



Network Manager
nominated by
the European Commission



Network Strategy Plan 2015 -2019

Approved through Commission Decision C (2014) 4660 of 22 July 2014



Dear colleagues,

We are pleased to present to you the Network Strategy Plan 2015-2019 developed by the Network Manager and the SES ATM network operational stakeholders - the air navigations service providers, the airspace users, the airports and the military all together.

The Network Strategy Plan guides the long term perspective of the network and it is aimed at defining the main steps to achieve the network performance targets until 2019 and further evolutions beyond. The Network Strategy Plan has been endorsed by the Network Management Board on 27 March 2014 and has been formally adopted through a decision of the European Commission on 22 July 2014.

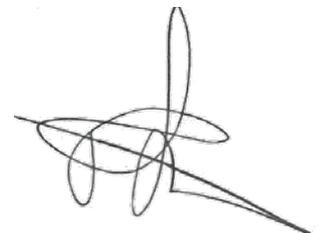
The Network Strategy Plan sets 10 Strategic Objectives, defines a high level vision of how the network will evolve over the next decade and sets a number of Network Strategic Projects enabling the implementation of those objectives and of the Network Vision.

The Network Manager will work together with all its partners to implement the Network Strategy Plan, which will also form the basis of all the work of the Network Management Directorate. Detailed Network Strategic Projects, which are closely aligned with the Pilot Common Project, have been developed to enable the implementation of this Plan. Activities of the Network Manager will be defined to respond to the objectives and the network vision of the Network Strategy Plan. In the same manner, we strongly expect all operational stakeholders to take due account of it in their own strategy and planning.

By doing that, we will be in the position to meet the Single European Sky performance targets by 2019 and to prepare the future network evolution beyond.



Massimo Garbini
Chairman
Network Management Board



Joe Sultana
Director Network Manager
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1. INTRODUCTION

1.1 Purpose and scope of the Network Strategy Plan

The Network Strategy Plan (NSP) is governed by Commission Regulation (EU) No 677/2011 of July 2011 on the implementation of the ATM Network Functions, supplemented by Commission Regulation (EU) No 390/2013 of May 2013, laying down a performance scheme for air navigation services and network functions.

The NSP is a planning process for the Single European Sky (SES); it aims to “define the guiding principles for the network operation and its long-term perspective” with the ultimate objective of achieving the network performance targets in all EU Member States and also in third countries contributing to the pan-European dimension of the SES.

The Network Manager (NM) is in charge of developing and maintaining the NSP and of ensuring that the performance benefits are delivered.

A first version of the NSP for 2012-2019 was approved by a Decision of the European Commission of 19 December 2012 (Decision C(2012)9604).

This second version of the NSP defines the strategic objectives of the network for the second reference period of the Performance Scheme (2015-2019:RP2), and the concrete actions to be taken by the actors

to achieve these objectives. It also aims to achieve a common understanding of the network issues which will guide the definition of the Network Performance Plan and influence the FAB Performance Plans. This second version of the NSP has been approved by a Decision of the European Commission of the 22 July 2014 (Decision C(2014)4660), following endorsement by the Network Management Board (NMB) on 27 March 2014 and a positive opinion of the Single Sky Committee. The draft NSP was prepared by the Network Manager and subject to the cooperative decision making process involving NM operational stakeholders.

The period of application of this NSP is the 2nd reference period of the performance scheme (2015-2019).

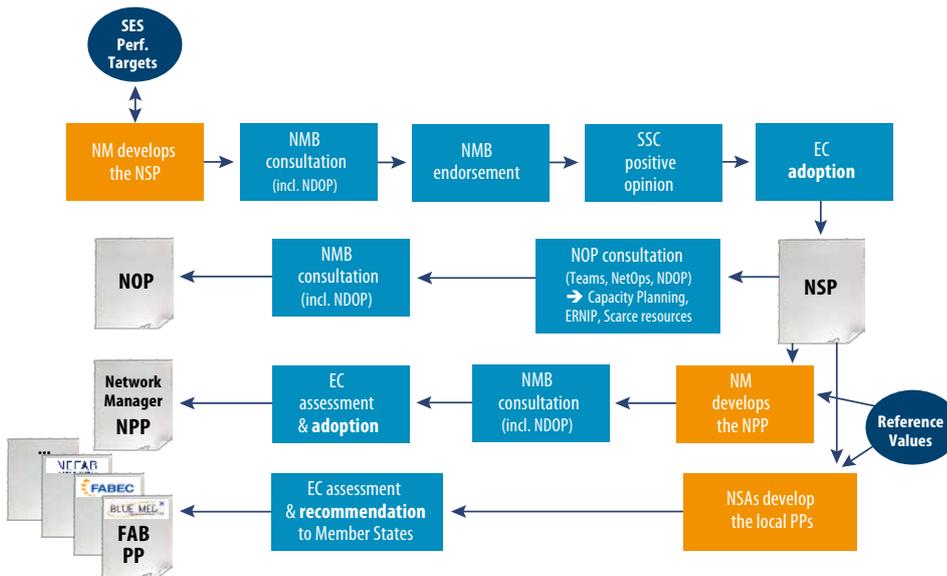
The document aims to provide an executive view (vision, strategic objectives, high-level plan) identifying the main actions and projects required to implement the NSP. This second NSP has been derived from the NSP agreed in 2012 and from the requirements for RP2. It also takes account of the prospects for the initial SESAR deployment phase before the end of 2019 and is fully consistent with the European ATM Master Plan.

The NSP being a rolling document, it will be updated in the medium term as appropriate.

The detailed description of the actions and projects deriving from the NSP can be found in the NOP document.

1.2 Preparation of the Plan and validation process

The overall network planning process comprises the coordinated preparation of the Network Strategy Plan, the Network Operations Plan and the Network/Local Performance Plans – as summarised below.



Process supporting the development of the NSP, NOP, and Performance Plans

The updated Performance Scheme regulation states that the update of the NSP shall be published at least 12 months before the beginning of each reference period. This NSP document was prepared on the basis of the feedback received from the EC, the SSC, the NDOP, and the NMB members – in particular through a dedicated NMB taskforce.

This NSP will be updated as necessary to take account of the technological, institutional and economic developments which may have an impact on network performance.

1.3 Outcome from previous NSP

The Network Strategy Plan 2012 – 2019 defined a number of strategic objectives and corresponding actions to be attained for the time frame in question. The results achieved provided a fundamental contribution to meeting the RP1 performance targets network wide.

The network capacity performance achieved to date in the reference period is in line with the committed target. There has been a clear improvement in capacity performance (after discounting for the low traffic levels) despite some significant network disruptions mainly due to ATC industrial actions and localised network bottlenecks, which remain a concern.

A significant issue relates to the environment performance as the KPI on last filed flight plan is still unlikely to be achieved during RP1. A significant gap persists between the advantages of the airspace design progress (FRA, RAD reduction), airspace availability through improved airspace management and subsequent utilisation by the airspace users.

As far as governance is concerned, full CDM processes have been implemented with positive results. However, they still require to be expanded in order to progress towards a paradigm shift from collaborative to network decision making. In addition an acceleration of FAB progress to facilitate functional flexible airspace structures and mobility of ATS resources will be instrumental in achieving further network wide improvements in European Network performance.

2. OVERALL CONTEXT AND REQUIREMENTS

2.1 Trends, challenges and opportunities

2.1.1 Traffic forecast

■ Preamble

The number of flights and their distribution within the network are key factors for ANS performance. The variability of both factors creates risks for performance planning. Since Reference Period 1, the Performance Scheme and the Charging Scheme regulations have introduced incentives for meeting cost-efficiency targets. They consist of a traffic risk-sharing mechanism between service providers and airspace users, at national or functional airspace block level. This reinforces the importance of traffic forecasting and of addressing traffic variations in the network planning process.

■ Traffic assumptions in the NSP

The NSP has been drafted taking into account the EUROCONTROL STATFOR 7-year IFR Flight Movements and Service Units Forecast: 2013-2019 issued in September 2013. This foresees an average annual growth in traffic movements of between 1.2% (low), 2.5% (baseline), and 3.5% (high) for 2015-2019 in the EUROCONTROL Statistical Reference Area 2008 (ESRA08). Translated into service units, the forecast is 1.5%, 2.8% and 3.9% respectively for the low, base and high cases.

Although the cost-efficiency target for RP2 have been established on the assumption of an annual growth in traffic of 1.2% (low case scenario) in the SES area, the strategic objectives and actions proposed in this NSP will accommodate the low traffic growth scenario and the baseline scenario with minimum adaptations.

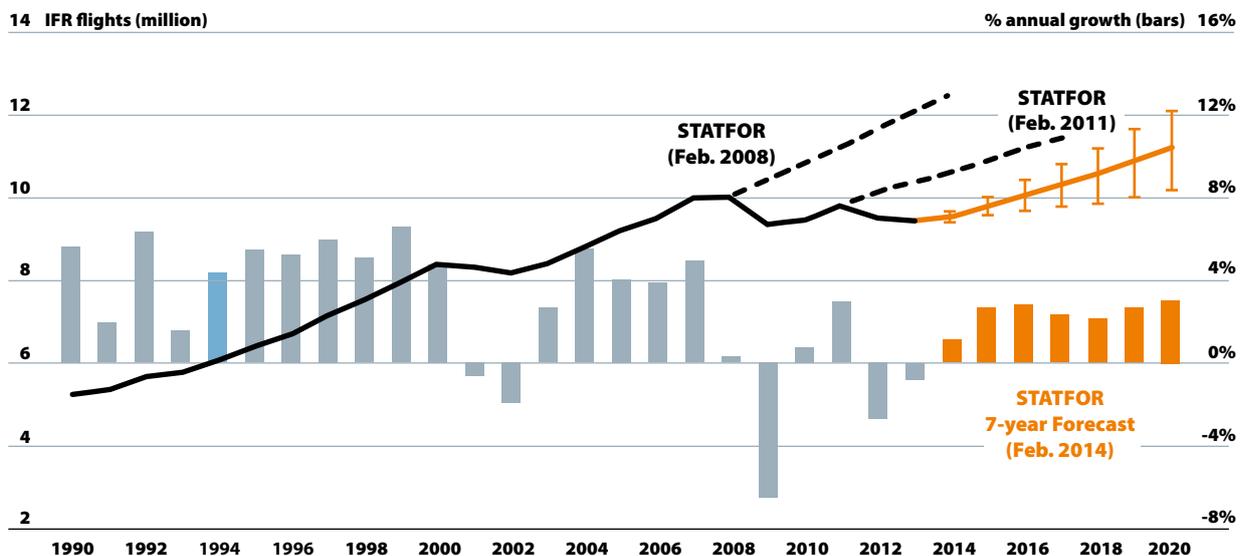
There may be a need to adjust the timing of the indicative milestones associated with each strategic objective (see Section 5) in the light of the actual traffic evolution. A review of the traffic assumptions will be carried out by the European Commission by 2016, which could lead to a revision of the performance targets for the years 2017 to 2019 and by consequence a review of the NSP.

■ Economic context and network forecast

Air transport has long seen cycles of growth, driven by worldwide economic expansion and globalisation. Historically, this generated an average annual flight growth of 3-4% (see Figure).

From the late 80s, flight growth in Europe was supported by deregulation: the liberalisation of the aviation sector opened the door to low-cost carriers; and the enlargement of the European Union widened and strengthened created the free movement of goods and citizens. This deregulation growth engine started running out of steam in the late 2000s. Coupled with the 2008 financial crisis and subsequent sovereign

EVOLUTION OF EUROPEAN IFR TRAFFIC (1990-2020)



Source: EUROCONTROL/STATFOR (ESRA 2008)

IFR flight growth in Europe will stay persistently below pre-2009 long-term trend

debt crisis and recession, there was a record decline in traffic in 2009, followed by a -2.4% decline in 2012 annual total.

For the period 2015-2019, the economic situation in Europe is expected to remain fragile, characterised by weak growth or declines in median income and high levels of public debt. Growth will return, peaking in 2016, but this economic context, combined with the dwindling momentum of deregulation and the financial difficulties of the air traffic industry, will be responsible for lower average growth rates than before 2008, expected to be 2,5% on average per year for flights, rather than the traditional 3% to 4%. This new trend is reflected in the new baseline forecast of 10.8 million IFR movements in Europe in 2019, 13% more than in 2014. The 2008 traffic peak of 10.1 million flights is now expected to be passed only in 2016. It is essential to take into account the range of forecasts (from a low of +1.2% average growth per annum to a high of 3.5%).

This forecast includes downside risks (e.g. airline capacity reductions in response to weaker demand) and upside risks (e.g. current high load factors might not be able to absorb passenger demand when traffic begins to grow again). See the 'Addressing the challenges of traffic volatility' section.

