EUROCONTROL Proposal for a first set of Centralised Services to contribute to SES Performance Achievement

Update to the European Commission

March 2013

Document Summary

Title	EUROCONTROL Proposal for a first set of Centralised Services to contribute to SES Performance Achievement		
Reference	EIM Proposal_Phase1Deliverable_v2_0		
Origin	EUROCONTROL Board of Directors	**Date**	25th March 2013
Version	2.0	**Status**	Release

Document Change Record

Version	Date	Sections	Reason
V1.0	14-12-12		Communication to EC
V2.0	22-03-13	All	General update of information

Contents

1 Foreword 1
2 Rationale 2
3 Proposed Centralised Services 5
4 Expected Benefits 7
5 EUROCONTROL Credentials 9
6 Stakeholder Analysis 11
7 Legal Assessment 14
Technical Annexes 17
CS#.1 Flight Plan and Airport Slot Consistency Service - FAS 18
CS#.2 4D Trajectory Calculation for Planning Purposes Service – 4DPP 21
CS#.3 European Tracker Service - ETKR 24
CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS 27
CS#.5 European ATM Information Management Service - EAIMS 30
CS#.6 Management of Common Network Resources Service - CNR 32
CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS 35
CS#.8 Pan-European Network Service - PENS 38
CS#.9 Data Communications Service - DCS 41
A. Legal Annex 43
B. Glossary 45

1 Foreword

The creation of the Single European Sky is at a turning point. Developments from the SESAR programme are reaching the deployment stage at the same time as States are finding it increasingly challenging to meet their SES objectives, particularly in the light of the current economic downturn.

EUROCONTROL is strongly committed to promoting a competitive air transport market in Europe through an ambitious approach to ANS-ATM that will significantly contribute to the achievement of the targets laid down in the performance scheme. EUROCONTROL is offering to cooperate closely with its Member States and the EU to bring the three pillars (Network Functions, Performance Scheme and SESAR) of the SES 2 package closer together.

In a letter from the European Commission (dated 30/11/12), EUROCONTROL was asked to elaborate more on the concept of Centralised Services.

EUROCONTROL proposes to focus on one of its key strengths, the technical and operational knowledge of the ATM network, to facilitate the development of the concept of 'centralised services' as part of the SESAR deployment. A 'centralised service' is an ANS support service or function exercised at pan-European and central network level.

Following an analysis of some 300 SESAR initiatives, up to 10 potential centralised services have been identified, consistent with the respective ICAO Block Upgrade, as ready and suitable for implementation at the pan-European level, thereby reducing the cost that would be incurred in the case of parallel deployments across Europe. It is a means to foster the deployment of new ATM technologies and to introduce market mechanisms and competition into the provision of ATM. In addition, the centralised approach promotes synergies and improvements in data quality and integrity.

The European Commission expressed its support for the idea of the establishment of up to 10 Centralized Services in the speech of Mr Baldwin to the WAC in Madrid (12th Feb) and DG MOVE asked in a letter dated 15th March to elaborate more on CS#9 as the Data communication Service.

Parts of the proposed services are already provided by EUROCONTROL and have generated significant savings for the Network. The services would need to be extended or started from scratch. EUROCONTROL would manage the services but the technical set-up and operation would, as far as possible, be put out to tender. This would allow air navigation service providers and manufacturing industries to develop and to conduct the technical systems and services on a pan-European basis under market conditions with performance based contractual arrangements. There is considerable merit in the centralised service proposal in its own right.

This paper describes the idea and benefits of centralised services, the associated underlying operational concepts, and initial thoughts on ways to use existing or future EU regulatory mechanisms as a basis for such work. Initial indications of net benefits are of the order of 1.5-2.0 billion Euros over 10 years; this demonstrates the potential financial savings of a centralised approach.

2 Rationale

2.1 Rationale

It is estimated that the continued fragmentation of European airspace generates some € 5 Billion[1] in additional costs annually, borne by the airspace users and ultimately by their customers, be it passengers or freight operators, which in turn has a detrimental effect upon European mobility and competitiveness. Compared to the US, the cost for the control of one aircraft for one hour is about double in Europe.[2]

While a proportion of this additional cost may be directly attributed to the inefficiencies created by non-optimal route networks, delays and other operational factors (Flight Efficiency), a high proportion of this cost may be attributed to the current organisation of ANS provision and the impact this has upon resources and the underlying infrastructure, in particular the multiplication of many ancillary services, operational functions and supporting systems.

Much of this structural inefficiency may be considered as a legacy from the past, where ANS provision had to be provided by the States within the national territory of the State itself, generally under the control of the national aviation authority.

There are however a few examples where the States in the past decided not to continue the provision of services on a national basis and asked EUROCONTROL to provide these services on their behalf. These services are nowadays all completely undisputed, due to the improvement of quality achieved, higher integrity of data as they are coming from one single source and the associated efficiency gains. Such examples are the CRCO founded in 1971, the creation of the CFMU in 1996, the ARTAS tracker for some participating countries and ANSPs, the EAD as of 2001.

Essential and critical network systems are already managed successfully by EUROCONTROL /NM according to the NM IR. Others, like ARTAS and EAD, can be linked to NM for the efficiency of the European network.

The provision of air navigation services and related functions have, with the implementation of SES II, to be fully performance-driven and optimised with a view to facilitating cooperation among air navigation service providers.

The Functional Airspace Block (FAB) initiative is to create synergies through airspace blocks based on operational requirements, established regardless of State boundaries, with an objective to reduce the current ANS fragmentation across Europe. Centralised services could contribute to that objective since the FABs would also benefit from them as performance enablers.

The enhancement of existing centralised EUROCONTROL services and the creation of new ones will have to fit with what exists (NM IR).

Centralised services will need to fit, operationally and technically with a network-wide system architecture view. This will minimise incompatibility and avoid interoperability issues between these services and the other actors operating within the European network.

---

[1] ACE Benchmarking 2010 shows ~1 billion euro is invested by ANSPs each year. There is ~14500 technical maintenance, planning and development staff in European ANSPs, i.e. 25% of all staff, whose cost is estimated at circa 1 billion euro per annum.

[2] U.S./Europe Comparison of ATM-Related Operational Performance 2010 - April 2012 – PRU & FAA

2.2 Network Performance

The evolution of existing EUROCONTROL centralised services (CFMU, EAD) moving ahead toward new centralised systems as part of SESAR deployment, to be developed and operated in strong partnership with the ATM industry is clearly aimed at bringing major benefits in network operations, quality of data, continuity of service and savings – all leading to the benefit of SES performance achievement.

Furthermore, it may be expected that a market-driven approach will also serve to stimulate innovation, create business opportunities and provide greater agility for the sector to adapt to changing business needs, for example, the development of intermodal connectivity as identified in the EU Transport White Paper.

Transition to such a scenario will however take time and resources, based on the SESAR deliverables aiming to deliver modern functionality into the ATM environment.

This approach provides the opportunity for a progressive, stepwise transition from the current fragmented infrastructure of separate information systems to integrated, network centric system architecture, taking advantage of system replacements (which with the SESAR deployment have to take place step by step) and staff retirement, so as to minimise financial and social transition costs.

2.3 A step necessary for the preparation for deployment

The need for preparatory measures

SESAR is the technological pillar of the SES 2 package. The development phase started in 2009 in accordance with the ATM Master Plan which prescribes the measures to be taken to optimize the SESAR benefits. The Master plan addresses the high-level operational changes and technological evolutions of the ATM system.

Early implementation of technologies already available (i.e. datalink) has started. This interim/transitional deployment phase should be seen as a first pillar of activities required for the preparation of the deployment phase. The IDP is managed by an interim governance structure, the Interim Deployment Steering Group chaired by the EC with the participation of all stakeholders. This transitional scheme shall end when the deployment phase is launched and a formal governance is established.

A legal instrument is currently under preparation by EC to organize an appropriate coordination and synchronisation of the implementation of SESAR through the 'Common Projects'. A test bed has even been established by EC to validate the future governance required for the deployment phase through a 'Pilot Common Project', the second preparatory pillar. This pilot preparatory phase will permit to verify the methodology for the selection of mature candidate technologies.

More work is needed before the formal launch of the deployment phase: selection of a deployment manager and adoption of a deployment programme (planned end of 2014).

<u>The 10 Centralized services as third pillar for the preparation of the deployment</u>

The Network Manager must also contribute immediately in this preparatory work. All stakeholders can decide to do so under the auspices of the NMB, the only decision-making body already in place.

NM has the capacity through its different existing tools to offer, before the start of the deployment phase, guaranteed availability of verified data for the whole network (slots correlated with flight plans, consolidated trajectory and FUA data, etc) ;those data will be critical for some key Common Projects (objectives of CS#1, CS#2, CS#4 and CS#5). Similarly the enhancement of the EAD (CS#5) is a pre-requisite before starting the deployment of Common Projects: electronic access shall be made available to all actors for all ATM info through a single network management system. (CS#8)

When NM functions will be extended with CS#3, CS#6, CS#7 and CS#8 ANSP, airports and airspace users will also be offered access to network-wide monitoring functions for the Surveillance data, scarce resources, security and the anomalies of the CNS infrastructure.

All those capabilities are pre-requisites and must be implemented before end of 2015; they contribute indeed directly to SESAR step 1, namely for the successful implementation of the 'time-prioritisation' process and initial trajectory-based operations. Centralized services complement the actions launched under the IDP and the PCP: they provide services and/or data to stakeholders whereas PCP focus on technology investments and functionalities.

3 Proposed Centralised Services

3.1 What is a centralised service?

A centralised service is an ANS service or ATM function exercised at pan-European and central network level for harmonisation and cost-efficiency purposes. It is a means to foster the deployment of new ATM technologies and achieve unbundling of some of the ancillary services or functions, through implementation of market mechanisms and competition. It will allow centralised services processes to be provided on a pan-European level rather than on a national/local level.

The principle for the concept of new centralised services is based on the model used for the European Aeronautical Information Service Database (EAD). The EUROCONTROL Organisation has been entrusted since 2001 by its Member States with the development, establishment and operation of the EAD. Operations are externalised to industry through procurement.

A centralised service can be described as:

- **An air navigation support service or a related function**
- **Exercised at central European/network level, bringing significant benefits in cost-effectiveness and harmonisation**
- **Contributing significantly to the Performance Targets of the Member States**
- **Supporting the implementation of SESAR developments on a central basis**
- **Supporting the implementation of SESAR developments to become pan-European services**
- **Supporting the unbundling of ancillary services**
- **Enabling service providers/ATM manufacturing industry to work together to provide the service outside of the national boundaries on a pan European level**
- **Allowing the implementation of market mechanisms for the centralised services following a tender process - competition for the market**
- **Allowing the implementation of performance based contracts between EUROCONTROL and the Service Provider**

3.2 List of proposed Centralised Services

CS #1. **Flight Plan and Airport Slot Consistency Service (FAS).** Match flight plans and airport slots to better exploit airport capacity and improve flight punctuality.

CS #2. **4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP).** Provide a centralised facility for common reference for the 4D Trajectory profile for all ATM planning activities with an increased accuracy, allowing reduction of buffers around airspace occupancy, reducing under-/over- delivery.

CS #3. **European Tracker Service (ETKS).** Enable the creation of an ECAC-wide, consistent, high quality Air Situation Picture and the provision of its required subsets to any user of processed surveillance information, civil and military.

CS #4. **Advanced Flexible Use of Airspace Support Service (AFUAS).** This service will provide civil-military collaborative ASM decision-making processes based on transparent ASM data and ASM performance feedback.

CS #5. **European ATM Information Management Service (EAIMS).** Accurate and timely information needs to be organised and provided through flexible means that support system-wide interoperability, secured seamless information access and exchange. In this Service the EAD service is integrated and enlarged by additional functions, such as ADQ,

weather briefing, digital NOTAMs, briefing depicting relevant NOTAMs on a chart in accordance with the flight track etc.

CS #6. **Management of Common Network Resources Service (CNR).** The scarce resource management addresses the Transponder Code Function (TCF) and Radio Frequency Function (RFF). These functions improve the management of these resources, optimising utilisation for the benefit of stakeholders and the Network as a whole, including allocation of scarce interrogator codes to Mode S radars installed in Europe. A centralised management of common resources (network addresses for instance) ensures a coherent and efficient utilisation of the resources shared by all the stakeholders.

CS #7. **Network Infrastructure Performance monitoring and analysis Service (NIPS)**. In order to achieve a safe and efficient operation the CNS infrastructure performance needs to be monitored and managed all along its deployment and operation. This service, consisting of seven interlinked and inter-dependent sub-services, such as datalink and transponder functions, will help to acquire a better knowledge of the infrastructure performance and therefore help in preparing infrastructure rationalisation.

CS #8. **Pan European Network Service (PENS).** To meet all present and future ground communication needs a secure connectivity is required between sites and partners. PENS is a shared service with centralised management based on IPv6 and compliant with SES regulation for FMTP as well as ICAO ATN/IPS standards. The provision is contracted out to a Network Service Provider. Potential to be expanded and could cover all stakeholders.

CS #9. **Data Communications Service (DCS)** To increase interaction between the air and ground ATM-related systems and replace current fragmented means of communication, a data communication service is required in all airspace (airport, TMA en-route, polar and oceanic); this service shall support all A/G services such as datalink, AOC services, ADS-C, flight information services, airport coordination services, space-based ADS-B, etc.

CS #10. in development

4 Expected Benefits

4.1 Costs & Benefits

Subsequent to an in-depth analysis of the SESAR programme, EUROCONTROL proposes up to 10 Centralised Services, which have suitable readiness levels and are relevant for implementation in a centralised manner. Their accelerated deployment could be envisaged for support from EU instruments to incite the transition. Some of those services are already partially provided by EUROCONTROL, while others will have to be established.

It is emphasised however, that these initial services have been generated through a bottom-up process which takes into consideration the constraints imposed by a technical environment which is not particularly well suited to the unbundling of services or functions, emphasising the importance of establishing an ATM network architect and system engineer.

Initial CBA analysis has been developed from a bottom-up perspective looking at the specific scope and implementation model for each centralised service. Based on experience of current centralised services, the Agency has demonstrated significant cost savings for service development in each participating State as well as savings for annual operational costs.

Taking EAD results to 2008[3], an annual saving of between €20 and 30 million per year for EAD users vs. non users can be observed. Recognising that the EAD is not yet fully used as a centralised service by all European states (as there is no binding mandate), it is reasonable to anticipate that overall savings could reach at least twice the current level.

Assuming that the entire list of centralised services represents in complexity and functionality the equivalent of 4 EAD-like programmes, the total annual cost savings for States could reach €200 million. This bottom-up estimate will need to be challenged by the actual cost savings analysis currently performed at detailed level for each targeted centralised service, but is considered to be conservative.

As an alternative, a top-down CBA approach has been performed for the list of centralised services included in this report. Based on sample enquiries, it is estimated that the centralised services represent today between 2.5% and 5.0% of ANSP ATM/CNS activities. Knowing that the European total costs for gate-to-gate ATM/CNS activities performed by ANSP represent about €7.5 billion[4], the centralised services cost represents, at the European level, an estimated cost of €300 million annually. Delivering these services from a centralised perspective would enable savings of at least 50% of this cost, generating a cost saving of €150 million per year.

The annual cost saving can be estimated at between €150 and €200 million, representing over the lifecycle of such technology, an overall cost saving of €1.5 to 2.0 billion for the airspace users over 10 years.

Initial findings from CBA studies performed on the individual Centralised Services suggest annual savings could be as high as €240 million, leading to a saving of €1 billion by 2024 and €2 billion by 2030.

To this pure cost saving estimate, the overall benefits of centralised services to the SES need to be added by taking into account capacity increases, flight efficiency, data quality, etc. Here the centralised services approach would act as a fundamental stepping stone and enabler of much wider benefits accrued by the suggested structural evolution. This structural evolution is expected to have very positive impacts on Cost

[3] EAD Service Business Review - Dorfmeister Report May 2009

[4] Meeting of the 97th Enlarged Committee for Route Charges – Nov.2012 – cost-bases and unit rates.

Efficiency (lower support costs, higher ATCO productivity), Flight Efficiency (nearly direct routes), Capacity (more flexibility to swap capacity and/or ATCO amongst centres) & Safety (common ground information system, built-in air-ground checks, redundancy of systems and ATCO).

4.2 Funding

The creation of centralised services will be based on the underlying principle that the overall costs of ANS/ATM charged to airspace users at European level will be decreased. The unbundling of services at national level to allow a provision of services at European level should in principle result in a decrease of corresponding national cost-bases. The costs could be transferred at European level, in the EUROCONTROL cost-base, however in a reduced proportion, since centralised services are expected to create economies of scale and contribute significantly to performance targets.

However, further reduction of the ATM/ANS costs charged to airspace users could be envisaged through the use of EU funding mechanisms, in particular:

i) Partial financing through ('normal') TEN-T grants (financing studies and work up to 50 %);

ii) Financing through the SESAR Deployment as Implementation Projects part of a Common Project: Common Projects aim to deploy ATM functionalities that will achieve the essential operational changes defined in the ATM Master Plan; some centralised services appear directly connected to the 6 SESAR key features (e.g. SWIM, 4D trajectory) and would fit in Common Projects since they would contribute to network improvements; an amount of 3 billion EUR has been requested by the European Commission in the TEN-T and CEF (Connecting Europe Facility) programmes; Article 15a.3 of Regulation No550/2004 provides that the Commission may decide to set-up Common Projects for network-related functions which are of particular importance for the improvement of the overall performance of ATM in Europe and that these are eligible for EU funding, subject to adequate CBAs.

iii) Financing from the SESAR development phase as a Very Large Demonstrator (VLD) proposal (e.g. 4D trajectory).

The EUROCONTROL Agency is putting forward a TEN-T request for the set up and demonstration of the 9 CS in March 2013.

5 EUROCONTROL Credentials

5.1 Experience and Achievements

EUROCONTROL possesses a proven and widely acknowledged competence in European ATM network architecture and systems engineering and is an established, trusted centre of knowledge and information regarding European ATM-related performance issues. Furthermore the Agency has demonstrated its commitment to the Single European Sky, supporting the European Commission under the auspices of the High Level Agreement.

EUROCONTROL currently provides a wide range of services, some of which are for the common benefit of all airspace users in Europe and some of which are specific services provided to individual organisations or groups of organisations.

Projects such as Reduced Vertical Separation Minima (RVSM) have showcased EUROCONTROL's ability to roll-out and successfully deliver complex projects.

The Agency has already demonstrated through the successful re-structuring of 2010 in preparation for NM and PRB designation, its ability and willingness to organise its resources according to the requirements of the role.

Through its nomination as Network Manager, EUROCONTROL is entrusted to manage, according to the NM IR, certain existing centralised functions. The proposed centralised services are not covered by the current scope of the NM functions but would facilitate and enable the execution of the NM functions. .

The establishment of a "Deployment Manager" is foreseen by the European Commission in its draft guidance material for Common Projects related to SESAR Deployment; the "Deployment Manager" will be responsible for the implementation of all Common Projects. A clear and formal interface with the NM to ensure the overall network performance should be addressed.

5.2 Independence of EUROCONTROL

EUROCONTROL, through Centralised services, will support the Member States in realising performance contributions by offering centralised services complementing implementation of SESAR results at local and FAB level. Of course, when providing or managing such services, the independence of EUROCONTROL should be maintained and conflict of interest should be avoided. The potential for conflict of interest is arguably significantly less with EUROCONTROL than with 'industry' in general. EUROCONTROL is not a private body, but an inter-governmental organisation serving the general interest in complete independence from industrial or commercial interests on a non-profit basis. EUROCONTROL's tasks are, on behalf of the Contracting States, carried out in the public interest. Such tasks generally aim at ensuring and improving air navigation safety and strengthening co-operation between all Contracting States. EUROCONTROL is regarded as a public authority when acting in the exercise of its powers. Given its legal status as an international organisation and the fact that its tasks, including research and coordination activities, fall within the "jus imperii", there is a favourable presumption that EUROCONTROL, like other public authorities or EU agencies, will be less prone to conflict of interests.

Further, EUROCONTROL Agency itself has employed a number of internal safeguards to avoid situations of conflict of interest: Internal safeguards, through Title II of EUROCONTROL's Staff Regulations, which sets out the official's rights and obligations towards EUROCONTROL and External safeguards through the Contract Regulations of EUROCONTROL.

The EUROCONTROL procurement rules are very strict and aimed at securing best quality for best price and safeguarding the principles of equal and fair treatment of all tenderers. As the formal sole Beneficiary of this Action, EUROCONTROL would act as an interface to make contracts with Industry, likely Manufacturers and ANSPs. The grant agreements between the Beneficiary, EUROCONTROL and Industry (according to EUROCONTROL financial and contractual regulations these will take the form of contracts) will apply the principles of fair competition, transparency, equal treatment, non-cumulation, non-retroactivity and non-profit. EUROCONTROL will pass on all relevant obligations from the TEN-T decision.

EUROCONTROL can broadly carry out the same type of tender procedures as the EU or EU states. From a procurement point of view, EUROCONTROL can normally use its own procurement rules, pursuant to Article 209 of the Rules of Application of the Financial Regulation. There are no restrictions generally on the use of the open and restricted procedures. EUROCONTROL can also avail of the Negotiated Procedure (Note: art. 11 of the EUROCONTROL Contract Regulations - "Private Treaty" Contracts) and the Competitive negotiated procedure (Note: art. 8 of the EUROCONTROL Contract Regulations - "Competitive Dialogue procedure").

6 Stakeholder Analysis

Stakeholder analysis is based on discussions held with various stakeholders between October 2012 and March 2013 testing the idea of Centralised Services. The centralised provision of the proposed services would help accelerate the implementation and benefits accrual of an initial set of the applications developed from SESAR results. Greater efficiency in their deployment and economies of scale would be realised through a central one-stop measure as opposed to complex synchronisation across multiple stakeholders at a local or national level. Further efficiencies would be achieved in the maintenance and support costs necessary to ensure service provision. While clearly the proposed scheme will improve the cost effectiveness of the provision of ANS across the European ATM network, it is useful to measure the impact and potential reactions upon the main stakeholders involved. Airspace Users will also benefit directly from some of the proposed services, such as the Extension of the European ATM Information Management Service or the Advanced Flexible Use of Airspace Support Services.

The airspace users will benefit from the reduction in cost and its associated contribution to the Performance Scheme, supporting the Performance targets.

The Stakeholders have been broadly categorised under five major segments:

- European Union
- States, including Military authorities
- Providers of ANS
- Airspace Users
- Airports
- Airport Slot Coordinators
- Manufacturing Industry

The centralised provision of ATM services will contribute to the overall improvement of the service level towards the ultimate client of the ATM Network: the passenger.

6.1 European Union

The establishment of centralised services fully supports the EU political goals and agenda, and will contribute to the achievement of a truly seamless Single European Sky and deploy the future air traffic management system in the agreed timeframe, in line with the objectives of the EU White Paper[5]. The unbundling and centralisation of ANS/ATM services will ensure de-fragmentation, competitiveness, continued investment and cost-efficiency. A catalogue of centralised services could also become a tool for the EU respective aviation external policies (ICAO, MEDA, ASECNA, TRACECA, etc).

The concept makes the link between the key SES policies aspects related to performance, network functions and SESAR deployment:

- **Link with the performance scheme**: it is expected that centralised services will provide better cost-efficiency and thus contribute to achieving the EU performance targets. The integration of the provision of ANS/ATM related functions or services is indeed an essential step towards defragmentation of Europe's infrastructure and thus contributes to the reduction of the excess costs caused by repetitive and unnecessary investments, maintenance and operating costs. Costs to provide 'certified/validated' data, notably safety-related data, can also be drastically reduced if provided in a centralised way.

[5] Roadmap to a Single European Transport Area – Towards a competitive and resources efficient transport system – COM(2011) 144 Final

The attached cost-benefit analysis demonstrates the added value of the proposed centralised services[6].

- **Link with Network Functions**: these functions in the context of SES aim at supporting the concept of a progressively more integrated operating airspace and are '*services of general interest exercised for the European Aviation network and contributing to the sustainable development of the air transport system by ensuring the required level of performance, compatibility and coordination of services, including those to ensure the optimal use of scarce resources'*[7]. The four activities entrusted today to the Network Manager are exclusively ATM functions and could be usefully complemented by additional activities performed as centralised services;
- **Link with SESAR Deployment**: centralised services could qualify as *implementation projects* under Common Projects aimed at deploying ATM functionalities that will achieve the essential operational changes defined in the ATM Master plan.

The impact of the establishment of centralised services on the European Union in terms of regulatory framework is addressed respectively in Section 7 (Legal Assessment) and Section 4.2 (Funding) of this document. It should be noted that the concept fits within the current EU regulatory framework.

6.2 States

It is suggested that the contribution of the centralised services to the Performance Scheme will help the States to come closer to, or even to achieve, the performance targets that are set for them. Many States will support the identified contribution to performance through the centralised services so as to avoid further discussion of consolidation of centres, especially when the State is only operating one ATS-Centre for its airspace.

Furthermore some of the centralised services enable States to directly discharge or achieve coordination on obligations they have as contracting States of ICAO, in particular in the context of the European ICAO Region.

The *de facto* uniform character of centralised services is an important factor to the achievement of Single Sky ambitions through the provision of more efficient, high quality services.

Benefits derived from centralised services will contribute to FAB targets set out in FAB performance plans.

Non-EU member states would benefit also from the Centralised Services as it is assumed that all Centralised Services will have pan-European coverage: likewise for the Military who would benefit especially through the Advanced Flexible Use of Airspace Support Service.

6.3 ANSPs

The proposed centralisation of some common ANS services and systems will contribute significantly to the ANSPs performance and their ability to achieve the performance scheme targets. The centralised services will offer the ANSPs the services for less cost than if they were to operate the service independently on a national or FAB basis. Consortium-building by ANSPs, to run centralised services on behalf of the Network Manager, will be encouraged.

[6] See high-level CBAS assessments, including a Performance Scheme Impact Assessment in Annex

[7] Commission Regulation (EU) No 677/2011 on ATM Network Functions

In general ANSPs will be offered the possibility to extend the radius of activity beyond national borders providing the new centralised services on a pan-European basis under a contract with EUROCONTROL. It is estimated that quite a significant number of ANSPs will seize the opportunities offered in establishing new businesses by partnering with other ANSPs and eventually manufacturing industry in whatever legal form (consortium, EEIG, company etc) to bid for the technical set-up and service provision contracts.

ANSPs will have the possibility to participate in tendering and to be part of a winning consortium for the Centralised Services and would benefit from the successful marketing of the products and services in other parts of the world, having established a proven track record in Europe.

Forward thinking and innovative service proposals and agility in the adaptation to new business opportunities would be stimulated. For ANSPs it is a challenge, but also a unique opportunity, to provide offers for the tendered services with a competitive pricing. Such offers support ANSPs activities to calculate market driven competitive prices that internally can be used as a benchmark to the monopoly Air Navigation Services provided.

ATS staff will benefit from the centralised services e.g. with the provision of higher quality of data, such as the 4D Trajectory Flight Profile Calculation for planning purposes allows higher prediction of traffic and the times at which they will be in the respective control sectors. Flow Measures can be applied with much higher accuracy. For the other employees it will bring the possibility to operate modernised new systems with a higher quality of service.

6.4 Airspace Users

The services will contribute significantly to the Performance Scheme, supporting the competitiveness of European air transport industry, which ultimately brings benefits and contributes to European mobility policy.

The Airspace Users have long been advocating the provision of centralised frontline ATM services, in the interest of cost efficiency, but also of de-fragmentation, harmonisation and interoperability.

The Airspace users also benefit from the proposed services directly, be it by the extension of the European ATM Information Management Service through the overall provision of a better quality of data or the integration of weather data. The Flight Plan and Airport Slot Consistency Service will support better exploitation of airport capacity and improve flight punctuality.

In the case of the Advanced Flexible Use of Airspace Support Service, the civil airspace users benefit by getting more access to direct routes with less fuel burn. The military users receive in accordance with their military user requirements the needed military training airspaces for the needed limited period of time.

With the provision of higher quality of data, such as the 4D Trajectory Flight Profile Calculation for planning purposes, this will allow higher prediction of traffic and the times at which they will be in the respective control sectors. Flow Measures can be applied with much higher accuracy, leading to fewer regulations, which will be of benefit to the airspace users.

6.5 Airports

The Airport Operators benefit from some of the proposed centralised services, for example from the Flight Plan and Airport Slot Consistency Service depicting automatically consistencies and inconsistencies between the Airports Slots and the filed Flight Plans. The elimination of inconsistencies makes better use of the available airport capacities.

6.6 Airport Slot Coordinators

The Airport Slot Coordinators benefit from some of the proposed centralised services, for example from the Flight Plan and Airport Slot Consistency Service depicting automatically consistencies and inconsistencies between the Airports Slots and the filed Flight Plans and thus enabling the Airport Slot Coordinators to check the quality of the provided services and use the European harmonised central data to follow up with the airspace users and airports, should inconsistencies be identified.

6.7 Manufacturing Industry

The European Commission fosters successful high-tech development as part of its policy towards European industrial leadership and competitivity in the global market place. It is suggested that advances in European ATM technology will serve as a major contribution to the worldwide competitiveness of European manufacturers. European manufacturers can benefit from the development and deployment of centralised infrastructure and services in Europe, but also in marketing these solutions and services to other parts of the world, having a proven positive track record in Europe.

7 Legal Assessment

Currently EUROCONTROL performs support activities and functions for the implementation of SES. In particular, EUROCONTROL develops draft implementing rules for the European Commission, and was designated by a decision of the European Commission of 29 July 2010 as the Performance Review Body of the SES[8] and was nominated by a decision of the European Commission of 7 July 2011 as the Network Manager for the ATM Network Functions[9]. Considering that EUROCONTROL already performs a number of centralised functions it would be a natural evolution for it to undertake management of Centralised Services, which would facilitate and enable the execution of the functions. .

An initial assessment indicates that the current EU regulatory framework does not prevent the creation of ‘centralised services’ or functions by EUROCONTROL and that these services can be initiated by EUROCONTROL under its Convention.

A synopsis of the options to formalise the provision of centralised services and functions, together with a high level analysis of the regulatory impact can be found at Annex A.

In order to formalise the Centralised Services approach in the EU legal order, it might be envisaged by the European Commission to propose amendments to existing relevant implementing rules in the context of the preparation of the SES II+, consultation of which is currently underway.

[8] in accordance with Regulation (EC) No 549/2004 as amended by Regulation (EU) No 1070/2009 and Regulation (EU) No 691/2010; EUROCONTROL accepted this designation by Directive No 10/74 of the Permanent Commission of 15 September 2010;

[9] in accordance with Regulation (EC) No 551/2004 as amended by Regulation (EU) No 1070/2009 and Regulation (EU) 677/2011; EUROCONTROL accepted this nomination by Directive No 11/77 of the Permanent Commission of 1 September 2011;

7.1 Legal basis for centralised services

Centralised Services could be provided by EUROCONTROL under its Convention. This means that, provided that the Member States of EUROCONTROL would respond positively to a request to entrust the Organisation with new related tasks and take a corresponding Permanent Commission Decision, the work to establish centralised services could start almost immediately.

Centralised Services could alternatively be provided on an EU legal basis, in which case regulatory action would be required entrusting EUROCONTROL through a formal nomination and update of related regulations.

The successive combination of the options outlined above would ensure a gradual roll out of the provision of Centralised Services. It goes without saying that, for all options, the buy in of Stakeholders and the approval of the Member States of EUROCONTROL would be needed and this should be factored in to the timeline envisaged.

In the near term it is therefore suggested to adopt a two phase approach:

- EUROCONTROL can launch an internal initiative for the preparatory phase of managing Centralised Services, subject to approval by its Member States and political buy-in by the EU, during the year 2013, with a view to starting operations through a pilot phase by end 2013/early 2014;
- In parallel, an update of the EU regulatory framework through SES II+ would take place in the course of 2013-2014 to take into account centralised services in relevant regulations, and if required, give them the status of EU services.

7.2 Tendering principles

One of the objectives of the centralised services is to contribute to de-fragmentation of the European ATM network by unbundling certain ancillary services (ATM functions or ANS services) and using market principles and competition.

A key element of the project is therefore the tendering of the major part of the services to the industry, while EUROCONTROL will retain managerial, legal and overall responsibility for the operation of the GP and will perform the critical part of the CSi.

It is intended to build on the experience and lessons learnt gained from the European Aeronautical Information Service Database (EAD). The EUROCONTROL Organisation has been entrusted since 2001 by its Member States with the development, establishment and operation of the EAD. Operations are externalised to industry through procurement, under the responsibility of EUROCONTROL.

EUROCONTROL will implement the following strategy to create all the conditions needed for a true involvement of private partners in the set-up and operation of the Centralised Services by using the procurement principle of the Call for Expression of Interest. The latter is simply a method of selecting candidates to be invited to tender under future restricted tendering procedure.

The purpose is to assess the technical and financial qualifications of candidates, in order to establish a list of potential contractors. At the same time, it allows the firms interested to make preparations with a view to bidding for contracts.

To that end, EUROCONTROL will issue a Call for Interest end of Spring 2013 for each proposed centralised service, with a view to identify partners/consortiums interested in participating to the tendering process; selection criteria for the consortiums will have to ensure notably a balanced representation of interested stakeholders (e.g. ANSPs, manufacturing industry, telecom industry, etc.) and geographical origin;

- - EUROCONTROL will prepare in the course of 2013 detailed tendering material and launch calls to parties having sent eligible responses to Calls for Interest.

- - EUROCONTROL will assess the number and extent of solutions available from the market and will select the best CS sourcing strategy, with the objective to have the first contracts signed end of 2013.

EUROCONTROL will pay extreme attention to the selection criteria in the tendering process. It is anticipated that an eligibility criteria will regard the membership of awarded consortium. The process should be developed to avoid creating monopolistic situation and to minimize the financial risk.

Furthermore, possible conflicts of interests will be strictly monitored and avoided.

For all Centralised Services, EUROCONTROL will retain the definition of the technical specifications, as well as overall management and responsibility of the service, in order to ensure a sufficient level of control and neutrality, necessary to secure users' and stakeholders' buy-in.

For some services, additional and limited tasks may remain executed directly by EUROCONTROL.

With these exceptions, the tendering process will result in the choice of a consortium that will be in charge of the various phases of the set-up of each service (where applicable, feasibility, design, development, deployment, etc.) until the production of a demonstrator/pilot. It is not yet determined whether the same consortiums will be tasked with the operations under the same tendering procedure (as a second phase), or whether a new tendering process will be open for the operation of the services.

In the event that no partner/consortia are identified for a given task as a result of the tendering process, EUROCONTROL is prepared to set-up and operate the services on its own.

Technical Annexes

CS#.1 Flight Plan and Airport Slot Consistency Service - FAS 18
CS#.2 4D Trajectory Calculation for Planning Purposes Service – 4DPP 21
CS#.3 European Tracker Service - ETKR 24
CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS 27
CS#.5 European ATM Information Management Service - EAIMS 30
CS#.6 Management of Common Network Resources Service - CNR 32
CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS 35
CS#.8 Pan-European Network Service - PENS 38
CS#.9 Data Communications Service - DCS 41

CS#.1 Flight Plan and Airport Slot Consistency Service - FAS

Overview

Although there is a growing recognition of the added value from a consistency of airport slots and FPLs to airport and ATM performance, the elements needed to provide such a service are currently distributed over many stakeholders, causing fragmentation with little coordination and cooperation. Some examples:

- Airports: providing Airport planning data (including declared capacities);
- ANSPs: supplying ATM planning data and flight plans;
- Slot Coordinators: generating airport slot data;
- NM: FPL delivering data (via IFPS) and network planning data;
- Airspace users: providing scheduling data.

Several airport slot monitoring services are currently available, e.g. the DFS service (Germany and France, the so called Stanly tool) or the Network Manager (NM) service (EUROCONTROL's AMON tool).

The NM currently uses airport slot data to:

- Enrich traffic prediction analysis during planning and pre-tactical phases;
- Analyse the performance impact of airport slots and FPL inconsistencies post-operations.

Diversity in airport slot/FPL consistency can develop for different reasons:

- Different national/airport definitions of airport slot adherence;
- Irregularities in the application of sanctions and consequently airline operators filing flight plans without having a valid airport slot;
- Consequently, creation of over-demand at coordinated airports (at which the coordination is intended to balance demand with declared capacity).

The Flight Plan and Airport Slot Consistency Service improves air traffic management during planning, pre-tactical and tactical phases by ensuring consistency between submitted Flight Plans (FPL) and the corresponding, allocated airport slots and to thereby make full use of the limited capacity at the coordinating airports.

Such a consistency check is not available today for all IFR traffic. However, some States have implemented such a service locally for special events (e.g. the Olympics or major football games). The service, to be set-up on a European basis, will allow verifying the intentions of actual flights against the preceding strategic and pre-tactical planning. This regular verification process will among other things highlight inconsistencies between the allocated airport slots at coordinated airport and the filed flight plans. Such inconsistencies may lead to over-demand at airports and in the airspace whereupon remedial action can be taken. Therefore, CS1 will ultimately support the further enhancement of the overall network performance. The service will allow identifying not only the intended operation of flights with no valid airport slot (where one is required) but also any deviation from the allocated airport slot, if needed.

A notification of the airport slot coordinators, the airport operators and airspace users about detected inconsistencies is foreseen. Such a notification will require the parties to react and ensure that an airport slot is allocated for the intended flight(s). In turn, this service will ensure a better predictability of actual traffic loads at airports and in the airspace and enhance punctuality, reduce ATFM delays by decreasing the number of required ATFM regulations with a direct benefit for airspace users. Finally, it will ensure an optimised exploitation of a scarce resource: the airport capacity and associated slots. Over- and under-deliveries by the Network Manager could be reduced increasing capacity and enhancing safety on the ANSP side. The service will address all coordinated airports in the EUROCONTROL Member States.

Links

- SESAR
  - OFA 05.01.01-"Airport Operations Management"
  - OFA 05.03.04 -"Improved Flow Performance through planning"
  - OFA 05.03.07 – "Network Operations Planning".
- Master Plan (SESAR step 1)
  - 4D Trajectory for the NM;
  - extended AMAN/ DMAN/ SMAN functions.
- Pilot Common Projects (indirect link only)
  - EG3-TI4-CTM-4D Trajectory for planning (EFPL)
  - EG6-TI5-iSWIM
- Interim Deployment Programme
  - Collaborative Flight Planning and Demand/Capacity Balancing Tools
  - ASM Improvements and Data sharing
  - Airport CDM

Technical Readiness

Due to the experiences from the current airport slot consistency services available today with a limited scope, it is believed that the present services are insufficient to deliver on a pan European scale. CS1 will define requirements that are fundamentally different from the current airport slot/FPL matching mechanisms and it is envisaged that significant system developments will be required.

Risks

Risk	Mitigating measure(s)
Reliance upon complex procedures and parameters that will need to be defined and agreed with multiple Stakeholders and Member States (e.g. tolerance windows, investigation and resolution processes, airport slot identification etc.).	Dedicated consultation mechanisms including potential EUROCONTROL specifications and Guidelines as an outcome
Risk: Delay to FPL distribution (i.e. a degradation to the current level of service provided by the IFPS).	Correctly defined concept, requirements and specifications
Risk: Reliance upon external data sources whose performance is unknown (e.g. slot allocators feeding the centralised slot	Correctly defined concept, requirements and specifications

database).	

Impact on Performance

En route ANS Performance	En route Flight Efficiency Runway Occupancy Time Management	Flight efficiency in terminal control areas (TMA) inclusive airborne holdings Efficient management of the arrival flow Airports decongestion
Environment	Optimum trajectory Fuel efficiency (Airport Operations Management) Reduction of noise at source Introduction of operational noise abatement procedures/noise related operating restrictions	Operational performance and associated fuel burn during take-off and landing and in the taxi phase (e.g. improved taxi efficiency through A-CDM) Preliminary assessment of SESAR for the Fuel efficiency KPA showed that the targets for fuel efficiency were not met, i.e. were lower than the target (i.e. 2.5%) over the deployment baseline.[10]
Airspace Capacity TMA	AMAN and Extended AMAN horizon Additional taxi out time	Preliminary assessment for Step 1 of SESAR for the Airspace Capacity KPA for TMA airspace=2.60% (target 1.47%)
Cost-efficiency	Delays due to airport slot availability	In a very conservative assumption 800 flights have no airport slot. For every minute of delay these 800 flights would create, the calculation would be as following: • 1 min delay = € 77 cost per delay minute • € 77 * 800 flights per day = € 61.600 delay cost per day • € 61.600 * 365 days = M€ 22.484 delay cost per annum
	Centralised investments and common procurement	Less costly harmonised IT infrastructure and lower national investment costs (investment costs declared through NPPs at national level estimated for RP1 at 500M€)
	Staff reductions	Less FTEs due to operations performed at centralised level

[10] Initial Performance Assessment based on expectations, Project number B.05.00, SESAR JU, Ed. 00.01.11

CS#.2 _4D Trajectory Calculation for Planning Purposes Service – 4DPP

Overview

This activity will provide a centralised 4D Trajectory profile calculation for all ATM planning activities with a much increased accuracy. With more precise calculations over- or under-deliveries can be avoided and thus buffers in the airspace-capacity planning process can be reduced, leading to an increase in the usable capacity. Through a partnership with industry an exercise will be carried out in which 4D trajectories for planning purposes will be compared as produced by, on one side the NM flow management system (ETFMS) and on the other side 4D trajectory calculation of a modern system. The comparison of trajectories will be performed for a specific period with live data (e.g. trajectories for the entire NM area of interest with peak day traffic load) using the same input data. Each trajectory produced by the two systems will be compared against the flown trajectory (available at the end of the flight) to measure its quality (accuracy) in prediction.

This implies taking new requirements on board, compared to the current Network Manager (NM) trajectory calculation. As a first step in this direction, this activity will investigate the potential for improvements through using existing industry components, in particular modern ATC Flight Data Processing Systems (FDPSs). The evaluation will include partners such as ANSPs and airspace users.

4D trajectories for planning purposes will be compared with the current trajectory used by the Network Manager. On the basis of this analysis recommendations will be formulated on how a 4D trajectory calculation for planning purposes can be used by the NM in the future could be merged into one service.

The measure of flight efficiency is limited to the horizontal flight path and is based on the comparison of the trajectory length to the great circle distance (GCD) for each flight. It is acknowledged that the Great Circle Distance does not necessarily correspond to the “optimum” trajectory when meteorological conditions or economic preferences of airspace users are considered.

Deviations from the “optimum” trajectory generate additional flight time, fuel burn and emissions with a corresponding impact on airspace users’ costs and the environment. Presently there is no commonly agreed definition of “optimum” trajectory which would take all the aforementioned criteria into account. This would require more detailed data that could establish benchmark trajectories according to weather, aircraft weight and user preferences.[11]

In order to improve the output of the NM planning processes, it is necessary to improve the quality of the 4D trajectory, taking into account the flight and flow information from all Network Stakeholders (ANSP, AO, CFSP, NM, FABs, Airports). This should ultimately lead to reaching the SES objective of sharing the same business trajectory across all ATM actors in Europe.

