I am proud to have been Chair of the Network Management Board for just over a year now, a period which has presented some significant challenges to us all but also some notable successes. One thing that has shone through at all times though is the obvious dedication and professionalism of the staff within the Network Management team towards the core operational tasks and their contribution in developing the NM governance processes; to them I offer my heartfelt thanks.

I would also like to thank the Network Management Board and in particular my Vice Chairs Sylviane Lust, from IACA and Luc Laveyne, from ACI. The NMB has been extremely active over the last 12 months and we have had very productive meetings with excellent engagement from the NMB members. These have reflected our commitment to promoting a truly network focused approach and our increasing ability to add value in steering the activities of the NM and providing effective support for Joe Sultana, NMD and his team.

The NMB has taken an active role in developing aspects of NM governance to promote greater transparency of the NM’s costs and to more effectively drive the achievement of network targets. In particular, we have secured more transparency of network performance risks, budgetary activity, and the actions being taken by FAB members to address performance issues. We have also developed a new cooperative decision making process for 3rd Country ANSP arrangements which will ensure clarity about the rationale and cost benefits of each arrangement.

We are now undertaking reviews of NM Project proposals with the support of the Network Directors of Operations (NDOP) meeting to ensure that at all stages the projects proposed deliver true value to all network stakeholders. We are also in the process of developing an agreed definition of the ‘Network,’ which is no simple task, this being a complex entity which could be defined in many ways and for which there is currently no legal definition.

Each of these pieces of work will help shape the Commission’s decision on how to frame the future environment, define what the NM will do in the future and determine the nature of the NM nomination.

Of course we, the NMB, still have some significant work ahead of us as we consider the implications of the European Commission’s comprehensive Aviation Strategy for Europe and the results of the Commission Review of the NM but overall, I believe we are now in a far better position to exercise the oversight and governance roles entrusted to us by the Commission through the Network Functions Implementing Rule.

Regardless of the future shape and nomination of the NM, I think all stakeholders will agree that an effective and efficient network is essential to delivering and sustaining a competitive European Aviation industry; it is clear that we will only be successful in addressing future challenges if we – the NMB, the NM, the European Commission and wider industry – work together with a shared sense of purpose to make that happen and I look forward to working with everyone in the coming year.

Finally, I would like to offer my congratulations on celebrating 20 years of central flow management. Over this time we have been on a journey from the 1980s when 25% of all flights were delayed for more than 15 minutes, through to 2015 where the en-route ATFM delay was 0.73 min/flight, despite an increase in traffic levels. The journey has been long and undoubtedly there is more to do but this is no mean feat and I congratulate all who have contributed to this improvement over the last twenty years.
MESSAGE FROM THE DIRECTOR NETWORK MANAGER, JOE SULTANA - EXECUTIVE SUMMARY

2015 was the first year of the second Reference Period (RP2) of the Performance Scheme.

NM worked with its partners to optimise the capacity in the network in the context of high traffic levels as well as to limit the consequences of strikes or major ATM system changes that took place in 2015. External factors such as airspace restrictions, the volatility of geo-political situations continued to create disruptions in the network, shifting traffic flows, creating additional capacity crunches and causing flight inefficiencies. Traffic patterns were also changing due to differences in route charges, further contributing to an increase of traffic in already overloaded airspaces.

Traffic continued to increase in 2015; the June-September interval seeing the biggest increase leading to the highest traffic level ever during this interval. This impacted heavily the ability of centres already operating at full capacity to provide the adequate ATC capacity and staffing necessary during these months.

Severe weather, strikes in April, October, and November and major ATC system change at the end of the year also made a significant impact on the performance of the network.

This led to an en-route delay/flight in 2015 of 0.73 min/flight, which is above the target of 0.5 min/flight. Even so, comparing with a year with similar traffic level (2011) the delays are down by 36%. NM’s direct contribution to en-route delay savings in 2015 met the 10% target – without this, delay in 2015 would have been even higher.

The flight efficiency indicators show good results in 2015. The airspace design and the actual trajectory indicators met their targets. The flight planning continued to be impacted by the disruptions in the network and was missed by 0.07 percentage points. Flight planning improvements proposed to the airlines need to be operationally and economically acceptable, which is not always consistent with the way flight efficiency (FE) targets are defined.

NM’s costs were kept within budget and performance cost target was met. NM budget was presented in a transparent manner to our governing bodies. NM Operation Centre (NMOC) re-organisation was completed and is now operational.

NM’s safety activities improved its own system while providing valuable support to our stakeholders. The top safety risks are identified and guidance material to control them was issued. Coordination with the States Focal Points for crisis management was improved by providing appropriate training.

The Scarce Resources functions (frequency and transponder codes) were correctly managed in 2015. The average time to satisfy frequency requests in congested areas was reduced again. Frequency management procedures and tools were enhanced to support the satisfaction of future frequency requests. CCAMS provides now SSR codes to more than half of the flights in the network while ensuring that all the codes are correctly assigned. No cases of shortfalls (e.g. code shortages) in code allocations to States were reported.

The NM system continued to evolve to support the improved operations needed to deliver its services, e.g. improved support to airspace management, flight efficiency savings, better operational information exchange, short-term ATFM measures.

Building on 20 years of central flow management, NM successfully delivered on its commitments and contributed directly to the ATM network’s performance. The network manager function is now firmly established as one of the pillars of European ATM.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOREWORD BY THE CHAIRMAN OF THE NETWORK MANAGEMENT BOARD, SIMON HOCQUARD</td>
<td>3</td>
</tr>
<tr>
<td>MESSAGE FROM THE DIRECTOR NETWORK MANAGER, JOE SULTANA / EXECUTIVE SUMMARY</td>
<td>5</td>
</tr>
<tr>
<td>1. NETWORK MANAGER</td>
<td>8</td>
</tr>
<tr>
<td>2. GOVERNANCE MATTERS</td>
<td>10</td>
</tr>
<tr>
<td>3. NM’S ACHIEVEMENTS IN 2015</td>
<td>12</td>
</tr>
<tr>
<td>4. NM AREAS OF ACTION</td>
<td>14</td>
</tr>
<tr>
<td>5. NETWORK SAFETY</td>
<td>20</td>
</tr>
<tr>
<td>6. SCARCE RESOURCES</td>
<td>21</td>
</tr>
<tr>
<td>7. NETWORK STRATEGY PLAN</td>
<td>23</td>
</tr>
<tr>
<td>8. CHALLENGES FOR THE FUTURE</td>
<td>25</td>
</tr>
<tr>
<td>ANNEX: GLOSSARY</td>
<td>26</td>
</tr>
</tbody>
</table>
1. NETWORK MANAGER

The European Union established the Network Manager1 under the Single European Sky (SES) II package. The aim was to address the difficulties of the past and respond to the request of users to have seamless European airspace, better managed at network level. NM created the operational partnerships needed to achieve the SES performance targets for the benefit of all States included in the pan-European ‘network’2.

