specific ATFCM co-ordination meetings are the different coordination and consultation arrangements that will ensure the accelerated implementation of these measures. The activities described hereafter, contained in the Airspace Action Plan and in the Airspace Management Improvements Initiative approved by the EUROCONTROL Provisional Council, will contribute to the achievement of the urgently needed airspace design improvements.

DESCRIPTION ACTION POINT 2

1. Actively support and involve aircraft operators and the computer flight plan service providers in flight plan quality improvements
 - An identification of the potential options for improved flight planning will be coordinated through IATA and with the CFSPs and bi-laterally with the airlines;
 - Actions to identify and implement the required system support at network level will be accelerated.
2. Gradually applying route availability restrictions only where and when required;
 - As a priority objective, a verification of the current route network utilisation restrictions will be undertaken and, whenever possible, an elimination of these restrictions will be performed;
 - The permanent application of route utilisation restrictions will be assessed as a matter of urgency and measures to enable just a temporary application of these restrictions, when and where required, will be taken with high priority.
3. Improving the utilisation of civil/military airspace structures.
 - The current identification of Conditional Routes (CDRs) inconsistencies at network level will be accelerated and corrective measures will be taken as a matter of urgency;
 - The on-going actions to enable the consistent implementation of ASM/ATFCM scenarios will be accelerated; the necessary system and resources will be implemented at network level to ensure a consolidated management of these scenarios.

IMPLEMENTATION

- The development and implementation of the measures listed above will be co-ordinated through the EUROCONTROL Route Network and Development Sub-Group, the EUROCONTROL Airspace Management Sub-Group, the Operations and Development Sub-Group of the Operations Co-ordination Group and other specific ATFCM groups and implemented by the Air Navigation Service Providers and the airlines.
- The Directors Operations of the European Air Navigation Service Providers will ensure a close oversight of these measures through the EUROCONTROL Operations Co-ordination Group.
- Regular reports on the implementation progress will be made to the Air Navigation Services Board (ANSB) and to the EUROCONTROL Provisional Council.
- A EUR Airline Operations Group, with technical and operational support provided by EUROCONTROL, will be created to assess and review all European ATM network operational shortcomings and other airline operational requirements related to local and network ATM flight efficiency and capacity performance. The group will identify and work on best actions towards the improvement of the European ATM network operational performance. Concrete actions will be taken towards identifying existing shortcomings with the airlines flight planning systems and resources.

BENEFITS

- The full implementation of the actions above is expected to bring a reduction of the distance flown up to 0.7% per year. Potential savings equal to up to 30 Million NM, i.e. the equivalent of approximately 180.000 tons fuel/yr or 600.000 tons CO₂/yr or 150 million Euro/yr.

ACTION POINT 3

EFFICIENT TERMINAL AIRSPACE

The forecast traffic growth and the need to increase flight efficiency require significant operational improvements in terminal airspaces (TMA). The TMA Improvements Initiative requested by the airspace users and put forward by EUROCONTROL must be used to ensure the required improvements. The Initiative comprises of a comprehensive **Toolbox of Operational Improvements**. EUROCONTROL will provide support to assist implementation.

Although most of the operational improvements are already available in various regions, the toolbox should make it possible to improve flight efficiency and capacity in more TMAs in the short-term, i.e

- **Terminal Airspace Redesign projects** involving development of new concepts for TMA design and direct support to individual TMA redesign projects, based on P-RNAV¹ and CDAs. Specific guidance material is already available and must be fully used across the European airspace.
- **The P-RNAV project** - aimed to foster widespread application of P-RNAV, bringing efficiency, environmental and capacity benefits. P-RNAV used in STAR design is also an important enabler for the more widespread application of CDAs, as well as the design of more efficient SIDs.
- **The CDA development project** – aimed at implementing EUROCONTROL's recently published CDA concept endorsed by ICAO, with a basic level of sophistication. A CDA Implementation Guidance document developed with stakeholders to explain how CDA can be implemented

following a harmonised methodology is available. A joint industry CDA action plan is in preparation to accelerate deployment of CDA to meet these targets. EUROCONTROL has tested CDA at several European airports using commercial aircraft and has confirmed that noise, fuel burn and emissions can all be reduced.

