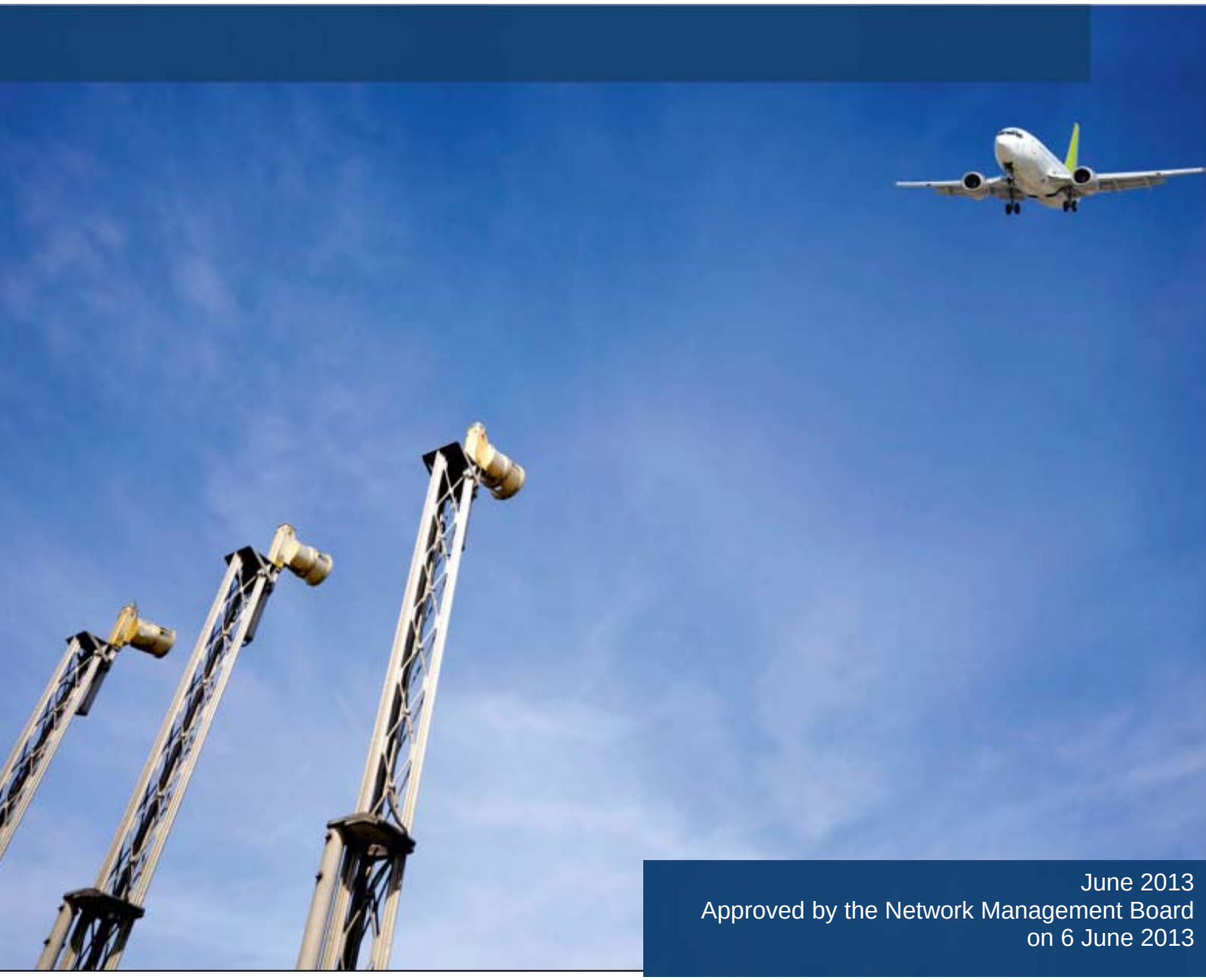
Network Manager
nominated by
the European Commission

EUROCONTROL

Network Manager Annual Report 2012



June 2013
Approved by the Network Management Board
on 6 June 2013

I. Building the Network Manager

The European Union established under the Single European Sky (SES) II package the Network Manager[1]. The aim was to address the difficulties of the past and respond to the request of users to have a seamless European airspace - better managed at network level.