The environmental impact of ANS on climate is closely related to operational performance, which is largely driven by inefficiencies in the 4-D trajectory and associated fuel burn.[12]

[11] PRR 2012, Draft Final Report for consultation with stakeholders, page 66

[12] PRR 2012, Draft Final Report for consultation with stakeholders, page 32

4DPP will be supported by a suitable system infrastructure. The solution will be based on SOA principles and will rely on the SWIM interoperability standards to interconnect this service with its customers over an IP-based network (PENS and internet). It will capitalize on the existing NM-SWIM platform.

In order to move towards the ultimate objective, the proposal is to first investigate how the ATC trajectory prediction algorithms as implemented in modern FDPSs can be used to improve the quality of the NM 4D trajectories, for planning purposes (covering pre-departure, up to and including the planner position at an ATC sector). Increased accuracy, predictability and reliability of the 4D trajectories, avoiding over- or under-deliveries, will increase safety, will allow reduction of buffers in the airspace-capacity planning process and therefore increase the usable capacity.

Links

- SESAR
  - Network Collaborative Management & Dynamic Capacity Balancing
  - SBT / RBT
- Pilot Common Projects
  - iSWIM functionality
- Interim Deployment Programme
  - Airport CDM
  - ASM Improvements & Data Sharing

Technical Readiness

The action is technically feasible; EUROCONTROL is ready to undertake this project, the definition of scope and the approach to be taken within the action are mature. However, some further discussions with Industry are required to finalize the timings and costs. These may require further revision upon completion of the Definition Phase of the action.

Risks

Risk	Mitigating measure(s)
The quality of the 4D trajectories produced is primarily linked to the lack of inputs from all NM Actors, rather than to the quality of the algorithm used.	Early in the Activity, discussion with Industry to determine the main potential sources of 4D trajectory inaccuracies and reconsider the further work.
Capacity of 4DPP to support the full NM area of interest (system design issues).	Discussion with Industry.
Cost estimation and timing of Action: difficult to anticipate the required changes (and their complexity) to the ATC 4D Trajectory Calculator.	Discussion with Industry.

Impact on Performance

Airspace Capacity En-route	Trajectory management Improved accuracy, predictability and higher level of interoperability ATFM slot adherence	Alignment of trajectory view with Airspace users and ANSPs. Predictability KPA: reduced flight time variability of approx. 40 sec. for 68% of flights. Successive reduction of the [-5min, +10min] tolerance window for departure slot adherence[13]
Airspace Capacity TMA	Predictability & less uncertainty	Improved sector planning (optimisation of ATC resources), therefore reduced buffers compared to available capacity.
Cost-efficiency	Centralised investments	Lower national investment costs as ANSPs can use existing interface (investment costs declared through NPPs at national level estimated for RP1 at 380 M€)
Quality of service	Delay reductions, punctuality improvements and flight efficiency increase due to optimal profiles. Currently 34 ATC centres use or are about to use ARTAS and 34 ATC centres are using different Trackers technologies.	Improvement of declared capacity in the en-route/approach sectors. Close capacity gaps and accommodate future traffic growth Homogeneous IOP Services across Europe

[13] PRR 2012, Final draft for consultation with stakeholders (1 March - 28 March), Chapter 5: Operational ANS Performance at Airports, item 5.3.41

CS#.3 European Tracker Service - ETKR

Overview

The development and implementation of the European Tracker Service (ETKR) is based on the enhancement of existing system infrastructure components to a Centralised Service.

The proposed activity concerns:

- Feasibility study on several options for building the European Tracker Service, including the benefits of a dissimilar tracker software deployed as a dual configuration of trackers mirroring each other;
- Selection of the best technical solution and development of the corresponding ETKR infrastructure including an upgrade of existing components;
- Support to decision making with respect to ETKR establishment;
- ETKR partner selection;
- Development of the ETKR Data Centre;
- Pre-operational evaluation with pilot ETKR.

ETKR consists of 3 sub-activities that partly overlap:

- Feasibility study of the technical options, including cost benefit analysis;
- Development of the ETKR infrastructure;
- ETKR pre-operational tests.

Principles:

The tracks in the ECAC-wide Air Situation Picture Surveillance will be elaborated by the Data Centre of the European Tracker Service (ETKR-DC), merging traffic data provided by the various surveillance sources (PSR, SSR, ADS, and WAM). The relevant subsets of resulting surveillance tracks will then be distributed to the Customers throughout a publish/subscribe type of interface. By Customer is meant any site or cluster of sites, civil and possibly military, making use of track data. The service protocol will let the Customers to specify expected service in terms of geographical coverage, period of update, composition of the track messages, etc.

At the customer sites, the tracks will then be supplemented with flight data and distributed as needed to other functional blocks for use in controller tools and for display at the CWP, and also to external systems (Airports, Air defence, flow management units, etc.). In exchange for the SDPS infrastructure which is taken over by the European Tracker Service, the service consumer sites will deploy a service wrapper to connect to the European Service and a track quality monitoring function.

Implementation:

The ETKR-Data Centre will consist in two identical processing sites, the ETKR-Data Centre Sites (ETKR-DCS) installed at distinct European locations. Each site will have the capability to process the complete ECAC Air Situation Picture and will coordinate with the other site to ensure consistent view. The dual centre configuration will enable contingency solution, each site backing-up the other.

The dual configuration also aims to balance the overall service load between the two sites. In a nominal mode, each ETKR-CDC will serve tracks to its own configuration

of Users. In a degraded mode, an ETKR-CDC will take over the service of the unavailable ETKR-CDC until the nominal condition is restored.

A second level of backup will be implemented on the basis of a dissimilar tracker software again deployed as a dual configuration of trackers mirroring each other. In order to limit the risks of single point of failure, the two tracker softwares will implement different techniques. One will be ARTAS, whereas the dissimilar Tracker will be selected as part of the project. The same applies to the Server part, implementing the interface between the Track data base and the Customers.

Links

- SESAR
  - ATRAS = European Reference
- Pilot Common Projects
  - Network collaborative Management (Flow & NOP)
  - iSWIM functionality
- Interim Deployment Programme
  - Network Operations Planning using SBT/RBT
  - 4D trajectory used in ATFCM

Technical Readiness

ARTAS (ATM Surveillance Tracker And Server) will be at the heart of the European Tracker Service, a system developed as the concept of a Europe-wide distributed Surveillance Data Processing System. The development started at the early '90s on the request of a number of ANSP's willing to improve and harmonise the performance of their SDPS in the ECAC area and it continues in an evolutionary manner. To date, ARTAS is used operationally in 15 ECAC States and is undergoing pre-operational evaluation in 13 additional States, representing about 75% of the European airspace.

Other components of the European Tracker Service comprise SDDS (Surveillance Data Distribution System) as a key element supporting the surveillance infrastructure interoperability, making optimum, safe and secure use of communication resources (e.g. PENS). In support to SASS-C (Surveillance Analysis and Support System for ATC Centre) is the reference tool in Europe for the assessment of surveillance infrastructure performance along the Surveillance Performance Interoperability Implementing Rule (SPI-IR) standard.

The selection of components for dissimilar redundancy purpose, whereby the functionality is carried out in parallel by other components implementing same functionality, will be done as part of the feasibility study.

Risks

Risk	Mitigating measure(s)
Uncertainty regarding Development cost level	Discussion with Industry.
Technical difficulty in development of ARTAS upgrade	Discussion with Industry.
Technical difficulty in development of	Discussion with Industry.

Impact on Performance

Quality of services (capacity, delay)	Network capacity	Potential reduction of separation minima at inter-centre coordination.
Cost-efficiency	Infrastructure rationalisation	Tracker infrastructure will be centralised into less sites than the current local deployment; ETKR will integrate the assembly about 450 sensors (radar, ADS-B and multilateration) and allow a better sharing of the Sensor information among Member States; Decrease costs related to surveillance Data Processing.
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'ETKR' reduces European ANS costs by approx. 26 M€ per year (total cost savings for 2014-2030 is 357 M€);

CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS

Overview

The extension and acceleration of the deployment and the integration at the Network level of the advanced civil/military flexible use of airspace (AFUA) will optimize the use of available airspace capacity both locally and at the network level, across borders, delivering increased flight efficiency and resulting in higher performance flights is the objective of CS4. These improvements require the sharing of a common view of airspace situations between all partners, kept up-to-date in real time. Activity 4 connects local tools to a new Central Database making available the updated status of civil/military airspace usage. The interoperability between local and network operations is enabled by developing and deploying shared mechanisms through AFUAS and CS5 EAIMS.

CS4 focuses at the full deployment of efficient civil-military airspace management capabilities at European level. The project connects with the development of civil-military cooperation tools, including the LARA tool (partially funded by the European Commission and TEN-T) with a central Network system designed to support the online exchange of updated, accurate ASM data. This project will extend and improve the civil-military airspace management and co-ordination processes and the associated exchange of information throughout Europe for a better network performance. Additionally it will connect the local/national data inputs to a central European database protected by appropriate security.

Civil-military co-operation and co-ordination are of the utmost importance in achieving the objectives of the performance scheme, having due regard to military mission effectiveness. The performance plans shall contain a description of the civil-military dimension of the plan, describing the performance of FUA application in order to increase capacity with due regard to military mission effectiveness, and, if deemed appropriate, relevant performance indicators and targets in consistency with the indicators and targets of the performance plan.[14]

It has been shown operationally that improved coordination between civil and military stakeholders can provide significant benefits to airspace users in the core area.

There are significant differences between the periods of time that airspace is segregated or restricted from general air traffic and the periods of time that the airspace is used for the activity requiring such restriction. This indicates a significant amount of latent capacity and flight efficiency that could be available to airspace users.

Making the latent capacity and route options available in a predictable manner, when needed by airspace users, will improve the network planning of available capacity and flight efficiency to meet the airspace users' requirements, thus providing a better air navigation service.

Links

- SESAR
  - Airspace Management & AFUA
- Pilot Common Projects

[14] Commission Implementing Regulation (EU) laying down a performance scheme for air navigation services and network functions, voted in SSC 49/7-8 March 2013, Recital (6) and Article 11, paragraph 3(f).

- o Flexible Airspace Management including Free Route & Airspace Local ASM tools for Real-time
- Interim Deployment Programme
  - o Airspace Management Improvements & Data Sharing

Technical Readiness

The strategic objective SO2 of the network strategy plan is entitled: “Make available and share information and data relevant to network management and operations” and contains elements described under the AFUA. The project would also cover some elements of the strategic objectives SO3 on performance and SO1 on network CDM.

As described in the Network Performance Plan (6. NM Enablers for Network Performance) Collaborative Decision Making (CDM) processes (as enabled by the AFUA service) are the tool and need to be in place from the start, be constantly reviewed and improved to reach maturity. [NSP objective SO1.]

In support of the CDM processes at network level, NM ensures that the relevant data are gathered, processed and shared with its partners. An effective information management and communication is assured through the dissemination of accurate, timely and consistent data to support decision-making processes. The NM tools must guarantee full transparency of data flows through sharing the relevant operational data throughout their life cycle, i.e. in strategic, pre-tactical, tactical and post-ops phases of flight operations. [NSP objective SO2.]

Risks

Risk	Mitigating measure(s)
Consideration shall be given to the safety and security critical aspects of this service which involves the States for the civil-military aspects: -The political buy in of the States and stakeholders must be obtained -Military authorities consider some of the ASM data as security sensitive -The data must be protected from external incursion and from IT failures	The risks could be mitigated through: -appropriate communication towards States and stakeholders, with particular focus on military authorities -an appropriate selection of the future service provider (and related selection criteria) would reduce the difficulties with perception of the risk -the relevant and required IT security requirement must be part of the essential operational requirements - the relevant and required data filter requirement must be consolidated with the stakeholders

Impact on Performance

Quality of services (capacity, delay)	Network planning of available capacity and flight efficiency	Latent capacity and route options available in a predictable manner when needed by airspace users.

ATC capacity	Optimised airspace management	Improved flight efficiency and availability of capacity
Cost-efficiency	Reduction of delays and for the fuel costs for airspace users	Delays due to capacity = €80 per min, Cost for additional fuel for non-optimum routing = $129.6/barrel for 2012 avg (IATA estimation)
Environment	Effectiveness of booking procedures for FUA, the rate of planning of conditional routes (CDRs) and the effective use of CDR.	Achievement of the Performance Scheme IR targets for RP2 in regard to the Performance Indicators a)the effectiveness of booking procedures for FUA; b)the rate of planning of conditional routes (CDRs) and c) the effective use of CDRs.
	Fuel efficiency	Preliminary assessment of SESAR for the Fuel efficiency KPA showed that the targets for fuel efficiency were not met, i.e. were lower than the target (i.e. 2.5%) over the deployment baseline. For "Airspace Management and AFUA" Operational Focus Area the assessment = -0.15% (i.e. -7.2 kg/ flight) whilst the target= - 0.07%. [15]

[15] Initial Performance Assessment based on expectations, Project number B.05.00, SESAR JU, Ed. 00.01.11

CS#.5 European ATM Information Management Service - EAIMS

Overview

Today, the aeronautical information is managed separately by two different communities or business areas, each acting successively, through almost independent sub-processes:

- The Aeronautical Information Management (AIM);
- The Flight Operations community (ATC/ATM, airspace users, military and their data/service providers).

AIM information is prepared and published under the responsibility of States (upstream chain). Downstream, AIM information is then supplemented by additional information (ATC Planning, ASM, ATFCM) in preparation of the specific daily context for Flight Operations.

These processes are currently poorly integrated. EAIMS builds on the EAD which is addressing the consolidation of the upstream data chain, processes and systems in the downstream chain still exist in isolation; data is entered several times using manual effort rather than system to system connections. This results in data inconsistencies that have potential negative safety impacts. It also creates significant cost inefficiencies at the global level.

Flight data interoperability is being developed in Europe as part of the SESAR concept for trajectory management. Fundamentally, it assumes the availability of up-to-date and consistent airspace data across the interoperability area to ensure consistency of the trajectory calculations.

Achieving a seamless ATM data chain in Europe will require bringing the two communities 'closer together'. EAIMS will also provide a central data repository for briefing of pilots; encompass digital NOTAMs and displays for the pilot briefings.

This implies harmonisation and integration of both operational processes and supporting systems. The upstream and downstream data chain communities are complementing each other.

The New Service Definition Phase will prepare detailed specifications and validate technical solutions in order to be able to conclude contractual arrangements with Industry.

The main challenge is to have two communities (AIS publication and Flight operations) communicate and work together in a seamless way, to define the operational processes to achieve that goal and to design and develop the adequate systems needed to support those processes.

The proposed activity focuses on the following:

- Making EAD ADQ compliant in order to meet the IR requirements in due time;
- Implementing EAD extensions for weather briefing, graphical displays for the pilot briefing, digital NOTAM in AIXM 5.1;
- Paving the way for the development of the new end-to-end European Aeronautical Information Management Service.

Links

- SESAR
  - Deployment of SWIM
- Pilot Common Projects
  - Airspace AFUA real-time operations & Airspace Local ASM tools for Real-time
- Interim Deployment Programme
  - Airspace Management Improvements & Data Sharing

Technical Readiness

Thanks to the level of experience gained with development and operations of the existing systems and project, the level of maturity is sufficient to initiate the project as defined. Nevertheless, the initial phase will contain study work on a number of aspects in order to reduce uncertainties and ensure better definition of essential requirements before launching a call-for-tender.

Risks

Risk	Mitigating measure(s)
Responsiveness, buy-in from stakeholders during definition phase, in order to ensure a definition of the service that is meaningful and can meet expectations	Dedicated consultation mechanisms
Ambitious timescale, given the complexity; risk of pressure for taking detrimental shortcuts during the definition phase	Application of proven project planning and risk management processes to overcome these risks.

Impact on Performance

Data interoperability	Trajectory management	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations; Early deployment of the trajectory-based operation.
Cost-efficiency	Substantial economies of scale and benefits generated by the central weather data base, digital NOTAM etc.	Savings ANSPs/FABs costs in investing in dedicated CACD- equivalent system. The investment cost (incl adaptation of ANSP suystems to the CS) is 120M€ vs 135 M€ if the CS is not deployed. Moreover, investment costs declared through NPPs at national level estimated for RP1 at 10 M€.

CS#.6 Management of Common Network Resources Service - CNR

Overview

CNR consists of several sub-activities that are functionally closely related.

- Sub-activity 1: Transponder Code Function (TCF) and Mode-S radar IC allocation (MICA):
  This service is closely linked to the slot allocation system. Investments are necessary to support the implementation of the existing CCAM service in the ANSPs that are not yet using it. It will enhance the coordination and consequently improve the management of this scarce resource. Implementation will be monitored by the Network Manager as part of the normal monitoring of the Transponder Code Function.

- Sub-activity 2: Radio Frequency Function (RFF):
  All aeronautical frequencies must operate without interferences. RFF delivers the automation systems and procedures that enable the assignment of the radio frequencies to all airspace users and service providers. All States provide their frequency requirements, frequency use information and interference reports. This information is crosschecked with NM and AIP information. RFF maintains the central database of all frequency assignments. The RFF tools and procedures are used by all EUR States to ensure that radio interferences do not occur and to register frequency assignments in the central database register before a radio licence is issued to the frequency user. RFF is supporting ICAO for the spectrum related matters and is registering interferences issues. Monitoring of the aviation spectrum is currently suffering delays and needs further development. Consequently, in sub-activity 2 it is proposed to accelerate the monitoring of the aviation spectrum to support the RFF and to complete the SAFIRE developments.

- Sub-activity3: European Messaging Directory Services (EDMS):
  Today, the ATS Messaging Management Centre (AMC) is consolidating and publishing routing tables for each COM centre in the EUR/NAT Regions on the AIRAC cycle thus allowing for the manual update of the local AFTN routing table. The AMC includes a support service (during business hours) which is outsourced to ANSP partners. In this sub-activity an integration of the European Directory Services (EDS) and AMC to form the new EDMS will be conducted.

- Sub-activity 4: EUROPEAN IPS Repository (EIPR):
  EIPR aims at becoming the central reference for all technical infrastructure addresses both for Voice and Data communication services for European ATM stakeholders.

  It constitutes a major asset in the interconnection efforts and interoperability initiatives required to implement upcoming future concepts such as SWIM but also to improve operations on current services.

  It consists of one or more databases that contain the addresses (or address ranges) of the communication systems of the stakeholders. This enables to maintain interoperability between the stakeholders, to coordinate testing and thus facilitate validation. A large part of data are already available in the database, however, this database need to be enhanced with more data to

allow communication between all stakeholders (MIL, airports, airspace users etc.) to meet SWIM objectives and the SESAR operational concept. Hence it is proposed to run a study to identify all missing data and then incorporate it in a database accessible to all stakeholders. The final target being a WEB-based service on which all stakeholders can find all the data needed to establish the link needed for their operations, in accordance with standards.

- Sub-activity 5: Security Certificate Service (SCS):
  SCS will be part of the security infrastructure of the ATM systems, covering mainly the delivery of the Public Key Infrastructure (PKI) to perform user authentication and encryption/decryption when needed. The main objective of this service will be the delivery of the network keys, ensuring network security. At present the communications are not secured making the ATM system vulnerable to potential external attacks. SCS assumes that the SESAR concepts (SWIM and new applications) will require more data exchanges between the stakeholders and will rely on the implementation of security mechanism to ensure data integrity, encryption and user authentication. SCS is an operational centralised 24/7 service, all stakeholders (ANSPs, Airspace users, MIL, Airport etc…) will benefit of it to establish links with the network. Before putting such a service in operation, feasibility and validation studies are needed on the basis of the outcome of SESAR security WPs, consequently, it is proposed to run a feasibility study, once completed, the service could be enhanced.

- Sub-activity 6: Operation and Coordination of Network Security (OCNS):
  Next to the PKI service providing part of the administrative support required to ensure an efficient security framework for ATM services in Europe, a central centre of coordination of network security would provide the following improvements compared to the current operations:
  - Definition and rollout of network security best practices across Europe
  - Ad-hoc support for investigation of potential security breaches
  - Potential provision of a 24/7 CESS (Central Emergency Security Service) including the monitoring of security threats and reacting upon detection of an event.
  - Maintain strong link with MIL supervision centres

  This service does not exist currently; consequently a feasibility and validation phase will be needed before deployment.

Links

- SESAR
  - Deployment of SWIM
- Pilot Common Projects
  - iSWIM
- Interim Deployment Programme
  - Collaborative Flight Planning
  - ASM
  - A/G Datalink
  - Airport CDM
  - CDO

- ATCO Support Automation
- RNP Approaches

Risks

Risk	Mitigating measure(s)
Minor data transmission errors on services already in operation	
Difficult buy-in from ANSPs for new Security services as it involves delegation of critical functions.	Briefing sessions on concepts and benefits (diminished local Staff cost, limited technical risks°. As a mitigation element, the period of implementation could be the subject of negotiation.

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations; Simplified interoperability procedures and new inter-community data exchanges for the benefit of the network.
Cost-efficiency	Substantial economies of scale	Savings in upgrading the national systems through a centralised investment system at European level (investment costs declared through NPPs at national level estimated for RP1 at 150 M€)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'CNR' reduces European ANS costs by approx. 28 M€ per year (total cost savings for 2014-2030 is 424 M€).

CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS

Overview

In order to achieve safe and efficient ATM operations, the performance (accuracy, availability, continuity and integrity) and the capacity of the CNS infrastructure need to be managed during the entire deployment and operation. The system components or functions that are critical for achieving the required performance need to be monitored and addressed in a consolidated way at European level so that necessary rectifications can be initiated at the lowest cost. The service focuses on performance monitoring and problem investigation of the common distributed infrastructure including aircraft installation performance, air-ground data-link performance and satellite infrastructure performance. The service covers:

- The performance monitoring of Data-link communication;
- The monitoring and prediction of satellite navigation;
- The functional & performance analysis of surveillance avionics;
- The Performance of 1030/1090 RF bands;
- The Performance analysis of TCAS function;
- The Altimetry System Error performance analysis.

The service does not include the performance verification of specific ground infrastructure like radar which remains a local task. Although the service is already partly in operation, the systems that provide the current services need to be improved so as to deliver more efficient services against lower operating costs. The further improvement of CNS performance monitoring activities includes the usage of new and cheaper technology as well as reinforcing the centralisation of these activities.

Existing tools to perform a centralized monitoring of the performance of the CNS common infrastructure will be improved and new tools and functions will be developed. This will ensure a safe and efficient management of Air traffic against lower cost.

The proposed activity will contribute to support requirements coming from different regulations:

- Functionality and Performance of data-link communication is covered in EC 29/2009;
- Monitoring and prediction of satellite navigation is coming from EU 1035/2011, ICAO Annex 10 and EASA AMC 20-27;
- Functional & Performance analysis of surveillance avionics and Performance analysis of 1030/1090 RF bands requirements are coming from EU 1207/2011 and ICAO Annex 10;
- Performance analysis of TCAS operation is linked to EU 1332/2011 (airborne mandate), ICAO Annex 10 and ICAO Doc 4444 recommendations;
- Altimeter System Error performance analysis (RMA) comes from ICAO requirements to maintain approval of aircraft to operate in European RVSM airspace.

The proposed action includes

- A feasibility study to establish aircraft maintenance status using avionics information;
- A feasibility study on different ways to monitor the Surveillance RF bands (1030/1090MHz);

- Update of a CNS problem reporting tool based on JIRA;
- Update of aircraft data-base (PRISME);
- Make the interface of the front end processors used to collect data-link information compatible with the central tool (DL-FEP);
- Modify central satellite performance tool (Pegasus) of ECDN to monitor GPS performance, to provide improved interface and legal recording;
- Upgrade BDAMS tools to be deployed on sites to monitor surveillance issues and have more automatic function, better performance and better interfaces and cover new function for ADS-B;
- Update the existing tool used to monitor TCAS performance;
- Development of an Altimetry System Error central monitoring system (TMU) based on ADS-B in order to have less expensive systems and more competition between service providers;
- Deploy/test new version of tools (surveillance/…);
- Demonstrate new version of satellite performance;
- Demonstration of Height monitoring using ADS-B;
- Preparation of the CFT for the running of the service;
- Development of an Altimetry System Error central monitoring system (TMU) based on ADS-B in order to have less expensive systems and more competition between service providers.

Links

- SESAR
  - ADS-B
  - Airborne Collision Avoidance System
- Pilot Common Projects
  - Future datalink services for i4D
- Interim Deployment Programme
  - A/G Datalink
  - RNP Approaches

Technical Readiness

The Service is partly in operation. The proposed action plan objective is to enhance the service.

Risks

Risk	Mitigating measure(s)
Uncertainty regarding Development cost level	Discussion with Industry.
Feasibility study not accepted by Aircraft manufacturers or operators	Involved Aircraft manufacturers, Aircraft operators in the feasibility study
ANSP/ STATE not willing to provide their data during deployment	Perform local pre-processing of data or set-up regulation
ANSP/ STATE willing to sell their data	

Impact on Performance

Data interoperability	Quality and integrity of data	Reduction of the current costs for: a) functional and performance analysis of data-link communication (i.e. 4 FTEs and 0.8 M€); b) monitoring of satellite navigation: EDCN (O.25 FTEs & 0.12 M€) and AUGUR (0.1 FTEs & 0.13 M€); c) functional & performance analysis of surveillance avionics (3 FTEs + 0.2 M€); d) performance analysis of 1030/1090 RF bands (1FTE, op costs 0.1 M€, investments 30 k€); e) Altimeter System Error performance analysis (1FTE, op costs 1.5 M€ & investment 0.2 M€); 5 performance analysis of TCAS operation (2 FTEs + tools investment and maintenance)
Cost-efficiency	Harmonised CNS infrastructure and Centralised investments and common procurement	Savings in upgrading the national systems through a centralised investment system at European level (investment costs declared through NPPs at national level estimated for RP1 at 42 M€ for Mode_S, 16 M€ for MLAT-WAM, 34 M€ for data link and 158 M€ for system upgrades)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'NIPS' reduces European ANS costs by approx. 4 M€ per year (total cost savings for 2014-2030 is 52 M€);

CS#.8 Pan-European Network Service - PENS

Overview

PENS is a European ATM communication Internet Protocol (IP) service based on ICAO standards that can support all data exchange of ATM applications and pave the way for future SWIM applications. PENS was developed over the last couple of years and is currently mainly in operation for EUROCONTROL centralised functions and services (i.e. CFMU and EAD). ANSP/ATM applications are migrating slowly on PENS.

PENS offers:

- IP service for all ATM communication, including voice;
- Communication services for centralised applications even if they are not collocated (such as EAD);
- A potential common infrastructure for global inter-connexion (Satellite Communication for instance);
- A platform for further developments such as European Directory Services, Security etc.
- A centralised network supervision that can be enhanced/complemented with new functions to meet future SWIM requirements.

The current beneficiaries of the service are States and ANSPs, both military and civil. PENS needs to be expanded as follows (or interfaced) to better serve current stakeholders and to accommodate new stakeholders in or outside Europe :

- Centralised supervision: one network supervision for all ANSPs, the service could run on PENS and being delivered to all “users”. Each user will then take benefit of a centralised service and may suppress the need for a national supervision team.
- Bridge with other stakeholders: more and more data will have to be exchanged between the stakeholders. The PENS service will be expanded by offering interfaces with the other community networks (Airport, airlines, MIL etc), resulting in a rationalisation of the infrastructure. A typical application for such a service is data link requiring that each centre is implementing interfaces with the main ATM communication operator (Such as ARINC and SITA). Through PENS, only two connexions would have to be managed in total instead of one for each ANSP.
- Sharing resources: key ATM resources (SUR sensors, VHF means etc…) may be shared via PENS, dedicated services could be offered on PENS to share the infrastructure and then reduce the overall costs.

The current PENS functions will be enhanced and other users than NM and some ANSPs (e.g. all European ANSPs, airports and airspace users) will be accommodated as follows:

- Centralised supervision: one network supervision for all ANSPs, the service will be run on PENS and being delivered to all “users”. Each user will then take benefit of a centralised service and could reduce its national supervision team;
- Bridge (gateways) with other stakeholders: more and more data will have to be exchanged between the stakeholders, the PENS service will be expanded

by offering interfaces with the other community networks (Airport, airspace users, MIL etc.). It will then remove several links and next contribute to the rationalisation of the ATM infrastructure. A typical application for such a service is a centralised data link (CS9). Currently it requires that each centre is implementing interfaces with the main ATM communication operators. Through PENS, only two connections would have to be managed instead of two for each ANSP.

Links

- SESAR
  - Information Management
  - SWIM technical architecture
  - Non-avionics CNS system
- Pilot Common Projects
  - iSWIM functionality
- Interim Deployment Programme
  - Collaborative Flight Planning
  - ASM
  - A/G Datalink
  - Airport CDM
  - CDO
  - ATCO Support Automation
  - RNP Approaches

Technical Readiness

PENS being already in operation, based on ICAO standard and compliant with the SES-IR (cf FMTP/OLDI), it is mature for expansion.

Risks

Risk	Mitigating measure(s)
ANSP may not wish to give-up their national supervision.	Discuss and get the buy-in of key ANSPs.
- Much less cost beneficial and complex implementation	

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations
Cost-efficiency	Substantial economies of scale	Savings through using the same infrastructure (investment costs declared through NPPs at national level estimated for

		RP1 150 M€)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'PENS' reduces European ANS costs by approx. 43 M€ per year (total cost savings for 2014-2030 is 422 M€).

CS#.9 Data Communications Service - DCS

Overview

Every day hundreds of aircraft traverse remote airspace out of range of existing surveillance technology.

Future concepts like the SESAR concept of operations rely on an ever increasing interaction between aircraft based and satellite based systems. Such concepts will require an infrastructure that can support current and future ATM needs and the transition period. Currently, the Air-Ground ATM-related communication and application services (such as A/G data link services) are provided by different operators in Europe that need to extensively coordinate to share and operate a fragmented system. Each ANSP is implementing its own infrastructure, complicating the implementation/interoperability and generating extra costs for airspace users that need to connect via datalink to many different ANSP infrastructures. Central data communication infrastructure with seamless integration of the A/G component with the underlying ground-ground IP communications environment and multilink structures is an important requirement to ensure end-to-end connectivity.

The purpose of the DCS service is to demonstrate in a pilot set-up that a coherent, ground- and satellite-based Data Communication service in Europe can meet current and future requirements in all airspaces (airport, TMA en-route, polar and oceanic) for most stakeholders (ANSPs, airlines, pilots, maintenance staff, etc.).

For the DCS centralised service it is proposed to first run a feasibility study. The main objectives of this study will be:

- To identify the ATM and AOC applications that are and will need 'DCS' services;
- To specify the requirements (availability, integrity etc…) for these services (Performance based services);
- To define the potential institutional model and the governance of the service;
- To assess the Cost/benefit and commercial viability of such a service;
- To investigate the readiness of the potential operator(s) to commit on a long term basis;
- To define the best way to organise competition and keep control of the costs;
- To prepare a DCS demonstrator;
- To conduct a demonstration to communicate between the centralised DCS infrastructure and the ANSPs as well as the aircraft. In a second demonstration the centralised infrastructure will communicate with the aircraft via a space-based infrastructure.

Links

- SESAR
  - Information Management
  - SWIM technical architecture
- Pilot Common Projects
  - Future datalink services for i4D
- Interim Deployment Programme
  - Collaborative Flight Planning
  - A/G Datalink
  - CDO
  - ATCO Support Automation

- RNP Approaches

Technical Readiness

Most of the DCS services are already in operation, so technically they are mature. The proposed action consists mainly in finding a way for organizing better the management of the A/G infrastructure between all the stakeholders.

Risks

Risk	Mitigating measure(s)
Liabilities could be blocking factors for certain states/ANSPs.	To be assessed.
Opportunity: Knowledge and experience from existing local systems and trials (e.g. DFS, LOWW).	NA
Opportunity: Stakeholder buy-in (confirmed though consultation on behalf of EC in 2010)	NA

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and harmonised airspace data across the interoperability area to ensure consistency of trajectory calculations
Cost-efficiency	Substantial economies of scale	Savings through using the same infrastructure (investment costs declared through NPPs at national level estimated for RP1 at 34 M€ for data-link and 158 M€ for systems upgrade)

A. Legal Annex

1. Regulatory Impact of the provision of Centralised Services

After appraisal of the regulatory impact of the services foreseen for centralisation, the following issues can be highlighted.

At legislative level (Regulations (EC) No 549/2004, No 550/2004, No 551/2004 and No 552/2004 as amended by Regulation (EC) No 1070/2009), there appears to be no major impact on the regulatory framework of the SES. Any streamlining needed could be picked up through the SES II+ process.

At implementation level, it seems that approximately fifteen European Commission Regulations may relate to the provision of Centralised Services, as follows[16]:

- Commission Regulation (EU) No 255/2010 laying down common rules on air traffic management as amended;
- Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace
- Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky
- Commission Regulation (EU) N° 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky
- Commission Regulation (EC) N° 262/2009 of 30 March 2009 laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky
- Commission Regulation (EC) N° 1032/2006 of 6 July 2006 laying down requirements for automatic systems for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units as amended by Regulation (EC) N° 30/2009 of 16 January 2009
- Commission Regulation (EC) N° 29/2009 of 16 January 2009 laying down requirements on data link services for the single European sky
- Commission Regulation (EC) N° 633/2007 of 7 June 2007 laying down requirements for the application of a flight message transfer protocol used for the purpose of notification, coordination and transfer of flights between air traffic control units as amended by Regulation (EC) N° 283/2011 of 22 March 2011
- Commission Regulation (EC) No 1033/2006 of 4 July 2006 laying down requirements on procedures for flight plans in the pre-flight phase for the single European sky as amended by Regulation (EU) N° 929/2010 of 18 October 2010 and by Commission Implementing Regulation (EU) No 923/2012;
- Commission Implementing Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky;
- Commission Implementing Regulation (EU) No 1079/2012 of 16 November 2012 laying down requirements for voice channels spacing for the single European sky
- Commission Regulation (EU) 691/2010 of 29 July 2010 laying down a performance scheme for air navigation services and network functions as amended;
- Commission Implementing Regulation (EU) 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services;

[16] The detailed impact assessment is attached in Appendix ??

- Commission Implementing Regulation (EU) 1034/2011 of 17 October 2011 on safety oversight in air traffic management and air navigation services;
- Commission Regulation (EC) 1794/2006 of 6 December 2006 laying down a common charging scheme for air navigation services as amended by Regulation (EU) 1191/2010;

These regulations do not need to be amended to allow centralised services, but could offer useful basis for their development subject to limited update. In fact, many could be cross referenced to each other, thereby simplifying matters and some current obligations on Member States could be consolidated or removed.

In a similar way to the procedure whereby the ATFM Regulation No 255/2010 (as amended) was referenced in the Network Management Functions Regulation, an Implementing Regulation creating centralised services as EU services could reference the Implementing Regulations currently targeting certain services that would form part of the Centralised Services function.

Such amendments could be introduced as final provisions in for example the Implementing Regulation amending the NM Regulation or in a new Implementing Regulation, depending on the option retained.

B. Glossary

Acronym	Definition
4DPP	4D Trajectory for Planning Purposes (CS#2)
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance-Broadcast
AFTN	Aeronautical Fixed Telecommunication Network
AFUA	Advanced Flexible Use of Airspace
AFUAS	Advanced Flexible Use of Airspace Service (CS#4)
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation And Control
AIS	Aeronautical Information Service
AMAN	Arrival Manager
AMC	Airspace Management Cell
AMON	Airport Slot Monitoring
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider.
ARTAS	ATM Surveillance Tracker and Server
ASE	Altimetry system error.
ASM	Airspace Management.
ATC	Air Traffic Control.
ATCO	Air Traffic Controller
ATFCM	Air Traffic Flow and Capacity Management.
ATFM	Air Traffic Flow Management.
ATM	Air Traffic Management.
ATN	Aeronautical telecommunication network.
ATS	Air Traffic Services
AUGUR	Satellite
CACD	Central Airspace and Capacity Database
CBA	Cost-Benefit Analysis
CCAMS	Centralised SSR Code Assignment and Management System.
CDM	Collaborative Decision Making.
CEF	Connecting Europe Facility
CFMU	Central Flow Management Unit
CFSP	Computerised Flight Plan Service Provider
CNR	Common Network Resources Service (CS#6)
CNS	Communications – Navigation – Surveillance

Acronym	Definition
CRCO	EUROCONTROL Central Route Charges Office
CWP	Controller Working Position
DCS	Data Communication services (CS#9)
DFS	Deutsche Flugsicherung GmbH
DMAN	Basic Departure Management
EAD	European AIS Database.
EAIMS	European AIM Service (CS#5)
EASA	European Aviation Safety Agency
ECAC	European Civil Aviation Conference
EDCN	EGNOS Data Collection Network
EDS	European Directory Service
EEIG	European Economic Interest Group
ETFMS	Enhanced Tactical Flow Management System
ETKR	European Tracker Service (CS#3)
FAB	Functional Airspace Block
FAS	Flight Plan and Airport Slot Consistency Service (CS#1)
FMTP	Flight Message Transfer Protocol
FPL	Flight Plan
FUA	Flexible Use of Airspace
GPS	Global Positioning System
ICAO	International Civil Aviation Organization
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrument Flight Rules
IOP	Interoperability Programme
IPR	Intellectual Property Rights
IPS	Internet Protocol Service
KPI	Key Performance Indicator
LARA	Local And sub-Regional ASM support system
MET	Meteorological services for air navigation
MIL	Military
MSI-IR	Implementing Rule on Mode S Interrogator Code Allocation
NAT	North Atlantic Region
NIPS	Network Infrastructure Performance Monitoring and Analysis Services (CS#7)
NMB	Network Management Board
NMF	Network Management Function
NOP	Network Operations Plan
NOTAM	Notice to Airmen

Acronym	Definition
NSP	Network Strategy Plan
OFA	Operational Focus Area
PCP	Pilot Common Projects (SESAR)
PENS	Pan-European Network Service
PKI	Public Key Infrastructure
PRB	Performance Review Body
PRISME	Pan-European Repository of Information Supporting the Management of EATM
PSR	Primary Surveillance Radar
RBT	Reference Business Trajectory
RFF	Radar Fall-back Facility
RMA	Regional Monitoring Agency
RNP	Required Navigation Performance
RVSM	Reduced Vertical Separation Minima
SAFIRE	Spectrum and Frequency Information Resource
SASS	Surveillance Analysis Support System
SBT	Shared Business Trajectory
SDDS	Surveillance Data Distribution System
SDPS	Surveillance Data Processing System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMAN	Surface Management
SPI-IR	Surveillance Performance and Interoperability Implementing Rule
SSR	Secondary Surveillance Radar
SUR	Surveillance Domain
SWIM	System-Wide Information Management
TCAS	Traffic Collision Avoidance System
TEN	Trans-European Network
TRACECA	Transport Corridor Europe Caucasus Asia
VHF	Very High Frequency
WAM	Wide Area Multilateration

EUROCONTROL

CENTRALISED SERVICES

A KEY DRIVER FOR SETTING UP A BETTER PERFORMING PAN-EUROPEAN NETWORK

Even though Europe has succeeded in putting in place a pan-European air transport single market, European air traffic management is still fragmented, inefficient and, when compared to other regions of the world, uncompetitive. With new systems being developed and introduced over the next decade, several of the services for handling data could be implemented centrally, rather than at a national level. This would:

- reduce the costs resulting from overlapping investments;
- improve performance;
- improve the level of interoperability and the objective of standardisation;
- help put Europe at the cutting edge of ATM technology, creating jobs and promoting exports.

The proposal by EUROCONTROL additionally foresees creating a Europe-wide ATM market by tendering and providing the services beyond the EU boundaries to all 39 EUROCONTROL Member States' airspace, in line with SES2+ initiative objectives.

In October 2012, the European Commission Vice-President Siim Kallas declared that inefficiencies caused by the fragmentation of Europe's airspace result in extra costs of around €5 billion per year and that the cost in Europe to control a flight for one flight hour was about double that in the United States.

The Single European Sky (SES)

The EU has put in place a Performance Scheme in which each country has clear and challenging targets to improve their performance on cost, delays, the environment and (from 2015 on) safety. To help them in this, the European Commission is promoting:

- the creation of Functional Airspace Blocks (FABs), in which groups of countries work together to improve operational efficiency;
- the development of new ATM technologies as part of the SES Research Programme (SESAR);
- the work of the Network Manager (a role fulfilled by EUROCONTROL), which is promoting efficiency through a more network-centric approach.

The Network Manager (NM) is already a decisive European player and will probably gain an even more pivotal role with the forthcoming SES 2+ package, acting both for the EU in accordance with its remit granted under EU regulation, and providing a bridge to other EUROCONTROL Member States.

Deployment of SESAR

Many newly developed SESAR technologies will be implemented in the coming years. While many of these will have to be implemented at a local or FAB level, some make more sense at a central or network level, both in terms of operational efficiency and also cost.

EUROCONTROL was asked by the Vice-President of the European Commission in November 2012 to elaborate further upon the concept of Centralised Services. It has identified up to 10 candidates for implementation in this way, typically those involving data. The creation and real time exchange of up-to-date and accurate operational data across the entire network is an essential foundation for the creation of an efficient, performance-driven ATM system.

A proven concept

EUROCONTROL already manages a number of Centralised Services, such as European AIS Data Base (EAD) and the Central Flow Management Unit. EUROCONTROL has experience in putting Central Services out to competitive tender, with the opportunity for air navigation service providers (ANSPs) and industry to come together to provide an efficient service across Europe. This is the case with the EAD, which is so successful that it is also being used by a number of countries across the world, from Canada to New Zealand.

Benefits

It is estimated that the Centralised Services already identified could save from €150-200 million per year, leading to €1.5 to 2.0 billion savings to the airspace users in the 10 years anticipated service duration after the start of the service. These savings, together with the significant operational benefits that come from having pan-European, coherent and interoperable data services, better flight profile calculations, increase in safety and capacity will help Europe in achieving the EU Performance Scheme targets. The concept will also create an ATM market for some ancillary services across Europe, from Ireland to Armenia.

More than that, the establishment of efficient ATM services at the cutting edge of technology will result in increased market opportunities for European industry on a global level, thus stimulating the creation of high-technology jobs.

Current position

EUROCONTROL is consulting with the stakeholders across Europe, including States, industry, ANSPs, airports, military and all categories of airspace users. So far, mainly positive feedback has been reported. The intention is to develop the concept further, including the production of specific operational concepts for each centralised service proposed.

EUROCONTROL has applied for European Union funding to offset part of the expense of this exercise. The European Commission has repeatedly expressed its full support to this project and its intention to make use of EUROCONTROL reaching out beyond the EU borders as a vehicle for its Neighbourhood Policy in aviation matters

On the occasion of a consultation workshop with airspace users on 24 April, Mr Baldwin, Director Air Transport at DG MOVE, stated that linking the concept of Centralised Services with the work of the Network Manager is not only a way to place it under a consistent legal framework within the SES initiative, but also to ensure that the industry is adequately represented in this initiative.

What is a Centralised Service?

A Centralised Service is an air navigation support function that is run at a pan-European and central network level and which covers the airspace of the EUROCONTROL Member States or beyond. It brings significant benefits in cost-effectiveness and harmonisation, contributes significantly to the performance plans of the Member States, supports the implementation of SESAR developments and contributes to the creation of efficient pan-European ancillary services.