- **ATC System Support projects** - including the development of agreed requirements for advanced arrival management support (AMAN) tools.
- **RNAV Approaches** - to enable the implementation of all types of RNAV approaches in a commonly agreed manner and to common standards.
- **Precision Approach activities** – aimed at developing guidance material and tools to ensure a harmonized implementation of alternatives to ILS precision approach and maintain or improve runway throughput even when low visibility procedures are in force.

These improvements require close partnership between all parties involved. They must be initiated as a matter of urgency as TMA projects tend to require extensive development period.

IATA must ensure full support to CDA roll-out and encourage all actors, to accelerate their commitment to a joint industry CDA action plan.

IATA, CANSO and EUROCONTROL will work together with their ATM partners to ensure the accelerated implementation of these measures. The activities described hereafter, contained in the TMA Improvements Initiative will contribute to the achievement of the urgently needed airspace improvements.

¹ While the transition from P-RNAV to PBN values will take time, all operators that are approved against the PBN criteria for RNAV 1 are eligible to operate on European P-RNAV routes with no further approval required.

DESCRIPTION ACTION POINT 3

1. Improving TMA airspace design by implementing advanced navigation capabilities and enhanced applications (improved P-RNAV SIDs and STARs, continuous descent approaches (CDAs), optimised departure profiles, etc.)
 - Ensure the airspace re-design actions for minimum 10 TMAs per year to include consistent application of P-RNAV;
 - Ensure commitment and implementation of the CDA Action Plan and implementation of CDAs at a minimum 20 airports/year;

IMPLEMENTATION

- The development and implementation of the measures listed above will be co-ordinated through the EUROCONTROL Route Network and Development Sub-Group or bi-laterally with individual or groups of States and Air Navigation Service Providers.
- The Directors Operations of the European Air Navigation Service Providers will ensure a close oversight of these measures through the EUROCONTROL Operations Co-ordination Group.
- Regular reports on the implementation progress will be made to the Air Navigation Services Board (ANSB) and to the EUROCONTROL Provisional Council.
- A EUR Airline Operations Group, with technical and operational support provided by EUROCONTROL, will be created to assess and review all European ATM network operational shortcomings and other airline operational requirements related to local and network ATM flight efficiency and capacity performance. The group will identify and work on best actions towards the improvement of the European ATM network operational performance, including airports. Concrete actions will be taken towards identifying existing target TMAs where airspace re-design or CDA implementation is urgently required.

BENEFITS

- EUROCONTROL figures show that, if CDAs were to be implemented at least 20% of European airports, annual savings to airlines will be approximately 120.000 tons fuel/yr or 400.000 tons CO₂/yr or 100 million Euro/yr.
- Additional savings could be generated through the implementation of TMA airspace re-design projects; the benefits related to these cannot be estimated as they depend to local situations.

ACTION POINT 4 **OPTIMISING AIRPORT OPERATIONS**

In October 2007 IATA and EUROCONTROL (supported by ACI EUROPE) agreed on an initial Joint Action Plan to enhance capacity and **operational efficiency** at 18 airports where capacity constraints had an effect upon the European network. One of the essential enablers in the initial Joint Action Plan is **Airport Collaborative Decision Making (CDM)**.

Airport CDM entails the sharing of highly accurate data related to the progress of aircraft during the aircraft turn-round. This data is shared between all airport partners and with the Air Traffic Management Network via the CFMU.

In tactical operations Airport CDM improves predictability, leading to reduced turn-round times, fewer missed connections, reduced delays, enhanced resource management and **significantly reduced taxi times**.

The reduction in taxi times is achieved by the implementation of two Airport CDM operational enhancements: **Collaborative Pre-departure Sequencing and Variable Taxi Times**.