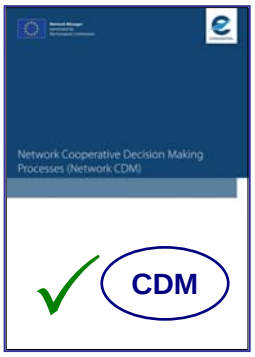
NM's priority is to create the operational partnerships needed to achieve the Single European Sky performance targets to the benefit of all states included in the pan European 'network'[2]. This was the driver of the NM activities throughout 2012.

The NM also provides daily support to the air traffic operations across the network.

To achieve its network performance objectives NM has built a strong foundation: good **cooperation** with its stakeholders, appropriate **governance**, and a network focus aimed at continuous improvement of the network operations through proactive **NM activity**.

Stakeholder cooperation

NM is at the centre of the ATM network and collaboration with its partners is a basic principle of the NM. This is not left to chance: NM and our stakeholders need good **Cooperative Decision Making** (CDM) in order to achieve decision consistency among the involved organisations in a fully transparent manner with all required information and inputs from parties who will have to implement these decisions.



CDM processes covering the main network functions were approved in 2012. The CDM processes include how knowledge-based decisions are made, who develops the preparatory details and describe the supporting working and consultation arrangements as well as the final approval of decision making phase.

Governance

Good **governance** is key for the NM.

Network Director Operations (NDOP) played a key role in supporting NM to achieve its performance targets. It is NM's main operational forum for preparation, review and implementation of mandated operational actions. The NDOP structure includes mechanisms for direct involvement of ANSPs, military partners, airspace users and airports. NDOP has tackled various issues such as the preparation of the summer and winter seasons, addressing problem areas identified in the Network

[1] Commission Regulation (EU) 677/2011 of 07 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions

2 States include: EU Member States, non-Member States that are members of EUROCONTROL or have concluded an agreement with the Union on the implementation of the Single European Sky or are participating in a functional airspace block.

Operations Plan (NOP) or from the monitoring of the network performance, management of special events, repository of measures for industrial actions and contingency plans, as well as endorsement of key NM deliverables.

The **Network Management Board** (NMB) is the industry led decision making body that works with NM to achieve the SES performance objectives. The NMB was very active and successful in 2012. It approved the major deliverables of NM, establishing the strategic and operational objectives both for the Network and for Network Manager[3]. NMB also helped in tackling network performance issues that NM escalated through the Network Directors of Operations forum.

Throughout 2012, EUROCONTROL Teams and their substructures provided expert input and coordination (namely the: NETOPS – Airports - AIS/SWIM – Safety - CNS Infrastructure). These teams are open to experts of all NM stakeholders and are tasked to develop and review specific technical and operational NM proposals at expert level.

The external **oversight** of the Network Manager is performed by European Aviation Safety Agency (EASA). During 2012 EASA started the oversight activities through an initial audit, which was conducted in two phases (March and July 2012).

NM activity

NM's duty is to provide a consolidated and coordinated approach to the activities of the network to continuously improve its performance. This obliges the NM to safeguard the general interest of the network. NM is applying this network focus in the analysis of the real operational issues across the network.

Throughout 2012 NM launched and contributed to a number of activities to address the bottlenecks in the network and prepare for the challenges of 2012.

NM's performance analysis identified a number of critical areas in the Network Operation Plan (NOP). The underlying causes for the critical areas were investigated, which triggered an **Action Plan** developed to address the needs to further enhance the operational network performance.

NM brought together ANSPs, Aircraft Operators and Slot coordinators to tackle airports with limited capacity.

NM ensured detailed planning of special events to ensure that network delay remained low. NM implemented a number of action plans and mitigations to support stakeholders in improving capacity and allowing NM to contribute to delay reduction.

[3] Major deliverables: Network Strategy Plan, including the NM Performance Plan and the Network Operations Plan are outlined in later sections.