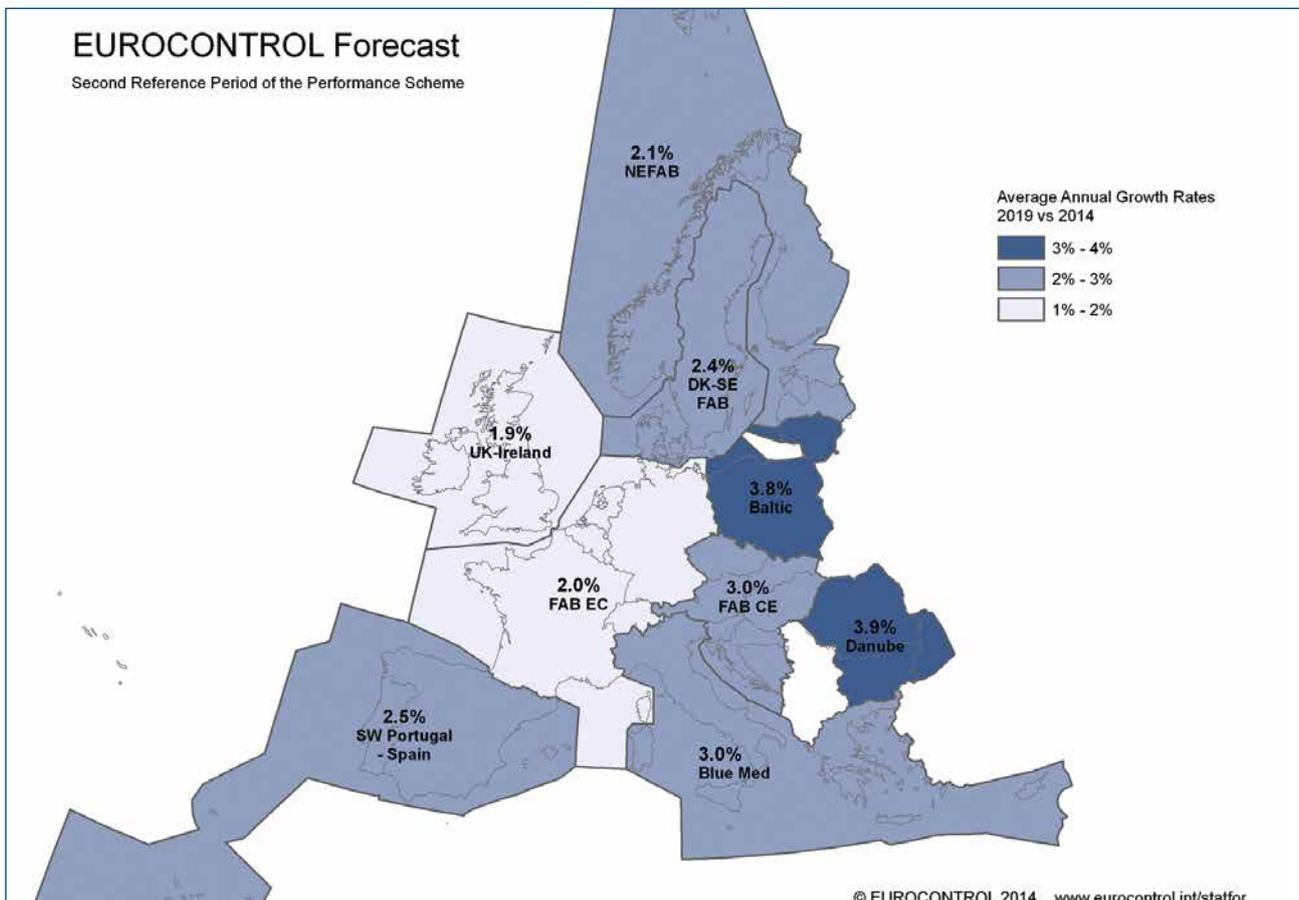
- **Overall FAB perspective**

The FABs in the east and south east are expected to experience more “normal” traffic growth, with continuing sluggish growth in the western part of Europe.

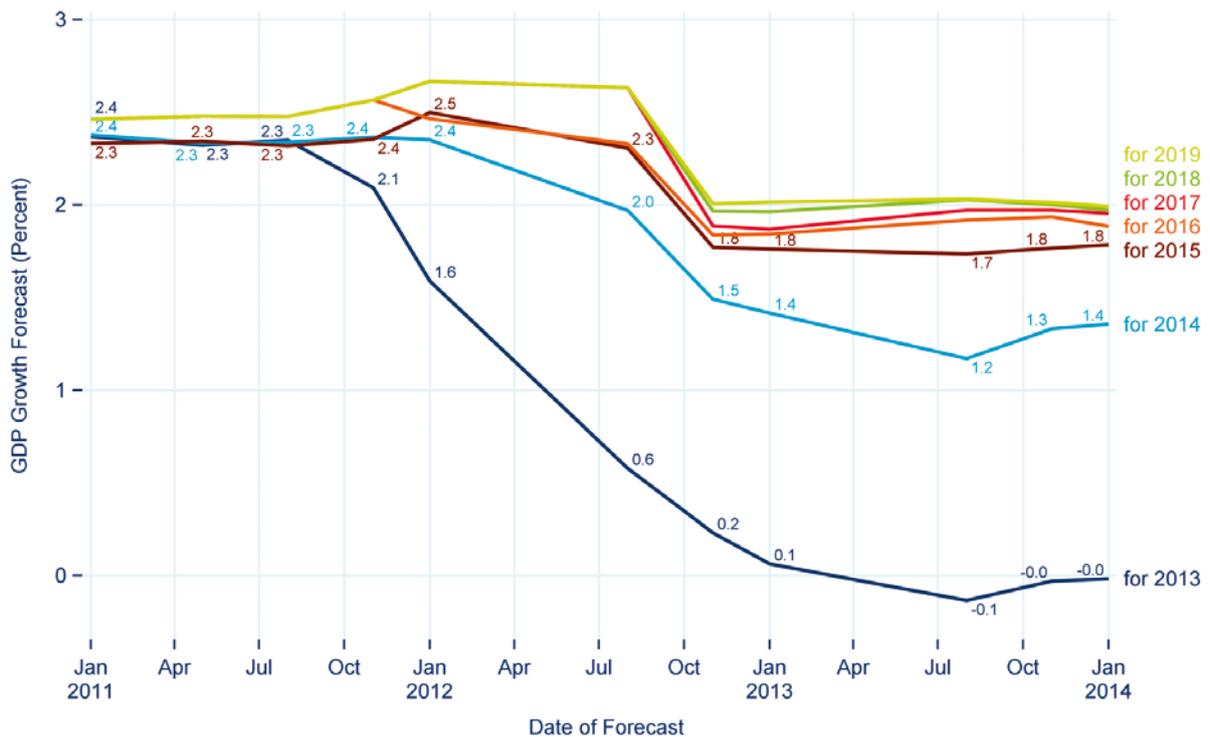
The figure below shows which FABs will contribute more to traffic growth, from an EU-wide perspective (ESRA 2008: EUROCONTROL Statistical Reference Area).

- **Worldwide evolution and long-term trends**

When considering a longer-term perspective – as described in the EUROCONTROL Long-Term



Average annual growth rates for FABs, 2019 vs 2014



EU GDP forecasts for 2013 and 2014 have seen further downward revisions.
(Source: Oxford Economics)

Forecast 'Challenges of Growth' - by 2035, the Asia Pacific region is expected to provide the strongest growth, with an average of 4.1% per year.

Faster growth from outside Europe means that there will be a gradual shift in the composition of European traffic, with an increasing proportion of flights to and from Russia, the Middle East and Asia as compared to intra-European and NAT traffic. In view of the current geographical distribution of traffic in Europe, this factor is not expected to have a major impact on European traffic patterns, bearing in mind that intra-European flights will continue to be 3/4 of the total, at Network level in RP2.

- Addressing the challenges of traffic volatility**
 European air traffic has become increasingly volatile due in particular to the current turbulent economic conditions. When looking at volatility, which is accentuated at local level, ANSPs/FABs are advised to consider multiple traffic scenarios when building their performance plans.

When traffic growth is effective, the pace of recovery may be fast due to the historically

high load factors currently recorded by airlines. Service providers will need to develop their agility to cope with this phenomenon.

Multiple scenarios - The global market situation makes it the most turbulent economic environment since the aftermath of World War II, making economic forecasting highly unpredictable, and therefore traffic forecasting more volatile. This is illustrated by figure below, displaying the constant GDP forecast downward revisions since 2011. These changes had to be reflected in the traffic baseline adjustments between 2012 and 2013 and resulted in a traffic forecast bandwidth of +/- 1 million flights by 2019.

Another example of the network traffic sensitivity to risk is that most of the recent traffic growth has been driven by just two States, Turkey and Russia. This makes network performance dependent on any temporary setbacks impacting on one of these States. This calls for all ATM actors to consider seriously in their plans the downside and upside risks possibly impacting on the traffic baseline scenario.

Local impact - Individual States are more subject to traffic variations than the network as a whole or the FABs. This is particularly the case for overflights - which represent the majority of flights for most States, and the variability is even stronger when it comes to revenue, due to the average longer distance and higher weight of overflights. This means that specific attention should be paid to the downside risks (political crises in the Middle East, rise in fuel costs, restructuring and bankruptcy of airlines) but also to the upside risks (recovery in North Africa following the Arab Spring, Russian and Far-East accelerated growth). Arrangements between FABs may also be considered to mitigate the adverse impact on revenue of moving traffic flows, in the event of crises or simply to manage the jet stream effects.

It should be noted that the network would adapt more easily to downside risks (which occur more progressively and may alleviate some operational issues), while upside risks may generate immediate increases in traffic delays, due to the current small margins in capacity and high load factors.

However, downside risks should not be underestimated as they hit ANSPs on their bottom line, and because sudden downside shocks tend to be larger than unexpected growth (it is actually easier to cut capacity quickly than to add to it).

ATM agility - Confronted to strong competitive pressure, airlines are forced to adapt quickly their offering to any new market opportunity, which requires improved flexibility on ATM as well.

In addition, bearing in mind that current load factors have reached historical heights in Europe, a recovery in passenger traffic may generate a steep increase in flights.

ATM must therefore develop its agility as a priority - to adapt to traffic evolutions, and avoid the sudden generation of ATFM delays.

2.1.2 Single European Sky implementation

The Single European Sky (SES) initiative adopted by the European Union in 2004 aims to improve the overall efficiency of the way in which the European airspace is organised and managed.

The major components of the second package of legislation approved in 2009 have already been implemented:

- A first Performance Scheme for the period 2012-2014 was adopted and implemented; a second one is adopted for the period 2015-2019;
- The Functional Airspace Blocks (FABs) were established and are now in their implementation phase; FABs will be at the core of the second performance scheme.
- An ATM Network Manager was appointed in 2011 by the European Commission in order to manage the network functions in close collaboration with the industry.
- The SESAR Joint Undertaking was established in 2008 to develop a common research programme aimed at modernising the European ATM system; a Pilot Common Project (PCP) aimed at supporting the deployment phase of the SESAR initial functionalities will be adopted in spring 2014.

A new regulatory package – SES II+ - has been proposed by the European Commission to reinforce the SES II framework and accelerate the delivery of performance.

2.1.3 Global ATM modernisation

The ICAO Global Air Navigation Plan addresses the required medium to long-term improvements in ATM world wide by introducing the consensus-driven Aviation System Block Upgrade (ASBU) systems. The core of the concept is linked to four specific and interrelated aviation performance improvement areas, namely:

- a) Airport operations.
- b) Globally-interoperable systems and data.
- c) Optimum capacity and flexible flights.
- d) Efficient flight paths.

The performance improvement areas identified in ASBU block 1 (2014 to 2018) have been taken into account in the development of this NSP. SESAR is consistent with the ASBU Methodology. There is a high degree of consistency between ICAO's ASBU initiative, the SESAR operational changes and the PCP deployment. Consequently the NSP, which addresses all four improvement areas, is fully aligned with ASBU block 1.

2.2 Network performance objectives & business requirements

The network and local performance targets are established through the Performance Scheme process.

This Chapter provides an executive summary of the performance objectives and corresponding stakeholder requirements for each performance area.

2.2.1 Safety

The safety performance targets set for RP2 focus on the **effectiveness of Safety Management**, the **application of a severity classification scheme** at European level, and the implementation of **Just Culture** at local level.

ANSPs can expect to benefit from the best practices of their peers and so to accelerate progress. The expertise acquired by EUROCONTROL through the years and the tools and methodologies developed can be re-used by the ANSPs. Following the recommendation issued by the NMB in 2013, NM will therefore refocus its efforts on safety in order to help the ANSPs achieve their safety KPIs, in addition to complying with its own safety obligations.

2.2.2 Capacity

In RP2, the capacity target is **0.5mins en route ATFM delay per flight**, to be achieved annually. Despite the progress achieved in RP1, capacity shortfalls remain concentrated in some critical areas due to systemic problems mainly concerning staffing and in some cases recurrent sector capacity gaps. These issues, even though they are confined to limited areas, have a detrimental effect on overall network performance and need to be addressed as a priority. For the difficult situations with recurring bottlenecks, Network solutions will have to be applied supported by reinforced CDM processes.

Seen from the ANSPs' perspective, addressing the RP2 capacity targets will require a combination of local actions, such as optimising weekend capacity configurations and rostering improvements, and FAB initiatives, such as cross-border solutions and resource sharing where viable.

In RP2, NM will continue to contribute to capacity through the management of the Network Functions, and by providing appropriate network solutions generating every day a 10% reduction in en route ATFM delays, optimising the capacity delivered by the ANSPs¹.

Concerning airport capacity, it is becoming increasingly difficult to build new runways and a few European airports around major cities are close to congestion. This may result, towards the end of RP2, in major delays during peak periods. Attention should be paid to improving the efficiency of airport operations at these most congested airports.

2.2.3 Environment (flight efficiency)

Flight efficiency is assessed against two targets measuring the route extension from an optimum trajectory defined by the great circle, one calculated from the last filed flight plan (KEP) and the other from the actual trajectory (KEA)². More ambitious targets are being proposed in RP2 than in RP1, with **4.1% for the KEP indicator and 2.6% for the KEA indicator**. Meeting these targets will require continuing the progress made in RP1 - in particular on narrowing the flight efficiency gap between the actual trajectory and the flight plan.

Airspace users have expressed an urgent need for flight efficiency improvements, starting at operational level with better horizontal and vertical flight profiles and ultimately by considering solutions at structural level to mitigate the negative impact of heterogeneous route charges. Airspace users have also asked for the development of improved metrics to assess flight efficiency.

¹ The contribution of NM to reducing ATFM delays is achieved daily through operational initiatives in coordination with operational stakeholders. It is described in the NPP.

² **KEP** - KPI on horizontal flight Efficiency of last filed flight Plan; **KEA** - KPI on horizontal flight Efficiency of Actual trajectory.

The focus for the Network in RP2 will be on:

- placing a high priority on Free Route Airspace deployment;
- providing sufficient capacity flexibly where required (available airspace is actually a prerequisite for enabling alternative flight options);
- developing vertical flight efficiency indicators, tools and procedures;
- improving airspace management through advanced FUA;
- and improving airspace utilisation – through the provision by NM of flight efficiency tools and support to airspace users, and the commitment and engagement of airspace users on better airspace utilisation.

Support to flight efficiency will be one of the main priorities of the Network Manager in RP2.

2.2.4 Cost efficiency

For RP2, the Commission Decision setting the Union-wide performance targets for the provision of Air Navigation Services established the unit costs for the years 2015 to 2019, based on an **overall annual reduction of 2.1%** at Union-wide level.