At complex airports the layout of runways, taxiways, and parking stands can result in great differences in taxi times. Instead of using a default value, realistic taxi times are used based upon historical data, operational experience and / or integrated systems.

These realistic taxi times enable ATC to optimise the pushback order, taxi and take off sequence with less delay at the runway holding point and reduced taxiway congestion both for arriving and departing flights.

With enhanced accuracy of aircraft readiness ATC can optimise the pre-departure sequence from the parking

stands. It results in aircrafts arriving at the runway holding point with minimal delay and in the optimal departure order. This will predominantly result in **significant savings in fuel burn** together with reduced emissions and noise.

Following the successful implementation of Airport CDM in Munich in June 2007 taxi times have been reduced by 10%, which equates to a **fuel saving of 3.6 million Euros per year**.

Based on the proven figures from Munich, if 10 similar sized airports implement Airport CDM the potential saving could be around 30 million Euros per year.

Significant benefits can be achieved at medium sized airports notwithstanding the fact the benefits cannot be expected to be as important as for large airports.

Currently Airport CDM implementation is anticipated at 10 European airports per year. EUROCONTROL supports airport partners in this process, which is included in the cooperation agreement presently being drawn up between EUROCONTROL and ACI EUROPE. The aircraft operators, being the highest beneficiary of Airport CDM, are essential to achieve implementation in the short term.

Priority will be given to this project with an increase in the number of airports implementing Airport CDM. A target of 20 airports commencing Airport CDM during 2008 is envisaged, with further 20 in 2009.

Local meetings should be encouraged and instigated at airports between all partners to emphasise the importance and benefits of Airport CDM implementation.

These challenging revised targets can only be achieved with strong commitment from airport partners, as well as strong partnership between IATA, CANSO, ACI EUROPE and EUROCONTROL.

DESCRIPTION ACTION POINT 4

1. Optimising airport operations, through:
 - Ensuring commitment of all partners to the current plan of implementing A-CDM at 5 airports per year. For 2008: Zurich, Brussels, Heathrow (local target).
 - Accelerating the implementation of A-CDM by commencing implementation with 20 additional airports in 2009.
 - Monitoring and ensuring progress of the Joint EUROCONTROL/IATA Action Plan, in liaison with the Eurocontrol/ACI EUROPE cooperation agreement.

When introducing A-CDM, the buy-in and commitment of Airport Operators is essential as in most of the cases Airport Operators become the leaders of the A-CDM implementation process. Considering this essential requirement, EUROCONTROL and ACI EUROPE will work in close collaboration (via the Memorandum of Understanding and Action Plan) in driving forward the Airport Operators involvement. . EUROCONTROL and ACI EUROPE will ensure a coordinated prioritisation and communication process with the airports concerned taking into account the challenging targets of this Action Plan. Prime attention will be given to the most congested airports in 2009 and beyond as well as to any airport creating a potential effect upon the network. Airports with increasing traffic demand and having a limited infrastructure will also deserve priority. The selection of these airports will result from a discussion between ACI EUROPE, EUROCONTROL and IATA.

IMPLEMENTATION

- EUROCONTROL, ACI EUROPE (through their Memorandum of Understanding) and IATA will drive the process forward. IATA has undertaken to organise local meetings with all stakeholders and ensure a balanced attendance.
- Regular reports on the implementation progress will be through the Eurocontrol Operations Coordination Group (OCG) made to the Air Navigation Services Board (ANSB) and to the EUROCONTROL Provisional Council.
- A EUR Airline Operations Group, with technical and operational support provided by EUROCONTROL, will be created to assess and review all European ATM network operational shortcomings and other airline operational requirements related to local and network ATM flight efficiency and capacity performance. The group will identify and work on best actions towards the improvement of the European ATM network operational performance. Concrete actions will be taken towards identifying target airports for the implementation of Airport CDM.