II. NM achievements in 2012

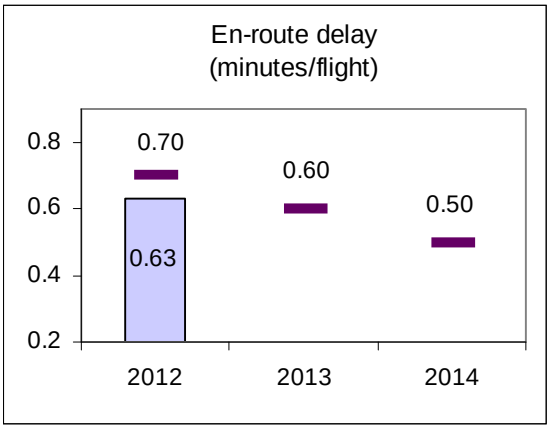
NM activities in 2012 focused on achieving the performance targets of the first Reference Period (RP1) of the SES Performance Scheme.

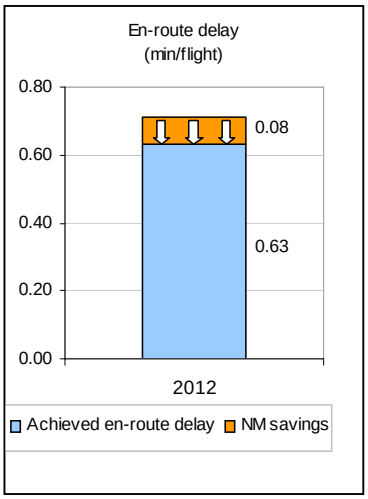
When NM was formally established in July 2011 the memory of the poor performance of 2010 (the worst for 10 years) was fresh in the mind of everybody. NM needed to tackle the systemic issues that led to the poor performance in 2010 to achieve the ambitious 2012 target of en-route delay of 0.7 min/flight. Its focus was on enhancing network operations management, synchronising major ATM changes, mitigating the impact of strikes on the network performance, improving flexibility of capacity management in some ACC constrained due to social tension or rigidity in the management of opening control sectors.

NM had to show its added value. In 2012 NM gave a high priority across its organisation to the actions needed to achieve the performance targets on capacity and flight efficiency and the objectives on safety while ensuring that the NM financial costs remained within the limits of 2.9% of total en-route costs. All these targets and objectives are captured in the **NM Performance Plan** (NMPP).
NM achieved its performance targets for 2012.

Network Capacity

The main performance indicator is the en-route ATFM delay measured in minutes per flight, for which the network performance target for 2012 was 0.7 min/flight. This target was met, at the end of 2012 the achieved en-route ATFM delay was 0.63 min/flight, the best performance for some years. Without industrial action it would have been 0.57 min/flight.



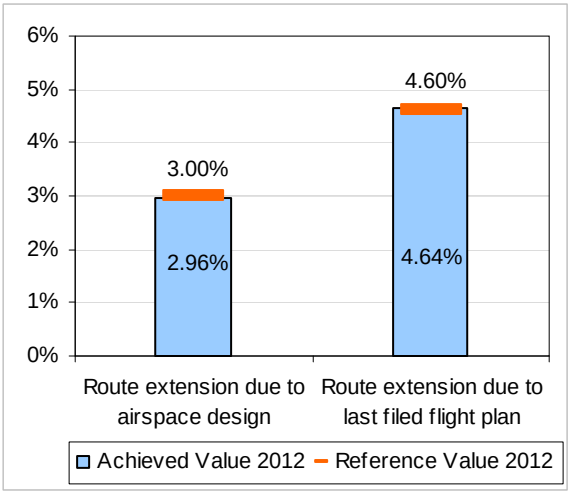


NM contribution to delay savings

In addition to the targets defined for the network, the NMPP defines a range of other indicators which presents performance so that stakeholders understand the NM added value with respect to ATM network performance. In the capacity area, the main target for NM is to reduce en-route ATFM delays by 10% below the declared plans for 2012-2014.
NM contribution to delay savings in 2012 were calculated from accepted Re- routings Proposals (RRPs) and NM initiated CDM actions (e.g. rate negotiation with FMP, reconfiguration of the regulations, proposal to go to another sector configuration to increase capacity, level capping).
The overall en-route delay reduction in 2012 was 730,000 minutes equivalent to 1900 min/day or 0.08 min/flt – without this, the delay in 2012 would have been

0.71 min/flt. This equates to 10.7% of the annual network delay (when measured against the total potential network delay, achieved 0.63min/flt plus the saving 0.08min/flt = 0.71 min/flt). Around 190,000 minutes of this reduction achieved via direct re-routings.