This is the annual report produced by NM3 covering its activities in 2015.

2015 was the first year of the second Reference Period (RP2) of the SES. After NMB approval of the Network Performance Plan (NPP) at the end of 2014, the document went further formal assessment with the Performance Review Body (PRB) and by June 2015 the NPP incorporated the recommendations.

The new Network Strategy Plan and the Network Vision for RP2 and beyond was already approved by the EC Decision No 4660 in July 2014.

The Network Manager published the Network Operational Concept, which describes the changes that will need to be made so as to meet the SES Performance Targets set for RP2. The Network Operational Concept 2019 is based on airspace which allows free routing in upper airspace, with organised traffic flows into/out of major TMAs and airports, more efficient infrastructure and harmonised data exchange at planning and tactical levels.

Airspace structure will continue to evolve as it meets the needs of both civil and military users, drawing on an advanced flexible use of airspace concept to reconcile these needs. Flow management will move to a Cooperative Traffic Management environment, which will optimise traffic delivery to sectors and airports.

The Network Manager saw the renewal of its ISO9001 International Standard certification on 19 January 2015; this certification now covers the whole NM Directorate and all its activities. As the world’s most widely recognised quality management standard, the ISO9001 Certification both informs and underpins our way of delivering on performance and providing consistent service, both of which are at the heart of NM. The integrated Management System has been further improved due to the need to meet the general Requirements of Regulation (EU) 1035/2011.

NM’s Human Resources Policy was implemented to achieve the business objectives by improving the knowledge, skills and capabilities of staff, harnessing their talent to help them achieve their potential. The HR Review Panel meets twice a month to analyse, provide recommendations and take decisions on all HR matters related to NM. The Directorate Staff Plan has been produced giving a five year overview of the NM Staff plan and proposing actions to maintain the necessary skill set in the future for the successful exercise of the NM functions.

The 2015 HR challenge was the reorganisation of the Operations room, which was ongoing for a period of over four years since the beginning of the negotiations. The implementation lasted 16 months, by launching around 20 competitions with hundreds of participants, issuing hundreds of decisions in the process of only a few months, and implementing new rosters.

NM Amended regulation

An amended NM regulation was published on 12 September 2014 as Commission Implementing Regulation (EU) No 970/2014. Its new provisions were implemented during 2015 in regard of the tasks, governance and budget of the Network Manager, its relations with third countries, as well as the integration of a number of safety management activities.

The Common Projects regulation (EU) No 409/2013 requests NM to establish cooperative arrangements with the SESAR Deployment Manager (SDM). Consequently a Cooperative Arrangement between the Network Manager and the SESAR Deployment Manager has been drafted and approved by NMB. The Pilot Common Project regulation (EU) No 716/2014 also defines roles for the Network Manager in ensuring the monitoring of the implementation of the Pilot Common Project as well as in its review through the utilisation of the specific NM tools (NSP and NOP). The Network Manager is also an implementing partner in the context of this Regulation.

At the request of the NMB in March 2015, the EC launched an audit review of the Network Manager. The review will focus on the cost base, financial arrangements, cost effectiveness and governance of the NM. The review will result in recommendations to the European Commission for short-term actions to ensure the effective implementation of the existing legal framework as well as for medium/long term actions, including amendments to that framework as appropriate.

---

1 Commission Regulation (EU) 677/2011 of 07 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions (NM regulation)
2 States include: EU Member States, non-EU 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.
3 As requested by article 20 of NM regulation.
Stakeholder Cooperation

The Cooperative Decision Making (CDM) processes covering the main network functions were originally approved at the end of 2012 and are continuously updated. The newly approved process to support the identification of the need for, approval of, review and management of arrangements with Third Country ANSPs will be now captured in a new CDM process.

NM’s partnership approach is proving to be very successful, both in achieving its own goals and in helping its stakeholders improve their performance.

The 18th edition of the NM User Forum was held on the 28th & 29th January 2015 in Brussels. It was attended by 230+ external visitors, from all over Europe and beyond, representing all areas of ATM activities.

This yearly event offers all ATM actors real opportunities to share operational issues with their peers, and elaborate together solutions to deliver improved performance for the network. Main topics addressed included Flight Efficiency, Cooperative Traffic Management, response to disruptions in the network, Airport CDM.
2. GOVERNANCE MATTERS

The **Network Management Board** (NMB) is the industry-led body governing the network management functions and established in accordance with the provisions of Article 16 of the NM regulation. Throughout 2015 NMB continually defined priorities and refined the NM’s work programme so as to achieve the SES objectives.

NMB working methods were improved in 2015 to engage more in forward-looking strategic discussions to allow a better focus on strategic elements, notably those involving political and financial matters and address the network performance improvements needs. NMB Chairman organised a dedicated workshop in June 2015 to help identify the main priorities of NMB. The NMB’s key objective derived from the workshop was to exercise effective governance over NM to ensure that it delivers efficient, cost effective and operationally effective services thereby enable a sustainable and competitive aviation industry in Europe.

The NMB held meetings in March and June 2015 while the November meeting was postponed to January 2016 due to exceptional security situation in Brussels. NMB approved a number of key strategic deliverables in regard to the cooperative arrangements between NM and SDM, arrangements between NM and third country ANSPs, and NM strategic projects.

The NMB reviewed the implementation of the Network Strategy Plan and network and NM performance throughout 2015. Under the NMB’s governance, NM was able to improve its performance in 2015, in line with the SES performance objectives.

**Network Directors Operations** (NDOP) played a key role in helping NM achieve its performance targets. The revision of the NM regulation recognised the role of NDOP in providing operational advice to the NMB. Consequently NDOP is reviewing its role and working methods to be captured later on in updated terms of reference for the group.