In RP2, NM will continue to control its own costs within the allocated target, adapting accordingly its strategic investments under the scrutiny of the Network Management Board.

It will also contribute to improving overall Network Cost Efficiency by delivering efficient and cost-effective services through the Network Functions.

2.2.5 Operational Stakeholders' business requirements

This Network vision and the resulting NSP strategic objectives aim to address the following operational stakeholders' requirements:

■ **Airspace Users**

Airlines need to reduce their operational costs whilst providing enhanced and punctual services to customers. Improvements in airspace design and airspace management, the progressive deployment of Free Routes, more predictable network information and reinforced flight planning support will be required so that airlines are able to optimally tune flight trajectories with the available ATM resources.

Airlines also need to abide more readily by the State/European rules on the environment and the reduction of noise/emissions. Airlines expect to reap the benefits of their investments in new aircraft with enhanced navigation capabilities (PBN), by using flight-efficient TMA trajectories respecting environmental constraints.

Eventually, airlines expect to benefit from efficient Network functions.

■ **Airports**

Operational stakeholders at airports need to improve their operational performance in many ways: a more intensive use of their infrastructure, including shorter turn-around; improved resilience and risk management, including the response to difficult weather conditions; a better ATM predictability, including the anticipation of ATM congestion/disruptions; and a better consistency of ATM and airport slots and airport operations within environmental constraints.

Operations at airports should be integrated into network operations through CDM coordination and exchange of information via system-to-system connections. This will allow continuous and dynamic airport operation optimisation, resulting in improved predictability, punctuality, optimised rotation times and reduced delays.

On the regulatory side, operations at airports need to abide by stringent State/European rules on the environment (e.g. noise, emissions).

■ **Air Navigation Services**

From a business perspective, ANSPs have to combine competitive strategies for market development and cooperation with their peers to share costs and improve the overall network performance. From a budgetary perspective, ANSPs have to reconcile cost-efficiency objectives with the need to meet their obligations stemming from the Single European Sky. This requires investments to redesign or modernise their ATM, CNS and IT infrastructures (e.g. controller working position, air/ground Datalink, PBN, SWIM-enabled systems); and reorganisation efforts to address structural capacity issues.

On the operational side, ANSPs need to strive to improve their daily performance. – including service costs – without compromising on safety.

This can be achieved through a combination of structural measures and operational changes, in particular by implementing the FABs' capabilities; de-fragmenting the airspace; and organising ATCs on a mixed regional and local basis to enable more flexibility.

ANSPs will also need to address collectively the management of their resources and technical infrastructures. This will be done through the FABs and also at network level, by utilising technical aircraft capabilities to the maximum extent.

Eventually, ANSPs expect to benefit from efficient Network functions.

2.3 Current and planned network situation

2.3.1 ATFM function

The ATFM performance target for en-route ATFM delays of 0.6 min/flight was achieved in 2013 with 0.53 min/flight. The ATFM function contributed to the achievement of the RP1 capacity targets, in particular thanks to mature operational procedures and to the resulting improvements in network predictability. In 2013, the NM Operations Centre proposed delay savings (mostly using re-routing proposals and tactical actions in operations) which amounted to a reduction of almost 800,000 minutes in en-route ATFM delays, equivalent to 13.7% of the total en-route delay.

In RP2, NM will keep on strictly targeting the ATFM KPIs while developing more focused measures limiting any negative impacts on airspace users' operations, in response to their requirements. This will continue to minimise en-route delays and optimise the use of network capacity.

To prevent local decisions that may have an adverse impact on the network, all operational actors are expected to adopt a 'network-minded attitude', making ATFM decisions primarily based on their network impact, with an equitable attribution of the benefits to the operational actors concerned.

2.3.2 Network design (ERND) function

The European Route Network Improvement Plan (ERNIP) enabled the implementation of 250 packages of airspace improvements in the 12 months preceding summer 2013.

The ERND function was instrumental in RP1 in achieving the target for the route extension indicator due to airspace design. The improvement in the flight efficiency of the last filed flight plan was slower in 2013, missing the target mainly due to the capacity shortfalls during the ATC strikes or reduced capacities in some centres.

In RP2, the ERNIP will continue to be developed along these lines while in parallel enabling the full implementation of Free Route Airspace, and meeting more ambitious flight efficiency targets.

The achievement of the performance target in the last filed flight plan requires cooperation between the users and the providers. Airspace users need the appropriate tools and assistance to enable achievement of this objective.

2.3.3 Scarce resources functions

The creation in 2012 of the Radio Frequency and Transponder Code Functions responded to the need to optimise the use of these scarce resources through a central allocation process, thereby preventing the risk of local under-utilisation which might impact on network performance. During the second half of 2013, a comprehensive exercise was undertaken by NM and most of the European States to improve the quality of the VHF frequency assignment. The resulting benefit was significant in terms of number of frequencies gained, also decreasing the number of frequency shifts required to accommodate new frequency requests.

Concerning the Transponder Code Function (TCF), the Aircraft Identification (ACID) strategy considers the application of 3 methods: ORCAM, CCAMS and downlink of aircraft identification. The Centralised Code Assignment and Management System (CCAMS) is expected to enlarge on and prevail over the other methods, starting with the CCAMS implementation as a back-up solution. CCAMS is already used by 12 States and more 6 States plan to implement it by the end of 2014. Currently, on busy days, more than 50% of the total daily European flights (17,000) receive a code from CCAMS. 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. However, the long term vision is to use the mode S downlink capability as the primary means of identification, with CCAMS as a complementary solution when feasible for ANSPs in the NM area.

In RP2 the focus will again be to ensure that scarce resources do not have a negative impact on network operations. To achieve this objective, close monitoring

of the TCF and RFF functions will be required. NM will support the EU Member States and third countries participating in its work in meeting their ICAO and SES obligations concerning Frequency and SSR Transponder Code Management.

2.3.4 Airports

The focus of airport activities in RP1 was to assist airport stakeholders in enhancing airport performance and to integrate airport operations into the Network.

Looking into the future, it is becoming increasingly difficult to build airport capacity around major cities. The 'Challenges of Growth 2013' report showed that airports had sharply cut their expansion plans, to just a 17% increase over the next 20 years. There is only one major airport expansion expected during RP2, the construction of the new Istanbul airport. Long-term forecasts indicate that by 2019, unconstrained demand at European airports could exceed available capacity by 135,000 flights annually (arrivals and departures). Without significant measures, major delays can be expected at many airports during peak periods.

A number of important actions concerning airports are therefore required in RP2:

- Maximise the use of airside and groundside airport capacity via improved consistency between the flight plan and the airport slot;
- Improve the airports' efficiency by minimising airport arrival delays, taxi times, impact of weather and vertical flight efficiency in TMAs;
- Continue to better integrate airports with network operations – in particular by implementing A-CDM projects and accelerating the DPI deployment as well as by increasing communication between airports and the Network Manager to facilitate the network view;
- Arrival and departure management to maximise runway throughput.

2.3.5 Summarised network situation

In **RP1**, the improvements achieved in the Capacity and Flight Efficiency areas were partly due to the actual improvements delivered by the operational actors, and partly due to the low traffic levels. This means that no complacency should be allowed in these areas, so as to be ready when traffic growth returns. The network functions (airspace design, ATFM, scarce resources) fulfilled their role of fostering coordination in line

with expectations, but will need to keep the same momentum in RP2.

Despite the progress achieved in RP1 by all European stakeholders, a number of systemic issues of the European ATM system are still determinant:

- European airspace is fragmented. Significant efforts will be required to fulfil the airspace users' requirement for a seamless and pan-European ATM managed independently of national borders. This should be achieved primarily through the implementation of the FABs' capabilities. The impact of different unit rates on network performance could hinder performance improvements even in RP2.
- The efficiency and flexibility of ATM operations are still impacted by structural weaknesses which need to be addressed at executive and political level (e.g. lack of ATCOs in some areas, lack of flexibility in allocating ATCO resources, lack of cross-border solutions for airspace structure issues, impact of strikes, etc.). The capacity shortfalls, even if confined to limited areas, create significant side effects at network level, which impact on overall network performance. At the same time, ANSPs face the simultaneous challenges of limited revenue and cost efficiency targets.
- Flight and cost efficiency remain the absolute priorities of aircraft operators in the currently depressed economic context. A major challenge will therefore be to obtain a genuine de-fragmentation at functional level within the European ATM Network.

3. STRATEGIC VISION

3.1 Network Vision

By 2020, in order to meet the RP2 performance targets, the European ATM Network will operate as follows:

European airspace will consist of an upper airspace in which operations will be predominantly “free route” and a lower airspace including terminal airspaces around major airports in which operations will need to be planned to a high level of predictability. Thus flexible and dynamic management in the en-route phase and well structured and ordered operations in lower airspace will need to be integrated into a specific airspace to be designed to fit the transition. FABs will have developed their regional network capabilities which will contribute to network operational improvements.

Efficient access to airports will be characterised by high density segregated departure and arrival routes requiring performance based navigation capabilities that prioritise continuous climb and descent operations, supported by extended arrival/departure managers to maximise access into and out of the airports.

Advanced flexible use of airspace procedures and data exchange will ensure that airspace reservation is based on the precise knowledge of civil and military requirements.

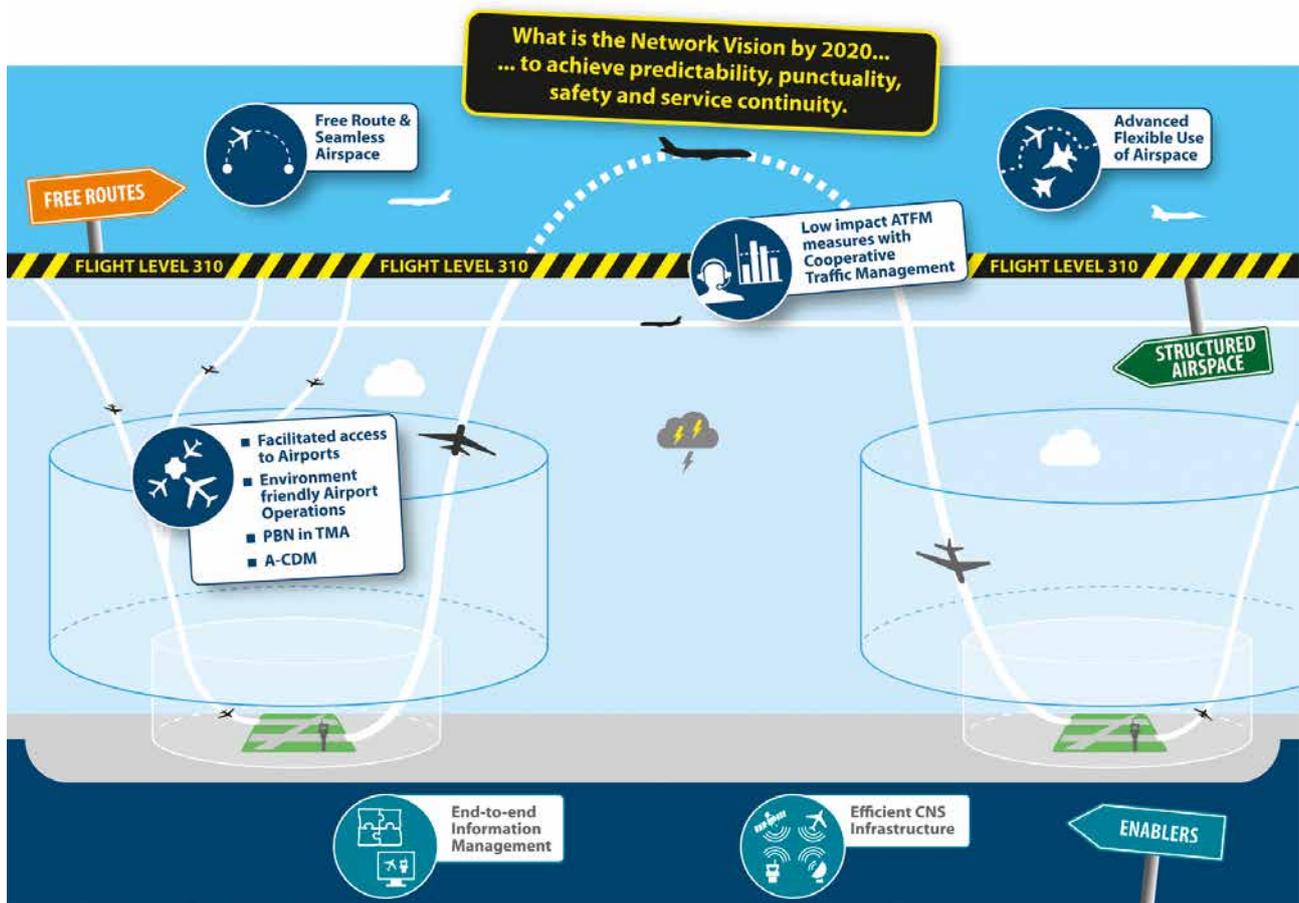
Network operations will be integrated through cooperative traffic management, with possible adjustments of resource planning, projected trajectories, and allocation of entry/exit times for airspace volumes and airports to mitigate imbalances.

All actors will cooperate and contribute to improving Network Safety, paying specific attention to Human Factors.

The European ATM Network will be supported by system wide information sharing of dynamic ATM information, serving all operational users’ needs and building on the SESAR developments.

■ What will airspace users get from the Network Vision by 2020?

- Airspace users will fly efficient routes, planning 4D trajectories, using Free Route airspace and reaping the first benefits of airspace de-fragmentation thanks to cross-border solutions.
- They will be able to fly dynamically shorter routes when airspace is no longer restricted.
- Aircraft will be able to make the best use of the available airspace thanks to predictable and dynamic demand capacity balancing, continuously balanced with demand through iterative planning processes.
- When congestion is expected, the impact on trajectories will be limited to the minimum, thanks to the application of focused ATFM measures, enabled by Cooperative Traffic Management processes and by the flexibility of the airspace and ATC human resources. Airspace users will play a full part in all steps of the cooperative decision-making.
- ATM-related Safety should not decrease despite traffic growth, and will possibly increase. All operational actors will contribute cooperatively to this goal. Flight safety will be ensured by safe and efficient ATM services encompassing mature Safety Management Systems, supported by a robust and secure network infrastructure and by coordinated crisis management.
- At airport level, flight efficiency will also benefit from flight-efficient TMAs enabled by PBN, predictable airport operations, including airport slot and flight plan consistency, permanent communication with the ATM network operations through A-CDM processes, and the availability of environmentally-friendly climb/descent procedures.
- Integrated high quality aeronautical data consolidated in a real-time view of the network situation will enable efficient flight operations. Airspace users will interoperate with all network actors through a common SWIM architecture. The use by ATM of an enriched flight plan will support the initial steps for implementing the airspace user-preferred trajectory.
- European ATM Network activities including the Network Functions will be part of an integrated Network Concept of Operations which will enable flight punctuality, overall network predictability and optimum use of available network resources.