BENEFITS

- Airport CDM enables a reduction of approximately 10% of the taxi time for an individual airport of the size of Munich, equating to annual cost savings of approximately **3.6 million Euros per airport**.
- A recent Airport CDM Cost Benefit Analysis demonstrated that the **benefit / cost ratio for airlines** is in the order of **8:1**. The investment required from any single airport partner is modest as existing resources can be utilised with only limited modifications.
- Early and sustainable benefits: the return of investment period is short and for Airlines is achieved in most of the cases at the end of the first year of Airport CDM implementation.
- Considering a very conservative reduction in taxi time of just 1 minute per flight for ECAC major airports (+50K movements per annum – this corresponds to about 50 ECAC airports), annual savings to airlines will be approximately 145.000 tons fuel/yr or 475.000 tons CO₂/yr or 120 million Euro/yr.

ACTION POINT 5 **IMPROVING PERFORMANCE AWARENESS**

Aircraft operators and air navigation service providers are two key actors in the aviation industry with key roles in reducing our industry's environmental impact. Their contribution to that would be enhanced if they both understood better the constraints that each actor has to deal with. Fuel management is one issue in which ANSP personnel in particular would benefit from understanding the impact they can have on a flight's fuel consumption. Similarly, airspace users' personnel would benefit from understanding better how ATC can impact their fuel consumption. If such issues are tackled jointly, then improved mutual understanding will lead to a better use of the European ATM network from both the structural (provider-driven) and operational perspectives (user driven).

Both organization already provide excellent courses on fuel conservation and management and deliver both eLearning and classroom courses on environmental issues within ATM. In addition the IATA

Training and Development Institute (ITDI) and EUROCONTROL's Institute of Air Navigation Services (IANS) have an Agreement allowing for IATA to give courses at IANS.

IATA and EUROCONTROL together to develop awareness material on fuel conservation issues to raise awareness among the relevant ANSP and AO personnel whose actions influence fuel consumption. Already available courses mentioned above would provide much of the core material, especially that of IATA - ITDI.

To reach the maximum amount of staff in the shortest possible time, an eLearning course should be developed for distribution to all AO and ANSP personnel by March 2009. In parallel, IATA and EUROCONTROL should organise three regional workshops annually across Europe to spread the message and answer questions. These would probably be of two days' duration. Workshop material should be available by end 2008.

DESCRIPTION ACTION POINT 5

Improving Performance Awareness, through:

- Using existing and developing awareness material on fuel conservation issues for relevant ANSP and AO personnel whose actions influence fuel consumption
- Develop an eLearning course for distribution to all AOs and ANSPs

IMPLEMENTATION

- The eLearning course to be distributed by March 2009
- Organize three regional workshops annually across Europe to spread the message and answer questions. Duration of the workshop would probably be two days and workshop material should be available by the end of 2008.

BENEFITS

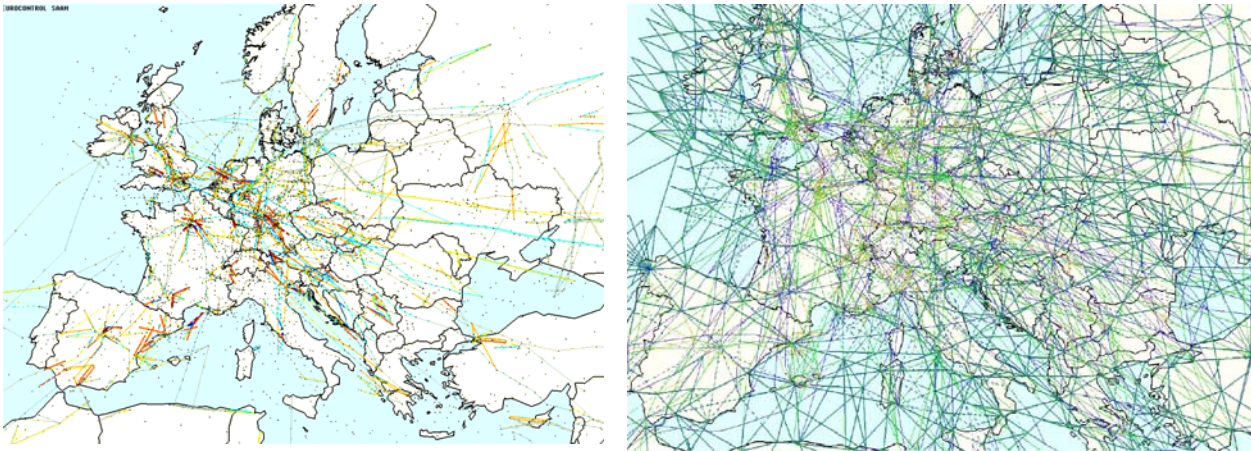
- Benefits are mainly of a qualitative nature but it is expected that personnel that have been trained on the fuel conservation issues are able to make a difference in saving fuel burn and emission reduction.