N°		Service name	Description
CS#1		**Flight Plan and Airport Slot Consistency Service (FAS)**	A service to check consistency of flight plans against airport slots on a centralised basis – which will result in better exploitation of airport capacity and improved flight punctuality.
CS#2		**4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP)**	A centralised service for calculating and communicating 4D trajectory profiles with increased accuracy, leading to improved predictability in the planning phase.
CS#3		**European Tracker Service (ETKR)**	This service will enable the creation of a Europe-wide, consistent, high quality picture of the air situation, processing and unifying all the data sent by numerous surveillance sensors.
CS#4		**Advanced Flexible Use of Airspace Support Service (AFUAS)**	A service for the collection and provision of airspace management data, enabling the more efficient and effective use of available airspace by both civil and military users.
CS#5		**European ATM Information Management Service (EAIMS)**	A development of the existing EAD service, to include all pre-departure static and dynamic data (eg airport information, weather and digital NOTAMs); this service enables the acceleration of the early deployment of the SWIM technology.
CS#6		**Management of Common Network Resources Service (CNR)**	This service improves the management of scarce resources such as transponder codes and radio frequencies by handling them on a unified basis across Europe.
CS#7		**Network Infrastructure Performance monitoring and analysis Service (NIPS)**	A service to ensure the safe function and anomaly resolution of common/distributed CNS infrastructure. This service would set up and operate sensors so that performance of the infrastructure could be measured and issues resolved.
CS#8		**Pan European Network Service (PENS)**	As data interchange increases, this service would meet all the ground communication needs between sites and partners (based on Internet Protocol version 6). This existing service would be expanded both in scope and in coverage.
CS#9		**Data Communication Service (DCS)**	A data communication service between the air and the ground, to support services such as datalink, AOC services, ADS-C, flight information service, airport coordination services, space-based ADS-B, etc.
CS#10	TBC	**Under evaluation**	

EUROCONTROL

CENTRALISED SERVICES

INCREASING PERFORMANCE & REDUCING FRAGMENTATION

Keep abreast of developments on EUROCONTROL dedicated website

www.eurocontrol.int/centralised-services

EUROCONTROL

Briefing Meeting for Airspace Users on Centralised Services

Final minutes

Location	Vega Conference Room, Haren
From/to	29 April 2013, 10:00 – 16:00
Participants	<u>Airspace users</u> Mildred Trögeler (AEA) Vincent De Vroey (AEA) Sascha Fischer (Air Berlin) Philippe Eydaleine (Air France) Laurent Barthelemy (Air France) Paul Tate (British Airways) Albert Coenen (Brussels Airlines) Pedro Vicente Azua (EBAA) Loic Michel (ECA) John Hanlan (ELFAA) Francis Richards (ELFAA) Robert Peel (ERA) Sylviane Lust (IACA) Guy Battistella (IACA) Pete Curran (IATA) César Raffo (IATA) Ricardo Genova (Iberia) Elkhan Nahmadov (ICAO) Eugenie Kalshoven (KLM) Marita Lintener (Lufthansa) <u>European Commission</u> Matthew Baldwin (Director Air Transport Directorate, European Commission) Jorge Bernal Geschier (DG MOVE) Mete Celiktin (DG MOVE) <u>EUROCONTROL Agency</u> Frank Brenner (Director General EUROCONTROL) Bo Redeborn (Principal Director ATM) Joe Sultana (Chief Operating Officer Network Management) Luc Tytgat (Director DSS) Alberto Varano (Principal Director Resources) Andrew Harvey (Head of Corporate Programme Management) Simon Scott-Kemball (Internal Communications Manager and Meeting secretary) Patrizia Samyn (Central Secretariat)

1. WELCOME AND INTRODUCTION BY THE DIRECTOR GENERAL

(F. Brenner)

1.1 The Director General of EUROCONTROL welcomed airspace users and the European Commission to this dedicated briefing meeting on centralised services (CS), the third in a series of such meetings following similar briefings to Member States and to ANSPs of EUROCONTROL Member States. He also extended his thanks to Mr Baldwin, Director Air Transport Directorate at the European Commission, for kindly agreeing to share the Commission's view on the Agency's CS proposal on how to proceed with some SESAR initiatives.

2. ADDRESS BY EUROCONTROL

(F. Brenner – speech)

2.1 In his presentation, Mr Brenner stressed that performance is central to European ATM, with the ATM industry needing to become competitive with regard to other areas of the world to support the European aviation industry. He noted that while Europe's safety record is admirable, in terms of competitiveness Europe is falling short in cost.

2.2 The need to change is, he emphasised, reflected in the targets set by the EU's performance scheme. He noted that it looks increasingly probable that the some States will not meet the RP1 targets. Especially in the current economic context of reduced traffic growth, the old way of reducing user fees by compensating through higher traffic numbers no longer works, he noted. Here, Mr Brenner highlighted the role that all actors should, in close cooperation, play by looking for concrete ways to reduce costs. In this regard, he cited EUROCONTROL's successful cost-cutting efforts over the past five years, which have seen staffing reduced by 10%, and the cost-base flattened, with costs not only not increasing in line with inflation, but actually falling in cash terms.

2.3 He announced that EUROCONTROL will propose to the Member States in May 2013 to commit to contributing pro rata to the performance targets over the RP 1 and RP 2 timeframe, so that no EU Member State has to over-contribute due to EUROCONTROL to meet the targets. On the other hand, EUROCONTROL is not keen to contribute more than the targets require, purely due to shortcomings at the national level. He stressed that if all Member States together with their NSAs, weather services and ANSPs, would support the performance scheme targets to the extent that EUROCONTROL was promising to do, then the targets would actually be reached.

2.4 Fragmentation, Mr Brenner stated, is the underlying issue behind higher costs. Europe is a patchwork of sovereign countries, each with its own ANSP and control centre or centres. Meanwhile, around 300 SESAR initiatives are moving into the deployment phase. If the military centres in Europe are accounted for, a local deployment would mean that the SESAR ideas would need to be implemented around 80 times in Europe. This, he stressed, triggers the obvious question as to whether it makes sense for each ANSP to implement each solution in each centre, or whether it would be better to identify cost-savings by pursuing regional or pan-European solutions – savings which, he emphasised, should be passed on to the airspace users.

2.5 Mr Brenner explained that following a request by the European Commission from November 2012, EUROCONTROL had analysed the SESAR initiatives, and provisionally classified around 70 to 90 that make technical and financial sense to implement at a regional level, and around ten that could be deployed at a central, pan-European level.

2.6 All of these services, he noted, involve managing data centrally, with the aim of improving predictability, reliability and consistency.

2.7 EUROCONTROL, Mr Brenner stated, has the required experience in managing CS such as the CFMU, CRCO and EAD; it possesses the independence and impartiality that are essential to such common projects; and as the Network Manager (NM), the Agency has a

detailed understanding of how the network is evolving. EUROCONTROL has been entrusted by the Member States and the European Commission to run a few centralised services so far like CRCO, CFMU and EAD, although the number is not particularly high compared to the 50 years of history of EUROCONTROL. The reason for that has in the past always been that Member States and their national ANSPs have not been that willing to accept that some services are taken away from their national monopoly.

2.8 In order to overcome this situation, Mr Brenner explained that EUROCONTROL is ready to commit to these CS, that EUROCONTROL would typically not provide the service itself, but rather be responsible for the technical setup and the service delivery results, manage the process and run the competition in which ANSPs and the manufacturing industry of the EUROCONTROL Member States would be eligible to bid. EUROCONTROL would therefore not bid for these services, and thus avoid entering into any competition with the ANSPs.

2.9 The idea would be to create a pan-European market for a limited number of ATM support services, ancillary services, whereby ANSPs would be able, individually or in consortia, to bid to provide the respective CS beyond their current national boundaries. These services, Mr Brenner stressed, are not intended to interfere with ANSPs' direct service delivery to airspace users, but instead to provide enhanced efficiency and lower costs – helping the States and their ANSPs to approach their performance targets, and for the system to become more efficient for the airspace users.

2.10 Mr Brenner stated that EUROCONTROL proposes that for the CS, the remit of the NM and its governing body, the Network Management Board (NMB, on which the European Commission, ANSPs, airspace users, airports and the military are represented) could be extended in the future. This would also allow the operation of the CS to be centrally regulated by EASA, which is already the regulatory body for the NM.

2.11 He concluded by reiterating EUROCONTROL's position as a neutral moderator of these services, its commitment to improving performance, its motivation to assist the ANSPs in reaching or at least coming closer to the performance targets, its desire to create a European market for a number of ATM support services, and its commitment to ensuring an efficient, safe and cost-effective environment for airspace users.

2.12 For the full text of Mr Brenner's speech, see *Annex 1: Address by EUROCONTROL*.

3. ADDRESS BY THE EUROPEAN COMMISSION
(M. Baldwin – speech)

3.1 Mr Baldwin emphasised the European Commission's commitment to helping European ATM dramatically improve its performance, and stated that the EUROCONTROL initiative to develop CS, in response to Vice-President Kallas' invitation, represented a highly practical attempt to further this objective by addressing the underlying issue of fragmentation in service provision. CS on a pan-European level, he stressed, have clear links to the increasingly important role of EUROCONTROL as the NM, and to the deployment of SESAR, and are very much in line with the Commission's ideas for developing the Single European Sky and improving the competiveness of European ATM and the wider economy as a whole.

3.2 He stressed that not each and every one of the SESAR developments will necessarily make financial sense for every ANSP to deploy at a local level, especially if there are very clear benefits at the FAB or network level. The EC will always look for 'net gain' in all new initiatives, Mr Baldwin stated, ideally at the network level; to this end, it is important to clearly demonstrate that the cost of providing CS is offset by corresponding cuts in budgets at local and national level.

3.3 The European Commission view, Mr Baldwin stated, was that EUROCONTROL's future should be increasingly focused around its work as the NM, and that that function looks set to become yet more pivotal as the SES2+ package is developed. He noted the need to integrate the CS fully into the SESAR project as it moves into the deployment phase.

3.4 Mr Baldwin also highlighted the potential of CS for extension beyond Europe, helping further bridge the gap to non-EU EUROCONTROL States by achieving harmonised technological solutions and services on both a pan-European basis and beyond to third countries. This, he stated, would represent a valuable addition to the EU's External Aviation Policy.

3.5 As part of the cooperation between the European Commission and EUROCONTROL, Mr Baldwin supported the need to develop harmonised procedures and technical solutions beyond the 27 EU Member States. He expressed his view that the NM is already developing into a decisive European player, acting both for the EU in accordance with its remit, granted under EU regulation; and of course outwardly in its bridging effect to other EUROCONTROL Member States, in particular by helping to develop the EU's Neighbourhood Policy through its relationship with projects such as ISIS (for the Balkan States), TRACECA (for the Caucasus States), and EUROMED (for the Mediterranean States).

3.6 Linking the concept of centralised services with the work of the NM is not only a way to place it under a consistent legal framework within the SES initiative, but also to ensure that the industry is adequately represented in this initiative. Mr Baldwin concluded that this aspect alone is both sensible and most welcome.

3.7 Mr Baldwin reiterated the European Commission's confidence in its partnership with EUROCONTROL, and its full support for the CS proposal, which it considers a pragmatic way to address implementing technologies at central level, and a valuable step towards opening the market for ancillary services.

3.8 For the full text of Mr Baldwin's speech, see *Annex 2: Address by the European Commission*.

4. DISCUSSION ON THE POLITICAL DIMENSION
(All)

4.1 Following the two addresses, Mr Brenner invited participants to express their views, the main threads of which are reflected below.

4.2 **IATA** asked Mr Baldwin to explain Commission thinking regarding the future role of European Infrastructure Manager (EIM) in the context of SES2+, how it envisaged the relationship between the future IM, the NM, and the proposed CS; and whether the CS were limited to data provision, or could be extended in scope (triggering the need for deeper political agreement on mandates).

4.3 **ELFAA** expressed its view that the CS proposal made sound sense, but wondered whether it would not be better to widen the bidding beyond ANSPs in order to ensure greater competitiveness, while **AEA** asked how EUROCONTROL would manage the potential conflicts of interest that could be created if ANSPs bid for services while also are involved in the governance of those services via the NMB.

4.4 On the EIM, Mr Baldwin stated that the Commission is currently thinking about the future institutional landscape and architecture of the SES, in which EUROCONTROL is expected to play an increasingly pivotal role as the NM. He emphasised that he saw this role as

needing to be strengthened. An industry-led Deployment Manager (DM) and a stronger NM were, Mr Baldwin stressed, necessary steps, with the possibility of the NM and future EIM merging into a “network infrastructure manager” over time.

4.5 Expanding on his presentation, Mr Brenner emphasised that the CS proposal was designed to be acceptable to all stakeholders, hence the idea of strong ANSP involvement, to avoid the risk that, as with the last proposal to unbundle such services in 2004, no tangible results would emerge. The CS proposal was also deliberately limited in scope and designed to be implementable in a relatively short timeframe, so that it can contribute to the achieving of RP2 performance targets. If successful, Mr Brenner emphasised, the CS would help change mind-sets and help open the way for more substantial savings to be created by potentially centralising certain core services.

4.6 On the question of mandates, Mr Brenner noted that successful CS implementation would require commitment on the part of the EU Member States to move to the CS and avoid duplication/double-charging; while for the non-EU Member States, some other form of solution would have to be found to avoid creating two sets of procedures. In any case the CS would require, he emphasised, the political agreement of all EUROCONTROL Member States, as they are supposed to be partially financed out of the EUROCONTROL part 1 cost-base.

4.7 On avoiding conflicts of interest, Mr Brenner stressed the criticality of this getting the balance right in terms of defining the appropriate level of detail provided, given that some ANSPs will decide to tender, but that this was a challenge that the SJU had also surmounted.

4.8 Finally, on regulation, he noted that the services which would become the CS were currently regulated under national laws under SES rules. Bringing CS under NMB remit would harmonise this and bringing it under EASA regulation.

4.9 Mr Baldwin, wrapping up the first batch of questions, underlined his view that the current situation was crying out for innovative solutions in implementing SESAR initiatives that could help raise performance. The idea of CS was not new at all, he noted, but the likelihood of the CS being implemented was significantly higher than in the past, and they were fully compatible with other initiatives to improve performance, as per the Skyguide proposal on Virtual Centres.

4.10 Mr Brenner then opened the floor to a second round of questions.

4.11 **IACA** stated that they would like to understand better the interface between the NM and the SJU, and under which governance, regulation and funding. IACA additionally emphasised the importance of seeing positive cost-benefit analyses (CBAs) for the CS, and of avoiding any double-counting of projected savings, with the link to RP2 needing to be established.

4.12 **EBAA** followed IATA in wondering whether it would not have made more sense to integrate aspects of the DM and NM roles from the start. **KLM** asked whether the European Commission had thought to ask other organisations as well as EUROCONTROL to propose concrete improvements, while **Lufthansa** requested more detail on the costing model and whether the User Pays Principle (UPP) could eventually apply, noting that in rolling out such CS, EUROCONTROL should avoid that the “last movers” gain an economic advantage.

4.13 On governance, Mr Brenner emphasised that this will require legislation changes to enable governance through the NMB.

4.14 On costing issues, Mr Brenner emphasised that the CS were designed to have a network effect, which was why he would be asking the PC to give its approval for the CS to be partly

financed out of the cost-base, complemented by TEN-T funds. The UPP is not intended to be applied for Centralised Services within the EUROCONTROL Member States, he noted, as the benefits for all Member States and their ANSPs would be available in a similar way, which calls for financing through part 1 of the EUROCONTROL budget; but the UPP could, he noted, be used beyond. To ensure system savings, he underlined the need for a detailed deployment strategy based on formal buy-in from the EUROCONTROL Member States on the CS, and connecting those ANSPs of Member States first that are about to make an investment decision at local level. Which ANSP connects when, he stressed, would be driven by the level of investment made: existing equipment would be used until the end of its lifecycle, but the aim was that new investments would be avoided by ANSPs being obliged to switch at that point to the common solution, so as to avoid duplication of systems and costs.

4.15 Responding to Lufthansa, Mr Baldwin explained that the Commission had reacted positively to EUROCONTROL's proposal and that they considered the CS proposal to be a pragmatic and practical contribution to performance, fully backed by the European Commission.

4.16 On the subject of achieving an impact within RP2, Mr Baldwin expressed his view that it would be difficult, not least because the CS would not be implemented before 2016, after the start of RP2. He asked for the support of airspace users in supporting the CS proposal and putting constructive pressure on the States and ANSPs to ensure that performance targets are met.

4.17 On the interface between the NM and the SJU, Mr Baldwin stated that while there were two processes, in reality close coordination would be built in, as is already the case with SESAR deployment. Institutionally speaking, he noted that indeed the DM and NM roles could be seen as converging over time.

4.18 **ELFAA** and **IATA** then asked why EUROCONTROL and the European Commission were confident that the CS would this time be implemented, given that various initiatives of this sort had failed in the past. In response, Mr Brenner and Mr Baldwin agreed that the political and economic landscapes were completely different than in the past: many Member States and ANSPs now saw the need to adapt, driven by the realities of the performance scheme, and the reaction of both to the CS was on balance very positive, with many ANSPs very interested in the new business opportunities to be created. EUROCONTROL's commitment to stay out of the service provision itself and instead leave that to successful bidding consortia under performance-based contracts was, Mr Brenner emphasised, well perceived, with EUROCONTROL's interest clearly understood as being in using the data produced by the CS providers to help the NM make decisions that will help raise network performance.

4.19 To avoid monopolistic situations, **AEA** underlined the need for multiple providers for CS; Mr Brenner and Mr Baldwin noted that this would depend on the service and the suitability, but that indeed avoiding vendor lock in at the re-tender stage was essential.

4.20 **ELFAA** inquired whether the tenders would be open to actors other than ANSPs, to which Mr Brenner stated that the services fall under a SES certification process, bidder groupings would need to fulfil the SES requirements to compete. EUROCONTROL wanted ANSPs on board and considered that sufficient competition would naturally be generated by having 39 or 40 different potential partners; however, he fully expected that entirely new bodies would be created and that these bodies would see combinations of ANSPs and other actors.

4.21 In terms of timing, EBAA asked when the European Commission considered SES2+ would be reflected in the performance scheme, while IATA asked whether achieving deployment of the CS by 2016 was not overambitious. In answer, Mr Baldwin stated that SES2+ would not be ready before RP3, but that there could be a mid-point review of RP2. However, he

expressed his confidence that even if not all the answers are found on all the regulatory issues, nevertheless the CS proposals will go ahead and all actors would adjust as needed.

4.22 Mr Brenner thanked Mr Baldwin for sharing his views in the morning session, and invited Mr Sultana to present the CS in detail, after which there would be rounds of CS-specific questions.

5. PRESENTATION OF CENTRALISED SERVICES
(J. Sultana – slides)

5.1 In his presentation, Mr Sultana outlined the rationale behind the CS proposed, namely that the evolution of European ATM is dependent on high-quality data, the provision of which could be most effectively made through a centralised concept, rather than at a local or national level. This would open up certain data services to the market, and improve cost-effectiveness, defragmentation, pan-European harmonisation, and interoperability, thereby making a strong contribution to the realisation of national performance plans.

5.2 He went on to explain in more detail the nine CS so far identified by the Agency and that form the basis of the application made in March 2013 for TEN-T funding and as presented to the European Commission.

5.3 The CS, he emphasised, are strongly interlinked and will directly support network-wide SESAR deployments. The approach will be to tender the setting up and operating of each service, with clear roles and responsibilities for all actors, governed for example through new provisions for the Network Manager.

5.4 After outlining the expected benefits, Mr Sultana outlined the relationship between the CS and the DM, underlining that the DM would not be entrusted with running any CS, that EUROCONTROL was not seeking to become the DM, and that the DM would naturally work closely with NM on all deployment matters as foreseen in the regulation just voted in the Single Sky Committee.

5.5 Explaining how the CS would be implemented, he touched on governance aspects, the need to avoid monopolistic situations, and what to expect in the months to come.

5.6 For the slides presented by Mr Sultana, see *Annex 3: Centralised Services Idea.*

5.7 Copies of the EUROCONTROL proposal to the European Commission Version 2.0 dated 25 March 2013, and a paper outlining the concept and benefits of the CS, were then distributed to the meeting participants (see *Annex 4: EUROCONTROL Proposal*, and *Annex 5: Centralised Services paper*).

6. DISCUSSION ON THE CS
(All)

6.1 A detailed discussion was then held on each CS

6.2 On **CS1**, questions were raised on the rationale for inclusion of this as a CS in terms of beneficiaries and in terms of the CBA for airlines. Mr Brenner emphasised that EUROCONTROL had proposed this as a practical way of homogenising the current fragmented situation, with frequent ad hoc requests to the NM, and stressed that the Agency was not proposing in any way to interfere with the existing decision-making processes but exploit to the fullest extent the available runway capacities. It was not, he emphasised, numbered as the first CS in reflection of its urgency or importance: rather, that all CS were interlinked and should be seen as a package.

6.3 In response, **ELFAA** wondered at the need if this was aimed at addressing ad hoc requests, and questioned whether this might even prove more expensive than the current status quo. **IACA** asked whether CS1 was targeting matching, or consistency, noting that the question of slots was an extremely sensitive one for airlines. Mr Brenner and Mr Sultana explained that such questions as slots and suspensions lay completely outside the scope of CS1, which was purely aimed at pooling data, and that the operations concept would be elaborated with the full involvement of airspace users.

6.4 **EBAA**, **ELFAA** and **IATA** requested to see the CBAs for this and the other CS, to demonstrate the real added value. Mr Brenner took this as a follow-up action, and added that later the participants would be presented with some ballpark figures.

6.5 In view of the time, Mr Brenner stated that the workshop would reconvene after lunch to look at the remaining CS in detail, with Mr Redeborn taking over from Mr Sultana.

6.6 On **CS2**, **EBAA** noted that the CBA regarding the PCP on I4D looks negative for airspace users, and expressed his concern that this CS could prove the same; IATA inquired about the connection to the PCP proposal, which they consider to be extremely complex. Mr Redeborn explained that for EUROCONTROL, CS2 was connected and justified as it would improve the consistency of NM planning, improving understanding of constraints and capacity. He explained CS2 is for central planning purposes, whilst PCP for I4D is for control purposes with a completely different architecture.

6.7 **EBAA** agreed that CS2 would help, and inquired whether MET could not be an ideal candidate for the tenth CS, especially as meteorological data is essential to 4D operations. This would bring Europe more closely into line with the US. Mr Redeborn explained that CS2 in its current structure was a less controversial starting point, but that in the long run greater consolidation in the MET sphere would be helpful for all actors and explained the link of MET to CS 5.

6.8 On **CS3**, **EBAA** welcomed the proposal to rationalise tracker systems, and expressed their view that EUROCONTROL should play a strong role in rationalising surveillance systems. Mr Redeborn emphasised that security was a sensitive issue, and that EUROCONTROL's key interest was in reducing the cost for the network and specifying what was best for the network. Mr Brenner added that this CS was the most problematic for ANSPs to support unequivocally, pointing to the scarcity of radar-sharing arrangements at present. Nevertheless, he emphasised simply by starting on reducing the equipment needed would deliver major savings, and he called on the airspace users to put their weight behind this proposal.

6.9 On **CS4**, Mr Redeborn explained that the main aim was to make the current Flexible Use of Airspace concept more dynamic and thus free up more extra route capacity thus developing it into an Advanced Flexible Use of Airspace (AFUA) concept and service. The military were, he explained in answer to a question from **Lufthansa**, generally supportive to the idea of sharing this information to create floating exercise areas, and he emphasised in response to **Brussels Airlines** that moving back to permanent segregation of areas may add certainty, but was overall not useful for network performance.

6.10 On **CS5**, Mr Redeborn emphasised that this was an extension of the existing centralised service of EAD. Responding to **IATA**, Mr Brenner stressed that the idea was to oblige, through a revised NM IR, States to move in time to this CS and thus avoid paying twice, for the CS and for own systems, as is in some States in respect to EAD the case at present. **ELFAA** requested a diagram showing the current overlaps and waste; Mr Brenner promised that EUROCONTROL would provide this as an Annex to the minutes showing participation in EAD (see *Annex 6: EAD migration status*).

6.11 On **CS6**, Mr Brenner stated that in case of conflicts between different database inputs, as queried by **AEA**, that decision-making would rest with the NM but not database operation.

6.12 On **CS7**, Mr Brenner noted that responsibility for developing the CS would remain in-house, with CS subcontracted to ensure efficiency.

6.13 On **CS8**, Mr Redeborn explained that EUROCONTROL, as the largest user of PENS, considered that it should be obligatory to use the mechanism, which would ensure a single network not multiple national networks, and provide a single solution not multiple connections, as is the case at present. Responding to **ELFAA**, which queried whether PENS should not be seen as a transitional stage to SWIM, Mr Redeborn explained that PENS provided the physical infrastructure that would become the backbone for SWIM solutions, and had been designed as a common network. However, relatively few ANSPs have migrated their own data so far to PENS, which has reduced the positive impact of this service: by making this an obligatory CS, Mr Brenner explained, significant savings could be realised.

6.14 On **CS9**, Mr Redeborn stressed that as part of the envisaged demonstration more work was needed to see where and to which extent cost-efficiencies could be identified. AEA stressed that here, more than one provider would be needed.

6.15 Taking the CS as a whole, **IACA** firstly requested EUROCONTROL to clarify which proposals were new and which were in existence; Mr Brenner promised that this would be made clear in each CBA and presented in the individual CS workshops, to which invitations would be soon issued.

6.16 Secondly, **IACA** inquired which body would sign the performance-based contracts; Mr Brenner replied that this would be EUROCONTROL as the designated NM.

6.17 Thirdly, **IACA** asked whether consultation would be through the ANSB, and inquired whether governance should be with the NMB or the ANSB, given the close connection to SES2+. Mr Brenner stated that some of the operations concepts would be discussed in the AAB, where input has already been obtained on a number of related topics, but not the contracting elements. The same would apply to the dedicated CS workshops with stakeholders: here the way forward to the developments of operational concepts would be discussed, but not the Calls for Interest or Tender.

6.18 **ELFAA** asked EUROCONTROL to clarify whether only ANSPs would be invited to tender, and raised concerns about the competitiveness of the process if only entities from EUROCONTROL Member States were allowed to take part; this point was echoed by **IATA**. Mr Brenner explained that interested parties, which he expected to feature combinations of ANSPs and other actors (which could include airspace users), would be asked to express their interest in the Call for Interest phase which is expected to last until end of May to October 2013, resulting in the Calls for Tender to be launched around year-end. He emphasised that he believed new provider vehicles would emerge, and that in his view, the CS would definitely not result in a closed, competition-free market. Mr Brenner reminded participants that in order to be able to provide SES services required full compliance with EU regulations, which gave a natural advantage to existing ANSPs, but that the market was fully open for new joint ventures and other vehicles to emerge. He emphasised that politically it made sound sense to limit to within EUROCONTROL Member States, and that this left wide scope for genuine competition.

6.19 **Lufthansa** requested EUROCONTROL to describe fully the process for each CS so that it would be clearer for airspace users to understand the direct impact of each CS on their operations; this would be done in the development of the operational concepts, Mr Brenner confirmed.

6.20 Wrapping up this round of questions, Mr Brenner stressed that the basic idea behind the CS was to produce cheaper and more efficient data of higher quality, and that airspace users would directly benefit from these CS on both dimensions.

7. NEXT STEPS
(L. Tytgat – Slides)

7.1 Mr Tytgat then outlined the next steps, with a preparatory phase lasting until 2014, development and demonstration in 2014 and 2015, and deployment in 2016. Regarding the tendering process, he explained the objectives, guiding principles and calendar.

7.2 For the slides presented by Mr Tytgat, see *Annex 7: The way ahead.*

8. DISCUSSION ON NEXT STEPS
(All)

8.1 **EBAA** asked how EUROCONTROL planned to use money granted out of the TEN-T funds. Mr Tytgat explained that the funding will help final execution, but that the Member States' support was critical as the remainder would primarily have to come out of the EUROCONTROL cost-base (i.e. part 1 of the Budget); here, he stressed, positive CBAs were essential, also to show airspace users that the future cost reductions would also benefit them.

8.2 Asked by **IATA** when the detailed CBAs would become available, Mr Brenner stated that some data would be available for the CS workshops, but that the level of detail would, as already mentioned, have to be balanced against the needs of the Call for Tender process.

8.3 Asked to make final statements, participants mentioned strong interest in proper competition beyond purely ANSPs (**ELFAA**), full transparency on the eventual cost to the Agency (**IACA**), and the degree of "commoditisation" possible so that non-ANSPs might be eligible to tender (**IATA**). Mr Brenner reiterated his belief that interesting competitive options would emerge, and that opening the market to a limited extent was a good first step for making future options feasible. He took note of the cost aspects, explaining that for EUROCONTROL too, this would not become clear until the TEN-T decision.

9. KEY TAKEAWAYS
(A. Varano)

9.1 Summing up main takeaways from the workshop, Mr Varano noted that:

- the CS were designed as a concrete response to the urgent need to raise performance, and that this factor was fully supported by the European Commission
- the CS were designed to help make SESAR implementation a reality
- over time, the roles of the EIM, DM and NM could well converge
- opening the market for some ancillary services to competition was firmly aimed at partnerships between ANSPs and other European ATM actors, and were designed as an enabler for the ANSPs to come towards their performance scheme targets – and that a corresponding saving should be transmitted to airspace users
- as homework, the Agency would
  (1) develop and share the CBAs to clarify what was new, what was an extension, and what was a review of the status quo in each – and for CS1 in particular, explain the added-value for airspace users
  (2) share the EAD utilisation model, showing participation and volumes
  (3) look into MET further as a possible area for CS development.

9.2 In a short round of final comments, **IATA** noted the need to ensure that the re-tendering process is open and that providers are unable to abuse monopolistic situations to drive future prices up. **KLM** wondered whether it was realistic to expect competitors to be able to displace existing providers in a short timeframe at the re-tendering stage. Mr Redeborn stated that these elements would be carefully considered, while Mr Varano noted that all projects have a natural lifecycle, after which new and improved possibilities could well emerge.

9.3 **IATA** thanked EUROCONTROL for clarifying many of the points raised, while stressing that more information would be needed on the governance models as well as tendering and decision-making. These, IATA requested, could be addressed in a dedicated workshop; **Lufthansa** followed by asking for a workshop with the PRB to understand better the proposed process flows.

9.4 EUROCONTROL thanked the participants for their interest and engagement, and urged airspace users to push all actors to help make the CS a reality and implemented as quickly as possible, as well as to engage through the usual consultation mechanisms to provide input to the operational concepts.

EUROCONTROL

Briefing Meeting on Centralised Services
Final minutes

Location	Vega, Haren
From/to	4 March 2013, 17:00 – 19:00

Participants:

Organisation Members

M. Baldwin (Director Air Transport Directorate, European Commission)
J. Paajanen (Policy Officer ATM, European Commission)
M. Celiktin (Policy Officer, European Commission)

State Members

A. Tunyan (Armenia: EUROCONTROL States Liaison Office)
M. Anguelova (Bulgaria: EUROCONTROL States Liaison Office)
L. Hlinovský (Czech Republic: Director of Strategy and Management Support, ANS of the Czech Republic)
Lt. Col. D. Bouvier (France: Head of International Affairs, DSAE)
G. Reichle (Germany: Director General for Civil Aviation and Aerospace)
I. Arnold (Hungary: EUROCONTROL States Liaison Office)
E. Kroese (Netherlands: Special Advisor to the Minister on International Aviation Policy, Ministerie van Infrastructuur en Milieu – Directoraat Generaal Bereikbaarheid)
Lt. Col. J. Laarhoven (Netherlands: NL Military Delegation to NATO and the EU, NATO)
C. Popa (Romania: EUROCONTROL States Liaison Office)
A. Lamprecht (Slovakia: EUROCONTROL States Liaison Office)
J. Macho Baena (Spain: EUROCONTROL States Liaison Office)
M. Erdogan (Turkey: EUROCONTROL States Liaison Office)
D. Babeichuk (Ukraine: Director Air Navigation and External Relations, State Aviation Administration of Ukraine)
M. Shvets (Ukraine: Head of International Cooperation, Ukrainian State Air Traffic Service Enterprise)

EUROCONTROL Agency

F. Brenner (Director General EUROCONTROL)
B. Redeborn (Principal Director ATM)
A. Varano (Principal Director Resources)
A. Heerbaart (Director CRCO)
J. Dopagne (Director Network Management)
J. Sultana (Chief Operating Officer Network Management)
L. Tytgat (Director Single Sky)
J. Jansen (Director MUAC)
G. Krol (Head of Central Secretariat)
A. Harvey (Head of Corporate Programme Management)
S. Scott-Kemball (Internal Communications Manager and Meeting secretary)
P. Samyn (Central Secretariat)

1. WELCOME AND INTRODUCTION BY THE DIRECTOR GENERAL
(F. Brenner)

1.1 Mr Brenner welcomed the State members to this dedicated briefing meeting on centralised services (CS), the first such meeting with States, ahead of the PCC on 5 March 2013. He also extended his thanks to Mr Baldwin, Director Air Transport Directorate at the European Commission, for kindly agreeing to share the Commission's view on the Agency's CS.

2. ADDRESS BY THE EUROPEAN COMMISSION
(M. Baldwin – speech)

2.1 Mr Baldwin emphasised the European Commission's commitment to helping European ATM dramatically improve its performance, and stated that the EUROCONTROL initiative to develop CS represented a highly practical attempt to further this objective by addressing the underlying issue of fragmentation in service provision.

2.2 CS on a pan-European level, he stressed, have clear links to the increasingly important role of EUROCONTROL as the Network Manager, and to the deployment of SESAR, and are very much in line with the Commission's ideas for developing the Single European Sky.

2.3 He also noted the potential of CS for extension beyond Europe, helping further bridge the gap to non-EU EUROCONTROL States by achieving harmonised technological solutions and services on a pan-European basis – as well as beyond.

2.4 Mr Baldwin concluded by reiterating the European Commission's confidence in its partnership with EUROCONTROL, and its full support for the CS proposal, which is a pragmatic way to address implementing technologies at central level, and which represents a valuable step towards opening the market for ancillary services.

2.5 For the full text of Mr Baldwin's speech, see *Annex 1: Address by the European Commission*.

3. ADDRESS BY EUROCONTROL
(F. Brenner – speech)

3.1 Mr Brenner thanked Mr Baldwin for his clear and concise words. The ten proposed centralised services, he emphasised, are the outcome of an analysis of the 300 SESAR initiatives to see which should best be implemented at a network, rather than a local/national, level. All of which, he noted, involve managing data.

3.2 Mr Brenner stressed that centralising such services would make sense operationally as well as maintain the existing high level of safety: the future of ATM is increasingly in effectively sharing such data.

3.3 EUROCONTROL, Mr Brenner stated, has the required experience in managing CS; the independence and impartiality that are essential to such common projects; as well as a detailed understanding, as the Network Manager, of how the network is evolving.

3.4 The idea would be to create a pan-European market for CS, also allowing ANSPs to provide services beyond their current national boundaries. This would provide enhanced efficiency and lower costs – helping the States and their ANSPs to approach their performance targets, and for the system to become more efficient for the airspace users.

3.5 For the full text of Mr Brenner's speech, see *Annex 2: Address by EUROCONTROL*.

4. PRESENTATION OF CENTRALISED SERVICES
(J. Sultana – slides)

4.1 In his presentation Mr Sultana outlined the rationale behind CS, and explained in more detail the eight CS so far identified by the Agency, noting that two still have to be defined.

4.2 The CS, he emphasised, are strongly interlinked and will directly support network-wide SESAR deployments. The approach will be to tender the setting up and operating of each service, with clear roles and responsibilities for all actors, governed for example through new provisions for the Network Manager.

4.3 For the slides presented by Mr Sultana, see *Annex 3: Presentation of Centralised Services*

5. Discussion
(All)

5.1 A discussion followed with State members. Asked by Mr Tunyan, Armenia's designated States Liaison Officer, whether the Agency had talked to industry to test its willingness to participate in CS, Mr Brenner confirmed that many such discussions had taken place, with the ATM manufacturing industry keen to be involved in developing architectural solutions for central data basis for the future, that could save money and be offered worldwide.

5.2 In response to Mr Macho Baena, Spain's designated States Liaison Officer, on whether CS would compete with ANSPs and/or be under EU governance, Mr Brenner emphasised that EUROCONTROL would not compete, but rather support ANSPs to create a European market for such services, helping them bring to a larger market services that would otherwise be developed nationally at greater global cost. He stated that he would be happy to see the Network Management Board, which has industry participation, take the governance role. Mr Baldwin added that for the European Commission, the cost-benefit analyses (CBAs) would be decisive in determining whether common projects can be seen as part of SESAR deployment and thus benefit from financial TEN-T support.

5.3 Mr Kroese, State member from the Netherlands, inquired why an intergovernmental organisation (IGO) was suited for acting as the platform for such services. Mr Brenner replied that in addition to having strong experience in providing CS such as EAD, CFMU and CRCO for the benefit of all, the Agency's status as an IGO guaranteed the required neutrality, and was why the EU chose to designate EUROCONTROL as the Network Manager. Discussions need, however, to continue on the current remit of the NM IR to make sure all aspects continue to fit.

5.4 Several States noted the need for CS to be applied on a European level, to achieve the desired economies of scale. In reply, Mr Brenner underlined that without a positive CBA, no CS would go ahead. The CBAs, he stressed, would take into due account a staggered implementation, with the timing to switch to any new CS dependent upon the lifespans of the existing systems in place. He added that he expected the CS to be attractive to all EUROCONTROL Member States – as well as potentially to non-ECAC countries as well.

6. ANY OTHER BUSINESS
(F. Brenner)

6.1 Mr Brenner thanked the State members for their interest and their engagement, and informed them of the next steps: to apply for TEN-T funding by the end of March 2013, and to conduct a similar briefing meeting with ANSPs. In May the PC and PCC would be updated on the status of the centralised services.

EUROCONTROL

Briefing Meeting for ANSPs of the EUROCONTROL Member States on Centralised Services

Minutes

Location	EUROPA, Haren
From/to	24 April 2013, 10:00 – 15:30
Participants	<u>ANSP invitees</u> Mariluz de Mateo (AENA) Lubos Hlinovsky (ANS) Petrit Sulaj (ANTA) Arian Kotoni (ANTA) Edmond Metaj (ANTA) Sonia Popa (ANTA) Eva Rama (ANTA) Arben Sula (ANTA) Alexander Hanslik (AUSTRO CONTROL) Robert Schneebauer (AUSTRO CONTROL) Marinko Simunovic (BHDCA) Djelal Hasecic (BHDCA) Diyan Dinev (BULATSA) Angel Rachev (BULATSA) Veselin Stoyanov (BULATSA) Dario Grgurić (Croatia Control) Ruediger Schwenk (DFS) Ralf Bertsch (DFS) Sevda Turhan (DHMI) Philippe Merlo (DSNA) Eric Bruneau (DSNA) Pierre-Yves Huerre (DSNA) Franck Monteil (DSNA) Jerome Journet (DSNA) Mariagrazia La Piscopia (ENAV) Alessandro Ghilari (ENAV) Cristiano Cantoni (ENAV) Michael Kraft (Group EAD) Kornél Szepessy (HungaroControl) Barnabas Kis (HungaroControl) Pal Peter Bardos (HungaroControl) Philip Hughes (IAA) Peter Kearney (IAA) Carin Kjellander (LFV)

Niclas Gustavsson (LFV)
Baiba Broka (LGS)
Miroslav Bartos (LPS)
Fabrici Ondrej (LPS)
Carmel Vassalo (MATS)
Jonathan Astill (NATS)
Dave Curtis (NATS)
Luis Ottolini Coimbra (NAV Portugal)
Lise Kronborg (NAVIAIR)
Hans Holst (NAVIAIR)
Kurt Andreason (NAVIAIR)
Krzysztof Banszek (PANSA)
Aleodor Francu (ROMATSA)
Madalina Kramer (ROMATSA)
Ildefonso de Miguel (SAERCO)
Daniel Weder (Skyguide)
Thomas Buchanan (Skyguide)
Franc Zeljko Zupanic (Slovenia Control)
Ziga Ogrizek (Slovenia Control)
Matej Eljon (Slovenia Control)

Other actors
Guenther Martis (CANSO)
Michel Rocca (CANSO)
Sven Halle (ICAO)

European Commission
Matthew Baldwin (Director Air Transport Directorate, European Commission)
Stuart Wain (DG MOVE E2)
Stefan Lorenz-Meyer (DG MOVE E2)
Jorge Bernal Geschier (DG MOVE E2)

EUROCONTROL Agency
Frank Brenner (Director General EUROCONTROL)
Joe Sultana (Chief Operating Officer Network Management)
Luc Tytgat (Director DSS)
Jac Jansen (Director MUAC)
Jean-Pierre Aiguier (Head of Network Technical Systems)
Andrew Harvey (Head of Corporate Programme Management)
Simon Scott-Kemball (Internal Communications Manager and Meeting secretary)
Pascale Tant (Central Secretariat)

1. WELCOME AND INTRODUCTION BY THE DIRECTOR GENERAL
(F. Brenner)

1.1 The Director General of EUROCONTROL welcomed the representatives of the air navigation service providers, the European Commission and other invited actors to this dedicated briefing meeting on centralised services (CS), the first

such meeting with all ANSPs of the EUROCONTROL Member States invited. He also extended his thanks to Mr Baldwin, Director Air Transport Directorate at the European Commission, for kindly agreeing to share the Commission's view on the Agency's CS proposal on how to proceed with some SESAR initiatives.

2. ADDRESS BY EUROCONTROL

(F. Brenner – speech)

2.1 In his presentation, Mr Brenner stressed that performance is central to European ATM, with the ATM industry needing to become competitive with regard to other areas of the world to support the European aviation industry. He noted that while Europe's safety record is admirable, in terms of competitiveness Europe is falling short in cost.

2.2 The need to change is, he emphasised, reflected in the targets set by the EU's performance scheme. He noted that it looks increasingly probable that the some States will not meet the RP1 targets. Especially in the current economic context of reduced traffic growth, the old way of reducing user fees by compensating through higher traffic numbers no longer works, he noted. Here, Mr Brenner highlighted the role that all actors should, in close cooperation, play by looking for concrete ways to reduce costs. In this regard, he cited EUROCONTROL's successful cost-cutting efforts over the past five years, which have seen staffing reduced by 10%, and the cost-base flattened, with costs not only not increasing in line with inflation, but actually falling in cash terms.

2.3 He announced that EUROCONTROL will propose to the Member States in May 2013 to commit to contributing pro rata to the performance targets over the RP 1 and RP 2 timeframe, so that no EU Member State has to over-contribute. On the other hand, EUROCONTROL is not keen to contribute more than the targets require, purely due to shortcomings at the national level.

2.4 Fragmentation, Mr Brenner stated, is the underlying issue behind higher costs. Europe is a patchwork of sovereign countries, each with its own ANSP and control centre or centres. Meanwhile, around 300 SESAR initiatives are moving into the deployment phase. If the military centres in Europe are accounted for, a local deployment would mean that the SESAR ideas would need to be implemented around 80 times in Europe. This, he stressed, triggers the obvious question as to whether it makes sense for each ANSP to implement each solution in each centre, or whether it would be better to identify cost-savings by pursuing regional or pan-European solutions.