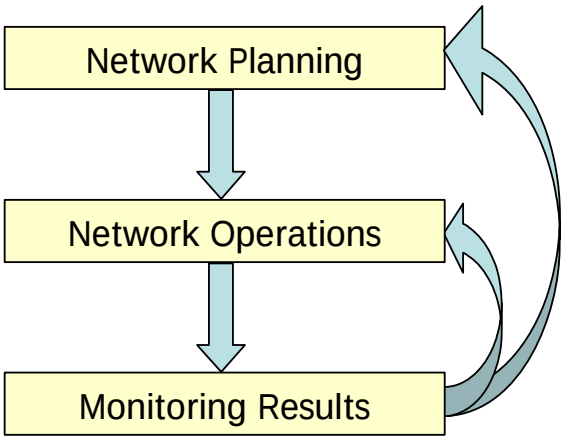
Flight Efficiency



NMPP defines two targets measuring the route extension from an optimum defined by the great circle, one due to the design of the routes and the other due to the last filed flight plan. Both key performance indicators have to achieve a reduction of 0.75 percentage points from 2009 to the end of RP1. The design indicator achieved in 2012 was 2.96%, meeting the target and is on a good trend to achieve the RP1 target. The flight plan indicator value in 2012 was 4.64%, above the target by 0.04 percentage points. It was impacted negatively by industrial actions and social issues that led to reduced capacities and re-routings to avoid capacity constrained areas. The focus going forward is to provide sufficient capacity and to improve airspace utilisation to improve flight efficiency.

III. NM areas of actions

NM is addressing the real issues of the network while ensuring that the performance targets are met. Its planning, operations and continuous monitoring activities are closely interconnected to ensure that network performance is achieved.



While some NM activities have been part of the EUROCONTROL portfolio for some time, NM refocused them to the new network centric approach. Network operations planning and Network current operations (tactical and pre-tactical) are prime examples in this category.
NM has also started to address the network functions related to scarce resources as well as safety and the airports domains from a network performance perspective.

Monitoring and reporting

NM presented regular, timely and accurate reports on the overall **performance of the network** to NDOP and NMB throughout 2012.
The monitoring results were considered in the Planning (e.g. additional actions or critical areas) and operational phases (e.g. Playbook helped identify the 'high risk' delay areas). The results highlighted where NM should use its pro-active stance and act when a problem occurred.
Throughout 2012 post operations and performance monitoring analysed the efficiency of ATFM measures and continually improved the process to ensure NM could deliver over 10% delay savings for the network.

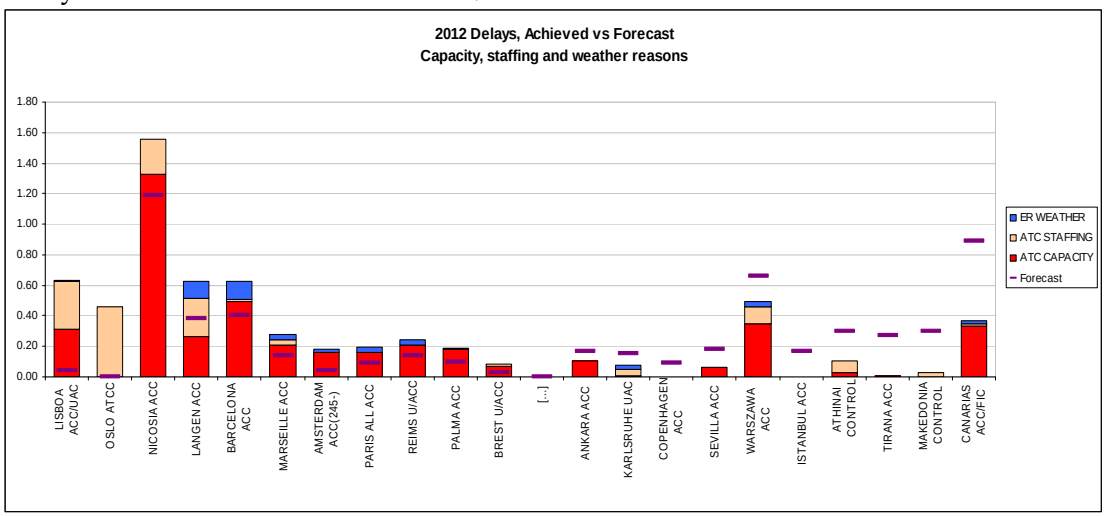
Operations Planning

The Network Operations Plan (NOP) for the period 2012-2014 is a detailed plan that implements, at operational level, the Network Strategy Plan. NOP was adopted in March 2012 by the NMB.