NDOP’s three meetings in 2015 made for NM’s main forum for the preparation, review and implementation of mandated operational and technical actions. The NDOP structure includes mechanisms for the direct involvement of ANSPs, military partners, airspace users and airports.

NDOP tackled various issues such as:

- the preparation of the summer and winter seasons;
- problem areas identified in the Network Operations Plan (NOP) or in the monitoring of network performance;
- disruptions in the network;
- adoption of the Operational Safety Studies for Top 5 risk in the network;
- approval of various network operational concepts
- flight plan predictability action plan;
- predictability of out of area traffic flying into Europe
- relations with third countries;
- the endorsement of key NM deliverables.

NDOP made reports and recommendations to the NMB on these topics.

Throughout 2015, through the NM Cooperative Decision Making (CDM), EUROCONTROL Teams and their substructures provided expert input and coordination. The teams are: NETOPS; Airports; AIS/SWIM; Safety; CNS Infrastructure. These teams are open to experts from all NM’s stakeholders and are tasked with developing and reviewing specific technical and operational NM proposals at expert level.

The European Aviation Safety Agency (EASA) has been tasked by the European Commission to carry out the oversight activities of the Network Manager on its behalf. In January 2015, EASA started the second two-year audit oversight cycle. The cooperation between the Network Manager and EASA has resulted in establishing enhanced operational and engineering procedures, and made for overall improvement of the Network functions and tasks.

In the course of 2015, EASA conducted three oversight audits (March, June and November) covering a wide scope of the regulatory requirements applicable to NM. To date, EASA has not identified any significant non-compliance (i.e. level I finding) with applicable requirements or organisational procedures/manuals in their continued oversight programme. In 2015, EASA issued six “Letters of Acceptance” for the deployment of two key NM releases, an Operational Room Reorganisation, two Technical improvements and one operational trial.
NM Budget

The amended NM regulation clarified the governing processes around the governance of the NM budget. The preparation and presentation of the NM budget and work programme for 2015 were aligned with the requirements of the amended NM regulation.

NM and the dedicated NMB Task Force prepared the 2015 budget and the multi-annual Work Programme. The NMB approved the 2015 budget by written procedure prior to its 11th meeting in November 2014 with a conditional endorsement of the Airspace Users. NM’s 2015 budget received a positive opinion from the SSC by written procedure in November 2014.

The approved cost based for NM in 2015 was 216.8 MEURO (including indirect costs and cost of the past).

The budget covers all activities falling under the Network Management Functions. It excludes the activities carried out by the NM Directorate which are not covered by the Network Management Functions and parts of the Transversal activities that are conducted for the benefit of other EUROCONTROL Agency activities.

The approved cost based for NM in 2015 represents also the NM cost target for 2015 and is part of the NPP. In 2015, this was already lower than the level approved through the NPP and as a result the cost target was met. In 2015, the NM did not spend its whole budget.

---

4 It includes activities from the amended NM regulation, notably safety management; EAD activities were taken out from NM budget since 2014 as they are not included in the NM regulation.
3. NM’S ACHIEVEMENTS IN 2015

2015 was another very busy and challenging year for the Network Manager; nonetheless, it saw a number of significant achievements. NM’s activities in 2015 focused on achieving the new performance targets for the first year of RP2, addressing the capacity issues in the network and on minimising the effect of disruptions in the network.

In 2015, NM gave high priority to those actions needed to achieve the performance targets and objectives on safety, capacity and flight efficiency, while ensuring that NM’s financial costs remained within the NPP target. All these targets and objectives are captured in the Network Performance Plan (NPP). Full 2015 results were presented to NMB and are part of a separate document Report on the Implementation of the NPP and NSP.

In 2015, NM focused on:

- enhancing network ATFCM operations;
- improving flight efficiency through enhanced airspace design and utilisation actions;
- synchronising major ATM changes;
- mitigating the impact of strikes on the network performance;
- improving the flexibility of capacity management in some ACCs constrained due to social tension or rigidity in the management of opening control sectors;
- supporting safety improvement;
- integrating airports into the network.

**Network Capacity**

The main performance indicator is the en-route ATFM delay measured in minutes per flight. En-route delay/flight in 2015 was 0.73 min/flight above the target of 0.5 min/flight. Traffic continued to increase in 2015 (1.5%) with traffic levels approaching 2008 level, the highest on record. Moreover, the June-September interval recorded the biggest increase leading to the highest traffic level ever during this interval, which impacted heavily the ATC capacity and staffing.

Strikes in April, October, and November and major ATC system change at the end of the year also made a significant impact on the performance of the network. Weather related delays increased by 14% on 2014.

**NM contribution to delay savings**

In addition to the targets defined for the network, the NPP defines a range of other indicators so that stakeholders understand the NM’s added value for ATM network performance. The main target for NM is to reduce en-route ATFM delays by 10% below the total en-route ATFM delay.

As overall en-route delay increased in 2015, NM’s efforts to reduce delays increased in parallel. NM’s contribution to delay savings in 2015 was calculated in a conservative manner, only taking into account accepted Re-routings Proposals (RRPs) and NMOC direct action (i.e. Force CTO/CTOT and Override Slot).

In 2015, savings exceeded 810,000 minutes from Direct actions in NMOC (676831 min) and RRPs proposed and followed by airlines (139794 min), equivalent to 0.08 min/ft – without this, the delay in 2015 would have been 0.81 min/ft. This equates to 10.2% of the annual network delay, meeting the 10% objective.
Environment - Flight Efficiency

There are two targets defined in NPP measuring the route extension from an optimum defined by the great circle distance, one due to the actual flown route (KEA) and the other due to the last filed flight plan (KEP).

The unstable political situation within and at the borders of the NM area and, in particular, events in southeast Turkey in July/August, as well as in Iran, Iraq and Syria in October, coupled with the security situation over the Sinai peninsula, all had a significant impact on flight efficiency and the general environment – longer routes had to be flown to avoid dangerous zones. Capacity shortfalls due to strikes or special events also had a significant impact.

This had an impact on the flight plan indicator, KEP result in 2015 being 4.85% just missing the target for SES area by 0.07pp. Although the KEP for entire NM area was even better 4.74%, it is above the more stringent objective of 4.51%.