2.5 Mr Brenner explained that following a request by the European Commission from December 2012, EUROCONTROL had analysed the SESAR initiatives, and provisionally classified around 70 to 90 that make technical and financial sense to implement at a regional level, and around ten that could be deployed at a central, pan-European level.

2.6 All of these services, he noted, involve managing data centrally, with the aim of improving predictability, reliability and consistency.

2.7 EUROCONTROL, Mr Brenner stated, has the required experience in managing CS such as the CFMU, CRCO and EAD; it possesses the independence and impartiality that are essential to such common projects; and as the Network Manager, the Agency has a detailed understanding of how the network is evolving. EUROCONTROL has been entrusted by the Member States and the European Commission to run a few centralised services so far, although the number is not particularly high compared to the 50 years of history of EUROCONTROL. The reason for that has in the past always been that ANSPs have not been that willing to accept that some services are taken away from their national monopoly.

2.8 In order to overcome this situation, Mr Brenner explained that EUROCONTROL is ready to commit to these CS, that EUROCONTROL would not provide the service itself, but rather be responsible for the technical setup and the service delivery results, manage the process and run the competition in which ANSPs and the manufacturing industry of the EUROCONTROL Member States would be eligible to bid. EUROCONTROL would therefore not bid for these services, and thus avoid entering into any competition with the ANSPs.

2.9 ANSPs, Mr Brenner emphasised, should do what they can do best, namely air navigation service provision. Currently, Europe's ANSPs are providing these services in general only within the national boundaries of their country; however, there is interest to provide services outside national boundaries as well.

2.10 The idea would be to create a pan-European market for a limited number of ATM support services, ancillary services, whereby ANSPs would be able, individually or in consortia, to bid to provide the respective CS beyond their current national boundaries. These services, Mr Brenner stressed, are not intended to interfere with ANSPs' direct service delivery to airspace users, but instead to provide enhanced efficiency and lower costs – helping the States and their ANSPs to approach their performance targets, and for the system to become more efficient for the airspace users.

2.11 Mr Brenner stated that EUROCONTROL proposes that for the CS, the remit of the Network Manager and its governing body, the Network Management Board (on which the European Commission, ANSPs, airspace users, airports and the military are represented) could be extended in the future. This would also allow the operation of the CS to be regulated by EASA, which is already the regulatory body for the Network Manager (NM).

2.12 He concluded by reiterating EUROCONTROL's position as a neutral moderator of these services, its commitment to improving performance, its motivation to assist the ANSPs in reaching or at least coming closer to the performance targets, and its desire to create a European market for a number of ATM support services.

2.13 For the full text of Mr Brenner's speech, see *Annex 1: Address by EUROCONTROL*.

3. ADDRESS BY THE EUROPEAN COMMISSION

(M. Baldwin – speech)

3.1 Mr Baldwin emphasised the European Commission's commitment to helping European ATM dramatically improve its performance, and stated that the EUROCONTROL initiative to develop CS, in response to Vice-President Kallas' invitation, represented a highly practical attempt to further this objective by addressing the underlying issue of fragmentation in service provision. CS on a pan-European level, he stressed, have clear links to the increasingly important role of EUROCONTROL as the NM, and to the deployment of SESAR, and are very much in line with the Commission's ideas for developing the Single European Sky and improving the competiveness of European ATM and the wider economy as a whole.

3.2 He stressed that not each and every one of the SESAR developments will necessarily make financial sense for every ANSP to deploy at a local level, especially if there are very clear benefits at the FAB or network level. The EC will always look for 'net gain' in all new initiatives, Mr Baldwin stated, ideally at the network level; to this end, it is important to clearly demonstrate that the cost of providing CS is offset by corresponding cuts in budgets at local and national level.

3.3 The European Commission view, Mr Baldwin stated, was that EUROCONTROL's future should be increasingly focused around its work as NM, and that that function looks set to become yet more pivotal as the SES2+ package is developed. He noted the need to integrate the CS fully into the SESAR project as it moves into the deployment phase.

3.4 Mr Baldwin also highlighted the potential of CS for extension beyond Europe, helping further bridge the gap to non-EU EUROCONTROL States by achieving harmonised technological solutions and services on both a pan-European basis and beyond to third countries. This, he stated, would represent a valuable addition to the EU's External Aviation Policy.

3.5 As part of the cooperation between the European Commission and EUROCONTROL, Mr Baldwin supported the need to develop harmonised procedures and technical solutions beyond the 27 EU Member States. He expressed his view that the NM is already developing into a decisive European player, acting both for the EU in accordance with its remit, granted under EU regulation; and of course outwardly in its bridging effect to other EUROCONTROL Member States, in particular by helping to develop the EU's Neighbourhood Policy through its relationship with projects such as ISIS (for the Balkan States), TRACECA (for the Caucasus States), and EUROMED (for the Mediterranean States).

3.6 Linking the concept of centralised services with the work of the NM is not only a way to place it under a consistent legal framework within the SES initiative, but also to ensure that the industry is adequately represented in this initiative. Mr Baldwin concluded that this aspect alone is both sensible and most welcome.

3.7 Mr Baldwin reiterated the European Commission's confidence in its partnership with EUROCONTROL, and its full support for the CS proposal, which it considers

a pragmatic way to address implementing technologies at central level, and a valuable step towards opening the market for ancillary services.

3.8 For the full text of Mr Baldwin's speech, see *Annex 2: Address by the European Commission*.

4. DISCUSSION, 1ST ROUND
(All)

4.1 Following the two addresses, Mr Brenner invited participants to express their views, the main threads of which are reflected below.

4.2 **Skyguide** expressed full support for the CS initiative, which it sees as going firmly in the direction of defragmentation and consolidation; and stressed that it was time to make this happen. More savings could even be made, Skyguide proposed, by adding core services in the future to the current CS proposal to centralise ATM support services; the European Commission was asked whether it envisaged adapting the regulations to incentivise innovators.

4.3 In response, Mr Brenner thanked Skyguide for its support, noting that the Agency proposal had sought to identify CS that would be acceptable to all. On the regulatory side, Mr Baldwin noted that SES2+ was about facilitating change, not dictating change, and that the key criterion was contributing to performance.

4.4 **AENA** asked about the relationship between the CS and SESAR deployment, questioning whether the shortly to be launched call for a Deployment Manager (DM) risked creating an overlap, as the DM would have a central role to play in implementing the CS. AENA also questioned whether all CS had a natural link to NM, and expressed their wish to analyse the CS and build the business cases for each.

4.5 **NATS** expressed its interest in building business beyond national boundaries, while at the same time stressing the need to act carefully to avoid creating future monopolies for successful bidders for CS that would be hard to challenge in the future.

4.6 **NAV Portugal** expressed support for the CS idea but inquired how the CS would be funded, noting in addition that deciding to move forward would require a positive cost-benefit analysis (CBA).

4.7 **DSNA** expressed support for the idea, noting that cost-efficiency is central, echoing NAV Portugal's view that positive CBAs are essential, and that the CS would only work if ANSPs decommission old equipment and switch to the new service at the right moment for them. DSNA also proposed that a study be done to establish the correct level of CS: regional (FAB) or pan-European.

4.8 In response, Mr Brenner agreed with NATS that the awarding of tenders would need to be done carefully, but that EAD had demonstrated impressively that contracts on a time-limited basis keep the market open and costs under control. He noted that various strategies could be adopted to avoid creating monopolistic

situations, such as identifying dual providers for the “big” CS, or looking for consortia rather than individual bidders as well as time-limited performance-driven contracts with payment schemes. He emphasised EUROCONTROL’s intention to open competition to bidders to ANSPs as well as other actors from the Organisation’s Member States. He reminded participants that currently some services are already provided on a national monopoly level without competition, and that consolidation at a central level even in such cases would create significant savings. However, he emphasised that EUROCONTROL proposes to go beyond that, expressing his view that EUROCONTROL is not proposing to provide the services itself, but rather to tender them to the market, allowing ANSPs to bid for time-limited contracts to provide services at a pan-European level.

4.9 Mr Brenner noted that EUROCONTROL’s proposal was for services that EUROCONTROL believed made sense on a pan-European basis. The Agency would however welcome the readiness of the ANSPs and the SESAR Joint Undertaking to initiate further work on developing FAB/regional architectures and solutions for other SESAR initiatives. He encouraged the ANSPs to start such work.

4.10 On duplication, he agreed with DSNA that the commitment to replace is key, assuming that 60 to 80 centres over time avoid making own investments. He pointed out that the CBA conducted at this point in time only reflected the saved investments, which would otherwise be needed on a local or regional level. In addition to this there will be further benefits to the airspace users, such as shortened routes, higher capacity and increased safety which so far have not been calculated.

4.11 On the transitioning from local solutions to a pan-European solution, Mr Brenner pointed out that there must be an intelligent plan for the different ANSPs and their centres to connect to the CS. Those ANSPs and centres that need to make a replacement decision at a time when their equipment needs to be replaced should not go again for a national replacement, but instead connect to the CS in question. This might need to be put into legislation by the European Commission. Those ANSPs that just have invested on a national basis of course would not immediately throw away their equipment, but instead would secure their investment and connect at that point in time when replacement is necessary. In the interest of the airspace users, it must be ensured however that there are not continuing investments at different levels.

4.12 On the relationship between the CS and SESAR deployment, Mr Brenner noted that a political decision would need to be made concerning extension of the NMB remit, but that this should be in the interest of the Member States. He also stressed that in the Agency’s view, the CS proposed were all interlinked, would all assist the NM in improving the performance of the network; and by being considered together, would strengthen Europe’s hand in establishing standards that could be adopted into the ICAO process.

4.13 Finally, on funding, Mr Brenner stressed the Agency’s commitment to a pro rata contribution to the performance targets, and to part-financing work on the CS through the common budget. He emphasised that the Agency budget – and thus

ANSP contributions – would not as a result increase. This, however, would not be enough, hence the request for TEN-T funding to the European Commission to set up the technology and to demonstrate the CS.

4.14 From his side, Mr Baldwin agreed with AENA that a potential overlap would always be there, but that the Common Project approach allows for the CS to be integrated into the heart of the SESAR deployment mechanism.

4.15 Mr Brenner then opened the floor to a second round of questions.

4.16 **CANSO** expressed its support, but asked how the European Commission intended to allow non-EU Member States to participate, given that the timeline was clear, but the legal structures not yet in place. In response, Mr Baldwin confirmed the importance of this question in respect to achieving pan-European buy-in into the CS, and that work was ongoing to address this issue.

4.17 **DFS** similarly supported the CS proposal, noting that it followed naturally from calls from the High-Level Group, CANSO, and industry, and inquired whether there was a connection between the current CS proposal, and the different set of ancillary services that had previously been proposed for unbundling.

4.18 This link, Mr Baldwin explained, was conceptual: common to both was the idea that not all services made sense being performed at just the local level, and that the merit of EUROCONTROL's proposal was that it was very concrete, not theoretical. Mr Brenner agreed, noting that in proposing a modest set of CS that it considered achievable, the Agency wished to avoid a negative reaction that would cause the overall initiative to fail should it be regarded as too far-reaching. Therefore, the proposal is much smaller than the idea to unbundle all ancillary services. The CS proposed could all realistically be implemented in the next five years; more would in any case exceed EUROCONTROL's ability to implement.

4.19 In the final question before lunch, **DSNA** highlighted the importance of having an operations-driven strategy. Mr Brenner agreed that an operations concept for each and every CS is essential to be developed, and that the Agency would use all existing consultation mechanisms to elaborate these until the end of the year. He elaborated on the basis of CS 4 AFUAS Support Service, how an Advanced Flexible Use of Airspace Operational Concept (AFUA) could look like, encompassing different SES elements, such as performance indicators or interoperability standards to booking tools connected to the central database and online data feeds, with these data connected into military aircraft cockpits in the longer term.

4. PRESENTATION OF CENTRALISED SERVICES

(J. Sultana – slides)

5.1 In his presentation, Mr Sultana outlined the rationale behind the CS proposed, namely that the evolution of European ATM is dependent on high-quality data, the provision of which could be most effectively made through a centralised concept, rather than at a local or national level. This would open up certain data services to the market, and improve cost-effectiveness, defragmentation, pan-

European harmonisation, and interoperability, thereby making a strong contribution to the realisation of national performance plans.

5.2 He went on to explain in more detail the nine CS so far identified by the Agency and that form the basis of the application made in March 2013 for TEN-T funding.

5.3 The CS, he emphasised, are strongly interlinked and will directly support network-wide SESAR deployments. The approach will be to tender the setting up and operating of each service, with clear roles and responsibilities for all actors, governed for example through new provisions for the Network Manager.

5.4 After outlining the expected benefits, Mr Sultana outlined the relationship between the CS and the DM, underlining that the DM would not be entrusted with running any CS, that EUROCONTROL was not seeking to become the DM, and that the DM would naturally work closely with NM on all deployment matters as foreseen in the regulation just voted in the Single Sky Committee.

5.5 Explaining how the CS would be implemented, he touched on governance aspects, the need to avoid monopolistic situations, and what to expect in the months to come.

5.6 For the slides presented by Mr Sultana, see *Annex 3: Centralised Services Idea.*

5.7 Copies of the EUROCONTROL proposal to the European Commission Version 2.0 dated 25 March 2013, and a paper outlining the concept and benefits of the CS, were then distributed to the meeting participants (see *Annex 4: EUROCONTROL Proposal*, and *Annex 5: Centralised Services paper*).

6. DISCUSSION, 2ND ROUND

(All)

6.1 **ENAV** expressed support for the CS, but suggested that earlier involvement in the process would have been preferable, especially as some CS could have a drastic impact on many ANSPs. ENAV expressed their desire to be strongly involved in the process going forward, as key issues like governance, interoperability and business models need to be addressed together. ENAV also stressed that the DM has a central role to play, and that appropriate consultation should be built into the SES2+ approach.

6.2 **Skyguide** asked whether EUROCONTROL should not be responsible for standardising the Calls for Interest, and asked whether it was necessary for tendering via EUROCONTROL, as opposed to directly with a supplier.

6.3 **DFS** expressed support for the CS idea, noting that the respective roles of the DM and NM would have to be clarified. On the subject of governance, DFS was of the view that different models could apply to different CS – some under the NMB, others not. Additionally, DFS questioned whether the common budget should be used, or whether the User Pays Principle (UPP) should not apply.

6.4 **AENA** echoed ENAV and DFS in seeing financing and governance as key issues to address, agreeing with DFS that some CS did not fall naturally under the remit of the NMB, following ENAV in noting the need to avoid overlap between the DM and NM, and calling for a discussion on the most appropriate levels for deployment.

6.5 **LFV** stressed the need for a solid business case for each CS, and asked whether the Member States had received the same information at their March briefing session.

6.6 **CANSO** queried whether earlier involvement would not have been preferable to avoid the discussion taking place after a submission had been formally made. For the future, CANSO stressed the need for close involvement and a transparent process.

6.7 **DSNA** asked whether the CS are purely about data gathering and provision, or whether they would go beyond this.

6.8 Finally, **NATS** suggested that some of the CS as currently described could potentially duplicate matters rather than simplify them, and in this regard stressed the importance of a clear CBA, for which ANSP input would be essential.

6.9 In response, Mr Brenner thanked the participants for their overall support. On the timeframe, he noted that this had been largely driven by the European Commission in respect to the SES2+ timeframe, asking for input in December 2012, taking into consideration the remaining timeframe of the current European Commission. He explained that there was sufficient time over summer 2013 to move forward on the CS, and also to examine additional proposals for a tenth CS, or to implement regional/FAB solutions out of the SESAR portfolio. He explained that all ANSPs have for quite some time been aware of the proposal, having personally talked to nearly all the CEOs of the EUROCONTROL Member States and ANSPs over the last few months to discuss with them the CS idea.

6.10 On scope, he stressed that the CS were purely ancillary services and should not be seen as moving into ANSPs' core business, or interfering with existing decision-making at national level.

6.11 On governance, Mr Brenner stated that the EUROCONTROL concept was built around interoperability, and that placing the CS under the NM umbrella made sense as the goal for the Agency was to help drive operational performance. However, this is not possible under the current NMB remit, he stressed, so legislative change is required and had is considered by the European Commission as part of the preparations for SES2+. If needed, the NMB membership could also be queried to involve additional stakeholders.

6.12 On the dual roles of the DM and NM, he referred to the recent vote in the Single Sky Committee on the role of the DM, and emphasised the Agency's view that the two fit together, asking for a close cooperation between the two, and stressing that the CS are in line with the Common Projects approach.

6.13 On the financial side, Mr Brenner noted that the CS by definition were of common benefit and thus UPP would not apply, but that a possible extension beyond EUROCONTROL's 39 Member States was of course a logical application of UPP, as had been experienced with EAD. From EUROCONTROL's point of view the CS should be financed through Part I of the budget; however, he noted that this is a decision that lies with the Member States.

6.14 On the future consultation process, Mr Brenner informed participants that common workshops would be held in May/June for each CS individually, and that the reason for starting with stakeholder-specific workshops was designed to reflect the different agendas of Member States, ANSPs, airspace operators and the ATM manufacturing industry. He called on meeting participants to contribute and help develop the operations concepts.

6.15 On the other points, avoiding duplication was central, Mr Brenner emphasised: the CS should support ANSPs better and not interfere with their activities. Defining the specifications was, Mr Sultana clarified, fully EUROCONTROL's responsibility. Finally, Mr Brenner explained that the Member States briefing in March had been made on the basis of the information available at that time, and that the briefing material today reflected developments since then; the States would be updated in the May PC meeting. On the financial question in regard to the CBAs, Mr Brenner explained the Agency was ready to make available more information during the CS-specific workshops.

6.16 Mr Brenner then turned the floor over to the participants for a renewed set of questions.

6.17 **DSNA** highlighted the risk of overloading NM with additional work that could interfere with its capacity to deliver, a point that was echoed by **AENA**, which added the need to establish the business cases before work begins on the Calls for Interest.

6.18 **NAV Portugal** noted that a CBA would be required for each CS, also addressing the risk of continuing to perform the activity at a local level.

6.19 **NATS** reiterated their view that the consultation process should be open and focused on ways of finding solutions.

6.20 **Skyguide** flagged the risk of monopolistic solutions as some CS could end up being run by suppliers alone. In response, **Group EAD** intervened with some observations on its experience in managing EAD, noting that performance is controlled by EUROCONTROL, and that the volumes of other services managed had increased during the contract.

6.21 In response to the above, Mr Brenner explained that the CS would not be run by NM with own personal, but managed and contracted to industry, and that this should not endanger but support the other work done by NM. Here he underlined the importance of being able to feed the CS data into NM systems and for NM to use these data for decision-making. It also must be remembered that NM would only become responsible when the NM IR has been enlarged accordingly to cover the CS.

6.22 On transparency, Mr Brenner explained that the information at this meeting was the latest produced and was being shared at the same time to all ANSPs; permission to use the EUROCONTROL proposal version 2.0 dated March 2013 to the European Commission had had to be obtained from the European Commission.

6.23 On oversight, he stressed that placing it under the NMB would simplify the existing situation in these instances, as the NMB would, with an enlargement of the NM IR, become responsible as the governance structure for the EU Member States, while EASA would be the regulatory authority for all CS. An acceptance of this way forward by the non-EU Member States will be sought in the PC.

6.24 On the financial question with regard to the CBAs, EUROCONTROL explained that it was ready to make available more information during the CS-specific workshops. It must however be understood that the level of detail depends on whether an ANSPs intends to become a partner of a grouping to bid for the services, in which case the financial figures classified as commercial in confidence must be more restricted.

7. NEXT STEPS

(L. Tytgat – Slides)

7.1 Mr Tytgat briefly outlined the next steps, with a preparatory phase lasting until 2014, development and demonstration in 2014 and 2015, and the start of the operations phase in 2016. Regarding the tendering process, he explained the objectives, guiding principles and calendar. He indicated that a Call for Interest would be launched in May in view of establishing a shortlist of eligible candidate consortia; these would then be invited to respond to a Call for Tender. In parallel to the tendering process, stakeholders would be invited to participate in the design of the operational concepts for each CS.

7.2 The tendering process shall be compliant with the objectives of the TEN-T application submitted to the European Commission at the end of March, with the funding decision set to be taken by the Commission in September.

7.3 For the slides presented by Mr Tytgat, see *Annex 6: The way ahead.*

8. DISCUSSION, 3RD ROUND

(All)

8.1 DSNA asked about the possibility of developing regional solutions and questioned that all CS were of the same maturity, while **LFV** noted the challenging timeframe. **LPS** queried whether the timeline took into account the SES2+ schedule, while **Skyguide** inquired about the governance of the CS process. Both **AENA** and **ENAV** drew attention to the need for defining business cases before the Call for Interest phase; **DFS** requested a “stretch” scenario exploring governance, financing and the CBAs before the Calls for Interest; and

NATS supported the position of AENA, DFS and ENAV, also highlighting the need to ensure a balanced geographical representation.

8.2 In response, Mr Brenner first addressed the governance aspects, noting that a decision was needed from EUROCONTROL's governing bodies to go ahead as a prerequisite for being tasked with the development and operation of the CS, and to ensure support from the non-EU Member States. He pointed to the need that the CS proposal has to be properly reflected in the SES2+ proposal, as an enlargement of the NM responsibility is included. Later, a funding decision by the TEN-T agency as well as an approval by the PC on the other part of the funding of the CS need to be obtained.

8.3 On the CBA issue, Mr Brenner stressed once more the importance of positive business cases, reducing the investments needed on some SESAR initiatives at local/national/ANSP level by rather implementing at a pan-European level. A staggered implementation, with the central idea of avoiding sunk money, must be the guiding principle. On the transition from local solutions to a pan-European solution, he re-emphasised that there must be an intelligent plan for the different ANSPs and their centres to connect to the CS. Those ANSPs and centres that need to make a replacement decision at a time when their equipment needs to be replaced should not go again for a national replacement but connect to the CS. This might need to be put into legislation by the EC. Those ANSPs that just have invested on a national basis of course will not immediately throw away their equipment, but will secure their investment and connect to the CS at that point in time when a replacement and reinvestment become necessary. In the interest of airspace users and in support of the Performance Scheme targets, it must be ensured that there are not continuing investments on different levels.

8.4 On timing, Mr Tytgat explained that from past experience, the timeframe allowed for more detailed discussions and defining basic operations concepts, and for allowing dialogue between interested parties, and that this should prove sufficient prior to launching the Call for Tender in December 2013. The individual demonstrators to be built in 2014-2015 would contribute to consolidate the definition of the operations concepts. The Call for Interest as envisaged for May 2013 is just the start of this dialogue, and represents a possibility for the ANSPs to assess which CS would be of interest for them to bid for, and in which type of cooperation agreement with other EUROCONTROL Member State ANSPs or other actors. Therefore the target date for interest to be expressed is in September 2013, with the process starting in May 2013 supported by the CS-specific workshops.

8.5 On CS maturity, Mr Brenner stated that for EUROCONTROL, the CS represented different levels of work and different timeframes before they could be realised, but considered that the technological solutions all can be demonstrated in 2015 and therefore may be viewed as homogeneous in terms of maturity.

8.6 On levels, he re-emphasised that the CS were in EUROCONTROL's view ideally suited to be pan-European in scope, but that this encourages the ANSPs together with the SJU to start work to assess which SESAR initiatives should from their point of view be best implemented at FAB/regional level, and to develop the necessary architectures to support a regional implementation.

SESAR is currently lacking any architectural plans that go beyond local deployment, Mr Brenner stressed.

8.7 On the operations concept, EUROCONTROL would like to invite the ANSPs to contribute with their experiences and therefore EUROCONTROL would use its current consultation structures to develop these operations concepts with stakeholders. Mr Brenner stated that this work will be dealt with as part of the Agency's ongoing prioritisation process.

8.8 In view of the fact that this workshop was close to its scheduled close, Mr Brenner then asked participants whether they would appreciate the chance to pose a final round of questions, which was supported.

8.9 **CANSO** asked how EUROCONTROL saw the role of the ANSB vis-à-vis the CS. Mr Brenner noted that the Member States had asked at the PC meeting in December 2012 for the Terms of Reference of the ANSB to be revisited, and that the results of the task force set up to elaborate on this issue would be addressed at the PC in May 2013. He emphasised that a well-functioning ANSB is much appreciated by the EUROCONTROL Agency, but that it must operate in a way that is acceptable to all stakeholders including the Member States.

8.10 Asked by **LFV** whether there would be individual applications of UPP, Mr Brenner reiterated his view that the CS proposed by EUROCONTROL were of common benefit to all, so this would not be the case within EUROCONTROL's membership, although would apply beyond it.

8.11 **DSNA** asked whether the mandate given to the SJU to study the CS would give rise to overlaps; in response, Mr Sultana explained that the one-month mandate was designed to ensure the CS fit into the first PCP, and that EUROCONTROL would ensure coherence.

8.12 **Skyguide** called on all to support the CS, asking EUROCONTROL to fix the dates of the next round of CS specific workshops as soon as possible, and for all material to be made available electronically; Mr Brenner confirmed that this would be done following this meeting.

8.13 **AENA** asked whether the thematic workshops will look at business cases as well as the operations concepts. **NATS** thanked EUROCONTROL for a useful workshop, but inquired whether the process could be amended to allow some more mature CS to be developed ahead of others; this was echoed by **CANSO**. **DSNA** agreed, noting some concerns on the questions of timing, methodology and content that would need to be addressed before the Calls for Tender, and asked whether FABEC could take the initiative on any of the CS if it were decided that a regional implementation might make sense before a pan-European one.

8.14 Wrapping up the workshop, Mr Brenner emphasised that the business cases for the tenders and the business cases for the CS themselves would follow different timescales and therefore also will be addressed in different granularity in the CS specific workshops.

8.15 On the question of scope, Mr Brenner reiterated EUROCONTROL's belief that the CS proposed make most sense on a pan-European scale rather than a regional or local one, as this will maximise the benefits to the network and provide a "helping hand" to all ANSPs. He again referred to the overall package of SESAR initiatives out of which just 10 have now been proposed for implementation on a pan-European level. If the FABs focus on identifying which of the SESAR initiatives should be implemented at a regional/FAB level, rather than at a local level, then much would be achieved. If the FABs/regional initiatives come up with additional proposals for pan-European implementation, then these would need to be carefully assessed given EUROCONTROL's finite resource situation.

8.16 On the operations concepts for all CS, he emphasised that these should tackle key issues such as security and datasets, but that it should not be forgotten that these do not need to be developed from scratch: rather, that much work has already been done in the past, with some agreements in place that can be built upon. Even the envisaged technology already exists in some Member States, Mr Brenner stated. He reiterated the potential for Europe to become more competitive by reducing duplicating investment, and at the same time remain an internationally recognised player by continuing to submit standards to ICAO.

8.17 On the timeframe, Mr Brenner acknowledged that a more relaxed set of milestones would indeed have been easier for all, but emphasised that the political and economic contexts called for swift action.

9. CLOSING STATEMENT

(F. Brenner)

9.1 In conclusion, Mr Brenner called on all ANSPs to:

- commit to taking the CS idea positively forward, mobilising their experts to start assessing individual CS proposals whether their ANSP is interested in responding to the Calls for Interest; and to support EUROCONTROL in developing the operations concepts through the usual consultation fora
- check their capacity from a legal standpoint to participate in the CS, and to see which organisational vehicles (joint venture, special purpose vehicle, etc.) would be most appropriate – and for the ANSPs of non-EU States to investigate how they could participate and reach in the foreseeable future SES certification of the structure to be set up
- start to analyse for each CS the likely economic benefits as a contribution to the performance targets on individual investment plans compared to national/local deployment
- start discussions on possible partnerships with other ANSPs of EUROCONTROL Member States and/or industry, and see whether they see additional possibilities for new CS for pan-European deployment
- engage with the SJU to assess which of the remaining many SESAR initiatives should be best implemented on the basis of regional solutions.

9.2 Mr Brenner thanked the participants for their interest and engagement in ensuring a highly intensive and productive kick-off meeting.

EUROCONTROL

Manufacturers' Workshop on Centralised Services

Final minutes

Location	Europa Conference Room, Haren
From/to	17 May 2013, 14:00 – 17:00

Participants

<u>Manufacturers</u>

Philippe Adam (Fujitsu Technology Solutions N.V./S.A.)
Bertrand Anfry (THALES)
Hannes Bardach (Frequentis)
François Bardin (SITA)
Antonio Bedmar (everis Aerospace & Defense)
Anthony Bernere (Capgemini Aerospace and Defense)
Ben Blendeman (SITA)
James H. Block (Schneider Electric – previous Telvent)
Nour Bouzidi (BULL)
Robert Broome (NATS)
Jason Buckler (T-Systems)
Cristiana Cafiero (IDS Ingegneria Dei Sistemi S.p.A.)
Olivier Colaitis (Astrium)
Alain-Noël Couraud (THALES)
Viviane Davy (Integra A/S)
Tiziano de Angelis (Cronos International)
Koen De Cleyn (A-SYST SA)
Joeri De Ruytter (Honeywell Aerospace)
Olivier Deleuze (SA BULL NV)
François Delille (THALES)
Jean Demars (STERIA)
Jean-Pierre Dielen (CGI Belgium)
Louisa Dubois (Steria)
Michael Eisele (Barco Orthogon GmbH)
Ildiko Ferencsik (Astrium EADS)
Erik Francq (HP Enterprise Services)
Matthieu Gaeremynck (Capgemini)
Roman Gerike (Information Design One AG)
Joseph Gorman (SINTEF ICT)
Hilde Havermans (Luciad N.V.)
Arie Herweijer (Metron Aviation)
Kristin Heymans (Crosspoint Solutions/ Cronos)
Pierre Hotterbeeck (SA BULL NV)
Hannu Juurakko (Frequentis AG)
Andreas Kanstein (Telespazio VEGA Deutschland GmbH)
Roza Karadumi (CASSIDIAN)
Luc Lallouette (THALES AIR SYSTEMS)
Georg Langenberg (Amadeus s.a.s. France)
Susanne Lanzerstorfer (APAC GesmbH)
Rosalind Lapsley (EUMETNET EIG)
Alexander Constantin Lazar (Frequentis AG)

Joachim Lennarz (Frequentis AG)
Claude Levacher (Skysoft-ATM)
Alessandra Liberto (Schneider Electric – previously Telvent)
Marc Lodewegen (National Aerospace Laboratori)
Natalie Lox (TOBIUS)
Sean Mac Mahon (Eurocity BVBA)
Guy Maes (British Telecom – BT)
Marcello Davide Mannino (IDS Ingegneria Dei Sistemi S.p.A.)
Willem Manten (Enterprise IT Solutions B.V.)
Juan Manuel Martinez (INTEGRASYS SA)
Hermann Mattanovich (Frequentis AG)
Sebastien Moreau (KPMG)
Olivier Noterdaeme (McKinsey)
Burhan Ocakoglu (SITA)
Hans Offerman (MovingDot)
Giuseppe Paladino (ALTRAN)
Andreas Paul (Skyguide)
William Petermans (Bull)
Robert Peters (Information Design One AG
Agostino Pignatelli (SOFTwAIR Group sprl)
Werner Pitz (COMSOFT GmbH)
Stefano Porfiri (SELEX ES)
Glenn Provoost (SITA)
Jean-Guy Ravel (THALES)
Martin Read (Ultra Electronics Network Analytics)
Apolo Ruiz (SITA – Société Internationale de Telecommunications Aéronautiques)
Frédéric Rustan (Capgemini Aerospace and Defense)
Francisco Sanchez (Indra)
Serge Taelemans (Vision IT)
Jochen Stroobants (Crosspoint Solutions/ Cronos)
Serge Taelemans (VISION CONSULTING GROUP)
Ramon Tarrech Masdeu (INDRA SISTEMAS)
Caroline Teixeira (TRANSTAR AVIATION – div. SOFTwAIR Group)
Joel Toussaint (Hewlett Packard EMEA)
Rudi van den Wyngaert (TOBIUS)
Martijn van Dooren (Brainbridge-XENTR)
Willem Van Dorp (SA BULL NV)
Saskia Van Uffelen (SA BULL NV)
David W. Versailles (OBIZCO SARL)
Blaise Vonlanthen (Swisscom)

<u>European Commission</u>
Matthew Baldwin (Director Air Transport Directorate, European Commission)

<u>EUROCONTROL Agency</u>
Frank Brenner (Director General EUROCONTROL)
Bo Redeborn (Principal Director ATM)
Joe Sultana (Chief Operating Officer Network Management)
Luc Tytgat (Director DSS)
Alberto Varano (Principal Director Resources)
Jean-Pierre Aiguier (Head of NTS)
Andrew Harvey (Head of Corporate Programme Management)
Simon Scott-Kemball (Internal Communications Manager and Meeting secretary)
Valérie Lapy (Central Secretariat)

1. WELCOME AND INTRODUCTION BY THE DIRECTOR GENERAL
(F. Brenner)

1.1 The Director General of EUROCONTROL welcomed participants from the ATM manufacturing industry and the European Commission to this dedicated briefing meeting on centralised services (CS), the fourth in a series of such stakeholder-specific meetings following similar briefings to EUROCONTROL Member States, ANSPs of EUROCONTROL Member States, and airspace users. He also extended his thanks to Mr Baldwin, Director Air Transport Directorate at the European Commission, for kindly agreeing to share the Commission's view on the Agency's CS proposal on how to proceed with some SESAR initiatives; and emphasised the importance role EUROCONTROL saw for the manufacturers in the CS through the senior representation on the Agency side.

2. ADDRESS BY EUROCONTROL
(F. Brenner – speech)

2.1 In his presentation, Mr Brenner stated that performance is now central to European ATM, with the ATM industry needing to become more competitive with regard to other areas of the world to support European aviation – a goal that, he emphasised, is close to the heart of all ATM manufacturers. He noted that while Europe's safety record is admirable, in terms of competitiveness, Europe is falling short in cost.

2.2 The need to change is, Mr Brenner emphasised, reflected in the targets set by the EU's performance scheme. He noted that it looks increasingly probable that the some States will not meet the RP1 targets. Especially in the current economic context of reduced traffic growth, the old way of reducing user fees by compensating through higher traffic numbers no longer works, he noted.

2.3 Mr Brenner highlighted the role that all actors should, in close cooperation, play by looking for concrete ways to reduce costs. In this regard, he cited EUROCONTROL's successful cost-cutting efforts over the past five years, which have seen staffing reduced by 10%, and the cost-base flattened, with costs not only not increasing in line with inflation, but actually falling in cash terms.

2.4 He announced that EUROCONTROL would propose to the Member States in May 2013 to commit to contributing pro rata to the performance targets over the RP 1 and RP 2 timeframe, so that no EU Member State has to over-contribute due to EUROCONTROL. On the other hand, EUROCONTROL is not keen to contribute more than the targets require, purely due to shortcomings at the national level.

2.5 Fragmentation, Mr Brenner stated, is the underlying issue behind higher costs. Europe is a patchwork of sovereign countries, each with its own ANSP and control centre or centres. Meanwhile, around 300 SESAR initiatives are moving into the deployment phase. If the military centres in Europe are accounted for, a local deployment would mean that the SESAR ideas would need to be implemented around 80 times in Europe. This, he stressed, triggers the obvious question as to whether it makes sense for each ANSP to implement each solution in each centre, or whether it would be better to identify cost-savings by pursuing regional or pan-European solutions. Here, he called on the manufacturers to join forces with other key actors to intensify work on identifying possible solutions to be implemented only on a central pan-European level but also on a regional/FAB level. This is of high importance to EU Member States, as they are about to put together an FAB performance plan for the period 2015-2020.

2.6 Mr Brenner explained that following a request by the European Commission from November 2012, EUROCONTROL had analysed the SESAR initiatives, and provisionally

classified around 70 to 90 that make technical and financial sense to implement at a regional level, and around 10 that could be deployed at a central, pan-European level.

2.7 All of these 10 services, he noted, involve managing data centrally, with the aim of improving predictability, reliability and consistency.

2.8 EUROCONTROL, Mr Brenner stated, has the required experience in managing CS such as the CFMU, CRCO and EAD; it possesses the independence and impartiality that are essential to such common projects; and as the Network Manager (NM), the Agency has a detailed understanding of how the network is evolving. EUROCONTROL has been entrusted by the Member States and the European Commission to run a few centralised services so far, although the number is not particularly high compared to the 50 years of history of EUROCONTROL. The reason for that has in the past always been that ANSPs have not been that enthusiastic at accepting that some services are taken away from their national monopoly.

2.9 In order to overcome this situation, Mr Brenner explained that EUROCONTROL is ready to commit to these CS, that EUROCONTROL would typically not provide the service itself, but rather be responsible for the technical setup and the service delivery results, manage the process and run the competition in which he expected ANSPs, the manufacturing industry, or other stakeholders and groupings thereof, of the EUROCONTROL Member States would be eligible to bid. EUROCONTROL would therefore not bid for these services, and thus avoid entering into any competition with the ANSPs.

2.10 The idea would be to create a pan-European market for a limited number of ATM support services, ancillary services, whereby ANSPs would be able to bid to provide the respective CS beyond their current national boundaries. These services, Mr Brenner stressed, are not intended to interfere with ANSPs' direct service delivery to airspace users, but instead to support service provision by better data and thereby provide enhanced efficiency and lower costs – helping the States and their ANSPs to come closer or even achieve their performance targets, and for the network to become more efficient for the airspace users.

2.11 Mr Brenner stated that EUROCONTROL, as an intergovernmental organisation with 39 (soon to be 40 with the accession of Georgia) Member States, has the pan-European capability to make CS work and provide the critical mass that is needed for such high-tech solutions and services. He reminded participants that their investment into SESAR developments in recent years have laid the foundations for developing new cutting-edge equipment to be deployed on a pan-European basis. He specifically addressed the potential market chances for the winning team to sell the high-tech solution and offer the respective services to other areas of the world.

2.12 Mr Brenner concluded by reiterating EUROCONTROL's position as a neutral moderator of the CS, its commitment to improving performance, its motivation to assist the Member States and ANSPs in reaching or at least coming closer to the performance targets, its commitment to ensuring an efficient, safe and cost-effective environment for airspace users, and its genuine desire to create a European market for a number of ATM support services, opening up significant market chances for manufacturers to enter into partnership with other actors to operate CS.

2.13 For the full text of Mr Brenner's speech, see *Annex 1: Address by EUROCONTROL*.

3. ADDRESS BY THE EUROPEAN COMMISSION
(M. Baldwin – speech)

3.1 Mr Baldwin thanked Mr Brenner for giving him the chance to discuss some fundamental ideas about how equipment for the ATM industry could look in the future. Participants

should not, he stated, be concerned that the CS proposal could change their business plans, but rather see the CS as a golden opportunity to enter into new markets and take part in a fundamental change that will raise the competitiveness of European ATM.

3.2 In this regard, Mr Baldwin emphasised the European Commission's commitment to helping European ATM dramatically improve its performance, and stated that the EUROCONTROL initiative to develop CS, in response to Vice-President Kallas' invitation, represented a highly practical attempt to further this objective by addressing the underlying issue of fragmentation in service provision. CS on a pan-European level, he stressed, have clear links to the increasingly important role of EUROCONTROL as the NM, and to the deployment of SESAR, and are very much in line with the Commission's ideas for developing the Single European Sky and improving the competiveness of European ATM and the wider economy as a whole.

3.3 He stressed that not each and every one of the SESAR developments will necessarily make financial sense for every ANSP to deploy at a local level, especially if there are very clear benefits at the FAB or network level. The European Commission will always look for 'net gain' in all new initiatives, Mr Baldwin stated, ideally at the network level; to this end, it is important to clearly demonstrate that the cost of providing CS is offset by corresponding cuts in budgets at local and national level.

3.4 The European Commission view, Mr Baldwin stated, was that EUROCONTROL's future should be increasingly focused around its work as the NM, and that that function looks set to become yet more pivotal as the SES2+ package is developed. He noted the need to integrate the CS fully into the SESAR project as it moves into the deployment phase.

3.5 Mr Baldwin highlighted the potential of CS for extension beyond Europe, helping further bridge the gap to non-EU EUROCONTROL States by achieving harmonised technological solutions and services on both a pan-European basis and beyond to third countries. This, he stated, would represent a valuable addition to the EU's External Aviation Policy.

3.6 As part of the cooperation between the European Commission and EUROCONTROL, Mr Baldwin supported the need to develop harmonised procedures and technical solutions beyond the 27 EU Member States. He expressed his view that the NM is already developing into a decisive European player, acting both for the EU in accordance with its remit, granted under EU regulation; and of course outwardly in its bridging effect to other EUROCONTROL Member States, in particular by helping to develop the EU's Neighbourhood Policy.

3.7 Mr Baldwin reiterated the European Commission's confidence in its partnership with EUROCONTROL, and its full support for the CS proposal, which it considers a pragmatic way to address implementing technologies at central level, and a valuable step towards opening the market for ancillary services.

3.8 For the full text of Mr Baldwin's speech, see *Annex 2: Address by the European Commission*.

4. PRESENTATION OF CENTRALISED SERVICES

(J. Sultana – slides)

4.1 In his presentation, Mr Sultana outlined the rationale behind the CS proposed, namely that the evolution of European ATM is dependent on high-quality data, the provision of which could be most effectively made through a centralised concept, rather than at a local or national level. This would open up certain data services to the market, and improve cost-effectiveness, defragmentation, pan-European harmonisation, and interoperability, thereby making a strong contribution to the realisation of national performance plans.

4.2 He went on to explain in more detail the nine CS so far identified by the Agency and that form the basis of the application made in March 2013 for TEN-T funding.

4.3 The CS, he emphasised, are strongly interlinked and will directly support network-wide SESAR deployments. The approach will be to tender the setting up and operating of each service, with clear roles and responsibilities for all actors, governed for example through new provisions for the Network Manager.

4.4 After outlining the expected benefits, Mr Sultana outlined the relationship between the CS and the DM, underlining that the DM would not be entrusted with running any CS, that EUROCONTROL was not seeking to become the DM, and that the DM would naturally work closely with NM on all deployment matters as foreseen in the regulation just voted in the Single Sky Committee.

4.5 Explaining how the CS would be implemented, he touched on governance aspects, the need to avoid monopolistic situations, and what to expect in the months to come.

4.6 For the slides presented by Mr Sultana, see *Annex 3: Centralised Services Idea.*

4.7 Copies of the EUROCONTROL proposal to the European Commission Version 2.0 dated 25 March 2013, and a paper outlining the concept and benefits of the CS, were then distributed to the meeting participants (see *Annex 4: EUROCONTROL Proposal*, and *Annex 5: Centralised Services paper*).

5. Q&A, FIRST ROUND
(All)

5.1 At this point Mr Brenner invited participants to raise questions.

5.2 Asked about the possible role for manufacturers in CS and the cost model behind them, Mr Varano explained that the model was based on successful experience with EAD, where EUROCONTROL manages the service and has financial responsibility, but the service itself is run by an external provider. The model for each CS, Mr Varano stated, would depend on its technical aspects, and would probably involve consortia of interested parties who would bid at the Call for Tender stage after having formed during the Call for Interest phase. He referred to the presentation on the next steps to follow from Mr Tytgat.

5.3 Concerning the questions of whether there would be one tender or separate ones, and whether there was any limit to the number of CS a consortium could bid for, Mr Redeborn noted that the levels of maturity of the CS varied between mature, in the development stage, and at the feasibility stage, which would influence the timing and thus the tendering approach. Some CS, he stressed, would naturally be of more interest than others to different actors.