Based on the traffic forecasts NOP identified the **capacity** of the network or individual ACCs needs as well as **operational performance** forecasts for delivering the ATFM function. This was done in close cooperation with the ANSPs involved, which provided further inputs (an updated NOP was approved in June 2012).
Critical areas for the network were identified and an **Action Plan** was developed to address the needs to further enhance the operational network performance. Additional such measures were proposed for Spain (Barcelona, Canarias and Madrid ACCs), Germany (Langen and Munich ACCs), Cyprus, Greece and Poland.

The annual forecast of NOP for 2012 indicated an average en-route delay of 0.45 min/flight. The achieved value at the end of 2012 was 0.63min/flight. Within this value the **overall NOP values for the staff and capacity were as forecasted**. The

difference was due to the ATC strikes, higher weather delay than the value included in the forecast, other disruptions (including technical) and social issues at Lisbon ACC and Oslo ACC. Higher delays than the forecast were recorded at both the latter ACCs and at Nicosia, Langen, Munich, and Barcelona ACCs and better delays than the forecast in Greece, Warsaw and Canarias ACCs.



The effective capacity indicator increased by 6% over the whole European ATM network in 2012 (an increase of 9% for the summer season), when compared to the corresponding periods of 2011, the highest capacity on record.

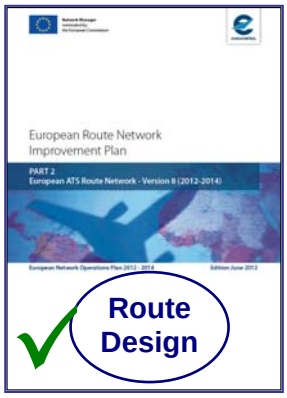
The 2012 monitoring results informed the preparation of the **NOP 2013-2015** which foresees actions in the area of Week/Week-end planning, Inclusion of FAB Plans, and Planning of major projects/special events.
Identification of additional measures for critical ACCs: Barcelona, Langen/Munich/Karlsruhe (Munich part), Marseille, Warsaw, Nicosia, Athens/Makedonia (close monitoring), Lisbon, and Oslo are also part of the new package.

Major ATM changes

Another topic successfully addressed by NOP and the Action Plan is the preparation of a **transition plan for major projects** which was published by NM as Transition Plan for Major Projects in Europe Winter 2012/2013**.** The plan was continuously updated during 2012. The good preparation of the transition plans for major projects resulted in negligible delay caused by those events.

Route Network Design

The NM ensures that European airspace can accommodate the additional capacity needs. This is the role of the European Route Network Design Function, for which the Network Manager developed, through a cooperative decision making process, the European Route Network Improvement Plan (ERNIP). The ERNIP was approved by NMB and is part of the Network Operations Plan. The ERNIP included 270 packages of airspace improvements which were implemented for the Summer season 2012. This helped to ensure that the 2012 flight efficiency target (route extension due to airspace design) was achieved.



Current Operations
Delivering the operational daily delay performance is at the heart of the NM Operations Centre (NMOC). NMOC concentrates on anticipating problem areas and then providing network solutions. Network operations flow management procedures are mature and continue to provide benefit to the network.

The Network Operations were constantly monitored against the 2012 objectives and targets, using state of the art systems and tools. For example, the **Playbook** process and tool ensured that the operational staff focused on the achievement of performance targets at network and ACC level.

NM proposed CDM actions in pre-tactical and tactical operations to reduce the delays in line with the NMPP lines of actions. This amounted to a reduction of 730000 minutes of en-route delays, in excess of 10% below the en-route delay for 2012, achieving the NMPP target and related objectives related to re-routing proposals, weekend delays. NMOC played a central role in the NM activity for improving the network performance (see chapter II).