3.2 Network operational drivers

The vision, or optimal situation, described above is supported by a set of network operational drivers, which form part of the Network Concept of Operations and from which concrete strategic objectives and associated actions can be derived.

3.2.1 Flexible airspace structure

A simplified and **flexible airspace structure** enabling maximum deployment of **free routing** is required to meet the flight efficiency and environment performance objectives. Cross-border solutions will be key for achieving the RP2 targets.

The airspace structure should continue to evolve, addressing the requirements of civil and military users with an **advanced flexible use of airspace** concept reconciling the airspace needs of both civil

and military users, reaping the benefits of existing or planned technological improvements and supported by harmonised data exchange at planning and tactical level.

A cross-border free route airspace structure and improvements in TMAs and civil-military cooperation, associated with an ASM/ATFM rolling process supported by the appropriate tools, are key enablers for improving agility in order to cope with traffic demand and for achieving the RP2 objectives.

3.2.2 Proactive and dynamic capacity management

A proactive and dynamic capacity management process is required to **balance capacity with demand** in a timely and efficient manner, benefiting from flexible airspace structures, and thus helping avoid ATFM delays.

This includes a better **anticipation of demand/capacity imbalances**, in particular during weekends and seasonal peaks. When growth returns, ATM should be agile enough to deliver capacity in order to respond to air traffic evolutions, taking into account the available ground network capabilities.

Delivering capacity when and where needed can be achieved by a combination of means:

- Staff management (e.g. planning, rostering, qualifications, situation awareness);
- Air Traffic Management improvements resulting from performance analysis (e.g. weekends, sector configurations, airport capacity values, traffic peaks, route restrictions, areas of responsibility);
- Management of critical events (e.g. low visibility airport operations, temporary airspace closures).

3.2.3 Focused ATFM measures

Often, there are air traffic demand conditions where constraints cannot be avoided; in these cases, focused ATFM measures (e.g. STAM) are required to reduce the impact on both flight efficiency and delays.

Progress needs to be made in developing enhanced dynamic network operations procedures to use flexible and focused measures which have a minimal impact on flights. Such measures need to increasingly replace static constraints such as RAD and standard “catch-all” ATFM regulations. Focused ATFM measures bring the ATC and ATFM domains closer together, but must be accompanied by a full exchange of information between all network and local actors.

3.2.4 Predictability

Predictability allows issues to be accurately identified in advance, allowing timely, appropriate and proportionate solutions to be chosen. It contributes to the taking of preventive actions which otherwise would be taken reactively.

Predictability requires all actors to adhere to their planning (flight plan, capacity plan) to the maximum extent possible. Any change must be justified and communicated.

Increased sharing of operational information supports the predictability of network events and their impact, and it reduces uncertainty, thereby improving operational performance.

Numerous tools and processes allow the sharing of information: DDR, ADR, AMAN extension, Target Time of arrival (TTA), Airport CDM, Network Ops Portal, Flight Plan and Airport Slot Consistency, 4D Trajectory Flight Profile Calculation for Planning Purposes, etc. Through these simple solutions resolving network and individual issues, stakeholders will be cooperatively supported in their activities.

3.2.5 ATM de-fragmentation

Reducing the fragmentation of European ATM will help improve the management of operational performance within cost constraints:

- The SESII legislation is mainly aimed at reducing this fragmentation. This is achieved where possible through the use of NM tasks or FAB capabilities.
- Reducing fragmentation must fully address issues such as flexible and adjustable sector boundaries and ATCO mobility. The ATS service provision structure must not hinder the other operational drivers. This requires the development of significant FAB capabilities.
- Interoperability is one of the aspects contributing to reducing fragmentation; the way technical ATM services will be delivered should be looked at in every FAB and at Network level in order to reduce costs. The EUROCONTROL Centralised Services initiative may provide opportunities in this respect, in particular the single AIM service (EAIMS), the Pan-European Network Service (PENS) and the services for mutualising or monitoring the CNS infrastructures.

3.3 Defining the strategic objectives

This version of the NSP covers RP2. In this new version, most objectives from RP1 remain but some are extended in scope, to better encompass the additional actions required for RP2. This has necessitated a restructuring of the strategic objectives.

All actions supporting the cooperative management of the Network are grouped in SO1, including the NPP (former SO3). New objectives have been created to place greater focus on the new priorities: 'Flexible Airspace' (SO3) and 'Planning' (SO4, which is wider than the previous 'NOP' SO4). 'Safety' (SO7) has been extended to cover security and crisis management.

■ **Aligning with the Vision**

Ten strategic objectives have been defined for translating the network vision statement into concrete projects to which all operational stakeholders jointly commit in order to achieve the network performance targets. These ten strategic objectives address the full scope of processes governing the network:

- **Management:** network governance, ops decision-making processes, risk management and strategy;
- **Operations:** all aspects of operations planning and execution, involving all actors end to end;
- **Resources:** initiatives for developing/optimising resources or reducing their cost (information systems, CNS infrastructure, human capital).

These 10 objectives are summarised in the table below, and are derived directly from the network vision:

<i>Management</i>	<i>Operations</i>	<i>Resources</i>
<p>SO1- Manage performance through 'Network-minded' Decision Making</p> 	<p>SO3- Implement a seamless and flexible airspace</p> 	<p>SO2- Deploy interoperable and effective information management systems</p> 
<p>SO7- Ensure network safety, security and robustness</p> 	<p>SO4- Plan optimum capacity and flight efficiency</p> 	<p>SO8- Optimise CNS* resources allocation and cost</p> <p>(CNS*: Communication/ Navigation/ Surveillance)</p> 
<p>SO10- Prepare for RP3 and beyond</p> 	<p>SO5 – Facilitate business trajectories and cooperative traffic management</p> 	<p>SO9- Develop the network human capital & improve its performance</p> 
	<p>SO6 – Fully integrate airport and network operations</p> 	

■ **Assessing the relevance of the strategic objectives**

The relevance of the strategic objectives has been assessed using the following criteria:

- Compliance with the performance scheme
- Consistency with the ATM Master Plan
- Response to the stakeholders' business requirements

3.4 Compliance with the performance scheme

■ EU-wide KPI targets

NB: Refer to the performance scheme regulation for an official description of the EU-wide targets

SAFETY	
EoS: Effectiveness of Safety Management in States/NSAs	
Target (2019)	
All NSAs have achieved at least EoS Level C in all MOs.	
EoS: Effectiveness of Safety management at Service Providers	
Target (2019)	
All ANSPs have achieved EoS Level D in all MOs.	
RAT: Application of severity classification scheme	
Target (2019)	
<p>Collection and reporting of separation minima infringements and runway incursions with categories A (serious incidents), B (major incidents) and C (significant incidents).</p> <p>Member States to ensure the collection and reporting to EASA of the 'ATM Overall' severity determined by the Risk Analysis Tool (RAT) methodology:</p> <ul style="list-style-type: none"> - By 2017 and every year thereafter, for the classification of at least 80% of the annually reported incidents - By 2017 and 2019 at the latest, for the classification of at least 80% and 100% respectively of the annually reported incidents. <p>ANSPs to report to NSAs the 'ATM Ground' severity using the Risk Analysis Tool (RAT) methodology:</p> <ul style="list-style-type: none"> - By 2017 and 2019 at the latest, for the classification of at least 80% and 100% respectively of the annually reported incidents - By 2017 and 2019 at the latest, for the classification of at least 80% and 100% respectively of the annually reported ATM-specific occurrences with categories AA, A, B & C. 	
ENVIRONMENT	
KEP: The average horizontal en route flight efficiency of the last filed flight plan	
RP1 target (2014)	RP2 target (2019)
4.67%	4,1%
KEA: The average horizontal en route flight efficiency of the actual trajectory	
RP1 target (2014)	RP2 target (2019)
N/A	2.6%
CAPACITY	
Minutes of en route ATFM delay per flight	
RP1 target (2014)	RP2 target (2019)
0.5	0.5
COST-EFFICIENCY	
Determined unit cost (DUC) (EUR%2009)	
2015	EUR 56.64
2016	EUR 54.95
2017	EUR 52.98
2018	EUR 51.00
2019	EUR 49.10

■ **Strategic Objectives and performance compliance**

All **network operational drivers** identified in Section 3.2 will have a direct impact on capacity and flight efficiency and an indirect impact on cost efficiency. The 'Predictability' operational driver also indirectly contributes to safety improvements.

When looking in more detail at the NSP **strategic objectives**, compliance with the performance scheme can also be easily established, as illustrated in the table below.

	Capacity	Environment	Safety	Cost Efficiency
S01 - Manage performance through 'Network-minded' decision making	X	X	X	X
S02 - Deploy interoperable and effective information management systems	XX	XX	X	XX
S03 - Implement a seamless and flexible airspace	X	XX		XX
S04 - Plan optimum capacity and flight efficiency	XX	XX		X
S05 - Facilitate business trajectories and cooperative traffic management	XX	XX		XX
S06 - Fully integrate airport and network operations	XX	XX		X
S07 - Ensure network safety, security and robustness	X		XX	X
S08 - Optimise CNS resources allocation and cost	X			XX
S09 - Develop the network human capital and improve its performance	XX			XX
S010 - Prepare for RP3 and beyond	X	X	X	X

To address the **cost-efficiency** objective, priority should be given to the projects generating the best operational performance at network level with moderate investments, and special focus should be placed on the synchronised deployment and sharing of resources.

The **safety** area is reinforced in this new version of the NSP, with the extension of SO7 to security and crisis management.

The NM also develops a Network Performance Plan in full alignment with the NSP. The Network Performance Plan defines the Network Manager's own contribution to network performance, as required in the Performance Scheme.

From a **governance/process perspective**, the NSP is a key enabler of the Performance Scheme. Indeed, the NSP's strategic objectives and related projects are a reference driving the development of the Network Performance Plan and the FABs' Performance Plans, which define the commitments of all actors involved in service provision.

3.5 Consistency with the European ATM Master Plan

The European ATM Master Plan addresses the high-level operational and technological evolution of the ATM system, based on agreed performance objectives and deployment scenarios.

The Network Strategy Plan is an integral part of this change process. It targets concrete operational issues that can be solved in the timeframe of the reference period via any operational or technical means. It ensures that the SESAR deployments taking place during that period are used with the maximum benefit in operations.

The ATM Master Plan's essential operational changes are adequately covered by the NSP strategic objectives as illustrated in the table below:

ATM Master Plan Essential Operational Changes	NSP Strategic Objectives
Trajectory management and Business/Mission Trajectory	S05: Facilitate business trajectories and cooperative traffic management S04: Plan optimum capacity and flight efficiency
System interoperability with A/G Datalink sharing	S04: Plan optimum capacity and flight efficiency S08: Optimise CNS resource allocation and cost
Free Routing	S03: Implement a seamless and flexible airspace
I4D + CTA	S05: Facilitate business trajectories and cooperative traffic management
Integrated AMAN/DMAN & extended AMAN horizon	S06: Fully integrate airport and network operations
Network Operations Planning	S04: Plan optimum capacity and flight efficiency S02: Deploy interoperable and effective information management systems
SWIM	S02: Deploy interoperable and effective information management systems
Surface Management integrated with Arrival and Departure	S06: Fully integrate airport and network operations
Airport Safety nets	S07: Ensure network safety, security and robustness
Enhanced Decision Support Tool & Performance Based Navigation	S06: Fully integrate airport and network operations S04: Plan optimum capacity and flight efficiency
Conflict Detection and Resolution	S04: Plan optimum capacity and flight efficiency
Note	
All Essential OCs and the clustered Operational Improvement (OI) steps always contain HUM enablers	S09: Develop the network human capital & improve its performance
All Essential OCs are also valid for RP3	S010: Prepare for RP3 and beyond

Where there are gaps in the alignment, they can be explained as follows:

- The NSP should also address network-related objectives which are not enabled by technological changes (e.g. processes supporting performance and governance, tasks stemming from the Network Functions implementing rule, or the evolution of NM legacy systems).
- The ATM Master Plan also covers some operational and technical issues that are purely local with no significant impact on Network performance.

A table illustrating the consistency of the NSP actions with the PCP deployment projects - both in terms of scope and timeline - is provided in Annex A.

4. STRATEGIC OBJECTIVES

The NSP strategic objectives define the common goals to be achieved by all the Network operational partners by 2019 - with a view to delivering the concrete outcomes which are required to achieve the target network performance. Each objective is translated into actions (see Chapter 5 - Strategic Planning). The execution of these actions is monitored by the NMB through NSP periodic reports and through the NOP execution and monitoring process.

4.1 SO 1: Manage performance through 'Network-minded' decision-making



This is the cornerstone for achieving network performance through managerial cooperation and decision-making. It addresses the way the decisions are made and executed in accordance with the CDM processes supporting the Network Functions.

It ensures the execution of the NSP's strategic objectives by defining, monitoring and reporting on the NSP-related actions with clear accountabilities and by setting up consistent performance-related plans at network and regional level. Deviations from plans must be fully addressed by empowered and accountable governance and managerial entities.

It also ensures the network-wide alignment of operational plans/concepts/manuals in accordance with the Network Concept of Operations, and the coordination of the NSP and ATM Master Plan.

The success of this objective relies on a network-minded attitude of all actors on investigating and solving collectively the real operational issues, on a reinforced network decision-making process, and on solid business and operational intelligence in support of the network performance analysis.

4.2 SO 2: Deploy interoperable and effective information management systems



This objective is intended to establish information management systems meeting the needs of network operations.