5.4 On whether EUROCONTROL was looking for proposals for the tenth CS, Mr Redeborn stated that the Agency was very interested in all such ideas, and noted that the airspace users had proposed weather services as one potential area.

6. NEXT STEPS
(L. Tytgat – Slides)

6.1 Mr Tytgat then outlined the next steps, with a preparatory phase lasting until 2014, development and demonstration in 2014 and 2015, and deployment in 2016. Regarding the tendering process, he explained the objectives, guiding principles and calendar.

6.2 For the slides presented by Mr Tytgat, see *Annex 6: The way ahead.*

7. Q&A, SECOND ROUND
(All)

7.1 Asked whether the CS would come under the umbrella of the Deployment Manager (DM), Mr Redeborn explained this was not the case for reasons of timing: the CS are expected to go live by the end of 2015, whereas the DM starts its work in 2015. However, there were very close links with the PCP and the IDP given the similar timeframe, and here EUROCONTROL was working to avoid duplications. When the DM is working, said Mr Redeborn, the Agency would revisit the CS to check that they were fit-for-purpose.

7.2 On whether the ANSPs had expressed buy-in, Mr Brenner stated that while some actors were naturally reluctant to give up their monopolies, by the same token the Performance Scheme had made it clear that to meet targets, ANSPs would have to rethink their business models. He explained that there are a significant number of ANSPs from EUROCONTROL Member States that have indicated their interest in offering services beyond their national borders in the future. For the CS to happen, he emphasised, the States would have to decide in favour of this in close cooperation with the Commission, or via legislation from the Commission supported by the States. To create a pan-European market for any CS, there needs to be an obligation to connect and not to opt out and duplicate locally – something that the airspace users in particular had flagged.

7.3 Asked about lessons learned, Mr Brenner explained that EAD was the underlying model for the CS: tendered by EUROCONTROL, but hardware and software developed by the industry. Mr Redeborn added that PENS had shown the limitations of not making connection mandatory.

7.4 As to why EUROCONTROL had segmented its audiences, Mr Brenner explained that to start the dialogue, the Agency had wanted to listen to the different groupings separately, as their interests are different. The next steps, as Mr Tytgat had stated, will see CS-specific workshops bring the various interested parties together in June and July.

7.5 Asked whether the Agency was prepared to share the names and contact details of participants, Mr Redeborn invited all present whether they were in principal opposed to such a measure. With no objections raised, Mr Redeborn committed to sharing the material and the list of all registered participants as part of the minutes (see participants list at the start of these minutes).

8. KEY TAKEAWAYS
(A. Varano)

8.1 Summing up main takeaways from the workshop, Mr Varano noted that:

- the CS were designed as a concrete response to the need to raise performance, and that this factor was fully supported by the European Commission
- EUROCONTROL's role is to define the CS but not run them: here manufacturers and ANSPs would take the lead
- manufacturers had invested heavily in SESAR: this is a tangible chance to put operational solutions into practice
- the CS represent an ideal opportunity to develop and operate cutting-edge solutions not only on a pan-European basis, but also beyond, with EAD a good example of how to enlarge the market
- the CS are a practical response to raise performance in the medium term

- EUROCONTROL, as an independent intergovernmental organisation, is an independent and neutral guarantee that the CS will be operated fairly and in the interest of raising the performance of European ATM.

8.2 EUROCONTROL thanked the participants for their interest and engagement, and urged the manufacturers to start discussions as soon as possible. Mr Brenner thanked participants for attending in such depth, and emphasised his belief that the CS were a unique opportunity to transform SESAR developments into high-tech solutions that could be implemented beyond national borders.

EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

DRAFT MINUTES

of the

39th SESSION

of the

PROVISIONAL COUNCIL

Brussels, 16 May 2013

AGENDA ITEM 4: EUROPEAN CONTEXT AND DEVELOPMENTS

4.6. Centralised Services

(PC/13/39/24, dated 13.5.13; Flimsy No. 2, dated 14.5.13; slides)

The DIRECTOR GENERAL introduced Information Paper PC/13/39/24, which described the concept and benefits of Centralised Services. A Centralised Service was explained to be an ANS service or ATM function exercised at pan-European and central network level covering the airspace of the EUROCONTROL Members States or beyond if desired by other countries for harmonisation and cost-efficiency purposes. Centralised Services were proposed to be developed as a result of SESAR Research and Development to be implemented centrally and on a pan-European-level so as to avoid implementation and investment costs at local, ANSP, ACC or regional/FAB level. Otherwise the collective ANSPs could end up investing in parallel in the same technologies in up to 80 centres (including the military centres) in Europe.
EUROCONTROL proposed, out of the many SESAR initiatives, 10 specific services that could be implemented at a centralised pan-European level. The Director General explained that the technologies and services of these 10 CS had qualified with positive business cases on a pan-European level but that each project required a dedicated project structure and manning. EUROCONTROL's own resources were limited but 10 CS would allow statistically a larger participation of ANSPs, manufacturing industry and other stakeholders than only 1 or 2 CS. Furthermore, the TEN-T requirements were calling for a quick set-up of the technology and to demonstrate its service readiness by end of 2015.
EUROCONTROL had been requested by the Vice President of the European Commission, Siim KALLAS, in November 2012, to further elaborate the concept of Centralised Services as a vehicle for SESAR implementation. EUROCONTROL delivered a first proposal to the European Commission as Version 1.0 in December 2012. On this basis the Agency invited the EUROCONTROL Member States to participate in an Information Session on Centralised Services on 4 March 2013, and briefed PCC/29 in March 2013 on the CS concept as well as on the Agency's intention to apply for TEN-T funding to receive support in setting-up the technology. The Director General explained that the document proposing CS to the European Commission was further updated since that time and now a version 2.0. was delivered by end of March 2013 to the European Commission, as part of the TEN-T funding application. This document describing the Centralised Services in further detail is attached to Information Paper PC/13/39/24.
EUROCONTROL was explained to possess a proven and widely acknowledged competence in European ATM network architecture and already provides a set of Centralised Services. It was estimated that the implementation of these new Centralised Services would give a cost-benefit at network level of between 1.5 and 2.0 billion Euros over 10 years after its implementation, and would be offering benefits for the States (including the Military), the European Union, the ANSPs, the Airspace Users, the Airports and the Manufacturing Industry. The Centralised Services idea was in fact a vehicle to support the SES target to "unbundle" some ancillary services and open the national monopolistic markets. It was therefore proposed that these services are tendered and 5 year contracts with performance based payment schemes were being let on a pan-European scale.
EUROCONTROL had in the meantime conducted several specific workshops with the stakeholders i.e. with the ANSPs of the EUROCONTROL Member

States on 24 April 2013, with the Airspace Users on 29 April 2013, and planned a further workshop with the ATM Manufacturing Industry of the EUROCONTROL Member States on 17 May 2013. Following the stakeholder Workshops, a series of "specific" Workshops for each Centralised Service would be organised to which all interested parties on this specific CS are invited. EUROCONTROL received additionally a wide range of invitations to present and discuss the CS concept, from CANSO CEOs, from regional ANSP CEOs, from Member State representatives, from ACI, from Airport Slot Coordinators, from Airspace User Organisations, from the SESAR forum and from certain European politicians, which were all accepted and respective presentations and discussions have meanwhile been held or are included in the planning. In addition to this, some of the Agency's Advisory bodies (MAB, AAB, etc) were briefed on the concept in the last months. The Director General explained that the Agency intended to launch a call for interest on CS in the near future to see whether there is sufficient interest from stakeholder groups and industry so as to be ready for them to form consortia or Special Purpose Companies to bid for the Centralised Services and to later on set-up and operate the CS under the auspices of EUROCONTROL. A call for tenders was planned to be issued by the end of 2013. The Agency intended to invite the stakeholders to participate in the development of the OPS-Concepts for the different Centralised Services using existing consultation processes in the next months. The Agency anticipated receiving feedback from the TEN-T Agency by September 2013 on the application submitted, and intended to present an Action Paper on the Centralised Services to PC/40 in December 2013 for decision.
The Director General concluded his slide presentation by showing the timetable and next steps towards the Action Paper to be submitted to PC/40 in December 2013.

4.6.2. The EUROPEAN COMMISSION strongly supported the concept of Centralised Services and applauded the energy with which it was being proposed and discussed by EUROCONTROL with the States, stakeholders and the Manufacturing industry. Centralised Services were considered to be of key importance to future ATM and its logic and rationale were very clear. Centralised Services needed to link up completely to the SES Performance Scheme objectives, and the European Commission was therefore willing to assist and engage with the States as and when deemed necessary. The EC was currently working on the governance mechanism for SESAR Deployment and the IDSG[*] and the SESAR JU would also be requested to assist in linking Centralised Services with SESAR.

4.6.3. The CZECH REPUBLIC supported the Centralised Services concept and appreciated the extensive way in which it was being consulted with the States, stakeholders and industry. It considered, however, that further information on the Centralised Services' individual costs and benefits and sound business cases should be made available to the States, before PC/40 could be requested to take a go/no-go decision on Centralised Services. This information should also include safety cases for each of the 10 Centralised Services. The Czech Republic would submit its detailed comments to the Director General in writing in the coming weeks.

4.6.4. DENMARK also generally supported the Centralised Services concept, but requested more clarity on the governance system to be applied to CS and an explanation of the expected role of the Network Manager in this concept. It also

[*] IDSG = Interim Deployment Steering Group

recommended to provide further clarity to States on important elements such as: liability, financing and the military service part of CS. Denmark was willing to assist in this work if required.

4.6.5. ITALY also supported the CS-concept and welcomed the TEN-T funding application. It considered that the timing of the different project steps needed to be looked at carefully and aligned to operational reality. Like Denmark, it called for more attention to the military user involvement of CS and the need therefore to include the Military in the consultation from the beginning.

4.6.6. SWEDEN had documented its initial position of CS (see Flimsy No. 2). It supported the main principles underlying CS, but like Denmark and Italy, its main concern was the overall business case which was missing and should in fact validate the expected overall cost decrease. EUROCONTROL also needs to explain in further detail how the actual financing is foreseen (UPP?) and what alternative funding mechanisms were being considered to avoid a negative impact on Member States' contributions to EUROCONTROL. Finally, Sweden, like Italy, called for early involvement of the Military.

4.6.7. The UNITED KINGDOM welcomed the CS concept provided that the economies of scale can actually be delivered. The success was therefore largely dependent of the good and mutual cooperation and commitment of the stakeholders, the manufacturing industry, and the airspace users. This would require detailed CBAs to be made and shared with the parties concerned and risks to be actively managed in these 10 CS projects going forward. The UK was looking forward to the next debate on CS during PC/40, but was not yet sure whether it would be able to agree at that stage.

4.6.8. TURKEY also supported the main principles of CS and the comments given by the previous speakers. It considered, however, that in the further progressing of CS towards decision, the Member States should be kept informed in a transparent and fair manner, of all stages of each service, including the call for tenders/interest and the bidding stages, and sufficiently in advance.

Turkey considered it very important for EUROCONTROL not to transfer any tasks or responsibilities in the fields of CS decision making as well as surveillance monitoring to third parties. EUROCONTROL should in fact continue to play an active role in CS vs SESAR. Turkey welcomed the Agency initiative to seek TEN-T funding but expressed some words of warning that the overall funding of CS with or without EU-subsidies should not increase the Member States' financial burden. Finally, Turkey pointed to the fact that if indeed the Network Manager was to be assigned with the management and oversight of CS through the NMB, the present positioning of EUROCONTROL's non-EU Member States in the EUROCONTROL delegation in the NMB needed to be reconsidered.

4.6.9. The SLOVAK REPUBLIC also supported the CS-concept as the basic principles stem from common sense. It wondered if and how the Member States would be involved in the launch of the call for interest, prior to PC/40 approval.

4.6.10. SPAIN supported the CS-concept and encouraged its financing through TEN-T funding in combination with the application of UPP. It understood the proposed future involvement of EUROCONTROL through its Network Manager/NMB in the management and oversight of the process, but considered that the door should be left open for other configurations of governance. It fully supported the

previous speakers in their comments on the need to first provide to the States through the SCF the detailed business cases/CBA, the financing concept, and then come forward with a proposal to the Provisional Council for decision. To plan for a final decision to be taken by States at PC/40 in December might, however, not prove to be realistic.

4.6.11. THE NETHERLANDS shared the views expressed by previous speakers and in particular Denmark. It wondered whether in CS there was actually a central role for EUROCONTROL, and if so, would this be as a broker? The EUROCONTROL charge was part of the national ANSPs' exploitation bill and already difficult to control. ANSPs apply an activity-based costing system which for the EUROCONTROL Agency/NM would be difficult to deliver. Financing through the Agency's Part I General Budget sounded fair, however, and UPP could be possible although lessons should first be drawn from ARTAS financing vs UPP, where in the end States preferred to maintain the solidarity financing concept.

4.6.12. UKRAINE also shared the views expressed by the Member States and added that any conflict over national legal orders in the further development and deployment of CS should be avoided, in particular when it comes to tendering the different CS, or financing CS-services through UPP.

4.6.13. AUSTRIA also supported the comments made by the States and appreciated the Director General's extensive introduction. It pointed to the binding nature the Performance Plan has on FABs, and wondered how big the contribution of the CS would be to individual FAB cost-effectiveness and performance.

4.6.14. POLAND also pointed to the need for EUROCONTROL to provide the detailed business cases and for a contribution/impact analysis to be made on CS performance but both at network level and at FAB/ANSP-level. The timeframe in which EUROCONTROL was seeking Member States' approval seemed irrational, unrealistic and even dangerous given that certain studies on CBA, risk-analysis and safety-case, need yet to be completed, and a call for interest needs to be launched to the manufacturing industry allowing it "sufficient time" to create consortia. By driving the speed up too high one would run the risk of excluding from this critical process a significant number of State owned ANSPs, which are not allowed to enter directly and at such short notice into commercial relations with other ANSPs or EUROCONTROL. In any case Poland did not see it possible to take any binding decision on CS before the European Commission had taken its formal decision on the Deployment Manager.

4.6.15. The MAB CHAIRMAN highly appreciated the comments from the Member States to involve the Military in CS as from the beginning. The MAB would confirm this view under agenda item 9.

4.6.16. PORTUGAL welcomed the very well prepared high calibre presentation on CS but pointed to the negative consequences of imposing CS through economic regulation on FABs and ANSPs. It created in fact for those consortia winning the specific CS tenders a time-based monopoly situation, which in turn could lead to a drop in quality and an increase of the cost. Furthermore, the element of Member States' sovereignty on defence matters should not to be lost from sight when further addressing CS. A more in-depth study would indeed be urgently called for addressing all aspects raised by the Member States during this debate.

4.6.17. CANSO supported the general concept of CS which it had already confirmed to EUROCONTROL in the workshop with ANSPs. CANSO had documented its further views and ideas on consultation, risk analysis, funding and realistic planning in a letter sent recently to the Director General. The call for TEN-T funding was rather unclear to CANSO as the main argument used was that CS would support Europe's initiatives to strengthen Europe's competitiveness.

4.6.18. The PRESIDENT thanked the PC Members and observers for expressing their initial views on the CS initiative in this session. The Provisional Council Members seemed to broadly support the CS-concept but more information was needed to answer the different questions raised by the Member States. These answers could best be coordinated through the PC Coordinating Committee, starting with PCC/31 on 2 July 2013.

4.6.19. The Provisional Council:

a. noted information paper PC/13/39/24 updating the Provisional Council on the concept of Centralised Services and the EUROCONTROL proposal for a first set of Centralised Services to contribute to SES Performance Achievement, version 2.0, March 2013;

b. generally supported the Centralised Service concept and appreciated the work undertaken by the Agency to date to define the Centralised Services, following a request of the European Commission from November 2012;

c. noted and confirmed overall support for the next steps to be undertaken by the Agency in the coming months, subject to d. and e. below;

d. noted the Director General's intention to present an Action Paper to PC/40 in December 2013 seeking the Provisional Council's decision on the proposed way forward;

e. requested the Director General to address the questions raised by Member States in a document for the next PCC session (2 July 2013);

f. noted Flimsy No. 2 submitted by Sweden.

FINAL RESULTS OF THE 39th SESSION OF THE PROVISIONAL COUNCIL HELD ON 16 MAY 2013

4.6. Centralised Services

(PC/13/39/24, dated 13.5.13; Flimsy No. 2, dated 14.5.13; slides)

The Provisional Council:

a. noted information paper PC/13/39/24 updating the Provisional Council on the concept of Centralised Services and the EUROCONTROL proposal for a first set of Centralised Services to contribute to SES Performance Achievement, version 2.0, March 2013;

b. generally supported the Centralised Service concept and appreciated the work undertaken by the Agency to date to define the Centralised Services, following a request of the European Commission from November 2012;

c. noted and confirmed overall support for the next steps to be undertaken by the Agency in the coming months, subject to d. and e. below;

d. noted the Director General's intention to present an Action Paper to PC/40 in December 2013 seeking the Provisional Council's decision on the proposed way forward;

e. requested the Director General to address the questions raised by Member States in a document for the next PCC session (2 July 2013);

f. noted Flimsy No. 2 submitted by Sweden.

EUROCONTROL

Working Paper

PC/13/39/24
13.5.13
ITEM 4

INFORMATION PAPER

EUROPEAN CONTEXT AND DEVELOPMENTS

- Centralised Services -

- Submitted by the Director General -

EXECUTIVE SUMMARY

This paper describes the concept and benefits of Centralised Services. A Centralised Service is an ANS support service or ATM function exercised at pan-European and central network level covering the airspace of the EUROCONTROL Member States or beyond if wished by other countries for harmonisation and cost-efficiency purposes. Centralised Services are proposed to be developed as a result of SESAR Research and Development to be implemented centrally and on a pan-European-level so as to avoid implementation and investment costs at local/ANSP/ACC or regional/FAB level, otherwise all ANSPs could end up investing in parallel into the same technologies in up to 80 centres (including the military centres) in Europe.

EUROCONTROL proposes out of the many SESAR initiatives 10 services to be implemented on a centralised pan-European level. EUROCONTROL had been requested by the Vice President of the European Commission, in November 2012, to elaborate the concept of Centralised Services as a vehicle for SESAR implementation. EUROCONTROL delivered a first proposal as Version 1.0 in December 2012. On this basis the Agency invited the EUROCONTROL Member States to participate in a workshop on Centralised Services on 4 March, and briefed the PCC at its 29th meeting in March 2013 on the CS concept as well as on the Agency's intention to apply for TEN-T funding to receive support in setting-up the technology.

The document proposing CS was further updated since that time and a version 2.0. was delivered end of March 2013 to the European Commission as part of the TEN-T application. This document describing the Centralised Services is attached to the working paper (see Annex).

EUROCONTROL possesses a proven and widely acknowledged competence in European ATM network architecture and already provides a set of Centralised Services. It is estimated that the implementation of these new Centralised Services will give a cost-benefit at network level of 1.5-2.0 billion Euros over 10 years after its implementation and offering benefits for States (including Military authorities), European Union, ANSPs, Airspace Users, Airports and Manufacturing Industry.

The Centralised Services idea is a vehicle to support the SES target to unbundle some ancillary services and open the national monopolistic markets. It is proposed that the services are tendered and 5 years contracts with performance based payment schemes are led on a pan-European scale.

EUROCONTROL has in the meantime conducted specific workshops with the stakeholders for the ANSPs of the EUROCONTROL Member States on 24 April 2013, for the Airspace Users on 29 April 2013, has invited the ATM Manufacturing Industry of the EUROCONTROL Member States to a workshop to be held in Brussels on 17 May 2013. Following the Stakeholder Workshops, a series of specific Workshops for each and every Centralised Service is currently being organised at which all interested stakeholders on this specific centralised service are invited. The Agency received additionally a wide range of invitations to present and discuss the CS concept, from CANSO CEOs, regional ANSP CEOs, state representatives, ACI, Airport Slot Coordinators, Airspace User Organisations, SESAR forum and European politicians, which were all accepted and respective presentations and discussions held. In addition to this, the Agency's Advisory bodies (MAB, AAB etc) were briefed on the concept in the last months.

The Agency intends to launch a call for interest in the near future to see whether there is sufficient interest from stakeholder groups to be ready to form consortia or Special Purpose Companies to bid for the Centralised Services to later on set-up and operate the CS under the auspices of EUROCONTROL. The closing date for the Call for Interest is foreseen to be end of September 2013 to allow sufficient time for the interested parties to declare their interest. A call for tenders is supposed to follow at the end of 2013.

The Agency intends to invite the stakeholders to participate in the development of the OPS-Concepts for the different Centralised Services using existing consultation processes in the next months.

The Agency anticipates receiving feedback from the TEN-T Agency until September 2013 on the application submitted, and intends to prepare an Action Paper on the Centralised Services for PC decision in December 2013.

The purpose of this paper is to update the PC on the concept of Centralised Services; inform on the work done by the Agency on the preparatory phase of defining Centralised Services, following a request of the European Commission; inform the PC on the next steps to be undertaken and announce an Action Paper for PC decision in December 2013.

1. BACKGROUND

At the Limassol conference on the 11th October 2012, in his speech, the European Commission Vice-president Siim Kallas pointed out that the cost of defragmentation of the ATM system is unbearable for Europe and that inefficiencies caused by Europe's fragmented airspace impose extra costs of around €5 billion per year. This cost is borne by the airspace users and ultimately by their customers, be they passengers or freight operators. Currently, the competitiveness of Europe providing ATM Services is in question as the cost to control one flight for one flight hour is about double in Europe compared to the USA. As air travel is an enabler for economic prosperity and growth, high costs in these comparable areas are seen to be a hindrance of economic growth in the European region.

The European Commission has started work as part of SES 2 on the following pillars:

1. Creation of Functional Airspace Blocks (FAB);
2. Development of new ATM technologies as part of the SES Research Programme SESAR;
3. The Performance Scheme.

Pillars 1 and 2 are supposed to contribute significantly in the future to the Performance Scheme (pillar 3) and to the targets to be set for RP2.

As part of the SESAR deployment many newly developed SESAR technologies will have to be implemented in the following years. The question to be answered by all Stakeholders is at what level the new technologies should be best implemented to contribute the most to the performance targets.

A deployment, on local/ANSP/national level at the approximately 80 centres in Europe is one possibility, following the traditional approach of deployment of new technologies.

Another approach is to deploy those technologies found suitable, at FAB/regional level, thereby reducing investment cost by making use of the synergies within the 9 FABs created in Europe.

A third possibility is the deployment of suitable candidates at pan-European/central level, as a contribution to the performance targets of the States. Analysis done at EUROCONTROL suggests that from the work of SESAR about 10 could actually be suitable candidates for a pan-European/central deployment,

The idea of “Centralised Services” is not new, there are already a few examples where the States in the past decided not to continue the provision of services on a national basis and asked EUROCONTROL to provide these services on their behalf, in a centralised way. Examples of Centralised Services, currently performed by EUROCONTROL, are: the CRCO founded in 1971, the CFMU created in 1996, the ARTAS tracker for some participating EUROCONTROL Member States and ANSPs and most recently, the European Aeronautical Information Service Database (EAD) since 2001.

In a letter from the European Commission (dated 30/11/12), EUROCONTROL was asked to elaborate further upon the idea of Centralised Services. A first draft proposal was presented to the EC on the 18th December 2012.

EUROCONTROL has addressed the issue of Centralised Services at various opportunities, such as the CANSO/ATCA World ATM Congress:

http://www.eurocontrol.int/towards-transformed-atm-environment-view-eurocontrol

as well as the SESAR forum on 12 March 2013:

http://www.eurocontrol.int/need-more-collaborative-approach-deploy-sesar-projects

EUROCONTROL addressed the issue of SESAR deployment and the need to decide at which level the SESAR initiatives should be best implemented in various articles, such as:

http://www.airtrafficmanagement.net/2013/04/central-concerns/
http://www.theparliament.com/digimag/issue365

http://www.canso.org/airspace

EUROCONTROL briefed its Member States on the Centralised Services during a dedicated workshop that took place on 4 March 2013.

EUROCONTROL also briefed the NMB on 26 March 2013, and the Agency Advisory Body (AAB) during its last meeting that took place on 26-27 March 2013.

https://extranet.eurocontrol.int/http://beid.eurocontrol.be:8980/irc/DownLoad/XYqtHMH-uv8Cdtgvh7-C6QDU2rR-AK-CDzcpa1-FsD1q3x4q91PRsjTI9U57A-FF-9gqmf-Hg2mZ3Gj-blReQKH/AAB5_33_ip06_centralised_services%20rev_final_2.pdf

The subject was also brought up at the AIM team meeting on 20-21 March 2013, and the PENS Steering Group meetings on 29 November 2012 and 6 March 2013.

A briefing to the ANSP's of the EUROCONTROL Member States took place on 24 April 2013, and another for Airspace Users was held on 29 April 2013. A similar briefing for Manufacturers is scheduled for 17 May 2013.

The following link contains detailed information on the Centralised Services, including relevant interviews and speeches:

http://www.eurocontrol.int/dossiers/centralised-services-addressing-performance-and-fragmentation

This paper provides an update on the work done by EUROCONTROL on the subject, describing the idea together with the benefits of additional centralised services.

2. WHAT IS A CENTRALISED SERVICE?

A Centralised Service is an ANS support service or ATM function exercised at pan-European and central network level for harmonisation and cost-efficiency purposes avoiding parallel investments for those technologies and services set-up up to 80 centres in Europe. It is a means to foster the deployment of new ATM technologies and achieve unbundling of some of the ancillary services or functions. It will allow Centralised Services processes to be provided on a pan-European level rather than on a national level. Such a Centralisation of Services will allow in the case of the 10 services proposed, realising synergy effects if the service is provided by EUROCONTROL for all Europe instead of the provision on a national basis. This is the model followed for the CRCO and CFMU. For the EAD in 1998 also a centralised model was decided by the PC/3* however with the difference to the above mentioned

* "The Provisional Council:

a) approved the creation of the European AIS Database on the basis of the principles established;
b) agreed that the Director General proceeds towards awarding the contract for EAD implementation within the prescribed rules of the Agency."

models, that EUROCONTROL is responsible for the technical and operational service, although not conducting the service internally, but rather opening it to the market on the basis of a time-limited tender contract. This model is using market mechanisms and competition to contribute to ATM industry development and also to achieve a high quality/cost performance level in the service provision.

The principle for the concept of new Centralised Services is derived from experience gained from the European Aeronautical Information Service Database (EAD). The EUROCONTROL Organisation has been entrusted since 2001 by its Member States with the development, establishment and operation of the EAD. Operations are externalised to industry through a tendering process followed by procurement.

A Centralised Service can be described as:

- An Air Navigation support Service or a related function
- Exercised at central European/network level, bringing significant benefits in cost-effectiveness and harmonisation
- Contributing significantly to the Performance Targets of the Member States
- Supporting the implementation of SESAR developments on a central basis
- Supporting the implementation of SESAR developments to become pan-European services
- Supporting the unbundling of ancillary services
- Enabling service providers/ATM manufacturing industry to work together to provide the service outside of the national boundaries on a pan European level
- Allowing the implementation of market mechanisms for the centralised services following a tender process - competition for the market
- Allowing the implementation of performance based contracts between EUROCONTROL and the Service Provider

3. REGIONAL/FAB SERVICES:

As stated before, EUROCONTROL has identified 10 potential candidates from SESAR that could actually be suitable candidates for a pan-European/central deployment. Others are more suitable for being addressed at FAB/regional level and 200 for national/local/ACC implementation.

DG MOVE tasked the SJU with a letter dated 18th March 2013 to assess the Centralised Cervices benefits to the Performance Scheme. This letter indicated that there was a direct and irrefutable connection between Centralised Services and the work that the SJU was carrying out on the Pilot Common Projects (PCP) and to that end, asked the SJU to prepare a supplement to their original proposal for a PCP that would focus on the issue of Centralised Services.

The letter also stated that:

"…This supplement must identify and assess the interdependencies between the "technology investments"(TI) in the PCP and the above listed Centralised Services. As the Interim Deployment Steering Group (IDSG) will perform the same analysis between the Activity Areas in the Interim Deployment Programme (IDP) and the Centralised Services, you should also consider IDSG's outcome for the TIs which depend on early baseline implementation activities in the IDP.

It will be used by the Commission in establishing its proposals for Common Projects.

We expect the delivery of the supplement by end May 2013 at the latest; in particular, it should:

- *Include the use of the SJU consultation and cooperation mechanisms as appropriate to ensure the involvement of the relevant stakeholders, including the military and liaison with the Network Manager, PRB and EUROCONTROL's DSS;*
- *Associate the airspace users;*
- *Manage conflict of interest;*
- *Ensure that this additional task will not negatively impact the core activities if the SJU…"*

EUROCONTROL has encouraged CANSO and the ANSPs/FABs in a workshop on 24.04.2013 to now actively address the question which of the 300 initiatives should from their perspective be implemented on a FAB/regional level. Such work will fully support the SJU in its activities as the SJU should quickly assess which SESAR initiative should be deployed at local level, or at FAB level and which at pan-European level.

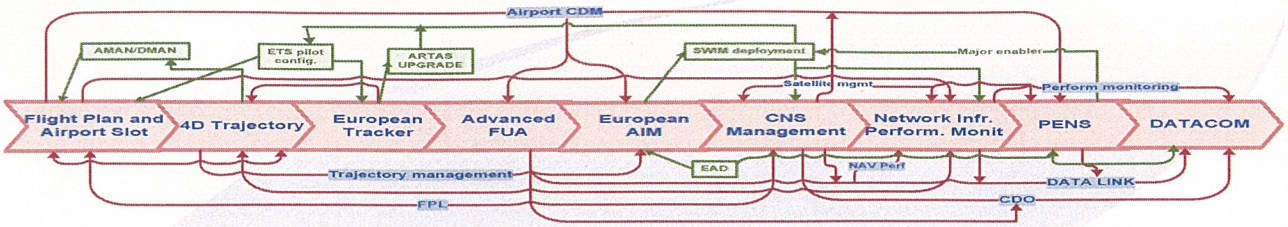
4. WHY ARE 10 CENTRALISED SERVICES BEING PROPOSED?

One could argue that some more than 10 technological ideas and services out of the SESAR portfolio could qualify for a centralised implementation. EUROCONTROL has identified 10 services where there is a positive business case and where the merit of the concept can be proven. It has to be taken into consideration that each of the projects requires a dedicated project structure in establishing the requirements, launching a call for interest/tender, selecting a technical/service provider, overseeing the fulfilment of the contract, ensuring that the European stakeholders have a guaranteed H24 hour service. Furthermore, the financing of the project has also to be ensured.

One could argue that it might be better to start with only one or two Centralised Services. The disadvantage of such an approach is that the potential contributions of the other Centralised Services to the performance targets might then be lost. The chances for the involvement of the manufacturing industry and the ANSPs would also be considerably reduced.

On the other hand, if the 10 services are provided on a pan-European basis by 2-3 consortium partners (EUROCONTROL member states ANSPs and possibly the manufactures of the equipment), the chances for all interested EUROCONTROL Member States ANSPs to participate in the provision of one of the services would be significantly higher, depending on the offer submitted.

In addition, the links between Centralised Services (including the integration and the interface between new and existing services) enable maximisation of the benefits and cater for synergies in support of EU Performance targets.



Interdependencies of the CENTRALISED SERVICES

4.1. The proposed Centralised Services

CS#1

Flight Plan and Airport Slot Consistency Service (FAS)

A service to check consistency of flight plans against airport slots on a centralised basis – which will result in better exploitation of airport capacity and improved flight punctuality.

CS#2

4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP)

A centralised service for calculating and communicating 4D trajectory profiles with increased accuracy, leading to improved predictability in the planning phase.

CS#3

European Tracker Service (ETKR)

This service will enable the creation of a Europe-wide, consistent, high quality picture of the air situation, processing and unifying all the data sent by numerous surveillance sensors.

CS#4

Advanced Flexible Use of Airspace Support Service (AFUAS)

A service for the collection and provision of airspace management data, enabling the more efficient and effective use of available airspace by both civil and military users.

CS#5

European ATM Information Management Service (EAIMS)

A development of the existing EAD service, to include all pre-departure static and dynamic data (eg airport information, weather and digital NOTAMs); this service enables the acceleration of the early deployment of the SWIM technology.

CS#6

Management of Common Network Resources Service (CNR)

This service improves the management of scarce resources such as transponder codes and radio frequencies by handling them on a unified basis across Europe.

CS#7

Network Infrastructure Performance monitoring and analysis Service (NIPS)

A service to ensure the safe function and anomaly resolution of common/distributed CNS infrastructure. This service would set up and operate sensors so that performance of the infrastructure could be measured and issues resolved.

CS#8

Pan European Network Service (PENS)

As data interchange increases, this service would meet all the ground communication needs between sites and partners (based on Internet Protocol version 6). This existing service would be expanded both in scope and in coverage.

CS#9

Data Communication Service (DCS)

A data communication service between the air and the ground, to support services such as datalink, AOC services, ADS-C, flight information service, airport coordination services, space-based ADS-B etc.

CS#10 Under development

5. EUROCONTROL ROLE

EUROCONTROL has acquired competence in European ATM network architecture. EUROCONTROL currently provides a set of centralised services (CFMU, CRCO and EAD). In running the EAD services for 10 years EUROCONTROL has used performance-based contracts which drive the payment to the service provider. Such contracts are still unique in ATM service provision.

EUROCONTROL's experience in realising complex projects like RVSM, running centralised services, tendering such services and systems to industry and ensuring their provision beyond the EU borders should all be considered as significant assets which could be reused always along the principles of neutrality and impartiality.

EUROCONTROL as the Network Manager is an established EU body with procedures and governance that can be easily extended and applied to Centralised

Services. It is clear that the Centralised Service concept involves a network dimension. Through its nomination as Network Manager, EUROCONTROL is entrusted to manage, according to the NM IR, certain existing centralised services. The Network Manager is governed by the Network Management Board, an entity in which the industry stakeholders, the airports, the Military and the European Commission are represented.

The interface of the existing NM and the foreseen Deployment Manager (DM) will have to be addressed with care in order to ensure clear accountability of each manager and a proper and efficient interface.

6. OVERALL BENEFITS

The centralised provision of ATM services will contribute to the overall improvement of the service level towards the ultimate client of the ATM Network, the passenger. Other benefits are expected for: European Union, States, including Military authorities, ANSPs, Airspace Users, Airports, Airport Slot Coordinators and the ATM Manufacturing Industry.

EUROCONTROL proposes to focus first and foremost on the possibilities to reduce the amount of investments necessary to deploy all SESAR initiatives in every centre and to provide some of the data necessary for the ATC centre from central or regional data hubs.

Centralised Services directly support the network-wide SESAR deployments. With very few exceptions, deployment up to now has been done on local/national level, which means that new and costly equipment is installed in over 80 centres in EUROPE (1 Billion €/year). Within this framework, the development of centralised services to reduce the costs of parallel deployments would also enable avoiding discussions on consolidation of centres, especially when the ANSP only operates in one Centre for its airspace.

6.1 EUROCONTROL Member States

It is suggested that the contribution of the Centralised Services to the Performance Scheme will help States to come closer to, or even to achieve, the performance targets that are set. Many States will support the identified contribution to performance through the centralised services so as to avoid further discussion of consolidation of centres, as another mean of reducing cost and significantly contributing to the Performance Targets.

Non-EU Member States would benefit also from the Centralised Services as it is proposed that all Centralised Services will have a pan-European coverage entailing the airspace of the 39 EUROCONTROL Members.

6.2 EUROCONTROL Member States' ANSPs

The centralisation of some common ANS services would constitute the basic building blocks for a cost effective European ATM network operation. Hence, Centralised Services can contribute significantly to the ANSPs' ability to achieve the performance scheme targets. CANSO has in the past supported the idea of centralised services being run by EUROCONTROL. In its Position Paper on the second step of the Institutional Reform of European ANS/ATM, it is stated that "CANSO considers as essential to have a centralised provision of services for the operational stakeholders supporting the pan-European Network. These services should fulfil the operational needs of the airports, ANSPs and their customers, civil and military airspace users."

Centralised Services also allow the EUROCONTROL Member States' ANSPs to be part of a development that is unique in the world, as these services and technical solutions will be cutting edge deployments out of the SESAR R+D development.

6.3 Airspace Users

The Airspace Users have long been advocating the provision of centralised frontline ATM services, in the interest of cost efficiency, but also of de-fragmentation, harmonisation and interoperability.

The proposed 10 centralised services and systems will contribute significantly to the achievement of performance targets, cost effectiveness and capacity. Initial studies foresee that savings through a centrally organised delivery could be at least 50% cheaper, leading to overall cost savings estimated at 1,5 to 2,0 Billion € over 10 years for airspace users;

The tendering process envisaged for the centralised services will open the market for some ATM services on a pan-European level, thus driving the provision of services with the best cost/quality ratio; and so helping to keep the costs under control.

Furthermore the Centralised Services set up will result in clear accountabilities for network-wide services, so meeting the long-standing appeal of Airspace Users for a transparent, dynamic and responsive set up. Current governance structures via the NMB with AO participation can be used and extended;

With the provision of higher quality of data, this will allow e.g. with the "4-D Trajectory Management for Planning Purposes Service" higher prediction of traffic and the times at which traffic will be in the respective control sectors.

6.4 Airports/Airport Slot Coordinators

The Airport Operators and the Airport Slot Coordinators benefit from some of the proposed centralised services, for example from the "Flight Plan and Airport Slot Consistency Service" depicting automatically consistencies and inconsistencies between the Airports Slots and the filed Flight Plans. The report on detected inconsistencies and the subsequent elimination of inconsistencies makes better use of the available limited airport capacities.

6.5 ATM-Manufacturing Industry

It is suggested that advances in European ATM technology will serve as a major contribution to the worldwide competitiveness of European ATM manufacturers. European manufacturers can benefit from the development and deployment of centralised infrastructure and services in Europe, but also in marketing these solutions and services to other parts of the world, having a proven positive track record in Europe.

6.6 European Union

The establishment of centralised services fully supports the EU political goals and agenda, and will contribute to the achievement of a truly seamless Single European Sky and the competitiveness of the Air Transport Industry. The unbundling and centralisation of some ANS/ATM services will ensure de-fragmentation and increase, competitiveness foster the deployment of cutting edge technology, The proposed 10 Centralised Services support the SESAR deployment on a pan European level avoiding that some good SESAR initiatives are not deployed only because they don't make the cost benefit analyses on a local/national level. In order to ensure that Member States and ANSPs do not invest in parallel on the 10 services proposed on local/regional level, a legislative procedure by the EU and a decision by

EUROCONTROL Member States is necessary. EUROCONTROL has proposed to enlarge the remit of the Network Manager governed by the Network Management Board, in which the airspace user association are represented.

The EC acknowledges that EUROCONTROL with the Network Manager is already developing into a decisive European player, acting both for the EU in accordance with its remit granted under EU regulation, and of course outwardly in its bridging effect to other EUROCONTROL Member States, and in helping to develop the EU's Neighbourhood Policy through its relationship with projects such as ISIS (for the Balkan States), TRACECA (for the Caucasus States), and EUROMED (for the Mediterranean States). Linking the concept of centralised services with the work of the Network Manager is not only a way to place it under a consistent legal framework within the SES initiative, but according to the EC also to ensure that the industry is adequately represented in this initiative.

7. FINANCIAL ASPECTS

7.1 Costs & Benefits

Subsequent to an in-depth analysis of the proposed 10 centralised projects and services as an outflow of the SESAR programme, EUROCONTROL proposes up to 10 Services, which have suitable readiness levels and are relevant for implementation in a centralised manner. Based on its experience of current Centralised Services, the Agency has demonstrated significant cost savings for service development in each participating State as well as savings for annual operational costs.

The total annual cost savings for States and subsequently the airspace users could reach €150-200 million p.a. This gives a rough cost-benefit estimate of 1.5-2.0 billion Euros over 10 years which underlines the potential financial savings of the proposed centralised approach.

This bottom-up estimate will need to be challenged by the actual cost savings analysis, currently performed at a detailed level for each targeted centralised service, but considered to be conservative.

To this pure cost saving estimate, the overall benefits of Centralised Services to the SES need to be added by taking into account capacity increases, flight efficiency, data quality, etc.

7.2 Opportunity for EU Funding

The creation of Centralised Services will be based on the underlying principle that the overall costs of ANS/ATM charged to airspace users at European level will be decreased. In order to achieve these cost reductions, EUROCONTROL envisages applying for EU funding mechanisms, for example:

i) Partial financing through TEN-T grants;

ii) Financing through the SESAR Deployment as Implementation Projects part of a Common Project: Common Projects aim to deploy ATM functionalities that will achieve the essential operational changes defined in the ATM Master Plan; some centralised services appear directly connected to the 6

SESAR key features (e.g. SWIM, 4D trajectory) and would fit in Common Projects; Article 15a.3 of Regulation No550/2004 provides that the Commission may decide to set-up Common Projects for network-related functions which are of particular importance for the improvement of the overall performance of ATM in Europe and that these are eligible for EU funding.

iii) Financing from the SESAR development phase as a Very Large Demonstrator (VLD) proposal.

EUROCONTROL is proposing to contribute to the RP1 and RP2 performance targets pro rata, meaning that the EU Member States do not have to compensate for any EUROCONTROL budget in this respect. EUROCONTROL intends to finance the operation of the 10 Centralised Services through prioritisation in the budget, asking also for some support from EU funds. EUROCONTROL does not intend to increase its cost base due to the Centralised Services.

8. CONCLUSIONS

The evolution of European air traffic management delivered through SESAR is dependent on high quality data which ANSP, airports and airspace users systems use to deliver their core business.

Centralised Services would deliver ATM related data while achieving the objectives of cost effectiveness, defragmentation, pan-European harmonisation and interoperability. This would enable reduction of the cost of parallel deployments and contribute to the realisation of national performance plans and hence will deliver benefits for all ATM stakeholders.

It would help us jointly attain significant cost savings while enabling the States and their ANSPs to come closer to the financial performance targets and to provide Airspace Users more efficient services.

9. NEXT STEPS

EUROCONTROL intends to publish a Call for Interest on the Centralised Services (#1-9) inviting the ANSPs of the EUROCONTROL Member States and ATM manufacturing industry to declare their interest;

EUROCONTROL would like to give sufficient time to ANSPs and ATM manufacturing industry to discuss between, create consortia and declare interest until September 2013;

EUROCONTROL also intends to offer Service -specific workshops after May 2013 for interested parties.