Other actions targeted delay reduction initiatives at *Zurich* (effects of flight plan adherence has on individual sectors), *Palma (*first rotation delay), *Bordeaux and Barcelona* (work commenced on reducing complexity to bring capacity benefits for next summer), in *Canaries* (where NMOC operational staff offered support), in *Langen* (by encouraging consistent working practices between both units, excluding flows of traffic that it was not necessary to regulate).

Events
NM units contributed to the detailed planning of *Euro 2012 and the London Olympics*. This was done in close coordination with relevant stakeholders and aircraft operators. Actions included airspace changes, airport capacity simulations, staff exchanges, slot coordination with ACI. The preparation was successful and the increased event traffic was handled with little or no network delay.

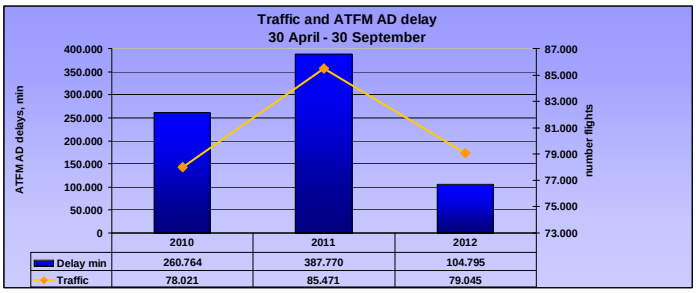
Industrial Action
With the active support of NMB and NDOP, NM compiled a **Repository of measures for industrial actions and contingency plans**. The repository contains a list of current practices for managing industrial action as well as an initial set of best practices for the management of such situations at network level.
Throughout 2012, NMOC continued to manage the industrial action events to minimise delay by activating existing procedures, providing alternative routing options, disseminating information and teleconferencing.

Network Safety
Recognising that safety is the key rationale for ATM, the NM has adopted and started to implement a safety approach to ATM network operations. A true partnership with the stakeholders ensured that the objectives set in the NSP and NMPP were achieved in 2012.
For the first time NM in partnership with the stakeholders has identified the 'Top 5' ATM Operational Safety risks affecting the Network. These risks are associated with two spheres of operations - loss of separation in the en route environment and runway safety. NM has actively supported the stakeholders in achieving the RP1

European wide performance indicators notably through the deployment of the **Risk Analysis Tool**, through the "Experience Sharing to Enhance SMS (ES2)" programme to **support ANSPs improve the effectiveness of their SMS** and by conducting initial **safety culture surveys.**
Additionally, SKYbrary, a web-based electronic repository of safety data related to ATM and aviation safety continues to thrive – there were more than one million visits during 2012.

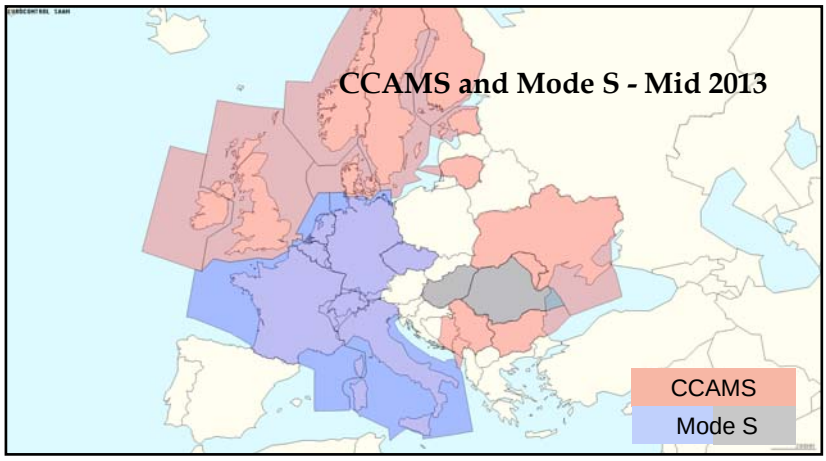
Airports
There are no airport related targets at network level in RP1. However, from a network perspective the impact of disrupted operations at an airport can have a far reaching impact on network performance. The focus of NM airport activities in RP1 is to assist airport stakeholders to enhance airport performance and to integrate airport operations into the Network.