Even under those circumstances the actual trajectory (KEA) targets have been met, showing that the European airspace structure offers appropriate capabilities. The Free-Route Airspace (FRA) was the major contribution towards achieving the KEA indicator.

The differences between KEA and KEP and the trends identified for a number of flows in Europe clearly demonstrate that there is a shift in traffic due to differences in user charges that impact both flight efficiency and traffic predictability.

NM developed an action plan based on the FE Initiative which describes the strategic and operational actions to be taken by the Network Manager in order to respond to the SES performance targets.

The FE Initiative provides both a qualitative and quantitative assessment of the impact of these actions on the European ATM network’s performance.

As part of the action plan, NM continued to make proposals to the airlines for better routes to be used in their flight planning through re-route proposals (RRP) and through the group re-routing tool; this delivered savings of more than 133,000 nautical miles in 2015.

While the proposals made exceeded the 10% objective of the NM flight efficiency savings, due to low acceptance rate the confirmed route changes matching the proposals were much lower than the objective.

Full coverage of the Network Performance is addressed in the Network Operations Report 2015⁵.

The NM’s methods of calculating the delay and flight efficiency savings were audited by an external independent auditor. The calculation methodology was found to be correct, transparent and consistent. The results considered by the method as a saving were found to be conservative.

⁵ To be published at http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting
4. NM AREAS OF ACTION

NM’s duty is to consolidate and coordinate the activities of the network to continuously improve network performance. NM safeguards the general interest of the network and applies this network focus in analysing the real operational issues across the network. Its planning, operations and continuous monitoring activities are closely interconnected to ensure that network performance is achieved.

---

**Monitoring and reporting**

NM presented regular, timely and accurate reports on the overall performance of the network to NDOP and NMB throughout 2015.

Results were published regularly in the Network Operations Report, the monthly and weekly bulletins that are distributed to interested stakeholders. Compliance with ATFM measures was monitored and the results published.

Through the internal NM Performance Steering committee all performance issues are proactively identified and addressed; those issues with a significant network impact trigger corrective actions (Flight Efficiency, Over-deliveries, schedule efficiency and links between ATFCM regulations and airline-reported delays used for the Greek Airports and Zurich airport action plans).

The monitoring results were considered in both 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 2015, post operations and performance monitoring were used to analyse the efficiency of ATFM measures and continually improve the process to ensure that NM could deliver over 10% delay savings for the network. NM collected and provided ATM performance data to the EC and PRB in the framework of the Performance regulation.

---

**Network Planning**

**Operations Planning**

The Network Operations Plan (NOP) for the period 2015-2019 is a detailed plan that implements the Network Strategy Plan on an operational level. The NMB approved the initial draft baseline NOP in March 2015.

NM produced traffic forecasts in February and September in support of operational planning. Using these traffic forecasts, NOP quantified the capacity of the network, identified individual ACCs’ needs and provided operational performance forecasts for delivering the ATFM function. This was done in close cooperation with the ANSPs involved; they gave further input and the updated NOP 2015-2019 was approved in June 2015.

---

Throughout 2015, NM launched, and contributed to, a number of activities to address bottlenecks in the network and to improve overall performance. A continuous monitoring of results against targets and/or objectives triggered remedial action.

NM’s performance analysis identified a number of critical areas which were incorporated in the Network Operation Plan (NOP). The underlying causes for the critical areas were investigated; this triggered an Action Plan developed to further enhance the operational network’s performance.

NM brought together ANSPs, aircraft operators, airports and slot coordinators to help airports with limited capacity.

In the safety area, NM worked on both improving its own safety maturity (safety assessment of system changes, just culture) as well as supporting ANSPs in meeting their safety targets.

It implemented a number of action plans and mitigation measures to support stakeholders in improving capacity and allowing NM to contribute to delay reduction. NM improved its coordination mechanisms for ATC industrial action, successfully cooperating with ANSPs involved.

NM gave added value to its stakeholders by optimising the management of scarce resources.
Critical areas for the network in RP2 were identified and an Action Plan was developed to address ways of further enhancing operational network performance.

Additional measures were proposed for Cyprus, France (Bordeaux, Brest, Marseille and Reims ACCs), Greece (Athens and Makedonia ACCs), Poland, Portugal and Spain (Barcelona, Canarias, and Palma ACCs).

The traffic forecast in February matched the final 1.5% out-turn for 2015.

The annual delay forecast of NOP for 2015 indicated an average en-route delay of 0.74 min/flight (excluding industrial action and technical disruption). The value achieved at the end of 2015 was 0.73min/flight (all reasons included). The 2015 results for staff, capacity, events and weather add up to 0.64 min/flt, which is slightly better than forecast. The difference to the 0.74 min/flt achieved was mainly due to disruptions, i.e. ATC strikes, ATC equipment failure and other disruptions, which accounted for 0.1 min/flt.

Comparing individual ACCs’ achieved values (only capacity, staffing, events and weather reasons), higher delays than forecast were recorded at 19 ACCs while 40 ACCs recorded better delays than forecast. The main differences are in the chart below.

The effective capacity indicator decreased by 1% over the whole European ATM network in 2015 when compared to 2014.

**Major ATM changes**

Another topic addressed by NM through NOP and the Action Plan is the preparation of a transition plan for major projects. The plan was continuously updated during 2015.

The implementation of the ERATO system in France Brest ACC accounted for most of the delays due to ATM system changes in 2015 and has a significant impact on the network.

Other ACCs where activities (including training) took place for the implementation of ATC system changes were Langen, Munich, Bordeaux, Zurich. NM worked with these parties to minimise the delays caused by these events.

**Functional Airspace Blocks**

NM has established cooperation with all the FABs to facilitate harmonised developments, operational interconnectivity between the FABs and within the FABs and at European network level. This ensured an overall pan-European network consistency, and a uniform application of FRA implementation, ASM/ATFCM procedures, a synchronized implementation of new airspace projects or operational concepts and a cohesive view of the performance improvements in relation to the EU-wide targets.

NM experts continued to be involved in several FAB working groups to facilitate the development of plans and their implementation.
**Route Network Design**

NM ensures that European airspace can accommodate additional capacity needs. This is the role of the European Route Network Design Function, the European Route Network Improvement Plan (ERNIP) is its main tool: it was approved by the NMB and is part of the Network Operations Plan.