Seamless real-time information sharing between all operational actors is essential in order to share performance and operational intelligence and enable operational CDM.

This objective addresses all aspects of management information systems in a multi-sourcing environment, enabling the provision of business services:

- **Business Applications** – allowing the management, operation and performance assessment of the network, in support of the other strategic objectives.
- **System Architecture** – addressing aspects such as service management, interoperability, supervision, security, safety, availability and deployment, in compliance with the SES regulations and the System Wide Information System SWIM standards and applicable regulations.
- **IT Infrastructure** – including data storage and servers.

This objective supports the stakeholders in the development of their plans and systems, which will be instrumental in running the daily network ATM operations in a transparent, shared, rationalised and cooperative way. Additionally, it supports the governance and performance assessment of the network through business intelligence.

4.3 SO 3: Implement a seamless and flexible airspace enabling Free Routes



This objective relates to the organisation and management of European airspace to be used as a continuum, in a flexible and dynamic way (“one single ATM European Sky”) enabling Free Route operations. This objective will take into consideration the ICAO European Regional Plan and the ASBU framework.

This objective is essential for achieving the SES objectives. It will require throughout Europe a strong cooperative process in which the Network Manager, the FABs and their ANSPs work together to achieve seamless airspace, in particular through cross-border solutions. It also considers the required evolutions for developing planned improved airspace structures based on the use of advanced PBN capabilities.

4.4 SO 4: Plan optimum capacity and flight efficiency



This objective ensures that appropriate network planning is in place to enable network performance – in particular through the Network Operations Plan (NOP). The NOP is the result of a cooperative process allowing the matching of individual stakeholders’ objectives with local/FAB and network targets, which is a major contributor to reducing uncertainty on planning the pre-operation/execution activities.

In this strategic objective, network performance is targeted to en route capacity and emphasises the close link between capacity and efficiency because without meeting capacity targets, flight efficiency will not be achievable. It therefore concentrates on these en-route aspects of the Network Operations Plan (NOP), complemented by the setting-up of ATFM scenarios in the strategic and pre-tactical phases to address events and seasonal flow variations. Planning is also enriched through cooperation with adjacent States to capture extended ATFM information.

In addition, this objective continues to support local/FAB ATC system modernisation efforts started during RP1, in order to respond to the challenges imposed by the performance targets and build on SESAR deployments as appropriate.

4.5 SO 5: Facilitate business trajectories and cooperative traffic management



Network operations will be run with the objectives of meeting airspace users’ needs and complying with the network performance targets.

This strategic objective addresses the execution of ATM operations, taking into consideration the related planning activities which are required to improve predictability and punctuality. Its aim is to exploit efficiently the available network capacity through a cooperative traffic management approach.

It supports the best use of the airspace structure, in space and time, using the real-time coordination of the civil/military airspace as and when available. It also addresses proactively demand/capacity balancing where required through focused ATFM measures in close cooperation with the airspace users, with the minimum impact on their operations. It also requires improvements in flight planning systems and procedures, supported by ATM tailored meteorological processes and tools.

4.6 SO 6: Integrate airport and network operations



This objective consolidates the operational relationship between the actors involved in airport and network operations. It includes the minimisation of airport disruptions and delays, in particular in adverse weather situations, the setting-up of collaborative processes contributing to improved airport and TMA operations - and consequently airport and TMA performance – and to better coordination with ATM operations, thereby also having a positive impact on network performance. It is the ultimate goal, to fully interlink with the strategic objectives SO4 and SO5 in order to unlock the full network benefits.

The cooperation between the NM and airports will be improved through better data exchange thanks to coordinated planning, facilitated by the implementation of airport operations centres at the largest airports. This will lead to a better anticipation and application of ATFM measures – through Cooperative Traffic Management procedures - with reduced overall delays.

4.7 SO 7: Ensure network safety, security and robustness



Each operational actor ranks safety as the number one priority and contributes to safety improvements in line with the SES safety targets, under the oversight of the local NSAs and the EASA. Safety cannot be dissociated from the Network Functions: a single weak link in the aviation chain may endanger operations, therefore impacting on the Network Functions, and ultimately jeopardising the confidence of passengers and the whole sector at European level.

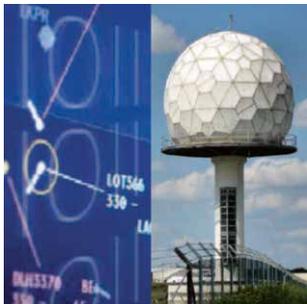
This strategic objective focuses on the network aspects of safety and the common actions bringing benefits at network level. It includes the need to ensure that all the changes required by the other strategic objectives - of whatever technical or operational nature - contribute to improved network safety (e.g. predictability, network information sharing, etc.).

The role of the Network Manager is two-fold:

- Ensure the safety of the Network Functions, under the oversight of EASA.
- Assist operational stakeholders in achieving their own safety performance targets. This activity is of a non-regulatory nature and does not overlap with the EASA duties. It supports the deployment of a harmonised safety approach across the network, in the two areas of operational safety improvements and safety management.

Ensuring the continuity of operations and minimising the impact of disruptions is another key enabler of aviation safety. This requires in particular management of the security and robustness of the systems, infrastructures and information/data supporting the ATM network. It also includes the setting-up of adequate crisis management processes/tools and organisations to enable service continuity and recovery with a minimal impact on the ATM network operations. The Network Functions Regulation gives a key role to the Network Manager in this area: support to network crisis management, with the political backing of the European Aviation Crisis Coordination Cell (EACCC).

4.8 SO 8: Optimise CNS resource allocation and costs



This objective is designed to achieve the optimisation of the use of European ATM CNS resources in a cost-effective manner. As required in the Network Functions IR, the best optimum use of aeronautical radio frequencies and SSR codes is essential to support the capacity and efficiency of the Network operations. This objective will also help support the stakeholders in optimising their CNS infrastructure.

On a more general note, the Communication, Navigation and Surveillance infrastructure essential to ensuring day-to-day continuous and safe ATM network operations represents a major source of cost in the provision of air navigation services, hence rationalisation and interoperability need to be reinforced.

In addition to the actions deriving directly from the Transponder code and Radio Frequency functions of NM, this objective addresses the optimisation of CNS resources through their harmonised deployment; and the investigation of innovative solutions aimed at reducing the cost of ATM/ANS service provision. This includes, but is not limited to, services deriving from EUROCONTROL's Centralised Services initiative. These solutions will be considered during RP2 and, if conditions allow, the mature services could be deployed and operated.

4.9 SO 9: Develop the network human capital and improve its performance



ATM is a labour-intensive industry where staff competencies are paramount in achieving operational efficiency without compromising on safety. Currently there is little functional mobility³ of the controller workforce within the European ATM network and the principle of a guaranteed level of service does not apply throughout the network.

The lack of flexibility of staff resources has been identified as a major root cause of lack of capacity. The issue of staff performance is addressed in this objective, with multiple initiatives such as improved rostering (e.g. night/weekend), staff mobility if financially and operational viable, or cross-unit provision of air traffic services, paying due regard to the Human Factor requirements of the Single European Sky.

4.10 SO 10: Prepare for RP3 and beyond



This objective encompasses the investigation of the most significant initiatives/changes impacting on Network performance in the medium term (RP3) and the related preparatory actions as required.

The SESAR deployments planned in RP3 will be the main driver for potential performance improvements. Scoping the priorities for deployment - based on expected performance benefits and network priorities - will be an important action with a view to preparing all stakeholders for the smooth transition plans to RP3. Therefore the future SESAR Deployment Common Projects will play a major role.

The preparation of Network Planning for RP3 will also take account of global ATM plans such as Flight and Flow Information for a Collaborative Environment (FF-ICE) and Aviation System Block Upgrades (ASBU), derived from ICAO and EC regulations. It will build on FAB achievements and developments.

It may also include preparatory work on initiatives which may be launched in the course of RP2, for which an NSP update will be required, such as the potential deployment of the Centralised Services, the evolution of the Network Manager's role and/or governance, and any other future structural changes.

³ Functional mobility is the provision of ATS services by appropriately qualified ATC staff outside their normal area of responsibility.

5. STRATEGIC PLANNING

The 10 strategic objectives are enabled by a set of actions to be implemented in the course of the Reference Period by the operational stakeholders together with the Network Manager. They encompass the network-wide deployment of technological developments and operational procedures; evolutions in the allocation and sharing of resources; and the required evolutions of the network governance to ensure it remains effective and efficient in all circumstances.

Sections 5.2 and 5.3 enumerate the main actions which will contribute to achieving each strategic objective in the short/medium term and long term. The description of these actions includes the operational stakeholders involved together with a set of indicative intermediate milestones.

5.1 How to achieve the strategic objectives

To address the challenges to network performance in RP2, the network actors need to build on the instruments established under the Single European Sky and align their action plans accordingly, namely:

- **NM strategic projects** (main operational and technical evolutions led by NM)
- **FAB implementation** (e.g. cross-border solutions)
- **SESAR implementation** (Pilot Common Projects, CNS developments)
- **Network Management optimisation** (e.g. Network Functions, CDM)

In addition, subject to approval in the SES framework, the EUROCONTROL Centralised Services initiative may contribute to achieving the NSP strategic objectives. If they are approved, the NSP will be updated accordingly.

5.1.1 NM strategic projects

The projects listed below are the Network Manager's strategic projects planned to date, which are described in the NM Strategic Investment Plan for the period 2013-2018. They were presented to the NMB in June 2013 and will be updated annually in line with the NM budgetary process. Most of the NM projects are directly

linked to the scope of the SESAR Pilot Common Project, as currently understood. They comprise:

- **Free Route Airspace**
Adaptation of NM systems to FRA and NM support to FRA. It is expected that by 2019 most of European airspace will be covered by FRA.
- **Airspace Management & Advanced Flexible Use of Airspace**
Harmonisation of the FUA application across the network and related information exchange improvements between local military partners and NM.
- **Cooperative Traffic Management**
The Cooperative Traffic Management (CTM) project is intended to implement the 'Time-Based Operations' SESAR concept in a phased approach and in a harmonised way throughout Europe, by:
 - Optimising the delivery of traffic into sectors and airports through a cooperative approach between Network, ATC, flight operations and airports;
 - and introducing time-based processes, which reduce the gap between the planning and the execution phases. In particular, STAM processes will be deployed step-by-step, based on ANSP experience and the outcomes of the SESAR validation exercises.
- **EAIMS/Pre-departure Static and Dynamic Aeronautical Information**
Development of the European ATM Information Management System (EAIMS), a Centralised Service offering a single source of reference airspace and aeronautical data.
- **NM Ops Service Platform**
A Collaborative Network Common Platform enabling network information sharing and collaboration functions, mostly through extensions of the NOP Portal and the NM B2B Services.
- **Airport Network Integration**
NM system developments supporting A-CDM, starting with the extension of the PIATA airport capacity assessment and simulation tool.

- **Network Business Intelligence**
Extension of the NM data collection, monitoring and reporting systems to address the new needs for performance measurement in RP2.
- **IT Infrastructure Efficiency**
Technical improvements to the NM technical platforms, aimed at improving cost-efficiency and interoperability, including:
 - Converged VCS and PBX communication equipment - for cost-saving purposes
 - PENS Evolutions - to align with SESAR requirements
 - Green IT and Virtualisation of Operational IT
 - Adoption of Cloud Services.

This chart summarises the NM strategic projects, highlighting how they contribute to the strategic objectives and how they relate to the SESAR Deployment Plans.

S0	NM Strategic Projects	SESAR Deployment in RP2 (PCP/IDP)
S02 Info.Systems	EAIMS / Pre-departure static and dynamic data NM Ops Service Platform Network Business Intelligence IT Infrastructure Efficiency	AF#5 ISWIM functionality IDP2- Airspace Management improvements and data sharing
S03 Airspace	Free Route Airspace Airspace Management & Advanced FUA	AF#3 Flexible Airspace Management and Free Route
S04 Capacity	NM Ops Service platform	AF#4 Network Collaborative Management IDP5- Automated Assistance to Controllers for seamless coordination, transfert & dialogue IDP4- Air-Ground Datalink
S05 ATFM	Cooperative Traffic Management NM Ops Service platform Initial Trajectory Information Sharing (New)	AF#4 Network Collaborative Management AF#6 Initial Trajectory information sharing IDP1- Cooperative Flight Planning and Demand & Capacity balancing Tools
S06 Aiports	Airport & TMA Network integration Cooperative Traffic Management (including Extended AMAN and PBN in TMA) Flight Plan and Airport Slot Alignment (New)	AF#2 Airport Integration and throughput functionalities AF#1 Extended AMAN and PBN in high density TMA IDP3- Airport CDM IDP6- RNP Approach IDP7- CDO/CCO Application
S07 Safety	NM support to Network Safety (New)	
S08 CNS Performance	NM support to CNS infrastructure performance (New) PENS	

5.1.2 FAB implementation

FABs are required key contributors to performance achievement in RP2. Operational and managerial measures will have to be taken at network and regional level to increase the current effectiveness of the local actions.

In the context of RP2, very positive developments are expected at FAB level. FABs will develop their contribution to network performance and operational improvements through the development of their regional network capabilities. This can be accelerated by promoting best practices among the FABs (e.g. cooperation on the extended Arrival Manager, functional extensions, formal NM/FAB relationships), and by facilitating inter-FAB coordination.

The Network Manager will play a role by fostering exchanges and coordinated initiatives, in order to trigger performance benefits at FAB and inter-FAB level. When beneficial to network performance, regional cooperation with adjacent non-EU States should also be initiated or pursued.

The operational areas where FABs will be instrumental to network performance include: designing more direct cross-border routes; improving regional coordination with the military; setting up more flexible staff arrangements, including mobility; reinforcing the simulation capabilities to address capacity-critical areas and airspace design solutions; defining NM/FAB operational interfaces; harmonising performance measurement indicators; investigating shared solutions for infrastructure optimisation, etc.