Greek Airports Delay reduction
The Greek airports delay reduction was a successful initiative which showed significant delay reduction at these airports with limited capacity compared to previous summers. NM brought together Hellenic CAA, Greek airport slot coordination, ATC and Aircraft Operators which enabled better management of demand and the reduced need for regulations. Compared to 2010 - a year with similar traffic load - delays were reduced by more than 60 percent, equivalent to more than 160000 minutes.



A key process to facilitate the major airports integration in the network is the **Airport Collaborative Decision Making (A-CDM)**. Munich, Brussels, Paris Charles De Gaulle and Frankfurt are the airports that fully implemented A-CDM. London Heathrow implemented A-CDM on 31 May 2012; due to local issues, the exchange of DPIs with the network was suspended in July 2012 but aim to re-establish that link as soon as feasible.
The benefits of A-CDM implementation are visible at a network level, with more accurate departure information – DPI - feeding into the air traffic flow and capacity management system run by NM. The network will be able to use the available capacity more efficiently.
NM is also supporting the flight efficiency at the airports through **Continuous Descent Operations** (CDO). By the end of 2012, 16 additional airports introduced CDOs, which makes a total of 87 airports using CDOs to date.

Scarce Resources



2012 witnessed the definition and operational beginnings of the **Radio Frequency Function (RFF)** and **Transponder Code Function (TCF)**. The Collaborative Decision Making arrangements were established and approved in 2012 for both functions.

Two Europe-wide data management exercises were conducted in 2012 that enabled European states to improve the quality of the information contained in the NM central register of frequency assignments, which is the reference database for the search of new frequencies.

The Centralised Code Assignment and Management System (CCAMS) for TCF entered into operation in February. By the end of 2012 six States have joined CCAMS. The expansion of CCAMS will continue in 2013, with another nine States planning to join during the year. Also, special temporary arrangements ensured no code shortages were reported for EURO 2012 hosted by Poland and Ukraine, or the 2012 London Summer Olympic Games.

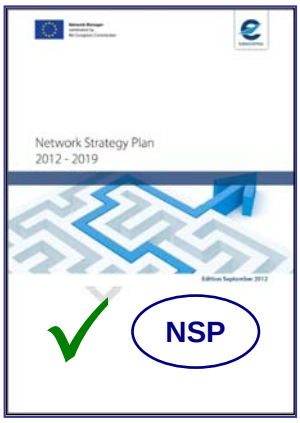
Network Crisis Management

The "new" **European Aviation Crisis Coordination Cell (EACCC)** was formally established in 2012 to be in line with NM regulation and held three meetings in 2012 in the new configuration. A major milestone was reached in November 2012 when the NMB approved the EACCC Rules of Procedure.

In 2012 EACCC played a key role in the implementation of the Safety Risk Assessment (SRA) approach in the management of volcanic ash events across Europe. Moreover, in April 2012 EACCC participated in the ICAO VOLCEX 12/01 exercise and in May 2012 at the first Aviation Crisis Management Workshop that took place in Brussels. Even though the EACCC was not activated in 2012, a number of events with a potential to develop into a crisis were dealt with by NM. Further improvements can be achieved by implementing harmonised procedures across Europe in support of the Safety Risk Assessment method.

IV. Network Strategy Plan

The approval of Network Strategy Plan (NSP) for 2012-2019[4] was an important milestone for the NM. NSP is not just another plan; it is a new tool for improving ATM from a network perspective and in a structured way.



The Network strategic vision is driven by the need for ATM Operations to achieve the SES objectives, and in particular the EU-wide performance targets. This vision incorporates six operational drivers that are the building blocks of network operations evolution for the next decade. They describe the main challenges that need to be addressed by the ATM community.

Ten strategic operational objectives aimed to materialise the six operational drivers into concrete actions, based on 3 areas of work:

- Network Management;
- ATM Network Operations;
- Preparing for the future.

These ten strategic operational objectives (SO) address the two reference periods.

This report presented the main achievements of NM towards achieving the performance targets of RP1. This is compliant with the implementation of the first nine strategic objectives of NSP. The good results of 2012 should not however leave room for complacency. The objective of NM is to build on and consolidate the achievements of 2012, especially in the relatively new areas like scarce resources, airports and network safety.