APPENDIX

THIS APPENDIX ILLUSTRATES WITH A NUMBER OF HIGH LEVEL EXAMPLES THE BENEFITS THAT COULD BE ACHIEVED AS A RESULT OF THE IMPLEMENTATION OF THE ACTIONS LISTED IN THIS FLIGHT EFFICIENCY PLAN AND THAT BUILD ON THE SOLID FOUNDATIONS OF CURRENT INITIATIVES.

ACTION POINT 1 ENHANCE EUROPEAN AIRSPACE DESIGN

o Yearly airspace improvements



The maps above show the **127 (one hundred twenty seven)** airspace projects that were implemented for the Summer 2008 and the total of **400** airspace projects planned for implementation over the period 2008-2010. These projects have the potential to save approximately **24000 tons of fuel/year** or to **reduce emissions by 80000 tons of CO2/year**. This includes improvements for the top 50 most inefficient city pairs. Each project will be assessed as shown below.

Proposal:	61_28 (UP994 VIBUG - DETSA southbound)	
State(s):	Germany, Austria, (Italy)	
Implementation:	12 MAR 2009 or 9 APR 2009	
Potential flights: <small>(new or moved)</small>	SAAM shortest ATS route assignment	51
Potential savings: <small>(compare to VST without new ATS route/s)</small>	Daily distance saving	462,56 NM
	Daily time saving	68,05 min
	Daily fuel saving	2484,36 kg
	Daily CO ₂ emission reduction	7823,68 kg



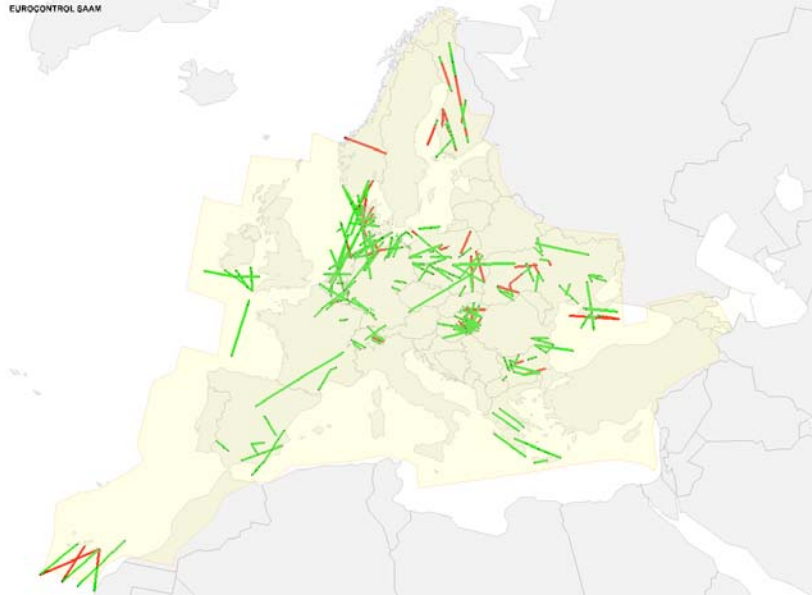
MAX city pair saving	
EDDB - LIRN	18,35 NM
EDDB - LIRA	18,00 NM
ESSA - LIRF	11,63 NM