Provisional Council – PC/39

Centralised Services

Frank Brenner
Director General
EUROCONTROL
16 May 2013

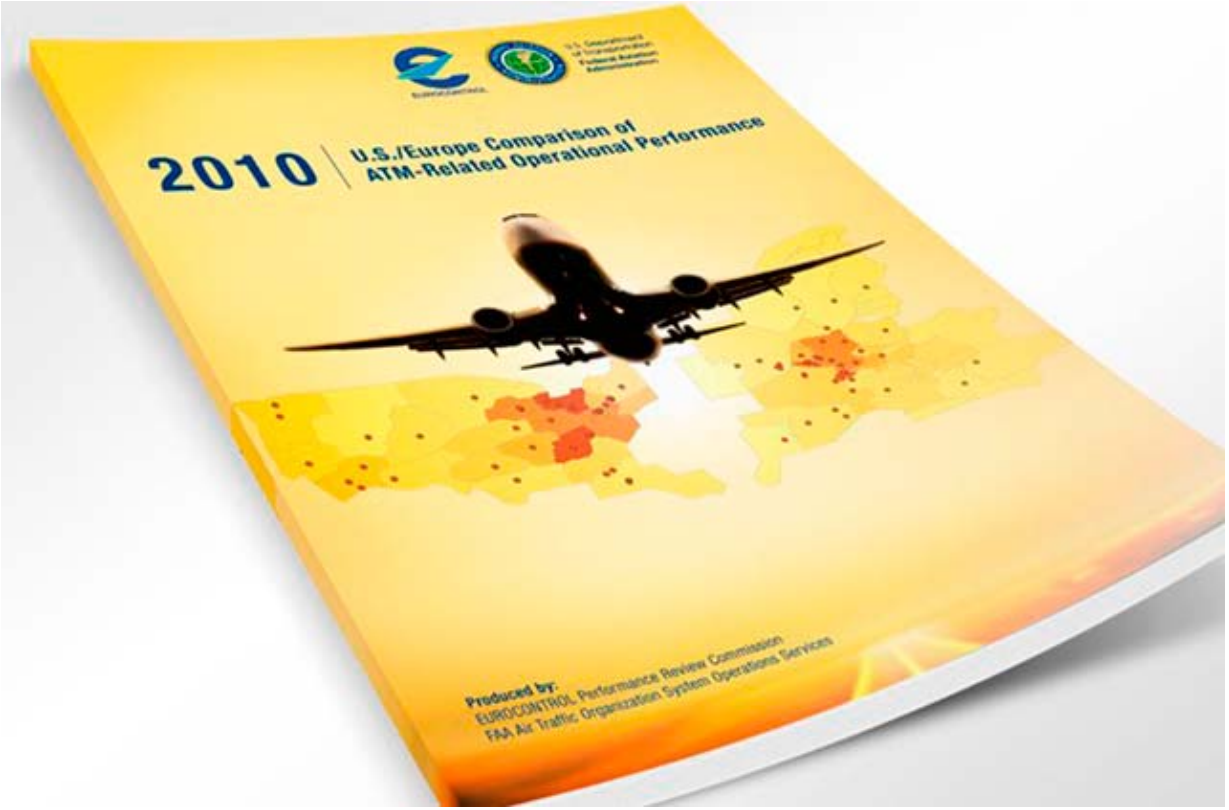
Centralised Services

Objectives (1):

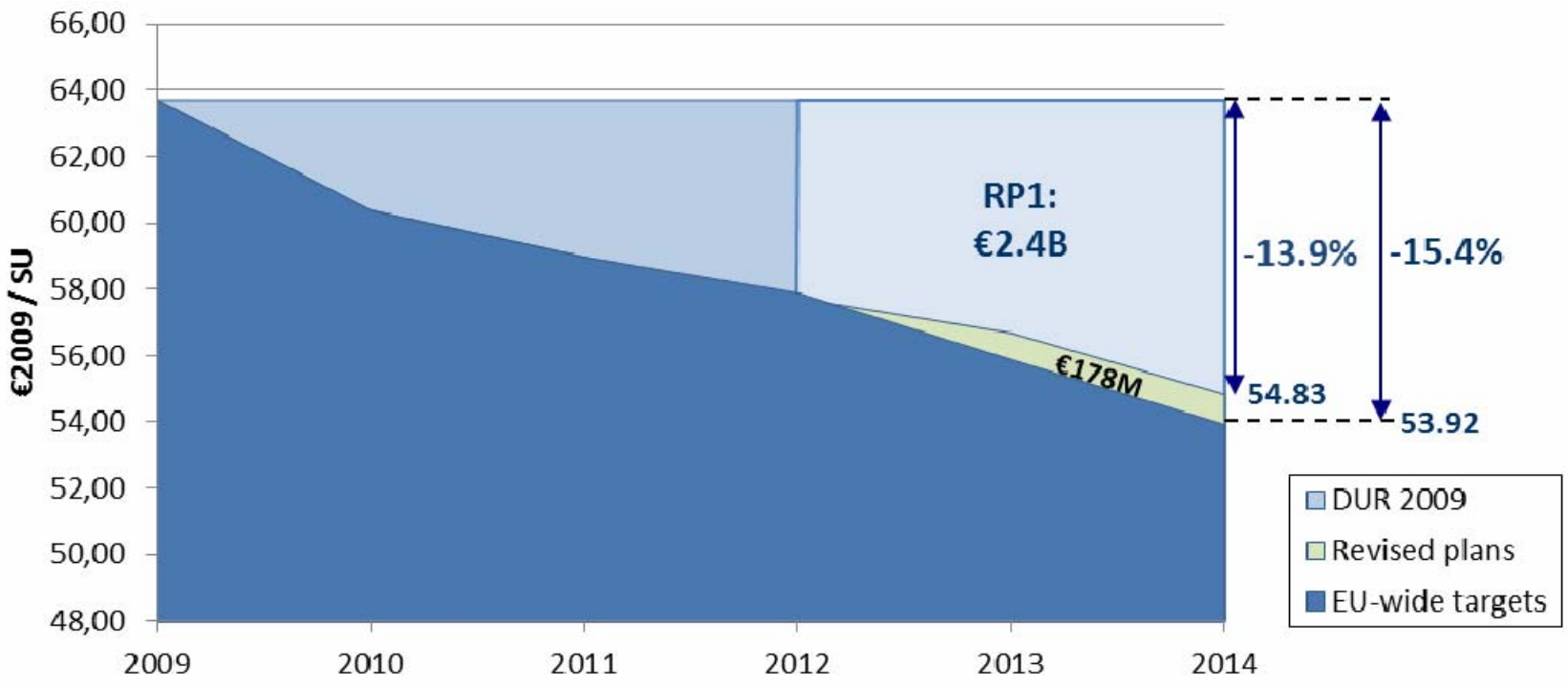
1. Contribute to achieving a competitive air transport market in Europe, through an ambitious approach to ANS-ATM.

2. To increase the competitiveness of European ATM compared to other areas of the world in order to support the European aviation industry and the overall European economy.

The goal to be achieved:
Controlled flight hour for half the cost



The goal to be achieved:
SES Cost-efficiency target for 2012-15



Is consolidation the magic word of the future ?

„A binding performance system throught the establishment of an independent European regulator for Air Naviagation charges.

The rationalization of air traffic management structures through opening up services to competition and a reduction in the number of air traffic control centres across Europe to not more than 40.

Improving efficiency of the network through the modernization of the ATM system.“

Tony Tyler, IATA

Centralised Services

Objectives (2):

3. The EUROCONTROL proposal will help in bringing the 3 pillars of the SES 2 package (FAB, Performance Scheme, SESAR) closer together:
   - to support the airspace users by achieving tangible cost reductions in local/ACC/ANSP-level implementation costs,
   - to support all EUROCONTROL Member States to achieve their performance plans,
   - to help the EU Member States to contribute to the performance scheme fulfilling their NPP commitments,
   - to support SESAR implementation through a harmonized pan-European approach, contributing to a performance achievement on a Pan-European Level.

Why “Centralised Services“ ?

- Fit for pan-European implementation
- Fit for regional (FAB) implementation
- Fit for local implementation

Ten candidate Centralised Services paving the way towards:

- **achieving the performance targets**
- **implementation of essential operational changes**
- **unbundling of some ancillary services from ATS**
- **cross national boundary service provision on a pan-European scale**

What is a “Centralised Service“ ? (1)

- An air navigation support service or a related function.
- Exercised at central European/network level, bringing significant benefits in cost-effectiveness and harmonisation.
- Contributing significantly to the Performance Targets of the Member States.
- Supporting the implementation of SESAR developments on a central basis.
- Supporting the implementation of SESAR developments to become pan-European services.

What is a “Centralised Service“ ? (2)

- Supporting the unbundling of ancillary services.
- Enabling service providers/ATM manufacturing industry to work together to provide the service outside of the national boundaries on a pan European level.
- Allowing the implementation of market mechanisms for the centralised services following a tender process - competition for the market.
- Allowing the implementation of performance based contracts between EUROCONTROL and the Service Provider.

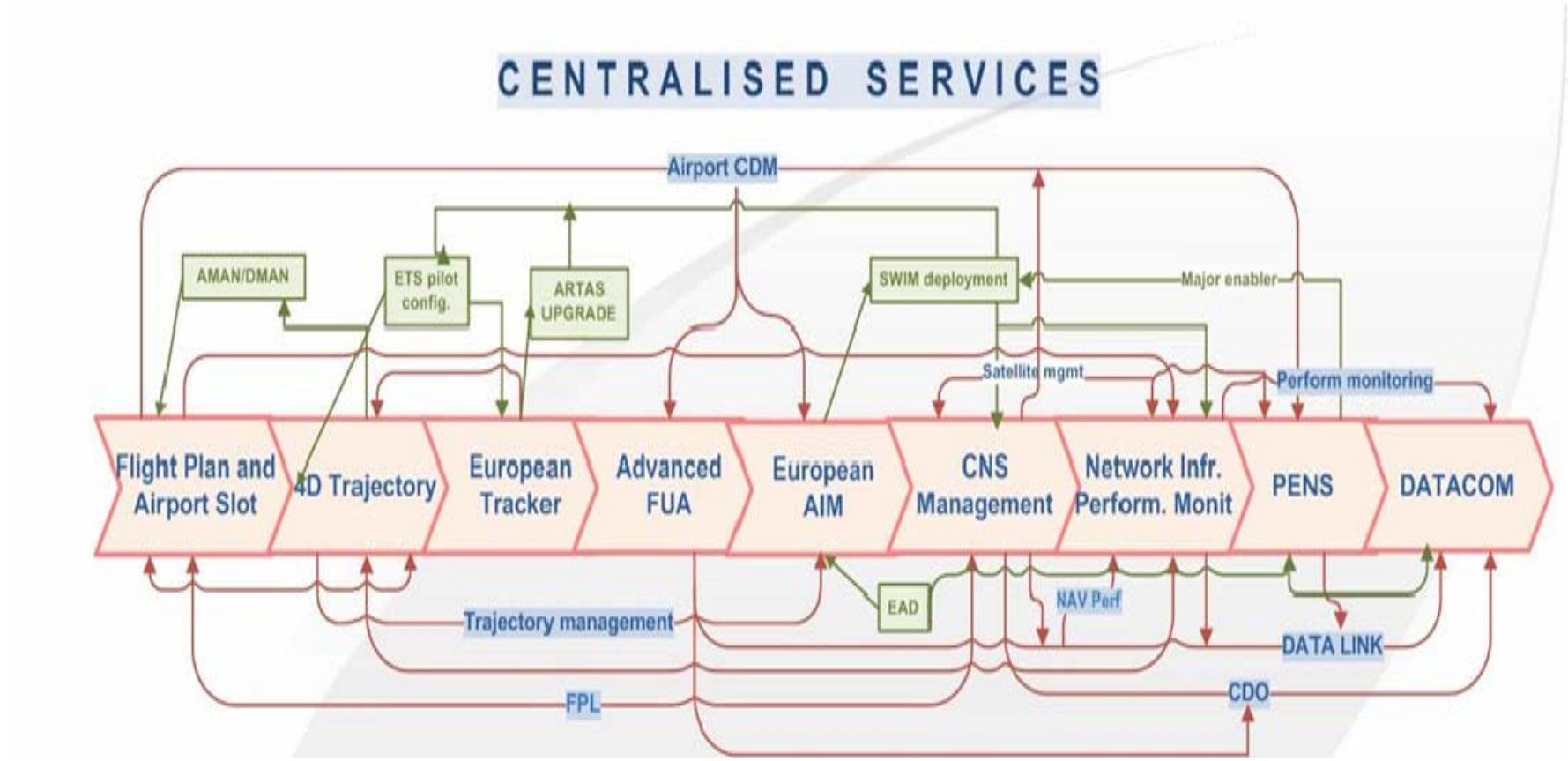
Which “Centralised Services” ?

# 1	Flight Plan and Airport Slot Consistency Service (FAS)
# 2	4 D Trajectory Flight Profiles Calculation for planning purposes (4DPP)
# 3	European Tracker Service (ETKR)
# 4	Advanced Flexible Use of Airspace Support Service (AFUAS)
# 5	European ATM Information Management Service (EAIMS)
# 6	Management of Common Network Resources Service (CNR)
# 7	Network Infrastructure Performance Monitoring and Analysis Service (NIPS)
# 8	Pan-European Network Service (PENS)
# 9	Data Communication Service (DCS)

Why 10 “Centralised Services” ?

- 10 technologies and services have qualified with positive business cases on a pan-European level.
- Each project requires a dedicated project structure and manning.
- EUROCONTROL´s resources are limited.
- 10 services allow statistically a larger participation of ANSPs, Manufacturers other stakeholders than 1 or 2 services.
- The TEN-T requirements ask for a quick set-up of the technology and demonstrate its service readiness until end of 2015.

Interdependencies of the Centralised Services



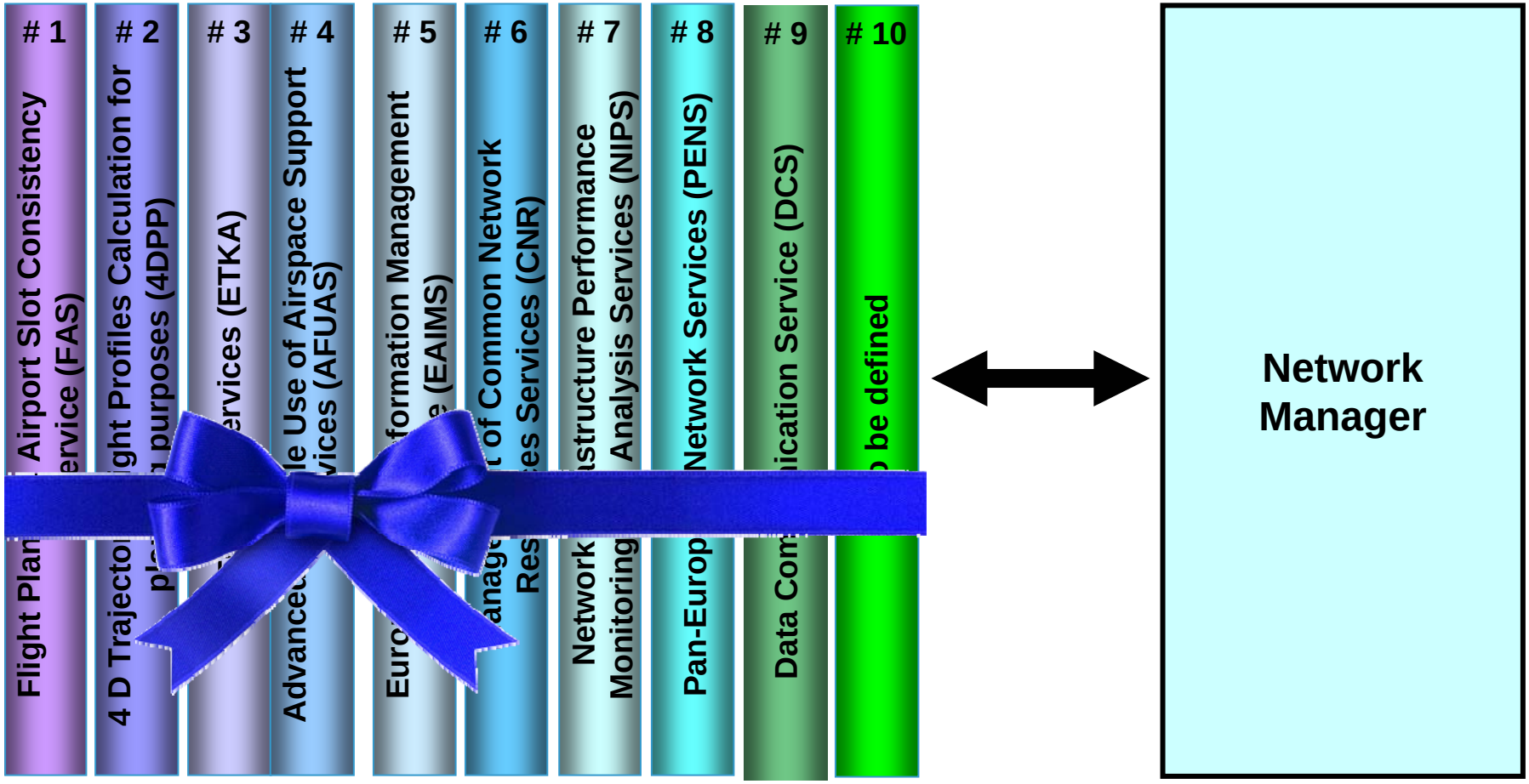
Centralised Services

Objectives (3):

4. Encourage cooperation between ANSPs, Airspace Users, Military, Airports, Airport Slot Coordinators other stakeholders with EUROCONTROL on the development of OPS concepts for each of the CS.

5. Create a maximum of benefits, not only through reduction of implementation costs, but additional benefits for the airspace users and the network by making available higher quality real time data to the Network Manager.

Strong links between the CS and with the Network Manager



Centralised Services - Governance

- Procedures, accountability and governance can be ensured through extension of the appropriate European regulatory Network Manager provisions.

- The Network Manager under EU Law is governed by the Network Management Board, currently a body in which the European Commission, the ANSPs, the airports, the military and airspace users are represented. User groups part of the governance process.

- Independent and inter-governmental EUROCONTROL approach guarantee of equal and fair service to all stakeholders.

Centralised Services

Objectives (4):

6. Encouraging cooperation between stakeholders (different ANSPs of the EUROCONTROL member states, ATM- Manufacturers, other stakeholders) to create SPC to bid for the set-up and operation of the centralised pan-European services.

7. Opening the market for ANSPs for European service provision rather than national service provision.

8. Supporting a market-driven approach through tendering. Build on EUROCONTROL's experience in running services & systems tendered to industry (e.g. EAD) on a performance payment basis.

Progress Made (JAN – APR)

- EUROCONTROL has set up an internal project to develop the 10 Centralised Services.
- EUROCONTROL has started discussions in order to receive first reactions from the Stakeholder community.
- EUROCONTROL has maintained a dialogue with the EC regarding the ongoing development of the Centralised Services.
- EUROCONTROL has made an application for TEN-T funds to set the Centralised Services and associated systems up.

Stakeholder Consultations

- Member States Workshop — 4 March 13
  - 13 States represented
- ANSP Workshop — 24 April 13
  - 60 participants
  - 39 states represented
- AO Workshop — 29 April 13
  - 22 participants
  - 18 organisations represented
- Manufacturers Workshop — 17 May 13
  - 70 confirmations
- Briefings to NMB, AAB — 26/27 March 13
- Presentations to World ATM Congress / SESAR Forum

Reactions so far…

“I believe this is an initiative that could indeed give new momentum to SES implementation. Your proposal has the potential to enhance cost efficiency and network performance on the pan-European level, making use of prospective SESAR deployment structures.”

Kornel Szepessy, CEO HungaroControl

“We will support any decision by our national ATM service provider and the stakeholders to bid on subsequent calls for tender prepared by EUROCONTROL for the set up of the identified centralized services.”

Haydar YALÇIN, Deputy Director General, Ministry of Transport, Maritime Affairs and Communications, Directorate General of Civil Aviation, Republic of Turkey

Reactions so far…

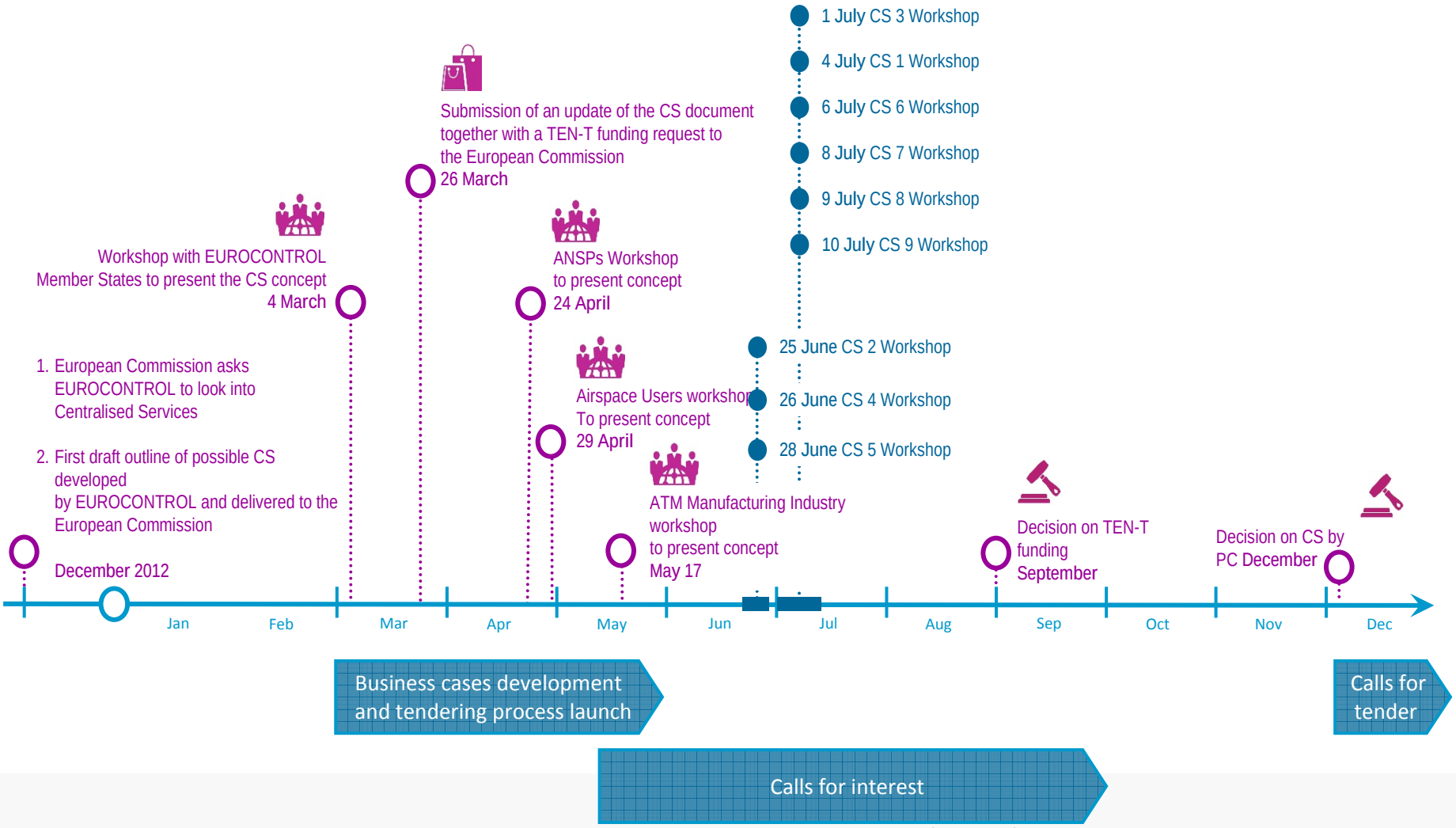
“On behalf of the Directorate General of Civil Aviation Germany, I would like to thank you for having organized an Information Seminar on the concept of setting up Centralized Services and the presentation of the first set of these services held on 4 March. This briefing was well received and enables us to express your support for this initiative. We are also in agreement with the EUROCONTROL action to apply for TEN-T funding to accelerate and give more political momentum to this programme.”

Gerold Reichle, Director General of Civil Aviation and Aerospace

“We fully share the Centralized Service concept as a tool, in this historical period, that could concur to reduce the total costs of the aviation industry, in order to allow the system to grow up again despite the economical crisis effecting, in particular manner, European Countries.”

Alessio Quaranta, Director General ENAC

Timetable & Next Steps



Provisional Council – PC/39

Centralised Services

Frank Brenner
Director General
EUROCONTROL
16 May 2013

EUROCONTROL Proposal for a first set of Centralised Services to contribute to SES Performance Achievement

Update to the European Commission

March 2013

Document Summary

Title	EUROCONTROL Proposal for a first set of Centralised Services to contribute to SES Performance Achievement		
Reference	EIM Proposal_Phase1Deliverable_v2_0		
Origin	EUROCONTROL Board of Directors	**Date**	25th March 2013
Version	2.0	**Status**	Release

Document Change Record

Version	Date	Sections	Reason
V1.0	14-12-12		Communication to EC
V2.0	22-03-13	All	General update of information

Contents

1 Foreword 1
2 Rationale 2
3 Proposed Centralised Services 5
4 Expected Benefits 7
5 EUROCONTROL Credentials 9
6 Stakeholder Analysis 11
7 Legal Assessment 14
Technical Annexes 17
CS#.1 Flight Plan and Airport Slot Consistency Service - FAS 18
CS#.2 4D Trajectory Calculation for Planning Purposes Service – 4DPP 21
CS#.3 European Tracker Service - ETKR 24
CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS 27
CS#.5 European ATM Information Management Service - EAIMS 30
CS#.6 Management of Common Network Resources Service - CNR 32
CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS 35
CS#.8 Pan-European Network Service - PENS 38
CS#.9 Data Communications Service - DCS 41
A. Legal Annex 43
B. Glossary 45

1 Foreword

The creation of the Single European Sky is at a turning point. Developments from the SESAR programme are reaching the deployment stage at the same time as States are finding it increasingly challenging to meet their SES objectives, particularly in the light of the current economic downturn.

EUROCONTROL is strongly committed to promoting a competitive air transport market in Europe through an ambitious approach to ANS-ATM that will significantly contribute to the achievement of the targets laid down in the performance scheme. EUROCONTROL is offering to cooperate closely with its Member States and the EU to bring the three pillars (Network Functions, Performance Scheme and SESAR) of the SES 2 package closer together.

In a letter from the European Commission (dated 30/11/12), EUROCONTROL was asked to elaborate more on the concept of Centralised Services.

EUROCONTROL proposes to focus on one of its key strengths, the technical and operational knowledge of the ATM network, to facilitate the development of the concept of 'centralised services' as part of the SESAR deployment. A 'centralised service' is an ANS support service or function exercised at pan-European and central network level.

Following an analysis of some 300 SESAR initiatives, up to 10 potential centralised services have been identified, consistent with the respective ICAO Block Upgrade, as ready and suitable for implementation at the pan-European level, thereby reducing the cost that would be incurred in the case of parallel deployments across Europe. It is a means to foster the deployment of new ATM technologies and to introduce market mechanisms and competition into the provision of ATM. In addition, the centralised approach promotes synergies and improvements in data quality and integrity.

The European Commission expressed its support for the idea of the establishment of up to 10 Centralized Services in the speech of Mr Baldwin to the WAC in Madrid (12th Feb) and DG MOVE asked in a letter dated 15th March to elaborate more on CS#9 as the Data communication Service.

Parts of the proposed services are already provided by EUROCONTROL and have generated significant savings for the Network. The services would need to be extended or started from scratch. EUROCONTROL would manage the services but the technical set-up and operation would, as far as possible, be put out to tender. This would allow air navigation service providers and manufacturing industries to develop and to conduct the technical systems and services on a pan-European basis under market conditions with performance based contractual arrangements. There is considerable merit in the centralised service proposal in its own right.

This paper describes the idea and benefits of centralised services, the associated underlying operational concepts, and initial thoughts on ways to use existing or future EU regulatory mechanisms as a basis for such work. Initial indications of net benefits are of the order of 1.5-2.0 billion Euros over 10 years; this demonstrates the potential financial savings of a centralised approach.

2 Rationale

2.1 Rationale

It is estimated that the continued fragmentation of European airspace generates some € 5 Billion[1] in additional costs annually, borne by the airspace users and ultimately by their customers, be it passengers or freight operators, which in turn has a detrimental effect upon European mobility and competitiveness. Compared to the US, the cost for the control of one aircraft for one hour is about double in Europe.[2]

While a proportion of this additional cost may be directly attributed to the inefficiencies created by non-optimal route networks, delays and other operational factors (Flight Efficiency), a high proportion of this cost may be attributed to the current organisation of ANS provision and the impact this has upon resources and the underlying infrastructure, in particular the multiplication of many ancillary services, operational functions and supporting systems.

Much of this structural inefficiency may be considered as a legacy from the past, where ANS provision had to be provided by the States within the national territory of the State itself, generally under the control of the national aviation authority.

There are however a few examples where the States in the past decided not to continue the provision of services on a national basis and asked EUROCONTROL to provide these services on their behalf. These services are nowadays all completely undisputed, due to the improvement of quality achieved, higher integrity of data as they are coming from one single source and the associated efficiency gains. Such examples are the CRCO founded in 1971, the creation of the CFMU in 1996, the ARTAS tracker for some participating countries and ANSPs, the EAD as of 2001.

Essential and critical network systems are already managed successfully by EUROCONTROL /NM according to the NM IR. Others, like ARTAS and EAD, can be linked to NM for the efficiency of the European network.

The provision of air navigation services and related functions have, with the implementation of SES II, to be fully performance-driven and optimised with a view to facilitating cooperation among air navigation service providers.

The Functional Airspace Block (FAB) initiative is to create synergies through airspace blocks based on operational requirements, established regardless of State boundaries, with an objective to reduce the current ANS fragmentation across Europe. Centralised services could contribute to that objective since the FABs would also benefit from them as performance enablers.

The enhancement of existing centralised EUROCONTROL services and the creation of new ones will have to fit with what exists (NM IR).

Centralised services will need to fit, operationally and technically with a network-wide system architecture view. This will minimise incompatibility and avoid interoperability issues between these services and the other actors operating within the European network.

---

[1] ACE Benchmarking 2010 shows ~1 billion euro is invested by ANSPs each year. There is ~14500 technical maintenance, planning and development staff in European ANSPs, i.e. 25% of all staff, whose cost is estimated at circa 1 billion euro per annum.

[2] U.S./Europe Comparison of ATM-Related Operational Performance 2010 - April 2012 – PRU & FAA

2.2 Network Performance

The evolution of existing EUROCONTROL centralised services (CFMU, EAD) moving ahead toward new centralised systems as part of SESAR deployment, to be developed and operated in strong partnership with the ATM industry is clearly aimed at bringing major benefits in network operations, quality of data, continuity of service and savings – all leading to the benefit of SES performance achievement.

Furthermore, it may be expected that a market-driven approach will also serve to stimulate innovation, create business opportunities and provide greater agility for the sector to adapt to changing business needs, for example, the development of intermodal connectivity as identified in the EU Transport White Paper.

Transition to such a scenario will however take time and resources, based on the SESAR deliverables aiming to deliver modern functionality into the ATM environment.

This approach provides the opportunity for a progressive, stepwise transition from the current fragmented infrastructure of separate information systems to integrated, network centric system architecture, taking advantage of system replacements (which with the SESAR deployment have to take place step by step) and staff retirement, so as to minimise financial and social transition costs.

2.3 A step necessary for the preparation for deployment

The need for preparatory measures

SESAR is the technological pillar of the SES 2 package. The development phase started in 2009 in accordance with the ATM Master Plan which prescribes the measures to be taken to optimize the SESAR benefits. The Master plan addresses the high-level operational changes and technological evolutions of the ATM system.

Early implementation of technologies already available (i.e. datalink) has started. This interim/transitional deployment phase should be seen as a first pillar of activities required for the preparation of the deployment phase. The IDP is managed by an interim governance structure, the Interim Deployment Steering Group chaired by the EC with the participation of all stakeholders. This transitional scheme shall end when the deployment phase is launched and a formal governance is established.

A legal instrument is currently under preparation by EC to organize an appropriate coordination and synchronisation of the implementation of SESAR through the 'Common Projects'. A test bed has even been established by EC to validate the future governance required for the deployment phase through a 'Pilot Common Project', the second preparatory pillar. This pilot preparatory phase will permit to verify the methodology for the selection of mature candidate technologies.

More work is needed before the formal launch of the deployment phase: selection of a deployment manager and adoption of a deployment programme (planned end of 2014).

<u>The 10 Centralized services as third pillar for the preparation of the deployment</u>

The Network Manager must also contribute immediately in this preparatory work. All stakeholders can decide to do so under the auspices of the NMB, the only decision-making body already in place.

NM has the capacity through its different existing tools to offer, before the start of the deployment phase, guaranteed availability of verified data for the whole network (slots correlated with flight plans, consolidated trajectory and FUA data, etc) ;those data will be critical for some key Common Projects (objectives of CS#1, CS#2, CS#4 and CS#5). Similarly the enhancement of the EAD (CS#5) is a pre-requisite before starting the deployment of Common Projects: electronic access shall be made available to all actors for all ATM info through a single network management system. (CS#8)

When NM functions will be extended with CS#3, CS#6, CS#7 and CS#8 ANSP, airports and airspace users will also be offered access to network-wide monitoring functions for the Surveillance data, scarce resources, security and the anomalies of the CNS infrastructure.

All those capabilities are pre-requisites and must be implemented before end of 2015; they contribute indeed directly to SESAR step 1, namely for the successful implementation of the 'time-prioritisation' process and initial trajectory-based operations. Centralized services complement the actions launched under the IDP and the PCP: they provide services and/or data to stakeholders whereas PCP focus on technology investments and functionalities.

3 Proposed Centralised Services

3.1 What is a centralised service?

A centralised service is an ANS service or ATM function exercised at pan-European and central network level for harmonisation and cost-efficiency purposes. It is a means to foster the deployment of new ATM technologies and achieve unbundling of some of the ancillary services or functions, through implementation of market mechanisms and competition. It will allow centralised services processes to be provided on a pan-European level rather than on a national/local level.

The principle for the concept of new centralised services is based on the model used for the European Aeronautical Information Service Database (EAD). The EUROCONTROL Organisation has been entrusted since 2001 by its Member States with the development, establishment and operation of the EAD. Operations are externalised to industry through procurement.

A centralised service can be described as:

- **An air navigation support service or a related function**
- **Exercised at central European/network level, bringing significant benefits in cost-effectiveness and harmonisation**
- **Contributing significantly to the Performance Targets of the Member States**
- **Supporting the implementation of SESAR developments on a central basis**
- **Supporting the implementation of SESAR developments to become pan-European services**
- **Supporting the unbundling of ancillary services**
- **Enabling service providers/ATM manufacturing industry to work together to provide the service outside of the national boundaries on a pan European level**
- **Allowing the implementation of market mechanisms for the centralised services following a tender process - competition for the market**
- **Allowing the implementation of performance based contracts between EUROCONTROL and the Service Provider**

3.2 List of proposed Centralised Services

CS #1. **Flight Plan and Airport Slot Consistency Service (FAS).** Match flight plans and airport slots to better exploit airport capacity and improve flight punctuality.

CS #2. **4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP).** Provide a centralised facility for common reference for the 4D Trajectory profile for all ATM planning activities with an increased accuracy, allowing reduction of buffers around airspace occupancy, reducing under-/over- delivery.

CS #3. **European Tracker Service (ETKS).** Enable the creation of an ECAC-wide, consistent, high quality Air Situation Picture and the provision of its required subsets to any user of processed surveillance information, civil and military.

CS #4. **Advanced Flexible Use of Airspace Support Service (AFUAS).** This service will provide civil-military collaborative ASM decision-making processes based on transparent ASM data and ASM performance feedback.

CS #5. **European ATM Information Management Service (EAIMS).** Accurate and timely information needs to be organised and provided through flexible means that support system-wide interoperability, secured seamless information access and exchange. In this Service the EAD service is integrated and enlarged by additional functions, such as ADQ,

weather briefing, digital NOTAMs, briefing depicting relevant NOTAMs on a chart in accordance with the flight track etc.

CS #6. **Management of Common Network Resources Service (CNR).** The scarce resource management addresses the Transponder Code Function (TCF) and Radio Frequency Function (RFF). These functions improve the management of these resources, optimising utilisation for the benefit of stakeholders and the Network as a whole, including allocation of scarce interrogator codes to Mode S radars installed in Europe. A centralised management of common resources (network addresses for instance) ensures a coherent and efficient utilisation of the resources shared by all the stakeholders.

CS #7. **Network Infrastructure Performance monitoring and analysis Service (NIPS)**. In order to achieve a safe and efficient operation the CNS infrastructure performance needs to be monitored and managed all along its deployment and operation. This service, consisting of seven interlinked and inter-dependent sub-services, such as datalink and transponder functions, will help to acquire a better knowledge of the infrastructure performance and therefore help in preparing infrastructure rationalisation.

CS #8. **Pan European Network Service (PENS).** To meet all present and future ground communication needs a secure connectivity is required between sites and partners. PENS is a shared service with centralised management based on IPv6 and compliant with SES regulation for FMTP as well as ICAO ATN/IPS standards. The provision is contracted out to a Network Service Provider. Potential to be expanded and could cover all stakeholders.

CS #9. **Data Communications Service (DCS)** To increase interaction between the air and ground ATM-related systems and replace current fragmented means of communication, a data communication service is required in all airspace (airport, TMA en-route, polar and oceanic); this service shall support all A/G services such as datalink, AOC services, ADS-C, flight information services, airport coordination services, space-based ADS-B, etc.

CS #10. in development

4 Expected Benefits

4.1 Costs & Benefits

Subsequent to an in-depth analysis of the SESAR programme, EUROCONTROL proposes up to 10 Centralised Services, which have suitable readiness levels and are relevant for implementation in a centralised manner. Their accelerated deployment could be envisaged for support from EU instruments to incite the transition. Some of those services are already partially provided by EUROCONTROL, while others will have to be established.

It is emphasised however, that these initial services have been generated through a bottom-up process which takes into consideration the constraints imposed by a technical environment which is not particularly well suited to the unbundling of services or functions, emphasising the importance of establishing an ATM network architect and system engineer.

Initial CBA analysis has been developed from a bottom-up perspective looking at the specific scope and implementation model for each centralised service. Based on experience of current centralised services, the Agency has demonstrated significant cost savings for service development in each participating State as well as savings for annual operational costs.

Taking EAD results to 2008[3], an annual saving of between €20 and 30 million per year for EAD users vs. non users can be observed. Recognising that the EAD is not yet fully used as a centralised service by all European states (as there is no binding mandate), it is reasonable to anticipate that overall savings could reach at least twice the current level.

Assuming that the entire list of centralised services represents in complexity and functionality the equivalent of 4 EAD-like programmes, the total annual cost savings for States could reach €200 million. This bottom-up estimate will need to be challenged by the actual cost savings analysis currently performed at detailed level for each targeted centralised service, but is considered to be conservative.

As an alternative, a top-down CBA approach has been performed for the list of centralised services included in this report. Based on sample enquiries, it is estimated that the centralised services represent today between 2.5% and 5.0% of ANSP ATM/CNS activities. Knowing that the European total costs for gate-to-gate ATM/CNS activities performed by ANSP represent about €7.5 billion[4], the centralised services cost represents, at the European level, an estimated cost of €300 million annually. Delivering these services from a centralised perspective would enable savings of at least 50% of this cost, generating a cost saving of €150 million per year.

The annual cost saving can be estimated at between €150 and €200 million, representing over the lifecycle of such technology, an overall cost saving of €1.5 to 2.0 billion for the airspace users over 10 years.

Initial findings from CBA studies performed on the individual Centralised Services suggest annual savings could be as high as €240 million, leading to a saving of €1 billion by 2024 and €2 billion by 2030.

To this pure cost saving estimate, the overall benefits of centralised services to the SES need to be added by taking into account capacity increases, flight efficiency, data quality, etc. Here the centralised services approach would act as a fundamental stepping stone and enabler of much wider benefits accrued by the suggested structural evolution. This structural evolution is expected to have very positive impacts on Cost

[3] EAD Service Business Review - Dorfmeister Report May 2009

[4] Meeting of the 97th Enlarged Committee for Route Charges – Nov.2012 – cost-bases and unit rates.

Efficiency (lower support costs, higher ATCO productivity), Flight Efficiency (nearly direct routes), Capacity (more flexibility to swap capacity and/or ATCO amongst centres) & Safety (common ground information system, built-in air-ground checks, redundancy of systems and ATCO).

4.2 Funding

The creation of centralised services will be based on the underlying principle that the overall costs of ANS/ATM charged to airspace users at European level will be decreased. The unbundling of services at national level to allow a provision of services at European level should in principle result in a decrease of corresponding national cost-bases. The costs could be transferred at European level, in the EUROCONTROL cost-base, however in a reduced proportion, since centralised services are expected to create economies of scale and contribute significantly to performance targets.

However, further reduction of the ATM/ANS costs charged to airspace users could be envisaged through the use of EU funding mechanisms, in particular:

i) Partial financing through ('normal') TEN-T grants (financing studies and work up to 50 %);

ii) Financing through the SESAR Deployment as Implementation Projects part of a Common Project: Common Projects aim to deploy ATM functionalities that will achieve the essential operational changes defined in the ATM Master Plan; some centralised services appear directly connected to the 6 SESAR key features (e.g. SWIM, 4D trajectory) and would fit in Common Projects since they would contribute to network improvements; an amount of 3 billion EUR has been requested by the European Commission in the TEN-T and CEF (Connecting Europe Facility) programmes; Article 15a.3 of Regulation No550/2004 provides that the Commission may decide to set-up Common Projects for network-related functions which are of particular importance for the improvement of the overall performance of ATM in Europe and that these are eligible for EU funding, subject to adequate CBAs.

iii) Financing from the SESAR development phase as a Very Large Demonstrator (VLD) proposal (e.g. 4D trajectory).

The EUROCONTROL Agency is putting forward a TEN-T request for the set up and demonstration of the 9 CS in March 2013.

5 EUROCONTROL Credentials

5.1 Experience and Achievements

EUROCONTROL possesses a proven and widely acknowledged competence in European ATM network architecture and systems engineering and is an established, trusted centre of knowledge and information regarding European ATM-related performance issues. Furthermore the Agency has demonstrated its commitment to the Single European Sky, supporting the European Commission under the auspices of the High Level Agreement.

EUROCONTROL currently provides a wide range of services, some of which are for the common benefit of all airspace users in Europe and some of which are specific services provided to individual organisations or groups of organisations.

Projects such as Reduced Vertical Separation Minima (RVSM) have showcased EUROCONTROL's ability to roll-out and successfully deliver complex projects.

The Agency has already demonstrated through the successful re-structuring of 2010 in preparation for NM and PRB designation, its ability and willingness to organise its resources according to the requirements of the role.

Through its nomination as Network Manager, EUROCONTROL is entrusted to manage, according to the NM IR, certain existing centralised functions. The proposed centralised services are not covered by the current scope of the NM functions but would facilitate and enable the execution of the NM functions. .

The establishment of a "Deployment Manager" is foreseen by the European Commission in its draft guidance material for Common Projects related to SESAR Deployment; the "Deployment Manager" will be responsible for the implementation of all Common Projects. A clear and formal interface with the NM to ensure the overall network performance should be addressed.

5.2 Independence of EUROCONTROL

EUROCONTROL, through Centralised services, will support the Member States in realising performance contributions by offering centralised services complementing implementation of SESAR results at local and FAB level. Of course, when providing or managing such services, the independence of EUROCONTROL should be maintained and conflict of interest should be avoided. The potential for conflict of interest is arguably significantly less with EUROCONTROL than with 'industry' in general. EUROCONTROL is not a private body, but an inter-governmental organisation serving the general interest in complete independence from industrial or commercial interests on a non-profit basis. EUROCONTROL's tasks are, on behalf of the Contracting States, carried out in the public interest. Such tasks generally aim at ensuring and improving air navigation safety and strengthening co-operation between all Contracting States. EUROCONTROL is regarded as a public authority when acting in the exercise of its powers. Given its legal status as an international organisation and the fact that its tasks, including research and coordination activities, fall within the "jus imperii", there is a favourable presumption that EUROCONTROL, like other public authorities or EU agencies, will be less prone to conflict of interests.