The SO 10 deals with the preparation of RP2. This will be impacted by the publication during 2013 of the updated Performance regulation and associated EU ATM performance targets for the Reference Period 2 (2015-2019), which will contain a number of significant additions in both KPIs (targets) and PIs (monitoring). The recent traffic forecast data for the European region and the expected European economic general context will be taken into account in the revision of the NSP. In addition, technological, institutional and economic developments need to be considered, especially the SESAR deployment.

[4] EC Decision C(2012) 9604 of 19th December 2012

V. Challenges for the Future

In 2012 the NM has gone from being a concept on paper to a reality recognised by our stakeholders and partners as bringing tangible daily performance benefits to the network as a whole.

The 2012 performance targets for the network and for the NM in 2012 were achieved in several areas. The capacity/delay target of en-route ATFM delay of 0.7 min/flight was achieved. Through its actions, NM contributed to a delay reduction in excess of 10% of what has been delivered in 2012. The flight efficiency indicator due to airspace design was met and is on the right track to meet its RP1 target. The flight efficiency indicator due to flight planning was missed by just 0.04 percentage points, but is on track for RP1.

The good performance gave NM credibility in the eyes of both Industry and EC and this was recognised by the NMB, the governance body.

The future requires NM to maintain the good performance, which is the best way to consolidate its credibility and added value to European ATM.

There are substantial challenges for 2013 and beyond.

NM has to meet more ambitious 2013 network performance targets. Although traffic levels remain lower than expected, there is no room for complacency. NM through its pro-activity will still need to tackle systemic issues and the critical capacity areas. Similarly NM will need to tackle flight efficiency targets through initiatives with aircraft operators to improve airspace utilisation while respecting their flight cost efficiency needs.

NM has to prepare for RP2 (including the preparation of an updated NSP and a standalone Network Performance Plan). There is greater emphasis on airport and safety performance monitoring in RP2; therefore NM will need to refocus its efforts in these two areas, which NMB recognised as improvement areas for 2013 and beyond.

NM will need to keep a close watch on the evolving SESAR deployment and prepare accordingly. NM's role in the deployment framework will bring new challenges.

Finally, the industry continues to suffer from the current economic crisis and cost efficiency is an important objective. NM will need to perform its current and new activities in line with the Network Performance Plan cost objective.

The cooperative work between the Network Manager and the FABs will continue to enable the consolidation of all the projects in the context of individual single FABs and the integration of these into the overall network.

GLOSSARY

NM regulation	Commission Regulation (EU) 677/2011 of 07 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions
ATFM regulation	Commission Regulation (EU) No 255/2010 of 25 March 2010 laying down common rules on air traffic flow management
Performance regulation	Commission Regulation (EU) No 691/2010 of 29 July 2010 laying down a performance scheme for air navigation services and network functions

ACC	Area Control Center
A-CDM	Airport Collaborative Decision Making
AIS	Aeronautical Information Services
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
CAA	Civil Aviation Authority
CCAMS	Centralised Code Assignment and Management System
CDM	Cooperative Decision Making
CDO	Continuous Descent Operations
CFMU	Central Flow Management Unit
CNS	Communication, Navigation & Surveillance
DNM	Directorate Network Manager
DPI	Departure Planning Information
EACCC	European Aviation Crisis Coordination Cell
EASA	European Aviation Safety Agency
EC	European Commission
ERNIP	European Route Network Improvement Plan
EUROCONTROL	European Organisation for the Safety of Air Navigation
EU	European Union
FAB	Functional Airspace Blocks
FMP	Flow Management Position
KPI	Key Performance Indicator
NDOP	Network Directors of Operations Forum
NETOPS	Network Operations Team
NM	Network Manager
NMB	Network Management Board
NMOC	Network Manager Operations Centre
NMPP	Network Manager Performance Plan
NOP	Network Operations Plan
NSP	Network Strategy Plan
RFF	Radio Frequency Function
RP	Reference Period
RTE-DES	Route extension due to network design
RTE-FPL	Route extension due to last filed flight plan
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMS	Safety Management System
SO	Strategic Objective of the NSP
SWIM	System-Wide Information Management
TCF	Transponder Code Function

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