Development and implementation responsibilities

The development and implementation of the measures listed above will be co-ordinated through the EUROCONTROL Route Network and Development Sub-Group (RNDSDG) and implemented by all the States and Air Navigation Service Providers involved in the RNDSDG. A complete list of the projects commonly agreed for implementation (including details on States and ANSPs responsible, issues to be resolved, target implementation dates, etc.) can be found in relevant RNDSDG documents that are available to all stakeholders.

ACTION POINT 2 **IMPROVING AIRSPACE UTILISATION AND ROUTE NETWORK AVAILABILITY**

- **Improve flight plan quality and utilisation of civil/military airspace structures**



The map above shows the Conditional Routes (CDR) that could have been used during one peak day by the aircraft operators. The routes in red indicate the routes used and the routes in green indicate routes available but not used by the aircraft operators. If all available CDR routes would be used at their full potential, annual savings of **30.000 tons of fuel/year or reduced emissions of 100.000 tons of CO₂/year could be achieved.**

- **Reduction of route restrictions**

Currently, various route network restrictions are being assessed and airspace design solutions are investigated to help in eliminating these restrictions. More than 80 proposals for improvement are currently discussed impacting Austria, Belgium, Croatia, Hungary, Slovenia, Serbia, Czech Republic, Poland, Slovak Republic, Albania, Bulgaria, Romania, the Former Yugoslav Republic of Macedonia, Turkey, Italy, Malta, Greece, France, Maastricht UAC. The States and ANSPs concerned are studying these proposals and implementation will take place, on the largest possible extent, for the Summer 2009. The restrictions for the remaining States and ANSPs are currently under assessment and improvement proposals will be made during the autumn/winter season 2008/2009.

Development and implementation responsibilities

The development and implementation of the measures listed above will be co-ordinated through the EUROCONTROL Route Network and Development Sub-Group, the EUROCONTROL Airspace Management Sub-Group, the Operations and Development Sub-Group of the Operations Co-ordination Group and other specific ATFCM groups and will be implemented by all the States, Air Navigation Service Providers and airlines involved in these groups. A complete list of the projects commonly agreed for implementation (including details on States and ANSPs responsible, issues to be resolved, target implementation dates, etc.) can be found in the relevant documentation of these groups that is available to all stakeholders.

ACTION POINT 3 **EFFICIENT TERMINAL AIRSPACE**

○ **Improving Terminal Airspace design**

Improved Terminal Airspace design projects were already implemented or will be implemented in 2008 at Copenhagen, Brussels, Geneva, Zurich, Leipzig/Halle, Bale/Mulhouse, Bern, Cork, Riga, Bologna, Tivat, Podgorica, Athens, Linz, Marseille, Montpellier, Tallinn.

For 2009, further improvements are expected at least for the following TMAs: Timisoara, Arad, Dublin, London, all the Canarias Islands TMAs, Cork, Geneva, improved arrival/departure routes for Amsterdam, Dusseldorf and Frankfurt airports, Warsaw, Tirana, Venice, Burgas, Varna, Constanta, Prague.

○ **Implementation of Continuous Descent Approaches (CDAs)**

The airspace users organisations, in co-operation with EUROCONTROL, contacted the following airports to request the implementation of CDAs: Salzburg, Liege, Sofia, Larnaca, Paphos, Billund, Tallinn, Bordeaux, Rennes, Strasbourg, Dresden, Nurnberg, Paderborn, Dortmund, Athens, Kos, Iraklion, Rhodos, Thessaloniki, Treviso, Bergamo, Bologna, Dublin, Shannon, Riga, Vilnius, Luxembourg, Rotterdam, Eelde, Bodo, Bergen, Warsaw, Porto, Bucharest, Ljubljana, Alicante, Sevilla, Gothenburg – Landvetter, Malmö, Izmir, Dalaman, Jersey, Oslo, Malta, Valencia, Madrid, Bratislava, Berlin, Frankfurt, Stavanger, Vigra, Dusseldorf and Prague. Further airports will be requested in the short term to implement CDAs.