Intensive work has been undertaken by States and ANSPs in close cooperation with NM to develop and implement enhanced airspace design solutions, with 250 airspace improvement packages being developed and implemented in the 12 months prior to summer 2015. This helped ensure that the airspace design performance indicator achieved its objective. Free route airspace was fully or partially implemented in 45 ACCs in Europe by end 2015.

**Network Operations**

Delivering the ATFM function 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 using the CDM processes. The provision of the ATFM function has been an integral part of NM's activities for a number of years; network operations’ flow management procedures are mature and continue to provide benefit to the network.

NM's developments ensured that the ATFCM procedures continued to evolve in 2015 and delivered the expected results.

The **Mandatory Cherry Picking** procedure became operational in January 2015 delivering a considerable saving in terms of ATFM delay.

A new ‘Disruption and Recovery Management’ procedure was developed by NM, coordinated with and agreed by the ANSPs and implemented in December 2015.

The Network Operations were constantly monitored against the 2015 network and NM's performance objectives and targets, using state-of-the-art systems and tools.

NM completed the internal reorganisation of the NMOC during 2015, including the training of the staff. It creates new roles and functions that will focus on the management of the network drivers, i.e. the performance objectives on safety, capacity, flight efficiency and cost-effectiveness. It ensures a seamless cross domain (flight planning, environment and flow management) ATFCM service provision. The new scheme is operational since 15 January 2016.

NM continued to work closely with Cyprus ANSP and Cypriot authorities supporting the implementation of a comprehensive solution to the chronic issue of delays in Nicosia ACC.

The map below presents the full results of the en-route ATFM delays (min/flight) for all the ACC within the NM area (represented by the ICAO four letter code).
NM’s operational staff carried out direct actions in tactical operations to reduce delays. This led to a reduction of 810,000 minutes of en-route delays, above the 10% of the en-route delay for 2015, so achieving the NPP objective. The equivalent for airport ATFM delays was 277,000 minutes, representing 3.9% of total airport ATFM delays.

ATFM delays due to weather increased again in 2015. Yet the impact on the network can be mitigated through better capacity planning by using timely, shared decision-making processes in the disruption phases and adopting effective recovery strategies and running lessons-learned exercises.

NM has already started implementing a weather resilience programme. The massive diversion tool for instance will provide support during weather disruptions and recovery phase.

NM organised a Weather Resilience Forum on 21-22 October 2015, with the goal of bringing together airport owners, air navigation service providers (ANSPs) to develop a collaborative strategy, with NM’s support and advice. The objective of this strategy is to define capacity against a specific weather threat; to share forecasts, alerts and local action plans at least three hours before the predicted weather conditions take hold and for players to plan and implement appropriate action.

Operations under difficult crisis conditions

The significant number of extraordinary events caused by the difficult situations in Ukraine, Syria, Libya, Iraq, Egypt and elsewhere put a strain on the operations both locally and at network level. NM played a central role in finding and agreeing with the stakeholders involved mitigating solution for these crises and scenarios were developed for the different types of major crisis. This was done together with the airlines, ANSPs, ICAO and the adjacent regions from both planning and operational perspective.

Airports

The integration of airports with the network progressed significantly during 2015.

A key process to facilitate the integration of major airports into the network is Airport Collaborative Decision Making (A-CDM). There was progress towards the wider A-CDM implementation in Europe. In 2015 Venice, Prague and Barcelona airports fully implemented A-CDM making 18 airports in total, covering 26.5% of the departures in the NM area.

In 2015 seven UK airports connected to NM as ATC Advanced Tower airports, making 14 airports in total, covering 6.44% of departures in the NM area. NM is now being provided with Departure Planning Information (DPI) messages for 33% of departures in the NM area. The benefits of A-CDM implementation are visible at a network level, with more accurate departure information – DPI - feeding into the ATFCM system run by NM that provides better predictability in the network, which in turns makes a more efficient use of available capacity.

Summer 2015 was extremely challenging for Greek Islands airports due to the combined effect of the shifting traffic flows, adding to the long-standing capacity problems at these airports. NM worked in close collaboration with the Hellenic Civil Aviation Authority, the Hellenic Air Navigation Service Provider, Slot Coordinator and Airline Operators to ensure the effective management of airport slots (including an online coordination system), airline scheduling and to release additional airport capacity at certain airports at certain times. Without these actions, the delay situation would have been considerably worse. In 2015 a new rule was published requiring general air traffic and business traffic to request airport slots with positive effect.

After the EASA’s approval of the European scheme for re-categorising wake turbulence separation (RECAT-EU) safety case in 2014, Paris Charles de Gaulle airport has conducted deployment activities and operations are planned to be launched in first quarter 2016.

The community and NM increasingly recognise the contribution of Continuous Climb/Descent Operations (CCO/CDO) in the context of overall flight efficiency. In 2015 a Task Force has been established to recommend parameters for the measurement for CCO/CDO performance within the network. During 2016 work will continue to support deployment, with a focus being placed on addressing matters such as CDO monitoring, definitions, awareness and training.

Special Events

NM prepared and coordinated a major NATO military exercise during the year 2015 (TRUE2015). All NM actions were executed as planned and the overall operational performance impact on the network was very limited.
NM performed civil/civil, civil/military and military/military coordination in this respect and ensured also a significant coordination effort for both planning and execution.

**Industrial Action**

Industrial action contributed to 8.4% of total en-route delay in 2015: 522,000 minutes of direct en-route delays plus 80,000 minutes of indirect delays in the neighbouring ACCs due to on-loading traffic.

The French industrial action on 08-09 April, 07-08 Oct, 23-27 November contributed to most of the industrial action delays in 2015. Industrial actions in Greece, Romania and Spain had less impact.

During the strikes, NM held regular teleconferences with airlines and ANSPs to provide clarification and support as the situation evolved. The NMOC coordinated with all adjacent ACCs in coming up with mitigating actions, for instance:

- re-routeing proposals;
- the use of oceanic routes;
- enhanced levels of staffing;
- extra traffic accepted by neighbouring ACCs;
- coordination with military stakeholders to reduce military activity throughout the strike period.

A robust post-ops analysis of each strike ensured that the procedures and the measures for industrial action are updated to deliver an effective response.

The lessons learned enabled NM to develop a recovery process from major disruptions.