5.1.3 SESAR implementation

■ **SESAR deployment**

The EC has launched the SESAR Deployment initiative. It identifies the mature technologies stemming from SESAR research and development which can help achieve the RP2 performance targets, and synchronises all stakeholder deployments. Two SESAR Deployment programmes will run during RP2:

- The SESAR Deployment Pilot Common Project (PCP), which will address an initial part of Step 1 of the ATM Master Plan. The first set of ATM Functionalities will be deployed through this Pilot Common Project (PCP), to be initiated in early 2014. It may be followed by future Common Projects (CP) for deploying additional Step 1 and eventually Step 2 enablers when they mature.

- The Interim Deployment Plan (IDP), which will continue to deploy SESAR baseline enablers, such as Airport CDM, DataLink services, Automated assistance to Controllers and Demand Capacity Balancing.

It should be stressed that the PCP deployment is expected to deliver benefits mostly towards the end of RP2, for which a more detailed benefit assessment needs to be established. However, a significant part of the RP2 performance improvements will have to be found from ongoing NM projects and from further operational and managerial measures.

■ **Conditions for successful SESAR deployment**

Building on a commonly accepted Network Vision and an underlying common Network architecture will be instrumental in guiding network-wide deployment. It will:

- Support for each stakeholder the identification of the relevant operational and technical changes to meet network and local performance requirements;
- Support an optimised deployment approach (local/FAB/central) to rationalise the workload, minimise risks and avoid the costs generated by 'patchy deployments'.
- Ensure that all ATM systems deployed across the network are moving towards SWIM, with full interoperability.

5.1.4 Network Management optimisation

In line with the Network Functions Regulation, operational and managerial measures should be taken at network level to optimise the actions of NM, so that the overall objective of network performance is able to prevail.

This includes, for instance: arbitrating the issue of delay sharing/attribution and defining the related ATFM measures if no consensus can be found; strengthening the process for the resolution of the capacity-critical areas; reinforcing coordination in the event of network disruption, strikes or crises and setting up best practices to improve anticipation of disruptions and social unrest; anticipating better meteorological events and disruptions at airports; strengthening the network capabilities in terms of business and operational intelligence (STATFOR, CODA) and the stakeholders' contribution to the process; reinforced support of NM to the FAB operational implementation, in particular through

the nominated contact points, and to the most critical airports; reinforcement of the NSP and NOP planning and monitoring processes, etc.

5.2 Short/medium term planning

For each strategic objective, the list of the most significant actions to be implemented in the course of RP2 has been established, indicating the operational stakeholders involved and the main milestones, which are indicative.

The detail of these actions is provided and regularly updated in the NOP.

See Annex A for a visual overview of the NSP actions and timelines, and their relations with the PCP deployment projects.

Note: *The actors involved are mentioned in the Milestones/Actors column immediately after the text of the corresponding milestone (e.g.: NM & ANSP & AO), and the action owner is mentioned in the Owner column. Where there is more than one owner, the Owner column reads (O).*

S0 1: Manage performance through 'Network-minded' decision-making

Id	Action	Indicative Milestones - Actors	Owner
S01/1	Reinforce Network Decision-Making processes by strengthening Network governance and accountabilities	<p>2014: Review of the Network Functions Implementing Rule, especially consolidation of NM governance (NMB & EC)</p> <p>2016: In-depth review of the Network Functions Implementing Rule – 2nd step (NMB & EC)</p>	(0) (0)
S01/2	Network Manager to ensure the close monitoring of the execution of the NSP and the NOP based on the stakeholders' progress reports - and to escalate all deviations to the appropriate governance entity	<p>Continuous:</p> <ul style="list-style-type: none"> ■ All Teams involved in the NM working arrangements to provide regular progress reports on the execution of the NSP actions to NM (NetOps, AOT, AIM, SAF, SET, RFF) ■ Monitoring and reporting available at NMB and NDOP level, on the basis of the reports provided by the corresponding teams 	Teams NM
S01/3	FAB/ANSP to implement the NSP through fully consistent local Performance Plans and NM to support these plans as required by the Performance Scheme	<p>2014/2015: FAB/ANSP ensuring consistency of their Performance Plans with the NSP (FAB & NM)</p> <p>Continuous (once a year): NM providing planning support to FAB/ANSP via the NSP and NOP CDM processes (NM & FAB & ANSP)</p>	FAB NM
S01/4	FABs to accelerate their operational implementation with the support of the Network Manager, as appropriate	<p>2014: Continuous process established between each FAB and NM for cooperating on FAB operational implementation and on NM/FAB operational and technical integration - through established contact points (FAB & NM)</p> <p>2014: NM/FAB formal working arrangements fully in place with all FABs (FAB & NM)</p> <p>Continuous: FABs to produce regular progress reports on their network related operational evolutions to NM. NM to monitor progress (FAB & NM)</p>	(0) (0) FAB
S01/5	Network Manager to develop and facilitate the use of network business and operational intelligence.	<p>2014: Extended traffic forecast process through which NM involves AOs and ANSPs in data collection and the regular and formal exchange of local and network intelligence (NM & AO & ANSP)</p> <p>2019: Ops stakeholders to share their relevant ops data to enable network performance reporting, to be combined with NM data through a common interoperable business intelligence platform - in support of strategic and tactical planning. (NM & ANSP & AO & APT)</p>	NM (0)
S01/6	Airspace users to reinforce their involvement in NM's CDM	Continuous: Airspace users to provide regular reports on their operational improvements and network issues to NDOP	AO

SO 2: Deploy interoperable and effective information management systems

Id	Action	Indicative Milestones - Actors	Owner
S02/1	Extension of the current NM Operational Service Platform with development frameworks and enrichment of NM and stakeholder systems with the functionalities required to support the CDM processes and the SES requirements.	<p>Continuous: Enrichment of NM and stakeholder systems to support S03, S04, S05, S06, S07 and S08 actions. (NM & ANSP & FAB & AO & APT & Military)</p> <p>2015/2016: NM's B2C and back-end frameworks in place; NOP Portal and B2B web-services over PENS.</p> <p>2017: Network SOA back-ends based on new frameworks.</p> <p>2017: Stakeholders exploiting opportunities provided by modern technology in their interaction with NM, including Internet and B2B web-services. (ANSP & FAB & AO & APT & Military)</p>	(0) NM NM (0)
S02/2	Develop business intelligence capabilities in support of Network decision-making.	<p>Continuous: Ensure availability of relevant information to enable information analyses for network performance reporting.</p> <p>2018: Architecture and platform available for large amount of data analyses ("Big data"), supporting information provided by all ATM stakeholders.</p> <p>2019: Integrated flight performance, fleet and forecast data - to deliver reports which give better, early indicators of trouble spots for the day in support of strategic and tactical planning.</p>	NM NM NM
S02/3	Improve the NM systems infrastructure .	<p>2016: Upgrade of contingency infrastructure to ensure NM service continuity and Green IT.</p> <p>2019: Cloud services integrated into the NM systems infrastructure.</p>	NM NM
S02/4	Implement a service-oriented architecture in compliance with the European SWIM specifications to ensure interoperability in support of the Network Functions at central, regional or local level.	<p>2015: NM service measurement in place.</p> <p>2015/2016: NM to support the SWIM yellow profile publish-subscribe pattern.</p> <p>2018: FF-ICE Phase 1 implementation (pre-departure information). (NM & ANSP & FAB & AO & Military)</p>	NM NM (0)
S02/5	Implement the European ATM Information Management Service (EAIMS) as the common reference for aeronautical and airspace data.	<p>2014: Consolidated use of EAD as a central reference for AIM data. (NM & ANSP & FAB & APT & Military)</p> <p>2014/2015: Implementation of EAIMS ADQ compliance.</p> <p>2016: Enhanced briefing (including MET, APT data, Graphical Tool) and Initial Digital NOTAM</p> <p>2019: Full EAIMS Implementation. (NM & ANSP & FAB & APT & Military)</p>	(0) NM NM (0)

S0 3: Implement a seamless and flexible airspace enabling Free Routes

Id	Action	Indicative Milestones - Actors	Owner
S03/1	Deploy full free route airspace throughout the European ATM network, to the maximum extent possible.	2014: Achieve the flight efficiency targets ensuring initial implementation of FRA in at least 25 ACCs in Europe. (NM & ANSP & FAB & AO & Military)	NM
		2016: Achieve the flight efficiency targets ensuring initial implementation of FRA in at least 35 ACCs in Europe. (NM & ANSP & FAB & AO & Military).	NM
		2017-2019: Achieve the flight efficiency targets ensuring gradual implementation of FRA throughout European airspace above FL310, working towards the SESAR deployment (PCP) objective of Free Routing in 2022. (NM & ANSP & FAB & AO & Military)	NM
S03/2	Implement Advanced Flexible Use of Airspace .	2014: Shared airspace situational awareness at network and FAB level. (NM & ANSP & FABs & AO & Military)	NM
		2017: Implementation of the ASM agreed Directions of Work, as part of ERNIP (NM & ANSP & FAB & AO & Military)	NM
		2019: Seamless, Collaborative Decision Making (CDM) ASM/ATFCM/ATS process with advanced real time management of airspace configurations and continuous information sharing. (NM & ANSP & FAB & AO & Military)	NM
S03/3	Implement appropriate cross-border airspace structures, enabling a flexible use of airspace - to achieve the flight efficiency targets and ensure appropriate cross-border sectorisation as required for FRA deployment.	Continuous: Planning and monitoring through the NOP process (ANSP & FAB & Military)	(0)
S03/4	Coordinate the development and implementation of airspace design and airspace management improvements to achieve the flight efficiency targets and ensure appropriate network connectivity and coordination.	Continuous: Planning and monitoring through the NOP process, in the European Route Network Implementation Plan (ERNIP) (NM & ANSP & FAB & AO & Military)	NM

S0 4: Plan optimum capacity and flight efficiency

Id	Action	Indicative Milestones - Actors	Owner
S04/1	Modernise the local/FAB system capabilities including ATC planning functions and Controller tools	Continuous: ATM local enablers implemented to achieve the required performance objectives (FAB & APT)	(0)
S04/2	Improve the quality of ATFM planning by improving the quality of airspace and flight plan data, by exchanging flight and ATFM data beyond Europe , and by adapting ATM procedures accordingly.	Continuous:	NM
		<ul style="list-style-type: none"> ■ Improve the NM systems to secure the full benefits of the new operational concepts (see S02/1) ■ Develop the network and local ATM procedures to respond to new operational concepts (ANSP & FAB & AO & Military) ■ Set-up bilateral or cross-continental arrangements to exchange flight & ATM data 	(0)
			NM
S04/3	Maintain focus on planning and implementing improvements through the Network Operations Plan with a view to the proper delivery of en-route and airport capacity.	Continuous: Coordination through continuous stakeholder support on operational planning matters and the CDM process enabling the Network Operations Plan (NM & ANSP & FAB & AO & Military)	NM
S04/4	Ensure that local/FAB/network ATM transition projects are coordinated across the network and are deployed in a synchronised fashion.	Continuous: Development and implementation of coordinated detailed transition plans for major projects (NM & ANSPs & FABs & AOs & Military)	(0)

S0 5: Facilitate business trajectories and cooperative traffic management

Id	Action	Indicative Milestones - Actors	Owner
S05/1	Enable 4D trajectories at planning level, in cooperation with airspace users and ANSPs.	<p>2015/2016: Initial deployment of the Extended Flight Plan (EFPL) (NM & ANSP & FAB & AO & Military)</p> <p>2018: Full deployment of extended flight plan (FFI/1) (NM & ANSP & FAB & AO & Military)</p> <p>2018/2019: (subject to PCP deployment roadmap): Deployment of the NM Flight Object Server (FOS) and inclusion of NM as an Interoperability Partner (IOP)</p>	<p>NM</p> <p>NM</p> <p>NM</p>
S05/2	Provide users with full visibility of the planned network situation with “look ahead” capabilities, in support of their flight planning operations.	<p>2014: DDR/2 full implementation.</p> <p>2015/2016: Display network situational information via the NOP Portal or via NM B2B interfaces (hotspots, real-time activation of airspace, etc.)</p>	<p>NM</p> <p>NM</p>
S05/3	Deploy network ATM tailored procedures and tools in order to anticipate, handle and mitigate crises and disruptions due to adverse weather, natural hazards and other unusual phenomena.	<p>2014: Standard published procedures available demonstrating benefits for ATM performance.</p> <p>2016: Deploy an NM natural hazard risk assessment tool.</p>	<p>NM</p> <p>NM</p>
S05/4	Deploy operational processes reducing the need for - and impact of - ATFM measures.	<p>2014: First operational implementations of Mandatory Cherry Picking (MCP).</p> <p>2015/2016: ECAC-implementation of occupancy count based STAM as required for network performance and interoperability (NM & ANSP).</p> <p>2019:</p> <ul style="list-style-type: none"> ■ ECAC-wide use of system supported CDM for STAM (NM & AO & ANSP) (0) ■ Target Time operations for regulated flights (NM & AO & ANSP) (0) 	<p>NM</p> <p>(0)</p> <p>(0)</p> <p>(0)</p>
S05/5	Support airspace users in improving flight efficiency by ops and technical initiatives. Airspace Users to make full use of these initiatives.	<p>2014</p> <ul style="list-style-type: none"> ■ Full availability of the NM Opportunity tool and related flight planning support to airlines ■ Establishment of a CFSP Group supported by IATA and cooperating with NM on FPL system evolutions <p>2016: Broad use of the NM opportunity tool by airspace operators.</p>	<p>NM</p> <p>CFSP</p> <p>AO</p>
S05/6	Improve flight plan predictability by reducing the gap between planning and execution, through adherence to the trajectory of the last filed flight plan, as well as agreed ATFCM measures, with managed flexibility	<p>2015: NM monitoring predictability indicators.</p> <p>2016: Agreement on a common AO/pilot and ANSP/ATC approach on improving Flight plan predictability and on a set of related practices (AO & ANSP)</p>	<p>NM</p> <p>(0)</p>

S0 6: Integrate airport and network operations

Id	Action	Indicative Milestones - Actors	Owner
S06/1	Improve flight plan/airport slot consistency .	2016: Development, validation and start of deployment. (NM & APT & ANSP)	(0)
		2017: Operational at all coordinated airports. (NM & APT & ANSP)	(0)
		2019: Potential connection of adjacent States' airports. (NM & APT & ANSP)	(0)
S06/2	Improve NM/Airport/ATC operational partnership , starting with the integration of AOPs into the Network Operations Plan.	2016: 3 pilot APOC deployments. (NM & APT). 2019: Implemented Airport Operations Centre (APOC) at 10 major airports. (NM & APT)	(0) (0)
S06/3	Implement the Advanced Tower concept (tower with DPI messaging)	2016: Advanced Towers implemented at 25 airports in total. (NM & APT) 2019: Advanced Towers implemented at 50 airports in total. (NM & APT)	(0) (0)
S06/4	Implement full Airport CDM .	2016: Full CDM implemented at the 30 largest European airports in total (NM & APT) 2019: Full CDM implemented at the 42 largest European airports in total (NM & APT) <i>NB: Targets may be re-balanced between A-CDM & Advanced Tower</i>	(0) (0)
S06/5	Deliver Airport/TMA efficient operations , in all weather conditions.	2016: <ul style="list-style-type: none"> ■ Obstacles to CDO deployment in European airports mitigated (including charting and phraseology issues). (APT & ANSP, with NM's support) ■ 2 pilot deployments of TTA and PBN. (APT & ANSP, with NM's support) 2018: PBN Approach procedures implemented at all instrument runway ends (APT & ANSP) 2019: <ul style="list-style-type: none"> ■ Target Time of Arrival (TTA) and PBN implemented for 10 major airports in total. (APT & ANSP, with NM's support) ■ CDO implemented at 200 airports in total. (APT & ANSP, with NM's support) ■ RECAT-EU implemented at 5 airports in total (APT & ANSP, with NM's support) ■ Time-Based Separation implemented at 5 airports (APT & ANSP, with NM's support) ■ PBN procedures implemented in 10 major TMAs in total (RNAV-1) 	(0) (0) (0) (0) (0) (0) ANSP
S06/6	Improve airport surface traffic management , in particular during adverse weather conditions.	2016: 2 pilot A-SMGCS deployments. 2019: Implement surface traffic management (A-SMGCS) at 10 airports.	APT APT

Note: In the next table, some NM actions are subject to confirmation of NM's role in the area of "Support to Network Safety", which is currently under assessment, as part of the review of the Network Functions IR. The NSP may have to be updated depending on the outcomes of the NF IR review.