Development and implementation responsibilities

The current plan is to harmonize CDAs at airports where they are in use now, in accordance with the Eurocontrol Guidance and to accelerate the commitment to implement CDAs at 20 airports by the end of 2009. Implementation of CDAs will depend on achieving agreement between airport partners and therefore the target dates for implementation completion at each airport will require constant review. The following actions are foreseen:

- The airports to be approached will be contacted by IATA who will organize an initial meeting of all local stakeholders comprising Airport Operator, ANSP and principal airport users.
- Eurocontrol will present in detail the CDA project including the benefits and the implementation process
- The local stakeholders will consider the implementation of CDAs in their airspace with regard to other projects and consider whether to proceed.
- If a decision is taken to proceed with CDA implementation Eurocontrol will provide guidance material and support, if required, depending on local needs.

ACTION POINT 4 **OPTIMISING AIRPORT OPERATIONS**

○ **Implementing Airport Collaborative Decision Making (A-CDM)**

The current plan is to implement A-CDM at 5 airports per year. This target is limited to local A-CDM implementation from which fuel savings can be obtained in the short term. The provision of accurate departure information (DPIs) to CFMU is not included in this plan.

Munich is fully operational since June 2007 including the provision of DPIs to CFMU. The following airports plan to complete local implementation of A-CDM in 2008: Brussels, Zurich, and Heathrow (local target) would be devised jointly between ACI EUROPE and EUROCONTROL. A-CDM implementation has already started at the following airports: Paris CDG, Lisbon, Amsterdam, Geneva, Milan MXP, Vienna, Athens, Prague, Rome FCO, Stockholm, Dublin, Warsaw, Oslo, Frankfurt, Heraklion, Palma de Mallorca, Madrid and Barcelona.

Considering the many airport partners involved when implementing A-CDM locally and the challenges involved for achieving agreement and commitment to timely implementation the target dates for A-CDM implementation completion for the above airports are subject to agreement with local partners. Any agreed target date for A-CDM implementation completion requires constant review considering the nature and complexity of local issues that may arise during the implementation of A-CDM.

Development and implementation responsibilities

In order to accelerate the implementation of A-CDM the current plan is to commence implementation of A-CDM at 20 additional airports by the end of 2009. IATA and ACI EUROPE will help in raising awareness about the benefits of Airport CDM implementation and support the organization of local meetings. In full co-ordination with ACI EUROPE, prime attention will be given to the IATA/EUROCONTROL identified most congested airports in 2009 and beyond as well as any airport creating a potential effect upon the network. Airports with increasing traffic demand and having a limited infrastructure will also deserve priority.

The following actions are foreseen:

- The airports to be approached will be contacted by IATA who will organize an initial meeting of all local stakeholders comprising Airport Operator, ANSP, Airspace Users, and Ground Handlers, together with ACI EUROPE and EUROCONTROL.
- EUROCONTROL will present in detail the A-CDM project, including benefits and the implementation process.
- After agreement with local stakeholders EUROCONTROL will carry out a gap analysis of existing procedures to establish where there are differences between present operations and operations predicted under A-CDM.
- A gap analysis report will be delivered by EUROCONTROL to the local stakeholders who will contain recommendations for implementation.
- The local stakeholders will consider the recommendations and the priority of A-CDM with regards to other projects and consider if implementation should proceed.
- If a decision is taken to proceed with A-CDM implementation the airport representatives will establish an A-CDM Steering Group comprising stakeholders from all local organizations. A local decision will be made on which organization leads implementation.
- EUROCONTROL will deliver A-CDM implementation manuals and guidance material. Support will be provided by EUROCONTROL depending on local needs.