Further, EUROCONTROL Agency itself has employed a number of internal safeguards to avoid situations of conflict of interest: Internal safeguards, through Title II of EUROCONTROL's Staff Regulations, which sets out the official's rights and obligations towards EUROCONTROL and External safeguards through the Contract Regulations of EUROCONTROL.

The EUROCONTROL procurement rules are very strict and aimed at securing best quality for best price and safeguarding the principles of equal and fair treatment of all tenderers. As the formal sole Beneficiary of this Action, EUROCONTROL would act as an interface to make contracts with Industry, likely Manufacturers and ANSPs. The grant agreements between the Beneficiary, EUROCONTROL and Industry (according to EUROCONTROL financial and contractual regulations these will take the form of contracts) will apply the principles of fair competition, transparency, equal treatment, non-cumulation, non-retroactivity and non-profit. EUROCONTROL will pass on all relevant obligations from the TEN-T decision.

EUROCONTROL can broadly carry out the same type of tender procedures as the EU or EU states. From a procurement point of view, EUROCONTROL can normally use its own procurement rules, pursuant to Article 209 of the Rules of Application of the Financial Regulation. There are no restrictions generally on the use of the open and restricted procedures. EUROCONTROL can also avail of the Negotiated Procedure (Note: art. 11 of the EUROCONTROL Contract Regulations - "Private Treaty" Contracts) and the Competitive negotiated procedure (Note: art. 8 of the EUROCONTROL Contract Regulations - "Competitive Dialogue procedure").

6 Stakeholder Analysis

Stakeholder analysis is based on discussions held with various stakeholders between October 2012 and March 2013 testing the idea of Centralised Services. The centralised provision of the proposed services would help accelerate the implementation and benefits accrual of an initial set of the applications developed from SESAR results. Greater efficiency in their deployment and economies of scale would be realised through a central one-stop measure as opposed to complex synchronisation across multiple stakeholders at a local or national level. Further efficiencies would be achieved in the maintenance and support costs necessary to ensure service provision. While clearly the proposed scheme will improve the cost effectiveness of the provision of ANS across the European ATM network, it is useful to measure the impact and potential reactions upon the main stakeholders involved. Airspace Users will also benefit directly from some of the proposed services, such as the Extension of the European ATM Information Management Service or the Advanced Flexible Use of Airspace Support Services.

The airspace users will benefit from the reduction in cost and its associated contribution to the Performance Scheme, supporting the Performance targets.

The Stakeholders have been broadly categorised under five major segments:

- European Union
- States, including Military authorities
- Providers of ANS
- Airspace Users
- Airports
- Airport Slot Coordinators
- Manufacturing Industry

The centralised provision of ATM services will contribute to the overall improvement of the service level towards the ultimate client of the ATM Network: the passenger.

6.1 European Union

The establishment of centralised services fully supports the EU political goals and agenda, and will contribute to the achievement of a truly seamless Single European Sky and deploy the future air traffic management system in the agreed timeframe, in line with the objectives of the EU White Paper[5]. The unbundling and centralisation of ANS/ATM services will ensure de-fragmentation, competitiveness, continued investment and cost-efficiency. A catalogue of centralised services could also become a tool for the EU respective aviation external policies (ICAO, MEDA, ASECNA, TRACECA, etc).

The concept makes the link between the key SES policies aspects related to performance, network functions and SESAR deployment:

- **Link with the performance scheme**: it is expected that centralised services will provide better cost-efficiency and thus contribute to achieving the EU performance targets. The integration of the provision of ANS/ATM related functions or services is indeed an essential step towards defragmentation of Europe's infrastructure and thus contributes to the reduction of the excess costs caused by repetitive and unnecessary investments, maintenance and operating costs. Costs to provide 'certified/validated' data, notably safety-related data, can also be drastically reduced if provided in a centralised way.

[5] Roadmap to a Single European Transport Area – Towards a competitive and resources efficient transport system – COM(2011) 144 Final

The attached cost-benefit analysis demonstrates the added value of the proposed centralised services[6].

- **Link with Network Functions**: these functions in the context of SES aim at supporting the concept of a progressively more integrated operating airspace and are '*services of general interest exercised for the European Aviation network and contributing to the sustainable development of the air transport system by ensuring the required level of performance, compatibility and coordination of services, including those to ensure the optimal use of scarce resources*'[7]. The four activities entrusted today to the Network Manager are exclusively ATM functions and could be usefully complemented by additional activities performed as centralised services;
- **Link with SESAR Deployment**: centralised services could qualify as *implementation projects* under Common Projects aimed at deploying ATM functionalities that will achieve the essential operational changes defined in the ATM Master plan.

The impact of the establishment of centralised services on the European Union in terms of regulatory framework is addressed respectively in Section 7 (Legal Assessment) and Section 4.2 (Funding) of this document. It should be noted that the concept fits within the current EU regulatory framework.

6.2 States

It is suggested that the contribution of the centralised services to the Performance Scheme will help the States to come closer to, or even to achieve, the performance targets that are set for them. Many States will support the identified contribution to performance through the centralised services so as to avoid further discussion of consolidation of centres, especially when the State is only operating one ATS-Centre for its airspace.

Furthermore some of the centralised services enable States to directly discharge or achieve coordination on obligations they have as contracting States of ICAO, in particular in the context of the European ICAO Region.

The *de facto* uniform character of centralised services is an important factor to the achievement of Single Sky ambitions through the provision of more efficient, high quality services.

Benefits derived from centralised services will contribute to FAB targets set out in FAB performance plans.

Non-EU member states would benefit also from the Centralised Services as it is assumed that all Centralised Services will have pan-European coverage: likewise for the Military who would benefit especially through the Advanced Flexible Use of Airspace Support Service.

6.3 ANSPs

The proposed centralisation of some common ANS services and systems will contribute significantly to the ANSPs performance and their ability to achieve the performance scheme targets. The centralised services will offer the ANSPs the services for less cost than if they were to operate the service independently on a national or FAB basis. Consortium-building by ANSPs, to run centralised services on behalf of the Network Manager, will be encouraged.

[6] See high-level CBAS assessments, including a Performance Scheme Impact Assessment in Annex

[7] Commission Regulation (EU) No 677/2011 on ATM Network Functions

In general ANSPs will be offered the possibility to extend the radius of activity beyond national borders providing the new centralised services on a pan-European basis under a contract with EUROCONTROL. It is estimated that quite a significant number of ANSPs will seize the opportunities offered in establishing new businesses by partnering with other ANSPs and eventually manufacturing industry in whatever legal form (consortium, EEIG, company etc) to bid for the technical set-up and service provision contracts.

ANSPs will have the possibility to participate in tendering and to be part of a winning consortium for the Centralised Services and would benefit from the successful marketing of the products and services in other parts of the world, having established a proven track record in Europe.

Forward thinking and innovative service proposals and agility in the adaptation to new business opportunities would be stimulated. For ANSPs it is a challenge, but also a unique opportunity, to provide offers for the tendered services with a competitive pricing. Such offers support ANSPs activities to calculate market driven competitive prices that internally can be used as a benchmark to the monopoly Air Navigation Services provided.

ATS staff will benefit from the centralised services e.g. with the provision of higher quality of data, such as the 4D Trajectory Flight Profile Calculation for planning purposes allows higher prediction of traffic and the times at which they will be in the respective control sectors. Flow Measures can be applied with much higher accuracy. For the other employees it will bring the possibility to operate modernised new systems with a higher quality of service.

6.4 Airspace Users

The services will contribute significantly to the Performance Scheme, supporting the competitiveness of European air transport industry, which ultimately brings benefits and contributes to European mobility policy.

The Airspace Users have long been advocating the provision of centralised frontline ATM services, in the interest of cost efficiency, but also of de-fragmentation, harmonisation and interoperability.

The Airspace users also benefit from the proposed services directly, be it by the extension of the European ATM Information Management Service through the overall provision of a better quality of data or the integration of weather data. The Flight Plan and Airport Slot Consistency Service will support better exploitation of airport capacity and improve flight punctuality.

In the case of the Advanced Flexible Use of Airspace Support Service, the civil airspace users benefit by getting more access to direct routes with less fuel burn. The military users receive in accordance with their military user requirements the needed military training airspaces for the needed limited period of time.

With the provision of higher quality of data, such as the 4D Trajectory Flight Profile Calculation for planning purposes, this will allow higher prediction of traffic and the times at which they will be in the respective control sectors. Flow Measures can be applied with much higher accuracy, leading to fewer regulations, which will be of benefit to the airspace users.

6.5 Airports

The Airport Operators benefit from some of the proposed centralised services, for example from the Flight Plan and Airport Slot Consistency Service depicting automatically consistencies and inconsistencies between the Airports Slots and the filed Flight Plans. The elimination of inconsistencies makes better use of the available airport capacities.

6.6 Airport Slot Coordinators

The Airport Slot Coordinators benefit from some of the proposed centralised services, for example from the Flight Plan and Airport Slot Consistency Service depicting automatically consistencies and inconsistencies between the Airports Slots and the filed Flight Plans and thus enabling the Airport Slot Coordinators to check the quality of the provided services and use the European harmonised central data to follow up with the airspace users and airports, should inconsistencies be identified.

6.7 Manufacturing Industry

The European Commission fosters successful high-tech development as part of its policy towards European industrial leadership and competitivity in the global market place. It is suggested that advances in European ATM technology will serve as a major contribution to the worldwide competitiveness of European manufacturers. European manufacturers can benefit from the development and deployment of centralised infrastructure and services in Europe, but also in marketing these solutions and services to other parts of the world, having a proven positive track record in Europe.

7 Legal Assessment

Currently EUROCONTROL performs support activities and functions for the implementation of SES. In particular, EUROCONTROL develops draft implementing rules for the European Commission, and was designated by a decision of the European Commission of 29 July 2010 as the Performance Review Body of the SES[8] and was nominated by a decision of the European Commission of 7 July 2011 as the Network Manager for the ATM Network Functions[9]. Considering that EUROCONTROL already performs a number of centralised functions it would be a natural evolution for it to undertake management of Centralised Services, which would facilitate and enable the execution of the functions. .

An initial assessment indicates that the current EU regulatory framework does not prevent the creation of ‘centralised services’ or functions by EUROCONTROL and that these services can be initiated by EUROCONTROL under its Convention.

A synopsis of the options to formalise the provision of centralised services and functions, together with a high level analysis of the regulatory impact can be found at Annex A.

In order to formalise the Centralised Services approach in the EU legal order, it might be envisaged by the European Commission to propose amendments to existing relevant implementing rules in the context of the preparation of the SES II+, consultation of which is currently underway.

[8] in accordance with Regulation (EC) No 549/2004 as amended by Regulation (EU) No 1070/2009 and Regulation (EU) No 691/2010; EUROCONTROL accepted this designation by Directive No 10/74 of the Permanent Commission of 15 September 2010;

[9] in accordance with Regulation (EC) No 551/2004 as amended by Regulation (EU) No 1070/2009 and Regulation (EU) 677/2011; EUROCONTROL accepted this nomination by Directive No 11/77 of the Permanent Commission of 1 September 2011;

7.1 Legal basis for centralised services

Centralised Services could be provided by EUROCONTROL under its Convention. This means that, provided that the Member States of EUROCONTROL would respond positively to a request to entrust the Organisation with new related tasks and take a corresponding Permanent Commission Decision, the work to establish centralised services could start almost immediately.

Centralised Services could alternatively be provided on an EU legal basis, in which case regulatory action would be required entrusting EUROCONTROL through a formal nomination and update of related regulations.

The successive combination of the options outlined above would ensure a gradual roll out of the provision of Centralised Services. It goes without saying that, for all options, the buy in of Stakeholders and the approval of the Member States of EUROCONTROL would be needed and this should be factored in to the timeline envisaged.

In the near term it is therefore suggested to adopt a two phase approach:

- EUROCONTROL can launch an internal initiative for the preparatory phase of managing Centralised Services, subject to approval by its Member States and political buy-in by the EU, during the year 2013, with a view to starting operations through a pilot phase by end 2013/early 2014;
- In parallel, an update of the EU regulatory framework through SES II+ would take place in the course of 2013-2014 to take into account centralised services in relevant regulations, and if required, give them the status of EU services.

7.2 Tendering principles

One of the objectives of the centralised services is to contribute to de-fragmentation of the European ATM network by unbundling certain ancillary services (ATM functions or ANS services) and using market principles and competition.

A key element of the project is therefore the tendering of the major part of the services to the industry, while EUROCONTROL will retain managerial, legal and overall responsibility for the operation of the GP and will perform the critical part of the CSi.

It is intended to build on the experience and lessons learnt gained from the European Aeronautical Information Service Database (EAD). The EUROCONTROL Organisation has been entrusted since 2001 by its Member States with the development, establishment and operation of the EAD. Operations are externalised to industry through procurement, under the responsibility of EUROCONTROL.

EUROCONTROL will implement the following strategy to create all the conditions needed for a true involvement of private partners in the set-up and operation of the Centralised Services by using the procurement principle of the Call for Expression of Interest. The latter is simply a method of selecting candidates to be invited to tender under future restricted tendering procedure.

The purpose is to assess the technical and financial qualifications of candidates, in order to establish a list of potential contractors. At the same time, it allows the firms interested to make preparations with a view to bidding for contracts.

To that end, EUROCONTROL will issue a Call for Interest end of Spring 2013 for each proposed centralised service, with a view to identify partners/consortiums interested in participating to the tendering process; selection criteria for the consortiums will have to ensure notably a balanced representation of interested stakeholders (e.g. ANSPs, manufacturing industry, telecom industry, etc.) and geographical origin;

- - EUROCONTROL will prepare in the course of 2013 detailed tendering material and launch calls to parties having sent eligible responses to Calls for Interest.

- - EUROCONTROL will assess the number and extent of solutions available from the market and will select the best CS sourcing strategy, with the objective to have the first contracts signed end of 2013.

EUROCONTROL will pay extreme attention to the selection criteria in the tendering process. It is anticipated that an eligibility criteria will regard the membership of awarded consortium. The process should be developed to avoid creating monopolistic situation and to minimize the financial risk.

Furthermore, possible conflicts of interests will be strictly monitored and avoided.

For all Centralised Services, EUROCONTROL will retain the definition of the technical specifications, as well as overall management and responsibility of the service, in order to ensure a sufficient level of control and neutrality, necessary to secure users' and stakeholders' buy-in.

For some services, additional and limited tasks may remain executed directly by EUROCONTROL.

With these exceptions, the tendering process will result in the choice of a consortium that will be in charge of the various phases of the set-up of each service (where applicable, feasibility, design, development, deployment, etc.) until the production of a demonstrator/pilot. It is not yet determined whether the same consortiums will be tasked with the operations under the same tendering procedure (as a second phase), or whether a new tendering process will be open for the operation of the services.

In the event that no partner/consortia are identified for a given task as a result of the tendering process, EUROCONTROL is prepared to set-up and operate the services on its own.

Technical Annexes

CS#.1 Flight Plan and Airport Slot Consistency Service - FAS 18
CS#.2 4D Trajectory Calculation for Planning Purposes Service – 4DPP 21
CS#.3 European Tracker Service - ETKR 24
CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS 27
CS#.5 European ATM Information Management Service - EAIMS 30
CS#.6 Management of Common Network Resources Service - CNR..... 32
CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS 35
CS#.8 Pan-European Network Service - PENS 38
CS#.9 Data Communications Service - DCS..... 41

CS#.1 Flight Plan and Airport Slot Consistency Service - FAS

Overview

Although there is a growing recognition of the added value from a consistency of airport slots and FPLs to airport and ATM performance, the elements needed to provide such a service are currently distributed over many stakeholders, causing fragmentation with little coordination and cooperation. Some examples:

- Airports: providing Airport planning data (including declared capacities);
- ANSPs: supplying ATM planning data and flight plans;
- Slot Coordinators: generating airport slot data;
- NM: FPL delivering data (via IFPS) and network planning data;
- Airspace users: providing scheduling data.

Several airport slot monitoring services are currently available, e.g. the DFS service (Germany and France, the so called Stanly tool) or the Network Manager (NM) service (EUROCONTROL's AMON tool).

The NM currently uses airport slot data to:

- Enrich traffic prediction analysis during planning and pre-tactical phases;
- Analyse the performance impact of airport slots and FPL inconsistencies post-operations.

Diversity in airport slot/FPL consistency can develop for different reasons:

- Different national/airport definitions of airport slot adherence;
- Irregularities in the application of sanctions and consequently airline operators filing flight plans without having a valid airport slot;
- Consequently, creation of over-demand at coordinated airports (at which the coordination is intended to balance demand with declared capacity).

The Flight Plan and Airport Slot Consistency Service improves air traffic management during planning, pre-tactical and tactical phases by ensuring consistency between submitted Flight Plans (FPL) and the corresponding, allocated airport slots and to thereby make full use of the limited capacity at the coordinating airports.

Such a consistency check is not available today for all IFR traffic. However, some States have implemented such a service locally for special events (e.g. the Olympics or major football games). The service, to be set-up on a European basis, will allow verifying the intentions of actual flights against the preceding strategic and pre-tactical planning. This regular verification process will among other things highlight inconsistencies between the allocated airport slots at coordinated airport and the filed flight plans. Such inconsistencies may lead to over-demand at airports and in the airspace whereupon remedial action can be taken. Therefore, CS1 will ultimately support the further enhancement of the overall network performance. The service will allow identifying not only the intended operation of flights with no valid airport slot (where one is required) but also any deviation from the allocated airport slot, if needed.

A notification of the airport slot coordinators, the airport operators and airspace users about detected inconsistencies is foreseen. Such a notification will require the parties to react and ensure that an airport slot is allocated for the intended flight(s). In turn, this service will ensure a better predictability of actual traffic loads at airports and in the airspace and enhance punctuality, reduce ATFM delays by decreasing the number of required ATFM regulations with a direct benefit for airspace users. Finally, it will ensure an optimised exploitation of a scarce resource: the airport capacity and associated slots. Over- and under-deliveries by the Network Manager could be reduced increasing capacity and enhancing safety on the ANSP side. The service will address all coordinated airports in the EUROCONTROL Member States.

Links

- SESAR
  - OFA 05.01.01-"Airport Operations Management"
  - OFA 05.03.04 -"Improved Flow Performance through planning"
  - OFA 05.03.07 – "Network Operations Planning".
- Master Plan (SESAR step 1)
  - 4D Trajectory for the NM;
  - extended AMAN/ DMAN/ SMAN functions.
- Pilot Common Projects (indirect link only)
  - EG3-TI4-CTM-4D Trajectory for planning (EFPL)
  - EG6-TI5-iSWIM
- Interim Deployment Programme
  - Collaborative Flight Planning and Demand/Capacity Balancing Tools
  - ASM Improvements and Data sharing
  - Airport CDM

Technical Readiness

Due to the experiences from the current airport slot consistency services available today with a limited scope, it is believed that the present services are insufficient to deliver on a pan European scale. CS1 will define requirements that are fundamentally different from the current airport slot/FPL matching mechanisms and it is envisaged that significant system developments will be required.

Risks

Risk	Mitigating measure(s)
Reliance upon complex procedures and parameters that will need to be defined and agreed with multiple Stakeholders and Member States (e.g. tolerance windows, investigation and resolution processes, airport slot identification etc.).	Dedicated consultation mechanisms including potential EUROCONTROL specifications and Guidelines as an outcome
Risk: Delay to FPL distribution (i.e. a degradation to the current level of service provided by the IFPS).	Correctly defined concept, requirements and specifications
Risk: Reliance upon external data sources whose performance is unknown (e.g. slot allocators feeding the centralised slot	Correctly defined concept, requirements and specifications

database).	

Impact on Performance

En route ANS Performance	En route Flight Efficiency Runway Occupancy Time Management	Flight efficiency in terminal control areas (TMA) inclusive airborne holdings Efficient management of the arrival flow Airports decongestion
Environment	Optimum trajectory Fuel efficiency (Airport Operations Management) Reduction of noise at source Introduction of operational noise abatement procedures/noise related operating restrictions	Operational performance and associated fuel burn during take-off and landing and in the taxi phase (e.g. improved taxi efficiency through A-CDM) Preliminary assessment of SESAR for the Fuel efficiency KPA showed that the targets for fuel efficiency were not met, i.e. were lower than the target (i.e. 2.5%) over the deployment baseline.[10]
Airspace Capacity TMA	AMAN and Extended AMAN horizon Additional taxi out time	Preliminary assessment for Step 1 of SESAR for the Airspace Capacity KPA for TMA airspace=2.60% (target 1.47%)
Cost-efficiency	Delays due to airport slot availability	In a very conservative assumption 800 flights have no airport slot. For every minute of delay these 800 flights would create, the calculation would be as following: • 1 min delay = € 77 cost per delay minute • € 77 * 800 flights per day = € 61.600 delay cost per day • € 61.600 * 365 days = M€ 22.484 delay cost per annum
	Centralised investments and common procurement	Less costly harmonised IT infrastructure and lower national investment costs (investment costs declared through NPPs at national level estimated for RP1 at 500M€)
	Staff reductions	Less FTEs due to operations performed at centralised level

[10] Initial Performance Assessment based on expectations, Project number B.05.00, SESAR JU, Ed. 00.01.11

CS#.2 _4D Trajectory Calculation for Planning Purposes Service – 4DPP

Overview

This activity will provide a centralised 4D Trajectory profile calculation for all ATM planning activities with a much increased accuracy. With more precise calculations over- or under-deliveries can be avoided and thus buffers in the airspace-capacity planning process can be reduced, leading to an increase in the usable capacity. Through a partnership with industry an exercise will be carried out in which 4D trajectories for planning purposes will be compared as produced by, on one side the NM flow management system (ETFMS) and on the other side 4D trajectory calculation of a modern system. The comparison of trajectories will be performed for a specific period with live data (e.g. trajectories for the entire NM area of interest with peak day traffic load) using the same input data. Each trajectory produced by the two systems will be compared against the flown trajectory (available at the end of the flight) to measure its quality (accuracy) in prediction.

This implies taking new requirements on board, compared to the current Network Manager (NM) trajectory calculation. As a first step in this direction, this activity will investigate the potential for improvements through using existing industry components, in particular modern ATC Flight Data Processing Systems (FDPSs). The evaluation will include partners such as ANSPs and airspace users.

4D trajectories for planning purposes will be compared with the current trajectory used by the Network Manager. On the basis of this analysis recommendations will be formulated on how a 4D trajectory calculation for planning purposes can be used by the NM in the future could be merged into one service.

The measure of flight efficiency is limited to the horizontal flight path and is based on the comparison of the trajectory length to the great circle distance (GCD) for each flight. It is acknowledged that the Great Circle Distance does not necessarily correspond to the “optimum” trajectory when meteorological conditions or economic preferences of airspace users are considered.

Deviations from the “optimum” trajectory generate additional flight time, fuel burn and emissions with a corresponding impact on airspace users’ costs and the environment. Presently there is no commonly agreed definition of “optimum” trajectory which would take all the aforementioned criteria into account. This would require more detailed data that could establish benchmark trajectories according to weather, aircraft weight and user preferences.[11]

In order to improve the output of the NM planning processes, it is necessary to improve the quality of the 4D trajectory, taking into account the flight and flow information from all Network Stakeholders (ANSP, AO, CFSP, NM, FABs, Airports). This should ultimately lead to reaching the SES objective of sharing the same business trajectory across all ATM actors in Europe.

The environmental impact of ANS on climate is closely related to operational performance, which is largely driven by inefficiencies in the 4-D trajectory and associated fuel burn.[12]

[11] PRR 2012, Draft Final Report for consultation with stakeholders, page 66

[12] PRR 2012, Draft Final Report for consultation with stakeholders, page 32

4DPP will be supported by a suitable system infrastructure. The solution will be based on SOA principles and will rely on the SWIM interoperability standards to interconnect this service with its customers over an IP-based network (PENS and internet). It will capitalize on the existing NM-SWIM platform.

In order to move towards the ultimate objective, the proposal is to first investigate how the ATC trajectory prediction algorithms as implemented in modern FDPSs can be used to improve the quality of the NM 4D trajectories, for planning purposes (covering pre-departure, up to and including the planner position at an ATC sector). Increased accuracy, predictability and reliability of the 4D trajectories, avoiding over- or under-deliveries, will increase safety, will allow reduction of buffers in the airspace-capacity planning process and therefore increase the usable capacity.

Links

- SESAR
  - Network Collaborative Management & Dynamic Capacity Balancing
  - SBT / RBT
- Pilot Common Projects
  - iSWIM functionality
- Interim Deployment Programme
  - Airport CDM
  - ASM Improvements & Data Sharing

Technical Readiness

The action is technically feasible; EUROCONTROL is ready to undertake this project, the definition of scope and the approach to be taken within the action are mature. However, some further discussions with Industry are required to finalize the timings and costs. These may require further revision upon completion of the Definition Phase of the action.

Risks

Risk	Mitigating measure(s)
The quality of the 4D trajectories produced is primarily linked to the lack of inputs from all NM Actors, rather than to the quality of the algorithm used.	Early in the Activity, discussion with Industry to determine the main potential sources of 4D trajectory inaccuracies and reconsider the further work.
Capacity of 4DPP to support the full NM area of interest (system design issues).	Discussion with Industry.
Cost estimation and timing of Action: difficult to anticipate the required changes (and their complexity) to the ATC 4D Trajectory Calculator.	Discussion with Industry.

Impact on Performance

Airspace Capacity En-route	Trajectory management Improved accuracy, predictability and higher level of interoperability ATFM slot adherence	Alignment of trajectory view with Airspace users and ANSPs. Predictability KPA: reduced flight time variability of approx. 40 sec. for 68% of flights. Successive reduction of the [-5min, +10min] tolerance window for departure slot adherence[13]
Airspace Capacity TMA	Predictability & less uncertainty	Improved sector planning (optimisation of ATC resources), therefore reduced buffers compared to available capacity.
Cost-efficiency	Centralised investments	Lower national investment costs as ANSPs can use existing interface (investment costs declared through NPPs at national level estimated for RP1 at 380 M€)
Quality of service	Delay reductions, punctuality improvements and flight efficiency increase due to optimal profiles. Currently 34 ATC centres use or are about to use ARTAS and 34 ATC centres are using different Trackers technologies.	Improvement of declared capacity in the en-route/approach sectors. Close capacity gaps and accommodate future traffic growth Homogeneous IOP Services across Europe

[13] PRR 2012, Final draft for consultation with stakeholders (1 March - 28 March), Chapter 5: Operational ANS Performance at Airports, item 5.3.41

CS#.3 European Tracker Service - ETKR

Overview

The development and implementation of the European Tracker Service (ETKR) is based on the enhancement of existing system infrastructure components to a Centralised Service.

The proposed activity concerns:

- Feasibility study on several options for building the European Tracker Service, including the benefits of a dissimilar tracker software deployed as a dual configuration of trackers mirroring each other;
- Selection of the best technical solution and development of the corresponding ETKR infrastructure including an upgrade of existing components;
- Support to decision making with respect to ETKR establishment;
- ETKR partner selection;
- Development of the ETKR Data Centre;
- Pre-operational evaluation with pilot ETKR.

ETKR consists of 3 sub-activities that partly overlap:

- Feasibility study of the technical options, including cost benefit analysis;
- Development of the ETKR infrastructure;
- ETKR pre-operational tests.

Principles:

The tracks in the ECAC-wide Air Situation Picture Surveillance will be elaborated by the Data Centre of the European Tracker Service (ETKR-DC), merging traffic data provided by the various surveillance sources (PSR, SSR, ADS, and WAM). The relevant subsets of resulting surveillance tracks will then be distributed to the Customers throughout a publish/subscribe type of interface. By Customer is meant any site or cluster of sites, civil and possibly military, making use of track data. The service protocol will let the Customers to specify expected service in terms of geographical coverage, period of update, composition of the track messages, etc.

At the customer sites, the tracks will then be supplemented with flight data and distributed as needed to other functional blocks for use in controller tools and for display at the CWP, and also to external systems (Airports, Air defence, flow management units, etc.). In exchange for the SDPS infrastructure which is taken over by the European Tracker Service, the service consumer sites will deploy a service wrapper to connect to the European Service and a track quality monitoring function.

Implementation:

The ETKR-Data Centre will consist in two identical processing sites, the ETKR-Data Centre Sites (ETKR-DCS) installed at distinct European locations. Each site will have the capability to process the complete ECAC Air Situation Picture and will coordinate with the other site to ensure consistent view. The dual centre configuration will enable contingency solution, each site backing-up the other.

The dual configuration also aims to balance the overall service load between the two sites. In a nominal mode, each ETKR-CDC will serve tracks to its own configuration

of Users. In a degraded mode, an ETKR-CDC will take over the service of the unavailable ETKR-CDC until the nominal condition is restored.

A second level of backup will be implemented on the basis of a dissimilar tracker software again deployed as a dual configuration of trackers mirroring each other. In order to limit the risks of single point of failure, the two tracker softwares will implement different techniques. One will be ARTAS, whereas the dissimilar Tracker will be selected as part of the project. The same applies to the Server part, implementing the interface between the Track data base and the Customers.

Links

- SESAR
  - ATRAS = European Reference
- Pilot Common Projects
  - Network collaborative Management (Flow & NOP)
  - iSWIM functionality
- Interim Deployment Programme
  - Network Operations Planning using SBT/RBT
  - 4D trajectory used in ATFCM

Technical Readiness

ARTAS (ATM Surveillance Tracker And Server) will be at the heart of the European Tracker Service, a system developed as the concept of a Europe-wide distributed Surveillance Data Processing System. The development started at the early ’90s on the request of a number of ANSP’s willing to improve and harmonise the performance of their SDPS in the ECAC area and it continues in an evolutionary manner. To date, ARTAS is used operationally in 15 ECAC States and is undergoing pre-operational evaluation in 13 additional States, representing about 75% of the European airspace.

Other components of the European Tracker Service comprise SDDS (Surveillance Data Distribution System) as a key element supporting the surveillance infrastructure interoperability, making optimum, safe and secure use of communication resources (e.g. PENS). In support to SASS-C (Surveillance Analysis and Support System for ATC Centre) is the reference tool in Europe for the assessment of surveillance infrastructure performance along the Surveillance Performance Interoperability Implementing Rule (SPI-IR) standard.

The selection of components for dissimilar redundancy purpose, whereby the functionality is carried out in parallel by other components implementing same functionality, will be done as part of the feasibility study.

Risks

Risk	Mitigating measure(s)
Uncertainty regarding Development cost level	Discussion with Industry.
Technical difficulty in development of ARTAS upgrade	Discussion with Industry.
Technical difficulty in development of	Discussion with Industry.

Impact on Performance

Quality of services (capacity, delay)	Network capacity	Potential reduction of separation minima at inter-centre coordination.
Cost-efficiency	Infrastructure rationalisation	Tracker infrastructure will be centralised into less sites than the current local deployment; ETKR will integrate the assembly about 450 sensors (radar, ADS-B and multilateration) and allow a better sharing of the Sensor information among Member States; Decrease costs related to surveillance Data Processing.
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'ETKR' reduces European ANS costs by approx. 26 M€ per year (total cost savings for 2014-2030 is 357 M€);

CS#.4 Advanced Flexible Use of Airspace Support Service - AFUAS

Overview

The extension and acceleration of the deployment and the integration at the Network level of the advanced civil/military flexible use of airspace (AFUA) will optimize the use of available airspace capacity both locally and at the network level, across borders, delivering increased flight efficiency and resulting in higher performance flights is the objective of CS4. These improvements require the sharing of a common view of airspace situations between all partners, kept up-to-date in real time. Activity 4 connects local tools to a new Central Database making available the updated status of civil/military airspace usage. The interoperability between local and network operations is enabled by developing and deploying shared mechanisms through AFUAS and CS5 EAIMS.

CS4 focuses at the full deployment of efficient civil-military airspace management capabilities at European level. The project connects with the development of civil-military cooperation tools, including the LARA tool (partially funded by the European Commission and TEN-T) with a central Network system designed to support the online exchange of updated, accurate ASM data. This project will extend and improve the civil-military airspace management and co-ordination processes and the associated exchange of information throughout Europe for a better network performance. Additionally it will connect the local/national data inputs to a central European database protected by appropriate security.

Civil-military co-operation and co-ordination are of the utmost importance in achieving the objectives of the performance scheme, having due regard to military mission effectiveness. The performance plans shall contain a description of the civil-military dimension of the plan, describing the performance of FUA application in order to increase capacity with due regard to military mission effectiveness, and, if deemed appropriate, relevant performance indicators and targets in consistency with the indicators and targets of the performance plan.[14]

It has been shown operationally that improved coordination between civil and military stakeholders can provide significant benefits to airspace users in the core area.

There are significant differences between the periods of time that airspace is segregated or restricted from general air traffic and the periods of time that the airspace is used for the activity requiring such restriction. This indicates a significant amount of latent capacity and flight efficiency that could be available to airspace users.

Making the latent capacity and route options available in a predictable manner, when needed by airspace users, will improve the network planning of available capacity and flight efficiency to meet the airspace users' requirements, thus providing a better air navigation service.

Links

- SESAR
  - Airspace Management & AFUA
- Pilot Common Projects

[14] Commission Implementing Regulation (EU) laying down a performance scheme for air navigation services and network functions, voted in SSC 49/7-8 March 2013, Recital (6) and Article 11, paragraph 3(f).

- o Flexible Airspace Management including Free Route & Airspace Local ASM tools for Real-time
- Interim Deployment Programme
  - o Airspace Management Improvements & Data Sharing

Technical Readiness

The strategic objective SO2 of the network strategy plan is entitled: "Make available and share information and data relevant to network management and operations" and contains elements described under the AFUA. The project would also cover some elements of the strategic objectives SO3 on performance and SO1 on network CDM.

As described in the Network Performance Plan (6. NM Enablers for Network Performance) Collaborative Decision Making (CDM) processes (as enabled by the AFUA service) are the tool and need to be in place from the start, be constantly reviewed and improved to reach maturity. [NSP objective SO1.]

In support of the CDM processes at network level, NM ensures that the relevant data are gathered, processed and shared with its partners. An effective information management and communication is assured through the dissemination of accurate, timely and consistent data to support decision-making processes. The NM tools must guarantee full transparency of data flows through sharing the relevant operational data throughout their life cycle, i.e. in strategic, pre-tactical, tactical and post-ops phases of flight operations. [NSP objective SO2.]

Risks

Risk	Mitigating measure(s)
Consideration shall be given to the safety and security critical aspects of this service which involves the States for the civil-military aspects: -The political buy in of the States and stakeholders must be obtained -Military authorities consider some of the ASM data as security sensitive -The data must be protected from external incursion and from IT failures	The risks could be mitigated through: -appropriate communication towards States and stakeholders, with particular focus on military authorities -an appropriate selection of the future service provider (and related selection criteria) would reduce the difficulties with perception of the risk -the relevant and required IT security requirement must be part of the essential operational requirements - the relevant and required data filter requirement must be consolidated with the stakeholders

Impact on Performance

Quality of services (capacity, delay)	Network planning of available capacity and flight efficiency	Latent capacity and route options available in a predictable manner when needed by airspace users.

ATC capacity	Optimised airspace management	Improved flight efficiency and availability of capacity
Cost-efficiency	Reduction of delays and for the fuel costs for airspace users	Delays due to capacity = €80 per min, Cost for additional fuel for non-optimum routing = $129.6/barrel for 2012 avg (IATA estimation)
Environment	Effectiveness of booking procedures for FUA, the rate of planning of conditional routes (CDRs) and the effective use of CDR.	Achievement of the Performance Scheme IR targets for RP2 in regard to the Performance Indicators a)the effectiveness of booking procedures for FUA; b)the rate of planning of conditional routes (CDRs) and c) the effective use of CDRs.
	Fuel efficiency	Preliminary assessment of SESAR for the Fuel efficiency KPA showed that the targets for fuel efficiency were not met, i.e. were lower than the target (i.e. 2.5%) over the deployment baseline. For "Airspace Management and AFUA" Operational Focus Area the assessment = -0.15% (i.e. -7.2 kg/ flight) whilst the target= - 0.07%. [15]

[15] Initial Performance Assessment based on expectations, Project number B.05.00, SESAR JU, Ed. 00.01.11

CS#.5 European ATM Information Management Service - EAIMS

Overview

Today, the aeronautical information is managed separately by two different communities or business areas, each acting successively, through almost independent sub-processes:

- The Aeronautical Information Management (AIM);
- The Flight Operations community (ATC/ATM, airspace users, military and their data/service providers).

AIM information is prepared and published under the responsibility of States (upstream chain). Downstream, AIM information is then supplemented by additional information (ATC Planning, ASM, ATFCM) in preparation of the specific daily context for Flight Operations.

These processes are currently poorly integrated. EAIMS builds on the EAD which is addressing the consolidation of the upstream data chain, processes and systems in the downstream chain still exist in isolation; data is entered several times using manual effort rather than system to system connections. This results in data inconsistencies that have potential negative safety impacts. It also creates significant cost inefficiencies at the global level.

Flight data interoperability is being developed in Europe as part of the SESAR concept for trajectory management. Fundamentally, it assumes the availability of up-to-date and consistent airspace data across the interoperability area to ensure consistency of the trajectory calculations.

Achieving a seamless ATM data chain in Europe will require bringing the two communities 'closer together'. EAIMS will also provide a central data repository for briefing of pilots; encompass digital NOTAMs and displays for the pilot briefings.

This implies harmonisation and integration of both operational processes and supporting systems. The upstream and downstream data chain communities are complementing each other.

The New Service Definition Phase will prepare detailed specifications and validate technical solutions in order to be able to conclude contractual arrangements with Industry.

The main challenge is to have two communities (AIS publication and Flight operations) communicate and work together in a seamless way, to define the operational processes to achieve that goal and to design and develop the adequate systems needed to support those processes.

The proposed activity focuses on the following:

- Making EAD ADQ compliant in order to meet the IR requirements in due time;
- Implementing EAD extensions for weather briefing, graphical displays for the pilot briefing, digital NOTAM in AIXM 5.1;
- Paving the way for the development of the new end-to-end European Aeronautical Information Management Service.

Links

- SESAR
  - Deployment of SWIM
- Pilot Common Projects
  - Airspace AFUA real-time operations & Airspace Local ASM tools for Real-time
- Interim Deployment Programme
  - Airspace Management Improvements & Data Sharing

Technical Readiness

Thanks to the level of experience gained with development and operations of the existing systems and project, the level of maturity is sufficient to initiate the project as defined. Nevertheless, the initial phase will contain study work on a number of aspects in order to reduce uncertainties and ensure better definition of essential requirements before launching a call-for-tender.

Risks

Risk	Mitigating measure(s)
Responsiveness, buy-in from stakeholders during definition phase, in order to ensure a definition of the service that is meaningful and can meet expectations	Dedicated consultation mechanisms
Ambitious timescale, given the complexity; risk of pressure for taking detrimental shortcuts during the definition phase	Application of proven project planning and risk management processes to overcome these risks.

Impact on Performance

Data interoperability	Trajectory management	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations; Early deployment of the trajectory-based operation.
Cost-efficiency	Substantial economies of scale and benefits generated by the central weather data base, digital NOTAM etc.	Savings ANSPs/FABs costs in investing in dedicated CACD- equivalent system. The investment cost (incl adaptation of ANSP suystems to the CS) is 120M€ vs 135 M€ if the CS is not deployed. Moreover, investment costs declared through NPPs at national level estimated for RP1 at 10 M€.

CS#.6 Management of Common Network Resources Service - CNR

Overview

CNR consists of several sub-activities that are functionally closely related.

- Sub-activity 1: Transponder Code Function (TCF) and Mode-S radar IC allocation (MICA):
  This service is closely linked to the slot allocation system. Investments are necessary to support the implementation of the existing CCAM service in the ANSPs that are not yet using it. It will enhance the coordination and consequently improve the management of this scarce resource. Implementation will be monitored by the Network Manager as part of the normal monitoring of the Transponder Code Function.

- Sub-activity 2: Radio Frequency Function (RFF):
  All aeronautical frequencies must operate without interferences. RFF delivers the automation systems and procedures that enable the assignment of the radio frequencies to all airspace users and service providers. All States provide their frequency requirements, frequency use information and interference reports. This information is crosschecked with NM and AIP information. RFF maintains the central database of all frequency assignments. The RFF tools and procedures are used by all EUR States to ensure that radio interferences do not occur and to register frequency assignments in the central database register before a radio licence is issued to the frequency user. RFF is supporting ICAO for the spectrum related matters and is registering interferences issues. Monitoring of the aviation spectrum is currently suffering delays and needs further development. Consequently, in sub-activity 2 it is proposed to accelerate the monitoring of the aviation spectrum to support the RFF and to complete the SAFIRE developments.

- Sub-activity3: European Messaging Directory Services (EDMS):
  Today, the ATS Messaging Management Centre (AMC) is consolidating and publishing routing tables for each COM centre in the EUR/NAT Regions on the AIRAC cycle thus allowing for the manual update of the local AFTN routing table. The AMC includes a support service (during business hours) which is outsourced to ANSP partners. In this sub-activity an integration of the European Directory Services (EDS) and AMC to form the new EDMS will be conducted.

- Sub-activity 4: EUROPEAN IPS Repository (EIPR):
  EIPR aims at becoming the central reference for all technical infrastructure addresses both for Voice and Data communication services for European ATM stakeholders.

  It constitutes a major asset in the interconnection efforts and interoperability initiatives required to implement upcoming future concepts such as SWIM but also to improve operations on current services.

  It consists of one or more databases that contain the addresses (or address ranges) of the communication systems of the stakeholders. This enables to maintain interoperability between the stakeholders, to coordinate testing and thus facilitate validation. A large part of data are already available in the database, however, this database need to be enhanced with more data to

allow communication between all stakeholders (MIL, airports, airspace users etc.) to meet SWIM objectives and the SESAR operational concept. Hence it is proposed to run a study to identify all missing data and then incorporate it in a database accessible to all stakeholders. The final target being a WEB-based service on which all stakeholders can find all the data needed to establish the link needed for their operations, in accordance with standards.

- Sub-activity 5: Security Certificate Service (SCS):
  SCS will be part of the security infrastructure of the ATM systems, covering mainly the delivery of the Public Key Infrastructure (PKI) to perform user authentication and encryption/decryption when needed. The main objective of this service will be the delivery of the network keys, ensuring network security. At present the communications are not secured making the ATM system vulnerable to potential external attacks. SCS assumes that the SESAR concepts (SWIM and new applications) will require more data exchanges between the stakeholders and will rely on the implementation of security mechanism to ensure data integrity, encryption and user authentication. SCS is an operational centralised 24/7 service, all stakeholders (ANSPs, Airspace users, MIL, Airport etc…) will benefit of it to establish links with the network. Before putting such a service in operation, feasibility and validation studies are needed on the basis of the outcome of SESAR security WPs, consequently, it is proposed to run a feasibility study, once completed, the service could be enhanced.