**Network Crisis Management**

The European Aviation Crisis Coordination Cell (EACCC) was established to support the Network Manager in coordinating the management of the response to network crises impacting adversely on aviation, in close cooperation with corresponding structures in each State.

After an eventful 2014 in which the Network Manager, with the active support of the EACCC, demonstrated its efficacy in the coordination of a proper response to numerous events such as the MH17 disaster, 2015 was a year for consolidation to be more prepared to deal with crisis situations.
The process of amending the EACCC Rules of Procedure was completed in June 2015 to: align the rules of procedure with the new EC Regulation 970/2014, add the EACCC work plan, and add the role of the ‘EACCC Communications Focal Point’.

In 2015 EACCC held 3 meetings: in February, June and October. The key discussion topics included: follow-up to MH17, evolution of information sharing in relation to conflicts zones, and adoption/monitoring of the EACCC annual work plan.

In June an EACCC workshop was attended by over 50 representatives ranging from aviation crisis management State Focal Points, airlines, ICAO, EC and members of the EACCC. The main topic of the workshop was the MH17 event and its lessons learned.

**Disruptions**

There were no events in 2015 requiring the activation of the EACCC.

Nevertheless a number of disruptions impacted the European network. In addition to conflict zone related events, the additional events included: crash of Germanwings in March, fire at terminal 3 at Rome Fiumicino airport and power failure at Belgocontrol, both in May, radar outage at Stockholm ACC due to space weather in November.

Even though none of these events required activation of the EACCC, NM was in close contact with the State Focal Points, the operational stakeholders directly concerned and EACCC members, to ensure appropriate mitigations could be put in place in case of escalation.

**Crisis exercise**

The EACCC discussed conclusions of the exercise NUCLEAR 14 held in November 2014, and identified a number of follow-up actions. Probably the most important short term action was related to the need for development of the contamination charts in support of decision making in the event of a nuclear emergency. The EACCC request was addressed through the relevant ICAO bodies whereby an agreement was reached that some initial guidance will be provided by the end 2016.

The exercise SECURITY 15, initially scheduled for November 2015, had to be shifted to February 2016, due to the security situation in Brussels.

**Developments in operations and infrastructure**

NM implemented two major system releases in 2015. NM Releases 19 and 19.5 delivered a number of new or updated key functionalities, including more than 250 changes related to the evolution of existing business services, but also to the introduction of new business services and new technologies.

To support flight efficiency initiatives a number of changes were made to improve Free Route Airspace network implementation. Updates were made to support airspace management through a gradual introduction of a new European Airspace User Plan template which now aims to provide to the users a full set of airspace information useful for flight plan purposes. Re-routing proposal were enhanced to cover the flight efficiency savings for the airline and to improve the post-ops performance monitoring.

A series of improvements were made in flight plan processing by IFPS, including the extended flight plans to support the Flight Plan Interoperability Programme.

System changes in ATFCM domain improved the operations and the CDM processes between the actors involved, such as the new ‘Delay Threshold’ regulation and STAM procedures and tools.

As part of the NM Information Services, the Network Operations Portal continued to evolve to provide better information sharing with NM stakeholders, notably the B2B services. The tool providing access to all the network-related events was also improved.

The ANSPs’ compliance with the ATFM measures is supported by new reports developed in NM’s Interactive Reporting tool.

Improvements in the existing ATFCM tools, improved information exchange between NM, AOs and Airports for A-CDM, the archiving of operational data for post-ops and performance analysis and many others were also part of NM’s improvements in 2015.
5. NETWORK SAFETY

Recognising that safety is the key rationale for ATM, NM in partnership with the stakeholders considered a safety approach to Network operations, namely a harmonised ATM Network safety management system (SMS), by developing and deploying SMS best practices, operational safety improvement tools and methods, and learning and sharing safety knowledge across the Network, while promoting and ensuring a ‘just culture’ within the ATM Network as a key enabler for improving European aviation safety.

Operational safety studies were launched covering all of ‘Top 5’ risk priorities. The safety study “Controller detection of potential runway and manoeuvring area conflicts” is the last to be released.

Following the collaborative process for identification of operational safety hazards at network level during 2015, NM reviewed the selected risk areas through a series of workshops with the participating ANSPs. Two new risks were selected: “ACAS RA not followed” and “Sudden, high energy runway conflict”. The new top 5 risk will be released soon.

NM has actively supported the stakeholders in achieving the RP2 European wide performance indicators.

The Risk Analysis Tool (RAT) was deployed on NM’s servers and can be used by any ANSPs deploying RAT in accordance with Performance regulation. During 2015, three ANSPs undertook RAT training and/or refresher and a new Safety Tools course, including RAT, was launched at IANS attracting many ANSPs to the two courses held during the year.

Just Culture (JC) as an enabler for improved reporting and better lesson learning is another safety KPI in the Performance Scheme. NM supported the Just Culture developments, the main developments during 2015 were delivery of:

- Two just culture ‘expert’ courses run in association with IFATCA and ECA that aims to produce a pool of aviation ‘experts’ who can interface with national judiciary
- Three regional roadshows to ‘show and sell’ the JC Model Policy and ‘expert’ course.
- Participation to the drafting of the EC JC Corporate Declaration which was signed by many industry representatives at the EC JC Conference in October.

NM continued to improve the JC as part of its internal SMS covering all staff, including those working in NM’s operational areas.

Through the “Experience Sharing to Enhance SMS (ES2)” programme, NM helped ANSPs improve the maturity and effectiveness of their SMS. More than 300 professionals attended the three workshops and conferences organised by NM.

Additionally, SKYbrary, a web-based electronic repository of safety data related to ATM and aviation safety, continues to thrive with more than 3.2 million visits to Skybrary pages in 2015.
6. SCARCE RESOURCES

Both the Radio Frequency Function (RFF) and Transponder Code Function (TCF) were established in 2012 and are governed by CDM arrangements approved by the NMB.

Radio Frequency Function

It is still difficult to find a new voice frequency for an en-route or an approach sector in the central European region. New voice frequencies in the congested areas require several frequency shifts from neighbouring sectors before they can be used operationally.

At the end of 2015, all frequency requests pending from 2013 were satisfied and six requests from 2014 and 2015 were not yet completely satisfied; candidate frequencies were found to satisfy all these requests but changes to other operational frequencies (i.e. frequency shifts) are still to be implemented before the candidate frequencies can be declared operational.