S0 7: Ensure network safety, security and robustness			
Id	Action	Indicative Milestones - Actors	Owner
S07/1	Severity Classification: Apply the Risk Assessment Tool (RAT) methodology (RP2 EU-wide target)	2017: ANSPs to use RAT for assessing 'ATM Ground' Severity classification of 80% of reported cases (as per the Performance Scheme)	ANSP
		2019:	NM
		<ul style="list-style-type: none"> ■ Finalise the deployment of the RAT in line with the Performance Scheme ■ ANSPs to use the RAT for assessing 'ATM Ground' Severity classification of all reported cases (as per the Performance Scheme) 	ANSP
S07/2	Improve Network Safety , with NM's support as relevant.	2014, 2017 & 2019: 1 st /2 nd /3 rd prioritisation of the 'Top 5' operational safety risks in the Network.	NM
		2014: ANSPs to reduce the human contribution to risk in operations by implementing the Safety Human Performance Action Plan agreed with the Safety Team consultation group.	ANSP
		2017: Availability of complementary Safety Tools (ASMT, APF, TOKAI etc) to allow full SMS spectrum within 45% of ANSPs.	NM
		2019:	ANSP
		<ul style="list-style-type: none"> ■ Availability of complementary Safety Tools to allow full SMS spectrum within 90% of ANSPs ■ Harmonised ground and airborne safety nets by the end of RP2 by all stakeholders within the Network. (ANSP & AO) ■ FABs to reduce the human contribution to risk in operations by implementing the Safety Human Performance Action Plan agreed with the Safety Team consultation group 	(O) FAB
S07/3	Develop Just Culture in European ATM - by progressing its cause, development and spread.	2016:	ANSP
		<ul style="list-style-type: none"> ■ Implementation of a Model Just Culture Policy in 45% of ANSPs ■ Training of 40 ATCOs and 40 pilots to become Prosecutor experts (ANSP & NM) 	(O)
		2019:	ANSP
		<ul style="list-style-type: none"> ■ Support the establishment of Just Culture interface with judiciary authorities for 60% of ANSPs in the Network ■ Implementation of a Model Just Culture Policy in 90% of ANSPs ■ Regional Just Culture road shows/workshops (3 per year) for ANSP/FAB until 2019. 	ANSP NM

S0 7: Ensure network safety, security and robustness

Id	Action	Indicative Milestones - Actors	Owner
S07/4	Develop Safety Management in support of the Safety RP2 target.	<p>2014: NM to develop a SMS for NM functions to reach excellence Level C for the "Effectiveness of Safety Management".</p> <p>2017:</p> <ul style="list-style-type: none"> ■ ANSPs to reach excellence Level D in 50% of the areas of the 'Effectiveness of Safety Management' target. (ANSP, with NM's support as appropriate) ■ Develop a SMS for NM functions to reach excellence Level D in 50% of the areas of the "Effectiveness of Safety Management". <p>2019:</p> <ul style="list-style-type: none"> ■ ANSPs to reach excellence Level D for the 'Effectiveness of Safety Management' target except for Safety Culture, which should be at least Level C. (ANSP, with NM's support as appropriate) ■ Develop a SMS for NM functions to reach excellence Level D for the 'Effectiveness of Safety Management' target. 	<p>NM</p> <p>ANSP</p> <p>NM</p> <p>ANSP</p> <p>NM</p>
S07/5	Improve network response to crises .	<p>Continuous: Organisation of crisis simulation exercises (e.g. volcanic ash, cyber-attacks)</p> <p>2016:</p> <ul style="list-style-type: none"> ■ Harmonised and published Safety Risk Assessment (SRA) approach for crisis management across the network - including operational reports (NM & ANSP) ■ Expanded cooperation in crisis management with regions adjacent to NM and relevant expert organisations <p>2019: Review of the EACCC/NM roles in crisis management, to accelerate decision making and response to crises; Report to NMB/EC</p>	<p>NM</p> <p>NM</p> <p>NM</p> <p>NM</p>
S07/6	Improve Network security and service continuity .	<p>Continuous:</p> <ul style="list-style-type: none"> ■ Improve the Security Management Systems of the Network ops stakeholders, including the risk assessment of SWIM implementation, through promotion of best practices and harmonisation, in consultation with the corresponding teams (SET and AIM) (NM & ANSP & FAB & AO & Military & Airport) ■ Improve the coordination of the operational stakeholders' contingency plans at network level (e.g. repository of contact points/structures) (NM & ANSP & FAB & APT) 	<p>(0)</p> <p>NM</p>

S0 8: Optimise CNS resource allocation and costs

Id	Action	Indicative Milestones - Actors	Owner
S08/1	Ensure an optimised and cost-efficient use of the aeronautical radio frequencies .	<p>2014: VHF frequency assignment not creating critical delays for airspace improvements.</p> <p>2014 & 2019: Contribute to the efficiency of the Radio Frequency Function by implementing 8.33 in accordance with the targets of the VCS implementing rule.</p> <p>2019: Reduce the level of unmet requests for frequencies compared to RP1.</p> <p>Continuous: Ensure the optimised and efficient use of 1030/1090 Radio Frequency bands, to avoid degradation of network performance.</p>	<p>NM</p> <p>ANSP</p> <p>NM</p> <p>NM</p>
S08/2	Maintain a robust and transparent SSR code allocation process contributing to overall network efficiency.	<p>2014: Removal of Network capacity and safety constraints from the shortage of available transponder codes.</p> <p>2016 & 2019: Reduce the number of SSR transponder code changes in the NM Area by 30% and 50% respectively, thereby reducing the associated ATCO workload (ANSP)</p> <p>2019: Achieve the vision for the use of the downlinked aircraft identification (Mode-S) as the primary means of identification, with CCAMS (SSR Code) as a complementary solution where feasible for ANSPs in the NM area.</p>	<p>NM</p> <p>NM</p> <p>ANSP</p>
S08/3	Modernise the CNS infrastructures , and adapt the associated procedures.	<p>2014: Full deployment of the PENS IP network for ATM services</p> <p>2015:</p> <ul style="list-style-type: none"> ■ ANSPs to implement FMTP in accordance with the FMTP Implementing Rule ■ Implement DataLink in accordance with the DataLink Implementing Rule (ANSP & AOs) <p>2016: Implement the European Directory Services (EDS) in accordance with the ICAO manual - and operate them through the ATS Messaging Centre (AMC)</p> <p>Continuous: NM support to the DLS implementing rule by: operating the CRO; impact assessment of implementation delays; other actions on the basis of NMB's decisions.</p> <p>Continuous (2015-2020): AOs and ANSPs to meet the surveillance performance and interoperability requirements in line with the regulations (e.g. SPI IR). (ANSP & AO)</p> <p>Continuous (2015-2020): NM support to the implementation of the SPI IR: performance monitoring, impact assessment of implementation delays; other actions on the basis of NMB's decisions.</p> <p>Continuous: Monitor, assess and maintain the performance and interoperability of air-ground and air-air surveillance</p>	<p>ANSP</p> <p>ANSP</p> <p>(O)</p> <p>NM</p> <p>NM</p> <p>(O)</p> <p>NM</p> <p>NM</p>
S08/4	Assess and initiate the implementation of rationalised and cost-efficient CNS systems/infrastructures/procedures in particular through FAB initiatives.	<p>Continuous:</p> <ul style="list-style-type: none"> ■ Initiate and contribute to the network impact assessment of network/regional projects aimed at rationalising the Network CNS infrastructure (FAB & NM) ■ As required by equipment life cycles, rationalise and optimise conventional navigation infrastructure and provide reversion capabilities in the event of GNSS outage, through local PBN implementation projects as appropriate. (ANSP & FAB). 	<p>(O)</p> <p>(O)</p>

S0 9: Develop the network human capital and improve its performance

Id	Action	Indicative Milestones - Actors	Owner
S09/1	Implement flexible ATS provision arrangements meeting the airspace users' needs.	Continuous: Improve rostering and deployment of staff to support flexible and effective provision of capacity meeting demand.	FAB
S09/2	Ensure functional mobility of Air Traffic Control staff across sectors and frontiers to provide optimised capacity.	2015: FAB report identifying capabilities and limitations of cross-unit ATS - at national and FAB level (FAB & ANSP). Continuous: Progressive implementation of functional mobility solutions (FAB & ANSP).	FAB FAB
S09/3	In partnership with social partners, develop appropriate employment and legal framework to enable functional flexibility and mobility of ATC resources ⁴ if financially and operationally viable, including arrangements for guaranteed provision of acceptable service levels . levels.	Continuous: Regular progress reports to NDOP & NMB. (ANSP & FAB)	(0)
S09/4	Develop the ATC/ATM competency and roles together with corresponding training materials, building on the existing training capabilities.	Continuous: <ul style="list-style-type: none"> ■ Develop a roadmap supporting the evolution of the ATC/ATM competency and roles (ANSP & FAB & EASA & NM) ■ Facilitate the development of training solutions on PBN, DataLink and new surveillance techniques for ATCOs and pilots (NM & ANSP & FAB & AO & EASA) 	(0) (NM)

5.3 Long term planning (S010)

S0 10: Prepare for RP3 and beyond

Id	Action	Indicative Milestones - Actors	Owner
S010/1	Continued development of assessment and performance Model(s) in preparation for RP3.	2018: <ul style="list-style-type: none"> ■ In conjunction with the PRB, develop the flight efficiency performance model, including metrics, taking into consideration the 4D aspects of the flight profiles. (EC/PRB with NM's support) ■ In conjunction with the PRB, develop the capacity performance model, including metrics, addressing the provision and use of capacity. (EC/PRB with NM's support) 	EC EC
S010/2	Analysis of the network shortfalls in the horizon 2020/2025.	2017: Report analysing the European ATM Network shortfalls (airspace, airport, CNS, architecture, information management, human resources, regulatory)	NM
S010/3	Proposal of RP3 priorities for technological deployments .	2018: Based on the outcomes of Network performance in RP2, the anticipated network shortfalls for RP3 and the maturity of the SESAR developments, ops stakeholders to agree on priorities for RP3 technological deployments, in coordination with the Deployment Manager. (NM, ANSP, FAB, AO, APT, Military, Deployment Manager)	(0)

⁴ The development of an appropriate employment and legal framework in the areas of functional flexibility and mobility are largely within the competence of the Member States

5.4 NSP execution monitoring process

The actions of the NSP are intended to frame and drive the work and deliverables of the various consultation groups, in the framework of the CDM process as agreed by the NMB.

In order to manage the progress of the actions, indicative milestones have been defined for RP2, built on the progress achieved in RP1. Further goals will be defined for the next reference period in the light of the future performance objectives. The relevance and efficiency of the 10 strategic objectives will be assessed annually by the NMB on the basis of the Network Annual Report to be produced by the Network Manager at the end of each year.

Reports on the progress of the NSP implementation will be periodically provided by the Network Manager to the NMB and the Commission as necessary.

6. RISK ASSESSMENT AND MITIGATION

■ Risks associated with the plan

Risk 1: Implementation commitment of Network stakeholders

The NSP implementation will require the full participation of the Network Stakeholders and in particular the FABs.

Their commitment is primarily required in two areas:

- To ensure consistency between the strategic objectives of the NSP, the performance plans and the Network Operations Plan
- And to practise “network minded” decision making when addressing operational issues.

The risk for planning will be mitigated by close support from NM for the preparation of the FAB performance plans as appropriate, and by monitoring the NOP actions. Effective monitoring and reporting will be required to ensure that deviations in performance are identified and resolved.

The risk for operational cooperation will be mitigated by strong involvement of NDOP and NMB in decisions impacting on the Network.

Risk 2: Incorrect assumptions and changes to the objectives

The NSP is based on a general context and scenario assumptions, and proposed objectives aim to achieve the corresponding required performance. The current times of uncertainty, in particular regarding economic and social issues, may result in the assumptions being inaccurate, which may affect priorities and have an unexpected impact on objectives. The risk is to follow a plan that will not achieve the anticipated objectives, without the necessary agility to reverse the situation.

This will be mitigated by supporting the NSP via a dynamic and rolling Network Operations Plan and regional and local performance and operations plans which are consistent, realistic and attainable. Major deviations from the assumptions in this document will require revision of the NSP.