The gain from the limited 8.33 kHz conversions performed in 2014 was largely in uncongested areas, with a very small benefit in congested areas. The 8.33 kHz conversions planned for 2019 will deliver a much more significant benefit all over Europe, but until then, frequency requests in congested areas are at a very high risk of suffering significant delay.

In 2015, the Radio Frequency Function also improved the tools and procedures for managing aeronautical navigation frequencies and supported the analysis and resolution of radio interferences reported by National Frequency Managers.

Transponder Code Function

The introduction or extension of multiple technologies continued to contribute to the optimisation of the transponder code usage in Europe by providing enough codes to the users and avoid allocating wrong or conflicting transponder codes.

The Centralised Code Assignment and Management System (CCAMS) entered into operation in February 2012. By the end of 2015 sixteen States implemented CCAMS namely: Austria, Bulgaria, Croatia, Denmark, Estonia, Finland, Ireland, Lithuania, Moldova, Montenegro, Poland, Norway, Serbia, Sweden, Ukraine and the United Kingdom. It should be noted that CCAMS also benefits non-CCAMS States as it reduces the number of code changes due to crossing different participating areas (see the graph; these figures are based on the current radar data provision to NM that have the SSR code included).

Approximately 52.5% of the daily flights receive an SSR code from CCAMS.

No cases of wrong codes assigned by CCAMS were detected by the monitoring tools and no such reports were received from the operational users.

Another technology that contributed to the optimisation of the code usage was the Mode S radar technology that supported the capability to use the downlinked aircraft identification, which continued to progress in 2015. Approximately 9.4% of the daily flights used the conspicuity code A1000.
In coordination with the ICAO Paris Office, the Code Allocation List (CAL) for the complete ICAO EUR Region was produced and published in preparation for the summer season 2015. No cases of shortfalls (e.g. code shortages) in code allocations to States were reported.
The Network Strategy Plan (NSP) defines the guiding principles for network operation and its medium- to long-term perspective.

It forms part of the Single European Sky planning process and aims at driving ATM operational improvements from a network perspective and in a structured way; it is organised into ten Strategic Objectives (SO).

The ultimate purpose is to achieve the network performance targets in all EU Member States and also in third countries, so contributing to the pan-European dimension of the SES.


**NSP for 2015-2019 main features**

- the new NSP 2015-2019 builds on a Network Vision describing the desired state of ATM by 2020;
- the main challenges to be addressed for achieving this vision are further detailed in a High Level Network Operational Framework, that was approved by the NMB in January 2016;
- a five-year NM Roadmap, approved through the Network Operations Plan, provides a consolidated view of the planned network evolution and the related operational and technical deliverables, in full alignment with the SESAR ATM Master Plan and the SESAR Deployment Programme;
- nine NM Strategic Projects have been defined to coordinate the execution of these developments by functional area.
**NSP implementation**

In RP2, the NSP is to be implemented through two types of action:

- developments coordinated via NM’s Strategic Projects, when significant technological improvements are required;
- actions taking place in the Network Functions’ context, addressing performance flaws and operational improvements through these Functions.

An executive summary of NM’s Strategic Projects was published in the NOP 2015-2019, together with a roadmap providing a consolidated view of the planned network development and the related operational and technical deliverables. Updates are provided at each new NOP edition.

As part of the NOP planning process, NM has started sharing the roadmap planning information with all operational stakeholders and collecting their planning inputs, be it local actions with network impact or contributions to the NM Strategic Projects.

The monitoring of the NSP execution is reported as part of the NM Annual Report process. A report on the progress of the NSP milestones is part of the **Report on the Implementation of the NPP and NSP**, which is a companion document to this report.

**Contribution to the SESAR Deployment**

The Pilot Common Project (PCP) regulation requests NM to deploy the relevant ATM functionalities (AF) to ensure consistency between the NSP and the Deployment Programme (DP), as well as making use of NSP and NOP for deployment planning and monitoring. NM aimed at ensuring a consistent and coherent deployment of PCP at network level to improve performance in line with the performance regulatory framework.

NM participated actively to the campaign of development of the different versions of the DP. NM contributed to the structuring of the different AFs in families of implementation projects. Moreover, NM contributed to the “implementation gaps analysis” providing review and inputs taken from its different implementation monitoring tools or functions (e.g. NOP, ERNIP, Airport Corner) and its continuous exchange of views with operational stakeholders.

More specifically, NM has acted as co-leader for deployment of AF-3 (Flexible Airspace Management and Free Route) and leader for AF-4 (Network Collaborative Management). The objective of NM and its partners is to continue delivering potential savings of 4 million nautical miles average per year and to establish the necessary technical infrastructure to maintain or improve the en-route capacity target set at 0.5 en-route ATFM delay per minute. On top of that, NM has identified a number of Implementation Projects as part of mainly the Network Manager Strategic Projects which are addressing the respective PCP functionalities and could benefit from the Innovation and Networks Executive Agency (INEA) funds based on EU Regulation 1316/2013 (Connecting Europe Facility).

NM ensured the interface between NOP/ERNIP activities and the performance assessment of the Integrated Projects submitted to INEA through SDM. Particularly, NM contributed to the development of the Cost-Benefit Analysis (CBA) methodology and prepared the initial CBA for AF3-AF4 projects and related AF-5 (Initial System Wide Information Management) projects.

NM participated in the finalisation of SESAR Step 1 and in the preparation of the forthcoming SESAR 2020. NM communicated its vision of Network Management Function 2020 and beyond and played an active role in defining Deployment Packages and Scenarios. NM has also provided contribution in the performance need definition and SESAR CBA. Its focus was mainly in ensuring that performance needs of the Network Operating Environment could be met in the future.
8. CHALLENGES FOR THE FUTURE

RP2 requires NM to maintain these levels of good performance and to be an active player in European ATM, so as to bring added value to stakeholders and the public. The challenges of RP2 will dominate the NM agenda over the coming years.

If the measures proposed by NM are fully implemented by all ANSPs the outlook could improve significantly towards the end of RP2. 2016 and beyond will also be impacted by deployment of new systems and airspace changes which require a lengthy transition with capacity reduction before and during the event before getting the benefits of the upgrade.