Risk 3: Deviations in traffic forecasts and their accuracy

Successive economic and traffic forecasts since 2009 have witnessed downward revisions as the

economic and financial malaise has deepened and lingered. Whereas there is evidence of a return to modest growth, there is considerable uncertainty as to the rate of growth, its geographic distribution and long-term sustainability. There are risks from three perspectives:

- The RP2 performance targets have been established based on the low growth forecast. There is a significant probability that this rate of growth could be exceeded.
- A return to more “normal” growth patterns emerging in RP2, in which case significant additional capacity will be required before the end of RP2.
- Significant geographic variations in growth and traffic flow distribution can be expected.

Mitigation of these risks will require the early detection of any changes in expected traffic trends and subsequent modulation of the indicative milestones for each strategic objective while maintaining the integrity of the actions themselves. A robust and flexible network operations plan (NOP) process at local, FAB and network level can ensure that the performance objectives for RP2 are achieved.

Risk 4: Lack of implementation of structural and technological changes

The RP2 period assumes the timely deployment of a number of technology-driven operational improvements under the coordination of the Deployment Manager, and their actual implementation by all actors concerned. In addition, concrete progress on the full implementation of FAB capabilities is required. These developments may lead to real benefits in capacity, flight efficiency and cost efficiency.

Failure to deliver on either will jeopardise achievement of the required performance during RP2.

To mitigate this risk, a clear definition of the roles and responsibilities of the Deployment Manager, the Network Manager and all actors involved is required, together with early alerting and escalation by NM if performance achievements are endangered.

Risk 5: Social tensions relating to Air Traffic Services provision

Social tensions have given rise to industrial action which has had a negative impact

on European ATM performance. This has generally been a localised phenomenon. There is a possibility that this risk will continue and indeed increase to some extent. Inability to overcome this problem will continue to jeopardise the achievement of the performance objectives.

The NM will monitor the evolving situation and mitigate as far as practicable and in a cooperative manner the impact of industrial action.

Risk 6: Postponement of Network-related strategic investments

In order to meet the RP2 Cost Efficiency target, when confronted with lower income, stakeholders and in particular ANSPs may have to review their planned investments. This may delay their on-going modernisation plans and as a consequence the achievement of performance targets.

To mitigate this risk, the rolling Network Operations Plan will maintain a close link between the performance to be delivered and the reality of investments. The link with the Deployment Manager will help maintain the full relevance of investments at the Network level, in line with performance priorities.

■ **Risk management**

The monitoring of the NSP and of the associated risks will be carried out through the Network CDM process, reporting to NMB. Any deviations from the plan must be fully addressed at an early stage.

Reporting and escalation processes are defined with the terms of reference of the consultations. The NMB will analyse the outcome, and actual or potential deviations from initial objectives, taking account of relevant decisions, including adaptations to the actions and goals of the NSP allowing achievement of the performance objectives.

If needed, NMB will contact the EC, which may request an opinion from the SSC. The revision of the actions or goals of the NSP will be part of a process agreed with the EC. Such decisions will be included in the annual report prepared by NM and submitted to NMB.

7. RECOMMENDATIONS



Building on the guiding principles for the network operation and its long-term perspective as defined in this NSP, and focusing on the priorities for achieving the network performance targets, all European operational stakeholders are recommended to focus on the following points:

- **Enforcement of the Network and FAB decision capabilities**

In RP1, a first step was achieved with the setting-up of Network CDM processes. In RP2, this mechanism will be used systematically to tackle the most salient network issues, for instance on recurrent critical areas, delay attribution rules, crisis management or resource optimisation. All partners must cooperate and make local decisions in a 'network-minded' spirit.

The FABs should also be strengthened with a reinforcement of their operational decision capabilities and efficient interfaces with NM.

They should start providing their first benefits, in particular on cross-border issues, the development of free routes and cost-efficiency.

The NSP strategic objectives should be fully reflected in the Network Performance Plan and the FABs' Performance Plans. Early detection of deviations from the plans is essential and must be reported to the corresponding governing bodies for corrective action.

- **Focused and coordinated Network evolutions**

By the end of RP2, it is expected that the SESAR technologies will start to provide their first performance benefits. At Network level, it is recommended to focus on those projects which will provide most benefits in the short term, namely Free Route Airspace (FRA), Cooperative Traffic Management (CTM) and the European ATM Information Management Service (EAIMS). Special efforts should be made to deliver these network projects collectively and according to plan.

The SESAR deployment should be coordinated among all actors, building on a common Network Vision, and according to a consistent, open and robust network architecture, with special attention being paid to Network security. It should deliver according to plan, in particular in order to improve airport and TMA efficiency not yet covered by the SES. The future Deployment Manager and the Network Manager must cooperate to achieve this coordination.

■ **Close risk management**

The risks identified in this NSP should be closely monitored by the NMB following regular reporting from the NM. This encompasses upside and downside risks to traffic forecasts caused by traffic volatility; uncertainty regarding medium-term capacity at the most congested airports; the adaptation of human resources and competencies to the planned technological evolutions; and all geo-strategic, natural or technical risks which might impact on the network.

In practice, in the case of significant changes in traffic forecasts, airport capacity forecasts or the geo-strategic, institutional or technological context of European ATM, the impact should be discussed with the NMB and the NSP amended accordingly.

From a longer-term perspective, in order to be ready to embrace the structural evolutions required to address the challenges of the future, strategic thinking should be organised at network level, involving the Network partners and the European Commission:

- Non-local initiatives aimed at reducing the cost of ATM/ANS services – in particular by better sharing and de-duplicating of the current IT and CNS infrastructures - should be encouraged, tested, and the outputs shared among all network partners.
- The SES institutional framework may need further enhancements to encourage structural reforms, reinforce the Network Functions when necessary, and review the network governance accordingly.

8. ANNEXES

Annex A - NSP Actions and PCP

Legend:		
	PCP Timeline	
	NSP Action Timeline <i>(Action linked with above PCP)</i>	
	NSP Action Timeline <i>(Action not linked to a PCP)</i>	
	start PCP investment	
	start PCP benefits	
	end PCP deployment	
	NM achievement	
	All STK achievement <i>(Action linked with above PCP)</i>	
	Airport achievement	
	NMB/EC achievement	
	AO achievement	
	ANSP/FAB achievement	

S01 - «Network-minded» Decision Making	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
S01/1 Network decision making processes											
S01/2 Monitoring NSP & NOP execution			<< continuous >>								
S01/3 Consistent Performance Plans			<< continuous >>								
S01/4 Accelerate FABs' implementation			<< continuous >>								
S01/5 Use network business/ops intelligence											
S01/6 AO's involved in NM's CDM			<< continuous >>								

S02 - Information Management Systems	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 ... 2027
AF#5 ISWIM functionality											
S02/1 NM Operational service platform		<< continuous >>									
S02/2 Develop business intelligence tools		<< continuous >>									
S02/3 Improve NM systems infrastructure											
S02/4 SWIM Interoperable Network Functions											
S02/5 EAIMS - Information management service											

S03 - Airspace	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AF#3 Flexible Airspace Management & Free Route											
S03/1 Deploy full FRA throughout the network											
S03/2 Advanced FUA											
S03/3 Cross-border airspace structures			<< continuous >>								
S03/4 Airspace design & ASM improvements			<< continuous >>								

S04 - Capacity Management	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AF#4 Network Collaborative Management											
S04/1 Modernise local/FAB ATC systems			<< continuous >>								
S04/2 Exchange Flight/ATFM data beyond Europe			<< continuous >>								
S04/3 Planning & implementing improvements			<< continuous >>								
S04/4 Coordinated ATM transition projects			<< continuous >>								

S05 - ATFM	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AF#4 Network Collaborative Management	◆			◆					◆		
S05/1 Enable 4D trajectories at planning level				◆		◆		◆			
S05/2 Visibility of the network situation		◆		◆							
S05/3 Tools to manage crises and disruptions		◆		◆							
S05/4 Reduce the need/impact of ATFM measures		◆		◆			◆				
S05/6 Improve flight plan predictability			◆	◆							
S06 - Airports	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AF#1 Extended AMAN & PBN in high density TMA		◆						◆			◆
AF#2 Airport Integration & throughput function	◆	◆									◆
S06/4 Implement full Airport-CDM				◆			◆				
S06/5 Deliver Airport/TMA efficient operations				◆		◆	◆	◆			
S06/6 Improve airport surface traffic management				◆			◆				
AF#4 Network Collaborative Management	◆			◆					◆		
S06/1 Improve flight plan/airport slot consistency				◆	◆		◆				
S06/2 Improve NM/APT/ATC ops. partnership				◆			◆	◆			
S06/3 Implement the Advanced Tower concept				◆			◆				
S06/5 Deliver Airport/TMA efficient operations				◆		◆	◆	◆			
S07 - Safety, Security, Robustness	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
S07/1 Severity classification with RAT						◆		◆			
S07/2 Improve network safety		◆			◆		◆	◆			
S07/3 Develop Just Culture				◆			◆	◆			
S07/4 Develop safety management		◆			◆		◆	◆			
S07/5 Network response to crises		<< continuous >>		◆							
S07/6 Network security & service continuity		<< continuous >>					◆				
S08 - CNS Resources	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
S08/1 Optimised use of radio frequencies		◆		<< continuous >>			◆	◆			
S08/2 Robust SSR code allocation		◆		◆			◆	◆			
S08/3 Modernise the CNS infrastructures		◆	◆	◆	<< continuous >>		◆	◆			
S08/4 Rationalised & cost-efficient CNS				<< continuous >>			◆	◆			
S09 - Human Capital	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
S09/1 Flexible ATS provision arrangements			<< continuous >>				◆				
S09/2 Functional mobility of ATCO staff			◆	<< continuous >>			◆				
S09/3 Framework enabling ATCO mobility				<< continuous >>			◆				
S09/4 Develop ATC/ATM competency				<< continuous >>			◆	◆			
S010 - Prepare for RP3	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
S010/1 Assessment and performance models						◆					
S010/2 Analysis of network shortfalls				◆							
S010/3 RP3 priorities for technological deployments						◆					

Annex B - List of Acronyms

ACC	Air Traffic Control Centre
ADR	Airspace Data Repository
AIM	Aeronautical Information Management
AMAN	Arrival Manager
ANSP	Air Navigation Service Provider
AO	Aircraft Operator
AOP	Airport Operations Plan
APT	Airport Operator
ARTAS	ATM Surveillance Tracker and Server System
ASBU	Aviation System Block Upgrade
ASM	Airspace Management
ASMA	Arrival Sequencing and Metering Area
A-SMGCS	Advanced Surface Movement Guidance and Control System
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATFCM	Air Traffic Flow & Capacity Management
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
A-CDM	Airport Collaborative Decision Making
ADQ	Aeronautical Data Quality
B2B	Business to Business (Application)
Baltic FAB	FAB comprising Poland, Lithuania
BLUE MED	FAB comprising Italy, Malta, Greece, Cyprus, (Egypt, Tunisia, Albania, Jordan as observers)
CCAMS	Centralised SSR Code Assignment and Management System
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CDR	Conditional Route
CFSP	Computerised Flight Plan Service Provider
CNS	Communication Navigation Surveillance
CODA	Central Office for Delay Analysis
CTM	Cooperative Traffic Management
Danish Swedish FAB	FAB comprising Denmark, Sweden
DANUBE	FAB comprising Bulgaria, Romania
DDR	Demand Data Repository
DPI	Departure Planning Information
DUC	Determined Unit Cost
EAD	European Aeronautical Database
EAIMS	European ATM Information Management Service
EASA	European Aviation Safety Agency
EC	European Commission

EoSM	Effectiveness of Safety Management
ERND	European Route Network Design
ERNIP	European Route Network Improvement Plan
ESRA	EUROCONTROL Statistical Reference Area
EU	European Union
FAB	Functional Airspace Block
FABCE	FAB comprising Czech Republic, Slovak Republic, Austria, Hungary, Croatia, Slovenia, Bosnia and Herzegovina
FABEC	Functional Airspace Block European Central comprising Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland
FDP	Flight Data Processing
FF-ICE	Flight and Flow Information for a Collaborative Environment
FIR	Flight Information Region
FL	Flight Level
FPL	Flight Plan
FRA	Free Route Airspace
FUA	Flexible Use of Airspace
GDP	Gross Domestic Product
ICAO	International Civil Aviation Organization
IDP	Interim Deployment Programme
IFR	Instrument Flight Rules
IP	Internet Protocol
IR	Implementation Rule
IT	Information Technology
KEA	KPI on horizontal flight Efficiency of Actual trajectory
KEP	KPI on horizontal flight Efficiency of last filed flight Plan
KHz	Kilo Hertz
KPI	Key Performance Indicator
NAT	North Atlantic Region
NEFAB	FAB comprising Estonia, Finland, Latvia, Norway
NM	Network Manager
NMB	Network Management Board
NOP	Network Operations Plan
NPP	Network Performance Plan
NSA	National Supervisory Authority
NSP	Network Strategy Plan
N-CDM	Network Collaborative Decision Making
Ops	Operations
P-RNV	Precision - Radio Navigation
PBN	Performance Based Navigation
PBX	Private Branch Exchange

PCP	Pilot Common Project
PENS	Pan-European Network Service
PI	Performance Indicator
RAD	Route Availability Document
RECAT-EU	Re-categorisation of Wake Turbulence Separation Minima - EU
RFF	Radio Frequency Function
RP1	Reference Period 1
RP2	Reference Period 2
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMI	Separation Minima Infringement
SMS	Safety Management System
SO	Strategic Objective
SOA	Service Oriented Architecture
SRA	Safety Risk Assessment
SSC	Single Sky Committee
SSR	Secondary Surveillance Radar
STAM	Short Term ATFM Measure
STATFOR	EUROCONTROL Statistics and Forecasts Service
SW FAB	FAB comprising Portugal (Lisbon FIR), Spain
SWIM	System Wide Information Management
TCF	Transponder Code Function
TMA	Terminal Manoeuvring Area
TTA	Target Time to Arrival
UK-Ireland FAB	FAB comprising United Kingdom, Ireland
VCS	Voice Communication System
VHF	Very High Frequency



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