NM will tackle the systemic issues and the critical capacity areas proactively. Similarly, NM will focus on flight efficiency targets through initiatives with aircraft operators to improve airspace utilisation while respecting their operational and economic efficiency needs.

The implementation of action plans is on-going to deal with operational issues to improve both NM’s and the network’s performance.

Also high on the agenda for this coming year will be the safety and airport domains, which have been recognised as improvement areas for RP2.

While the Free Route Airspace (FRA) programme is the key driver of evolutions in the field of flight efficiency, unsatisfactory results of efforts to meet the network capacity targets highlight the need for a new strategic approach. Therefore, in the coming months the Network Manager intends to propose to the NMB a number of strategic proposals at network level, which could influence positively the goal of meeting SES capacity targets. These will include ideas such as a single unit rate for the whole European ATM network, establishment of a reduced number of cross-border sectors during the night adapted to the traffic flows, limitation of industrial action impact on en-route traffic, a more pro-active role of the Network Manager in airspace organisation.

NM continues to provide the Radio Frequency Function services, maintaining in 2015 the good performance by meeting 100% of the frequency demands. It has nevertheless been observed that maintaining this performance is more challenging as the aviation spectrum is severely congested. The 8.33 kHz implementation below FL195 should bring extra VHF channel capacity allowing NM to continue meeting the demand in the next coming years. Hence the European Commission tasked the Network Manager to coordinate the introduction of 8.33 KHz below FL195.

European Aviation Strategy

Early in December 2015, the European Commission adopted its new Aviation Strategy, which will enable European aviation to maintain its leadership worldwide and to grow in an increasingly competitive global environment.

NM is ready to help meet the priorities defined in the Strategy. NM will be working on:

- reducing the limits to growth in the air and on the ground;
- maintaining high EU-wide standards in the areas of safety, security, environmental protection, social dialogue;
- advancing innovation and technology;
- improving the efficiency and flexibility of the system;
- optimising the use of available resources

SESAR

The Commission Regulation 409/2013 on the definition of common projects defines the cooperative arrangements between the Deployment Manager and NM on all aspects related to network infrastructure, airspace organisation and performance as well as consistency with NSP and NOP.

Formal Cooperative arrangements as required by the EU Commission Regulation 409/2013 between the Network Manager and the Deployment Manager were developed and approved by NMB in 2015. NM will contribute to the work of SDM by ensuring a consistent and coherent deployment of PCP at network level in order to provide an adequate contribution to EU wide targets of the Performance Scheme and to the EU Aviation Strategy.

FAB

Work will continue at full speed between the various areas of expertise of the NM and the FABs. The operational areas to bring added value to the network are:

- General cross-border airspace design
- Free route airspace implementation (cross-border within the FAB and between FABs);
- Cross-border sectorisation to address bottleneck areas and resource shortages;
- Sharing of infrastructure.
# ANNEX I GLOSSARY

<table>
<thead>
<tr>
<th>NM regulation</th>
<th>Commission Regulation (EU) 677/2011 of 07 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance regulation</td>
<td>Commission Regulation (EU) No 390/2013 of 3 May 2013 laying down a performance scheme for air navigation services and network functions</td>
</tr>
<tr>
<td>Common Projects regulation</td>
<td>Commission Implementing Regulation (EU) 409/2013 of 3 May 2013 on the definition of common projects, the establishment of governance and the identification of incentives supporting the implementation of the European Air Traffic Management Master Plan</td>
</tr>
<tr>
<td>Pilot Common Project regulation</td>
<td>Commission Implementing Regulation (EU) 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan</td>
</tr>
</tbody>
</table>

<p>| 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 |
| ASM | Airspace Management |
| CCAMS | Centralised Code Assignment and Management System |
| CDM | Cooperative Decision Making |
| CDO | Continuous Descent Operations |
| CNS | Communication, Navigation &amp; Surveillance |
| DCT | Direct Routing |
| 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 |</p>
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAB</td>
<td>Functional Airspace Blocks</td>
</tr>
<tr>
<td>FE</td>
<td>Flight Efficiency</td>
</tr>
<tr>
<td>FMP</td>
<td>Flow Management Position</td>
</tr>
<tr>
<td>FPL</td>
<td>Flight Plan</td>
</tr>
<tr>
<td>FRA</td>
<td>Free-Route Airspace</td>
</tr>
<tr>
<td>IFPS</td>
<td>Integrated Initial Flight Plan Processing System</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
</tr>
<tr>
<td>NDOP</td>
<td>Network Directors of Operations Forum</td>
</tr>
<tr>
<td>NETOPS</td>
<td>Network Operations Team</td>
</tr>
<tr>
<td>NM</td>
<td>Network Manager</td>
</tr>
<tr>
<td>NMB</td>
<td>Network Management Board</td>
</tr>
<tr>
<td>NMOC</td>
<td>Network Manager Operations Centre</td>
</tr>
<tr>
<td>NPP</td>
<td>Network Manager Performance Plan for RP2</td>
</tr>
<tr>
<td>NOP</td>
<td>Network Operations Plan</td>
</tr>
<tr>
<td>NSP</td>
<td>Network Strategy Plan</td>
</tr>
<tr>
<td>RFF</td>
<td>Radio Frequency Function</td>
</tr>
<tr>
<td>RRP</td>
<td>Re-Route Proposal</td>
</tr>
<tr>
<td>RTE-DES</td>
<td>Route extension due to network design</td>
</tr>
<tr>
<td>RTE-FPL</td>
<td>Route extension due to last filed flight plan</td>
</tr>
<tr>
<td>SDM</td>
<td>SESAR Deployment Manager</td>
</tr>
<tr>
<td>SES</td>
<td>Single European Sky</td>
</tr>
<tr>
<td>SESAR</td>
<td>Single European Sky ATM Research</td>
</tr>
<tr>
<td>SMS</td>
<td>Safety Management System</td>
</tr>
<tr>
<td>SO</td>
<td>Strategic Objective of the NSP</td>
</tr>
<tr>
<td>SSR</td>
<td>Secondary Surveillance Radar</td>
</tr>
<tr>
<td>STAM</td>
<td>Short Term ATFM Measures</td>
</tr>
<tr>
<td>SWIM</td>
<td>System-Wide Information Management</td>
</tr>
<tr>
<td>TCF</td>
<td>Transponder Code Function</td>
</tr>
</tbody>
</table>