- Sub-activity 6: Operation and Coordination of Network Security (OCNS):
  Next to the PKI service providing part of the administrative support required to ensure an efficient security framework for ATM services in Europe, a central centre of coordination of network security would provide the following improvements compared to the current operations:
  - Definition and rollout of network security best practices across Europe
  - Ad-hoc support for investigation of potential security breaches
  - Potential provision of a 24/7 CESS (Central Emergency Security Service) including the monitoring of security threats and reacting upon detection of an event.
  - Maintain strong link with MIL supervision centres

  This service does not exist currently; consequently a feasibility and validation phase will be needed before deployment.

Links

- SESAR
  - Deployment of SWIM
- Pilot Common Projects
  - iSWIM
- Interim Deployment Programme
  - Collaborative Flight Planning
  - ASM
  - A/G Datalink
  - Airport CDM
  - CDO

- ATCO Support Automation
- RNP Approaches

Risks

Risk	Mitigating measure(s)
Minor data transmission errors on services already in operation	
Difficult buy-in from ANSPs for new Security services as it involves delegation of critical functions.	Briefing sessions on concepts and benefits (diminished local Staff cost, limited technical risks°. As a mitigation element, the period of implementation could be the subject of negotiation.

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations; Simplified interoperability procedures and new inter-community data exchanges for the benefit of the network.
Cost-efficiency	Substantial economies of scale	Savings in upgrading the national systems through a centralised investment system at European level (investment costs declared through NPPs at national level estimated for RP1 at 150 M€)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'CNR' reduces European ANS costs by approx. 28 M€ per year (total cost savings for 2014-2030 is 424 M€).

CS#.7 Network Infrastructure Performance Monitoring and Analysis Services - NIPS

Overview

In order to achieve safe and efficient ATM operations, the performance (accuracy, availability, continuity and integrity) and the capacity of the CNS infrastructure need to be managed during the entire deployment and operation. The system components or functions that are critical for achieving the required performance need to be monitored and addressed in a consolidated way at European level so that necessary rectifications can be initiated at the lowest cost. The service focuses on performance monitoring and problem investigation of the common distributed infrastructure including aircraft installation performance, air-ground data-link performance and satellite infrastructure performance. The service covers:

- The performance monitoring of Data-link communication;
- The monitoring and prediction of satellite navigation;
- The functional & performance analysis of surveillance avionics;
- The Performance of 1030/1090 RF bands;
- The Performance analysis of TCAS function;
- The Altimetry System Error performance analysis.

The service does not include the performance verification of specific ground infrastructure like radar which remains a local task. Although the service is already partly in operation, the systems that provide the current services need to be improved so as to deliver more efficient services against lower operating costs. The further improvement of CNS performance monitoring activities includes the usage of new and cheaper technology as well as reinforcing the centralisation of these activities.

Existing tools to perform a centralized monitoring of the performance of the CNS common infrastructure will be improved and new tools and functions will be developed. This will ensure a safe and efficient management of Air traffic against lower cost.

The proposed activity will contribute to support requirements coming from different regulations:

- Functionality and Performance of data-link communication is covered in EC 29/2009;
- Monitoring and prediction of satellite navigation is coming from EU 1035/2011, ICAO Annex 10 and EASA AMC 20-27;
- Functional & Performance analysis of surveillance avionics and Performance analysis of 1030/1090 RF bands requirements are coming from EU 1207/2011 and ICAO Annex 10;
- Performance analysis of TCAS operation is linked to EU 1332/2011 (airborne mandate), ICAO Annex 10 and ICAO Doc 4444 recommendations;
- Altimeter System Error performance analysis (RMA) comes from ICAO requirements to maintain approval of aircraft to operate in European RVSM airspace.

The proposed action includes

- A feasibility study to establish aircraft maintenance status using avionics information;
- A feasibility study on different ways to monitor the Surveillance RF bands (1030/1090MHz);

- Update of a CNS problem reporting tool based on JIRA;
- Update of aircraft data-base (PRISME);
- Make the interface of the front end processors used to collect data-link information compatible with the central tool (DL-FEP);
- Modify central satellite performance tool (Pegasus) of ECDN to monitor GPS performance, to provide improved interface and legal recording;
- Upgrade BDAMS tools to be deployed on sites to monitor surveillance issues and have more automatic function, better performance and better interfaces and cover new function for ADS-B;
- Update the existing tool used to monitor TCAS performance;
- Development of an Altimetry System Error central monitoring system (TMU) based on ADS-B in order to have less expensive systems and more competition between service providers;
- Deploy/test new version of tools (surveillance/…);
- Demonstrate new version of satellite performance;
- Demonstration of Height monitoring using ADS-B;
- Preparation of the CFT for the running of the service;
- Development of an Altimetry System Error central monitoring system (TMU) based on ADS-B in order to have less expensive systems and more competition between service providers.

Links

- SESAR
  - ADS-B
  - Airborne Collision Avoidance System
- Pilot Common Projects
  - Future datalink services for i4D
- Interim Deployment Programme
  - A/G Datalink
  - RNP Approaches

Technical Readiness

The Service is partly in operation. The proposed action plan objective is to enhance the service.

Risks

Risk	Mitigating measure(s)
Uncertainty regarding Development cost level	Discussion with Industry.
Feasibility study not accepted by Aircraft manufacturers or operators	Involved Aircraft manufacturers, Aircraft operators in the feasibility study
ANSP/ STATE not willing to provide their data during deployment	Perform local pre-processing of data or set-up regulation
ANSP/ STATE willing to sell their data	

Impact on Performance

Data interoperability	Quality and integrity of data	Reduction of the current costs for: a) functional and performance analysis of data-link communication (i.e. 4 FTEs and 0.8 M€); b) monitoring of satellite navigation: EDCN (O.25 FTEs & 0.12 M€) and AUGUR (0.1 FTEs & 0.13 M€); c) functional & performance analysis of surveillance avionics (3 FTEs + 0.2 M€); d) performance analysis of 1030/1090 RF bands (1FTE, op costs 0.1 M€, investments 30 k€); e) Altimeter System Error performance analysis (1FTE, op costs 1.5 M€ & investment 0.2 M€); 5 performance analysis of TCAS operation (2 FTEs + tools investment and maintenance)
Cost-efficiency	Harmonised CNS infrastructure and Centralised investments and common procurement	Savings in upgrading the national systems through a centralised investment system at European level (investment costs declared through NPPs at national level estimated for RP1 at 42 M€ for Mode_S, 16 M€ for MLAT-WAM, 34 M€ for data link and 158 M€ for system upgrades)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'NIPS' reduces European ANS costs by approx. 4 M€ per year (total cost savings for 2014-2030 is 52 M€);

CS#.8 Pan-European Network Service - PENS

Overview

PENS is a European ATM communication Internet Protocol (IP) service based on ICAO standards that can support all data exchange of ATM applications and pave the way for future SWIM applications. PENS was developed over the last couple of years and is currently mainly in operation for EUROCONTROL centralised functions and services (i.e. CFMU and EAD). ANSP/ATM applications are migrating slowly on PENS.

PENS offers:

- IP service for all ATM communication, including voice;
- Communication services for centralised applications even if they are not collocated (such as EAD);
- A potential common infrastructure for global inter-connexion (Satellite Communication for instance);
- A platform for further developments such as European Directory Services, Security etc.
- A centralised network supervision that can be enhanced/complemented with new functions to meet future SWIM requirements.

The current beneficiaries of the service are States and ANSPs, both military and civil. PENS needs to be expanded as follows (or interfaced) to better serve current stakeholders and to accommodate new stakeholders in or outside Europe :

- Centralised supervision: one network supervision for all ANSPs, the service could run on PENS and being delivered to all “users”. Each user will then take benefit of a centralised service and may suppress the need for a national supervision team.
- Bridge with other stakeholders: more and more data will have to be exchanged between the stakeholders. The PENS service will be expanded by offering interfaces with the other community networks (Airport, airlines, MIL etc), resulting in a rationalisation of the infrastructure. A typical application for such a service is data link requiring that each centre is implementing interfaces with the main ATM communication operator (Such as ARINC and SITA). Through PENS, only two connexions would have to be managed in total instead of one for each ANSP.
- Sharing resources: key ATM resources (SUR sensors, VHF means etc…) may be shared via PENS, dedicated services could be offered on PENS to share the infrastructure and then reduce the overall costs.

The current PENS functions will be enhanced and other users than NM and some ANSPs (e.g. all European ANSPs, airports and airspace users) will be accommodated as follows:

- Centralised supervision: one network supervision for all ANSPs, the service will be run on PENS and being delivered to all “users”. Each user will then take benefit of a centralised service and could reduce its national supervision team;
- Bridge (gateways) with other stakeholders: more and more data will have to be exchanged between the stakeholders, the PENS service will be expanded

by offering interfaces with the other community networks (Airport, airspace users, MIL etc.). It will then remove several links and next contribute to the rationalisation of the ATM infrastructure. A typical application for such a service is a centralised data link (CS9). Currently it requires that each centre is implementing interfaces with the main ATM communication operators. Through PENS, only two connections would have to be managed instead of two for each ANSP.

Links

- SESAR
  - Information Management
  - SWIM technical architecture
  - Non-avionics CNS system
- Pilot Common Projects
  - iSWIM functionality
- Interim Deployment Programme
  - Collaborative Flight Planning
  - ASM
  - A/G Datalink
  - Airport CDM
  - CDO
  - ATCO Support Automation
  - RNP Approaches

Technical Readiness

PENS being already in operation, based on ICAO standard and compliant with the SES-IR (cf FMTP/OLDI), it is mature for expansion.

Risks

Risk	Mitigating measure(s)
ANSP may not wish to give-up their national supervision.	Discuss and get the buy-in of key ANSPs.
- Much less cost beneficial and complex implementation	

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and consistent airspace data across the interoperability area to ensure consistency of trajectory calculations
Cost-efficiency	Substantial economies of scale	Savings through using the same infrastructure (investment costs declared through NPPs at national level estimated for

		RP1 150 M€)
	Lower European ANS costs	A preliminary financial assessment concluded that deployment of 'PENS' reduces European ANS costs by approx. 43 M€ per year (total cost savings for 2014-2030 is 422 M€).

CS#.9 Data Communications Service - DCS

Overview

Every day hundreds of aircraft traverse remote airspace out of range of existing surveillance technology.

Future concepts like the SESAR concept of operations rely on an ever increasing interaction between aircraft based and satellite based systems. Such concepts will require an infrastructure that can support current and future ATM needs and the transition period. Currently, the Air-Ground ATM-related communication and application services (such as A/G data link services) are provided by different operators in Europe that need to extensively coordinate to share and operate a fragmented system. Each ANSP is implementing its own infrastructure, complicating the implementation/interoperability and generating extra costs for airspace users that need to connect via datalink to many different ANSP infrastructures. Central data communication infrastructure with seamless integration of the A/G component with the underlying ground-ground IP communications environment and multilink structures is an important requirement to ensure end-to-end connectivity.

The purpose of the DCS service is to demonstrate in a pilot set-up that a coherent, ground- and satellite-based Data Communication service in Europe can meet current and future requirements in all airspaces (airport, TMA en-route, polar and oceanic) for most stakeholders (ANSPs, airlines, pilots, maintenance staff, etc.).

For the DCS centralised service it is proposed to first run a feasibility study. The main objectives of this study will be:

- To identify the ATM and AOC applications that are and will need 'DCS' services;
- To specify the requirements (availability, integrity etc…) for these services (Performance based services);
- To define the potential institutional model and the governance of the service;
- To assess the Cost/benefit and commercial viability of such a service;
- To investigate the readiness of the potential operator(s) to commit on a long term basis;
- To define the best way to organise competition and keep control of the costs;
- To prepare a DCS demonstrator;
- To conduct a demonstration to communicate between the centralised DCS infrastructure and the ANSPs as well as the aircraft. In a second demonstration the centralised infrastructure will communicate with the aircraft via a space-based infrastructure.

Links

- SESAR
  - Information Management
  - SWIM technical architecture
- Pilot Common Projects
  - Future datalink services for i4D
- Interim Deployment Programme
  - Collaborative Flight Planning
  - A/G Datalink
  - CDO
  - ATCO Support Automation

- RNP Approaches

Technical Readiness

Most of the DCS services are already in operation, so technically they are mature. The proposed action consists mainly in finding a way for organizing better the management of the A/G infrastructure between all the stakeholders.

Risks

Risk	Mitigating measure(s)
Liabilities could be blocking factors for certain states/ANSPs.	To be assessed.
Opportunity: Knowledge and experience from existing local systems and trials (e.g. DFS, LOWW).	NA
Opportunity: Stakeholder buy-in (confirmed though consultation on behalf of EC in 2010)	NA

Impact on Performance

Data interoperability	Sharing of network scarce resources	Up-to-date and harmonised airspace data across the interoperability area to ensure consistency of trajectory calculations
Cost-efficiency	Substantial economies of scale	Savings through using the same infrastructure (investment costs declared through NPPs at national level estimated for RP1 at 34 M€ for data-link and 158 M€ for systems upgrade)

A. Legal Annex

1. Regulatory Impact of the provision of Centralised Services

After appraisal of the regulatory impact of the services foreseen for centralisation, the following issues can be highlighted.

At legislative level (Regulations (EC) No 549/2004, No 550/2004, No 551/2004 and No 552/2004 as amended by Regulation (EC) No 1070/2009), there appears to be no major impact on the regulatory framework of the SES. Any streamlining needed could be picked up through the SES II+ process.

At implementation level, it seems that approximately fifteen European Commission Regulations may relate to the provision of Centralised Services, as follows[16]:

- Commission Regulation (EU) No 255/2010 laying down common rules on air traffic management as amended;
- Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace
- Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky
- Commission Regulation (EU) N° 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky
- Commission Regulation (EC) N° 262/2009 of 30 March 2009 laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky
- Commission Regulation (EC) N° 1032/2006 of 6 July 2006 laying down requirements for automatic systems for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units as amended by Regulation (EC) N° 30/2 009 of 16 January 2009
- Commission Regulation (EC) N° 29/2009 of 16 January 2009 laying down requirements on data link services for the single European sky
- Commission Regulation (EC) N° 633/2007 of 7 June 2 007 laying down requirements for the application of a flight message transfer protocol used for the purpose of notification, coordination and transfer of flights between air traffic control units as amended by Regulation (EC) N° 283/2011 of 22 March 2011
- Commission Regulation (EC) No 1033/2006 of 4 July 2006 laying down requirements on procedures for flight plans in the pre-flight phase for the single European sky as amended by Regulation (EU) N° 929/2 010 of 18 October 2010 and by Commission Implementing Regulation (EU) No 923/2012;
- Commission Implementing Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky;
- Commission Implementing Regulation (EU) No 1079/2012 of 16 November 2012 laying down requirements for voice channels spacing for the single European sky
- Commission Regulation (EU) 691/2010 of 29 July 2010 laying down a performance scheme for air navigation services and network functions as amended;
- Commission Implementing Regulation (EU) 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services;

[16] The detailed impact assessment is attached in Appendix ??

- Commission Implementing Regulation (EU) 1034/2011 of 17 October 2011 on safety oversight in air traffic management and air navigation services;
- Commission Regulation (EC) 1794/2006 of 6 December 2006 laying down a common charging scheme for air navigation services as amended by Regulation (EU) 1191/2010;

These regulations do not need to be amended to allow centralised services, but could offer useful basis for their development subject to limited update. In fact, many could be cross referenced to each other, thereby simplifying matters and some current obligations on Member States could be consolidated or removed.

In a similar way to the procedure whereby the ATFM Regulation No 255/2010 (as amended) was referenced in the Network Management Functions Regulation, an Implementing Regulation creating centralised services as EU services could reference the Implementing Regulations currently targeting certain services that would form part of the Centralised Services function.

Such amendments could be introduced as final provisions in for example the Implementing Regulation amending the NM Regulation or in a new Implementing Regulation, depending on the option retained.

B. Glossary

Acronym	Definition
4DPP	4D Trajectory for Planning Purposes (CS#2)
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance-Broadcast
AFTN	Aeronautical Fixed Telecommunication Network
AFUA	Advanced Flexible Use of Airspace
AFUAS	Advanced Flexible Use of Airspace Service (CS#4)
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation And Control
AIS	Aeronautical Information Service
AMAN	Arrival Manager
AMC	Airspace Management Cell
AMON	Airport Slot Monitoring
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider.
ARTAS	ATM Surveillance Tracker and Server
ASE	Altimetry system error.
ASM	Airspace Management.
ATC	Air Traffic Control.
ATCO	Air Traffic Controller
ATFCM	Air Traffic Flow and Capacity Management.
ATFM	Air Traffic Flow Management.
ATM	Air Traffic Management.
ATN	Aeronautical telecommunication network.
ATS	Air Traffic Services
AUGUR	Satellite
CACD	Central Airspace and Capacity Database
CBA	Cost-Benefit Analysis
CCAMS	Centralised SSR Code Assignment and Management System.
CDM	Collaborative Decision Making.
CEF	Connecting Europe Facility
CFMU	Central Flow Management Unit
CFSP	Computerised Flight Plan Service Provider
CNR	Common Network Resources Service (CS#6)
CNS	Communications – Navigation – Surveillance

Acronym	Definition
CRCO	EUROCONTROL Central Route Charges Office
CWP	Controller Working Position
DCS	Data Communication services (CS#9)
DFS	Deutsche Flugsicherung GmbH
DMAN	Basic Departure Management
EAD	European AIS Database.
EAIMS	European AIM Service (CS#5)
EASA	European Aviation Safety Agency
ECAC	European Civil Aviation Conference
EDCN	EGNOS Data Collection Network
EDS	European Directory Service
EEIG	European Economic Interest Group
ETFMS	Enhanced Tactical Flow Management System
ETKR	European Tracker Service (CS#3)
FAB	Functional Airspace Block
FAS	Flight Plan and Airport Slot Consistency Service (CS#1)
FMTP	Flight Message Transfer Protocol
FPL	Flight Plan
FUA	Flexible Use of Airspace
GPS	Global Positioning System
ICAO	International Civil Aviation Organization
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrument Flight Rules
IOP	Interoperability Programme
IPR	Intellectual Property Rights
IPS	Internet Protocol Service
KPI	Key Performance Indicator
LARA	Local And sub-Regional ASM support system
MET	Meteorological services for air navigation
MIL	Military
MSI-IR	Implementing Rule on Mode S Interrogator Code Allocation
NAT	North Atlantic Region
NIPS	Network Infrastructure Performance Monitoring and Analysis Services (CS#7)
NMB	Network Management Board
NMF	Network Management Function
NOP	Network Operations Plan
NOTAM	Notice to Airmen

Acronym	Definition
NSP	Network Strategy Plan
OFA	Operational Focus Area
PCP	Pilot Common Projects (SESAR)
PENS	Pan-European Network Service
PKI	Public Key Infrastructure
PRB	Performance Review Body
PRISME	Pan-European Repository of Information Supporting the Management of EATM
PSR	Primary Surveillance Radar
RBT	Reference Business Trajectory
RFF	Radar Fall-back Facility
RMA	Regional Monitoring Agency
RNP	Required Navigation Performance
RVSM	Reduced Vertical Separation Minima
SAFIRE	Spectrum and Frequency Information Resource
SASS	Surveillance Analysis Support System
SBT	Shared Business Trajectory
SDDS	Surveillance Data Distribution System
SDPS	Surveillance Data Processing System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMAN	Surface Management
SPI-IR	Surveillance Performance and Interoperability Implementing Rule
SSR	Secondary Surveillance Radar
SUR	Surveillance Domain
SWIM	System-Wide Information Management
TCAS	Traffic Collision Avoidance System
TEN	Trans-European Network
TRACECA	Transport Corridor Europe Caucasus Asia
VHF	Very High Frequency
WAM	Wide Area Multilateration

EUROPEAN CONTEXT AND DEVELOPMENTS

- Centralised Services -

- Submitted by Sweden -

Provisional Council
EUROCONTROL
Gerard Kroll

European Context and developments

Centralised Services

Sweden welcomes the efforts by EUROCONTROL in order to facilitate the improvement of the delivery of the SES high level objectives, and in particular as regards the question of Centralised Services, which can play a useful role in establishing a Single European Sky.

In principle, Sweden agrees that the Centralised Services as such can bring benefit to the European ATM community and that some services could be suitable for centralisation. This is in line with SES objectives. There are some good examples of similar Centralised Services i.e. CFMU and CRCO.

However, Sweden would like to raise some concerns regarding the principles on implementation of Eurocontrol's proposal on Centralised Services.

The Single Sky initiative is aimed at creating a high performance European ATM system and the expectations for this are very high, especially from the airspace users. Sweden agrees that there is need for action to facilitate the implementation of SES objectives. We also see that the modernisation of ATM infrastructure is a key priority in this aspect and that SESAR has a pivotal role to play and some of the services that Eurocontrol proposes to centralise are linked to SESAR and Common Projects.

The main concern for Sweden is the governance of the Centralised Services. In all the available documentation that we have studied the governance issues are not covered in detail. It is simply assumed that the Network Manager is the proper body to govern Centralised Services. It is justified by Eurocontrol on the basis of the strong links between the Centralised Services and the Network Manager. From a Member State perspective, it is not without problem to move away from current practices. The responsibility for and the liability of the services that are suggested for centralising will be moved away from the ANSP's to the Member States, this, as it is Member States that are responsible for Eurocontrol. In the Network Manager governance structure the Member State involvement today is very limited.

Another main concern is the financing of the services. As far as is possible to deduct from available documentation the costs incurred will be distributed among all Member States through their contributions to the Eurocontrol Budget (Common Budget, part 1). The current system allows for the Eurocontrol Contributions to be part of the NSA cost base and that there shall be a Performance target on the NSA. As an example; in the NSA cost base for Sweden the Eurocontrol contribution cost is 86% of the total costs, and with 3,5 % cost reduction of the total NSA cost, as a cost reduction target, without any corresponding target for the Eurocontrol cost, the impact of increasing Eurocontrol costs on the NSA cost base is considerable taking into account the objective of cost efficiency. If the Eurocontrol contribution cost increases because of the Centralised Services the impact will be tremendous on NSAs. Sweden is therefore of the opinion that other financing models should be considered. Sweden has earlier been in favour of the UPP (User Pay Principle) and we continue to support this approach. We also are of the opinion that the discussions in the SCF could be continued, to find another solution for the Eurocontrol contributions to avoid that the financing issue become a show stopper for the Centralised Services.

The development of Centralised services cannot be successful without the involvement of the Military organisations. So far, there have been no dedicated workshops dealing with military issues in this respect. We therefore urge EUROCONTROL to take the necessary arrangements to involve the Military organisations, as they will be dealing with most of the suggested services.

The Centralised Services should lead to an overall decrease in the costs for ATM in Europe and therefore it is of vital importance that there is analysis that supports this objective. The decision process needs to be clear. There is, otherwise, a risk that the development goes too far without any solid business case to support it and without proper discussions among the Member States and a lack of a formal decision to launch this process.

Best regards,

Ingrid Cherfils
Member of Provisional Council
Member of Permanent Commission

EUROCONTROL

Working Paper

PCC/13/31/MIN
x.x.13

PCC/31, DRAFT MINUTES

(EUROCONTROL Headquarters, Vega Conference Room, 2 July 2013)

5. CENTRALISED SERVICES - UPDATE

(PCC/13/31/8, dated 2.7.13; slides)

5.1. The DIRECTOR GENERAL introduced Information Paper PCC/13/31/8, updating PCC Members on the activities conducted by the Agency since their last meeting as well as on the activities currently planned. He recalled the first series of Workshops held in March and April with the Member States, the ANSPs, the Airline Operators and the industry manufacturers. A full time Programme Manager had meanwhile been appointed and the Programme Organisation had been resourced and reinforced with IT support, and a dedicated CS website. The 9th CS had meanwhile been identified as: CS#9 (DATACOM). Briefings had been given during the months of May and June to AAB, NMB, PC/39 and the EU ICB, and a joint presentation on CS was given by EUROCONTROL and the EC (Cabinet Commissioner KALLAS) at the Le Bourget Air Show and exhibition on 19 June 2013. A second series of thematic workshops were planned during the last week of June and the first two weeks of July 2013. The detailed CBAs and the Concepts of Operations (CONOPS) were being prepared and the Call for Interest was being finalised to be issued after having received the decision on TEN-T funding in September 2013. A shortlist of consortia would be drawn up in November 2013 and PC/40 in December would be requested to decide on Centralised Services going forward. Meanwhile, the SCF and PCC would also be involved in assessing the business cases and the overall financing of CS. This will be done with the help of an external specialist consultancy company, which will be requested to audit the CBAs and the overall business case.

5.2. TURKEY appreciated this update and recalled its earlier request to ensure that the Call for Interest to States and industry was issued with a pan-European perspective, and that all responding industry partners are treated equally and monopolies are thus avoided. EUROCONTROL should decide on these CFIs and CFTs using its own decision taking processes and structures. TEN-T funding was welcomed and the Director General was invited to update the PCC on this at the October session.

5.3. The EUROPEAN COMMISSION fully supported the Centralised Services initiative as it would be of great benefit to SES implementation and more in particular to the overall service level improvement for the ultimate clients of the ATM network, the airspace users and, as a result, passengers and freight operators. The Workshops had generated a strong interest and offered much greater granularity on CS to all stakeholders. The EC continued to work hard on aspects such as TEN-T and EASA. It was fully understood that the Director General had decided to hold back on the CFI until such time that the decision was known on the TEN-T funding.

5.4. SPAIN wondered whether EUROCONTROL had already developed a “Plan B” for the financing of CS should TEN-T funding not be awarded. It also requested information on the timing and availability of the CBA information.

5.5. The UNITED KINGDOM supported the CS initiative and welcomed the SCF/PCC involvement in the assessment of the CBAs and the overall business case and financing. It needed to be proven that genuine cost-savings could be delivered by the 9 CS before the Provisional Council could be convinced to express its approval of the Programme. It supported Turkey in taking a full pan-European scope in the further tendering and in avoiding monopolies. It also wondered whether it would be possible to have more than one consortium winning a specific tender and thus have two independent technical solutions in place, thus spreading the risk.

5.6. The DIRECTOR GENERAL confirmed his intention to launch the CFI using a full pan-European scope. After the second series of workshops, he intended to inform the Member States’ DGCAs about the next steps, including a full description of the tendering process. The external/third-party assessment of the CBAs and the overall business case would be presented first to the SCF in autumn 2013, after which it will be included in the information submitted to PC/40. The CBAs will be based on the reduction of infrastructure deployed in the network, and not on the reduction of manpower. CS will be based on high-tech deployment, which European industry will be able to market on other continents in the future. The industry will be allowed to bid on the different CS in due time, and the market will deliberately be kept limited, but monopolies will be avoided. The decision on how many parallel set-ups could be allowed depended largely on the specificity of the CS. For instance, CS#3 (European Tracker – ETKR service) and CS#2 (4D Trajectory Flight Profile Calculation for Planning Purposes – 4DPP Service) were typical services where at least two dissimilar systems needed to be developed independently by industry for redundancy reasons. The TEN-T funding request was pending at the moment and there is a high interest for the EC to support it. Should, however, such TEN-T funding not be possible, then EUROCONTROL would indeed be required to develop an alternative “Plan B” funding solution for the missing 50%.

5.7. FRANCE supported CS but also recommended to address Security in this concept. It pointed to the lessons learned recently in an exercise involving hackers breaking into ANS system software and thus triggering security breaches and risks for systems going down or access to flight plan information being blocked or corrupted. If such key ANS services are centralised, risks increase and the need for redundancy in systems and providers becomes prominent, in combination with the reduction of links between the ANSPs. The CFI and later CFTs for CS may trigger concerns from among the social partners, mainly due to the cost-saving aspect linked to centralising the listed services. Hard regulations need to be put in place to protect the eventual CS contracts agreed with industry. Provided that these concerns were taken into account FRANCE supported CS.

5.8. The PCC noted and supported the progress made with regard to the Agency preparation for the Call for Interest for Centralised Services, with the final aim of taking a go or no-go decision at PC/40 in December 2013, and looked forward to receiving further information, processed via the SCF, on the individual CBAs, the overall business-case, the risk analysis, the EC decision on TEN-T funding, and a proposal on alternative funding, should TEN-T subsidies not materialise.

EUROCONTROL

Working Paper

PCC/13/31/8
2.7.13
ITEM 5

INFORMATION PAPER

CENTRALISED SERVICES - UPDATE

- Submitted by the Director General -

SUMMARY

The concepts and benefits of the centralised services were presented to the PCC 29 (28 February 2013). A comprehensive paper was introduced at this occasion by the Director General in support of the discussion which took place.

The present paper updates the members of the PCC, providing information on the activities conducted since their last meeting as well as on the currently planned activities.

1. BACKGROUND

1.1. The concepts and benefits of the centralised services were presented to the PCC 29 on 28 February 2013. A comprehensive paper (*Discussion Paper PCC/13/29/8*) was introduced at this occasion by the Director General in support of the discussion which took place.

1.2. On 25 March 2013 EUROCONTROL updated its 18 December 2012 *Proposal for a first set of Centralised Services to contribute to SES Performance Achievement* in response to the letter from the European Commission dated 30 November 2012. A ninth Service - Data Communication Service (DCS) - was added to the eight Services identified in the December 2012 Proposal.

1.3. The present paper updates the members of the PCC, providing information on the activities conducted since their last meeting as well as on the currently planned activities.

2. WORKSHOPS

2.1. First series of workshops

In order to introduce the concept of Centralised Services, their benefits, their implications as well as the approach intended by EUROCONTROL, a first series of workshops was held with key stakeholders, as follows:

- EUROCONTROL Member States: 4 March 2013
- ANSP of the EUROCONTROL member States: 24 April 2013
- Airspace Users: 29 April 2013
- Manufacturing industry: 17 May 2013

2.2. Thematic workshops

One day thematic workshops for each of the candidate CS were started on 25 June 2013 and will continue until 10 July 2013. The main purpose of these workshops is to facilitate as much as possible the understanding by interested parties of the specific requirements for each of the CS, retrieve stakeholder feedback and eventually clarify all facets pertaining to each CS.

The dates for these workshops are as follows (see timeline in **Annex**):

- 25 June 2013: CS#2 - 4D Trajectory Flight Profile Calculation for Planning Purposes (4DPP).
- 26 June 2013: CS#4 - Advanced Flexible Use of Airspace Support (AFUAS).
- 28 June 2013: CS#5 - European ATM Information Management Service (EAIMS).
- 1 July 2013: CS#3 - European Tracker (ETKR).
- 4 July 2013: CS#1 - Flight Plan and Airport Slot Consistency (FAS).
- 5 July 2013: CS#6 - Management of Common Network Resources (CNR).
- 8 July 2013: CS#7 - Network Infrastructure Performance monitoring and analysis (NIPS).
- 9 July 2013: CS#8 - Pan European Network Service (PENS).
- 10 July 2013: CS#9 - Data Communication Service (DCS).

The Workshops follow a standard structure meant to meet the purpose explained above:

- Introduction by the DG – Round Table (introduction of the participants)
- The general Concept of Centralised Services
- The Specific Centralised Service in context of IDP-PCP-ESSIP-ICAO
- Specifics of the addressed Centralised Service
- Cost-Benefit-Analysis of the Specific Centralised Service
- General Contractual & Procurement aspects
- Sessions of Q&As

Four of the nine thematic workshops have been conducted so far. The attendance was each time around 100 participants, representing a good cross-section of the stakeholders expected to be interested by the specific CS. The sessions of Q&A´s were quite animated, confirming the interest of the participants in being involved in the coming Call-For-Interest (CFI) and Call-for-Tenders (CFT).

3. OTHER ACTIONS

3.1. A full-time Centralised Services Programme Manager was appointed on 10 June 2013. The Programme organisation as well as the necessary IT support are being finalised.

3.2. The website has been adjusted in order to meet the needs of the thematic workshops: agenda, documents and list of Frequently Asked Questions (FAQ) are added as the workshops progress.

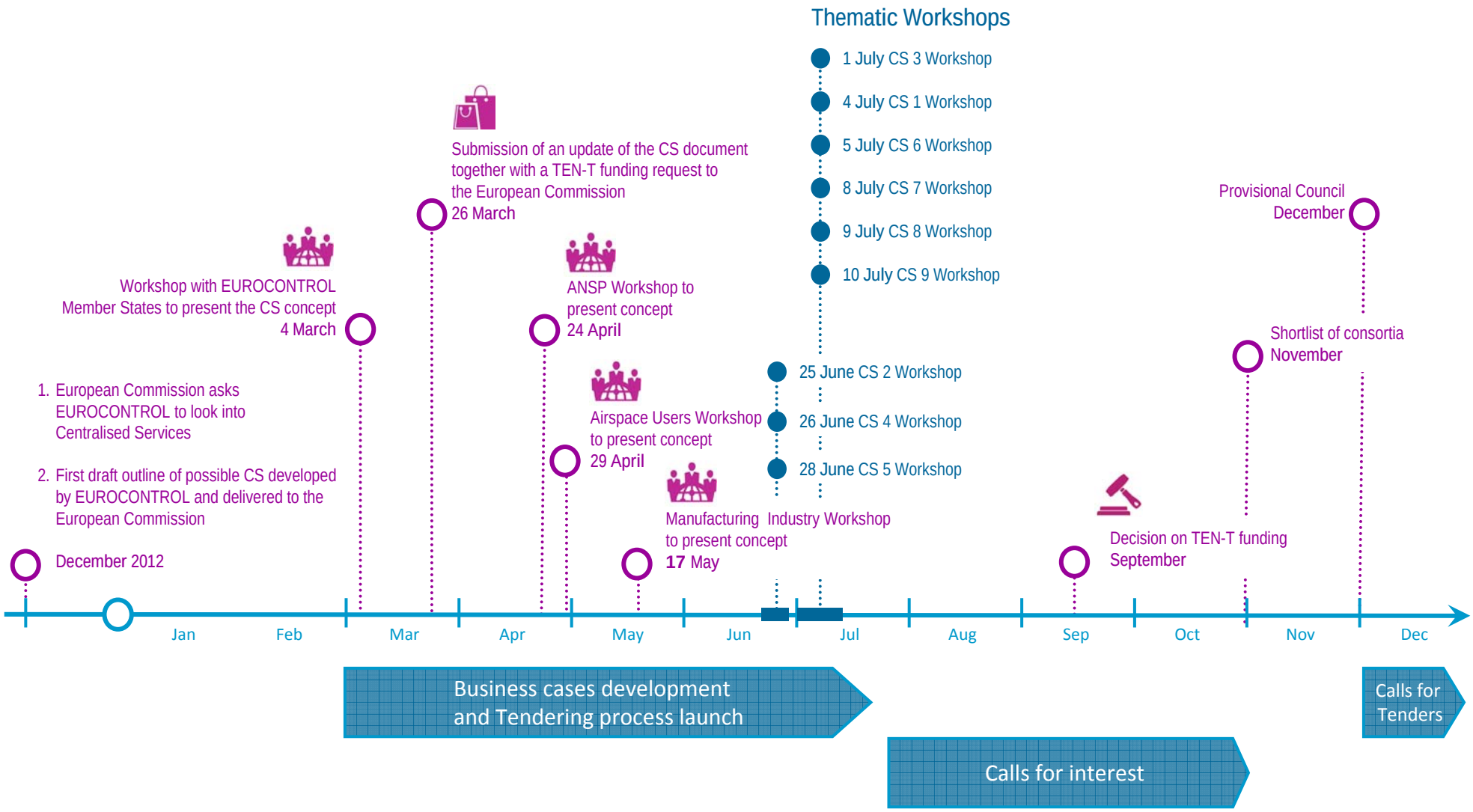
3.3. Briefings were given to the AAB (26-27 March; 19-20 June 2013),
the NMB (20 March and 6 June 2013),
the Provisional Council (13 May 2013) and
the ICB (21 May; 25 June 2013).
The CMIC and the MAB are involved. A CS joint presentation European Commission (Cabinet Vice-President Kallas) - EUROCONTROL was given at Le Bourget on 19 June 2013.

In summary the Centralised Service Programme is progressing well: the Agency provides more detailed information to the Stakeholders; the programme management has been reinforced; CBAs are explained and CONOPS are being progressed while the CFI is being prepared.

ANNEX

EUROCONTROL

Centralised services (CS): 2013 milestones



PC Coordinating Committee

31st Meeting – 2 July 2013

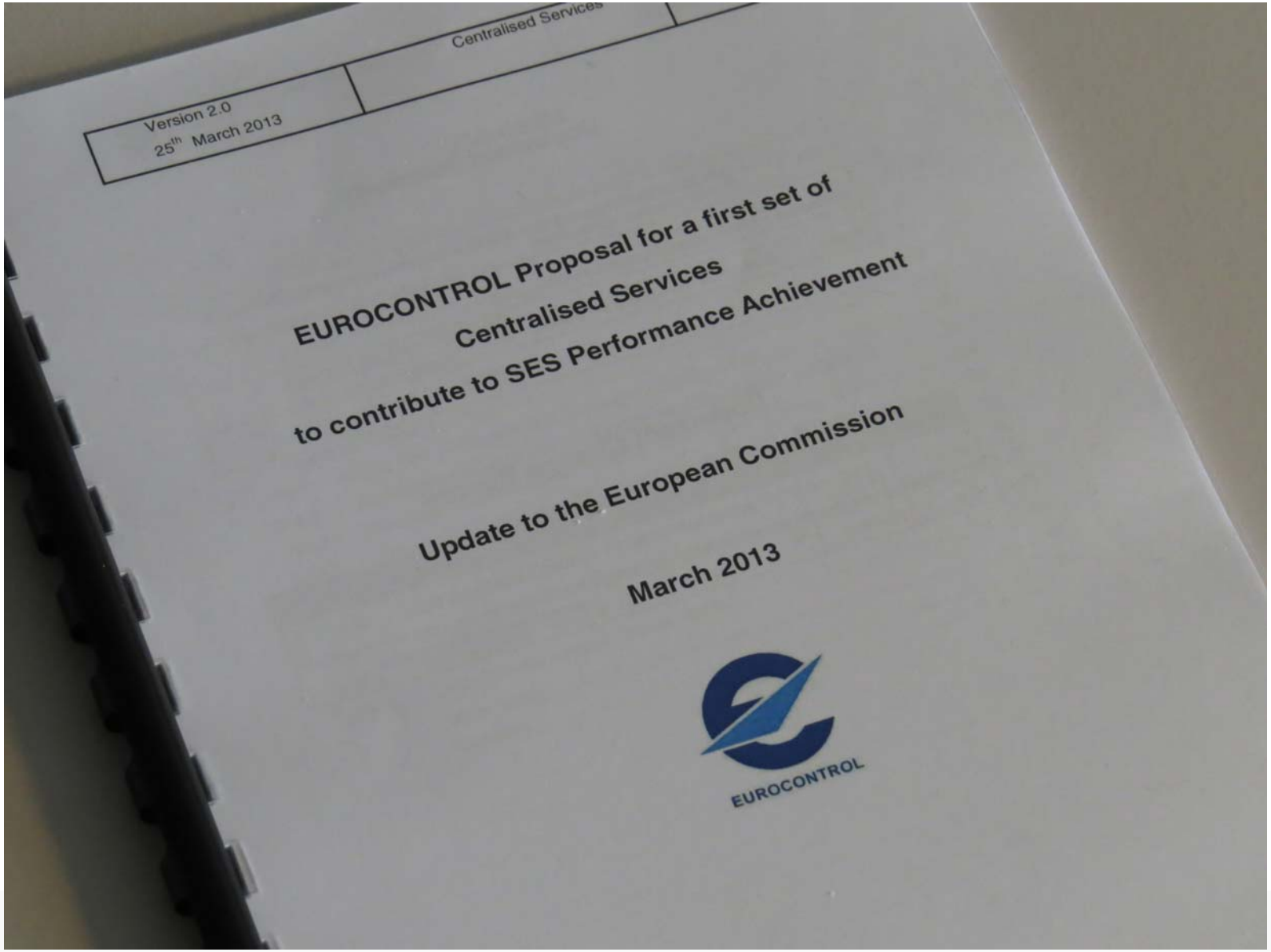
Item 5

Centralised Services - Update

Frank Brenner
Director General
EUROCONTROL
2 July 2013

Background

- **PCC 29 5 March 2013**
- *Discussion Paper PCC/13/29/8*
  - Context
  - Definition of a Centralised service
  - EUROCONTROL Experience and credentials
  - Overall Benefits per Stakeholder
  - Financial aspects: Costs & Benefits; Opportunity for EU Funding
- *EUROCONTROL Proposal for a first set of Centralised Services to contribute to SES Performance Achievement, V2.0 22 March 2013*


Centralised Services
Version 2.0
25th March 2013
EUROCONTROL Proposal for a first set of
Centralised Services
to contribute to SES Performance Achievement
Update to the European Commission
March 2013
EUROCONTROL

1ST Series of Workshops

- Objectives:
  - Introduce the Centralised Services
  - Concepts, benefits, Approach, Implications

- Member States Workshop 4 March 13
  - 13 States represented
- ANSP Workshop 24 April 13
  - 60 participants
  - 39 states represented
- AO Workshop 29 April 13
  - 22 participants
  - 18 organisations represented
- Manufacturers Workshop 17 May 13
  - 81 participants

2nd series of Workshops : Thematic

- Objectives:
  - A dedicated workshop per CS
  - States (including Military), Manufacturing Industry, ANSPs, AO
  - ***Clarify*** all facets of ***the Specific CS*** dealt with

- Structure of the Workshops
  - Introduction by the DG – Round Table (introduction of the participants)
  - The general Concept of Centralised Services
  - The **Specific** Centralised Service in context of IDP-PCP-ESSIP-ICAO
  - **Specifics** of the addressed Centralised Service
  - Cost-Benefit-Analysis of the **Specific** Centralised Service
  - General Contractual & Procurement aspects
  - ***Sessions of Q&As***

2nd series of Workshops : Thematic

- **4 out of 9 Thematic Workshops conducted so far**
  - Good attendance: around 100 participants each
  - Good cross-section of Stakeholders
  - Very pro-active

- 25 June 13

  CS#2 (*4D Trajectory Flight Profile Calculation for Planning Purposes – 4DPP Service)*

- 26 June 13

  CS#4 (Advanced Flexible Use of Airspace Support – AFUAS Service)

- 28 June 13

  CS#5 (European ATM Information Management – EAIM Service)

- 01 July 13

  CS#3 (European Tracker – ETKR service)

Other actions

- **Reinforcement Programme:**
  - 10 June: Appointment of a **Full Time Programme Manager**
  - **Programme Organisation** being beefed up as well and **IT means** set-up

- Adjusting the **Website** to the needs of the **Workshops** (e.g. FAQ)

- Introduction of a **New Service: CS #9 (DATACOM)**

- **Briefings**
  - AAB: 26-27 March; 19-20 June
  - NMB: 20 March, 6 June
  - PC/39: 13 May
  - ICB: 21 May; 25 June

- **CMIC & MAB**

- Joint presentation on CS in general with the European Commission (Cabinet Kallas) at Le Bourget on 19 June.

2nd series of Workshops: Thematic

- **5 Thematic Workshops to take place**

- 4 July 13
  CS#1 (Flight Plan & Airport Slot Consistency - FAS Service)

- 5 July 13
  CS#6 (Management of Common Network Resources – CNR Service)

- 8 July 13
  CS#7 (Network Infrastructure Performance monitoring and analysis – NIP Service)

- 9 July 13
  CS#8 (Pan-European Network Services – PENS)

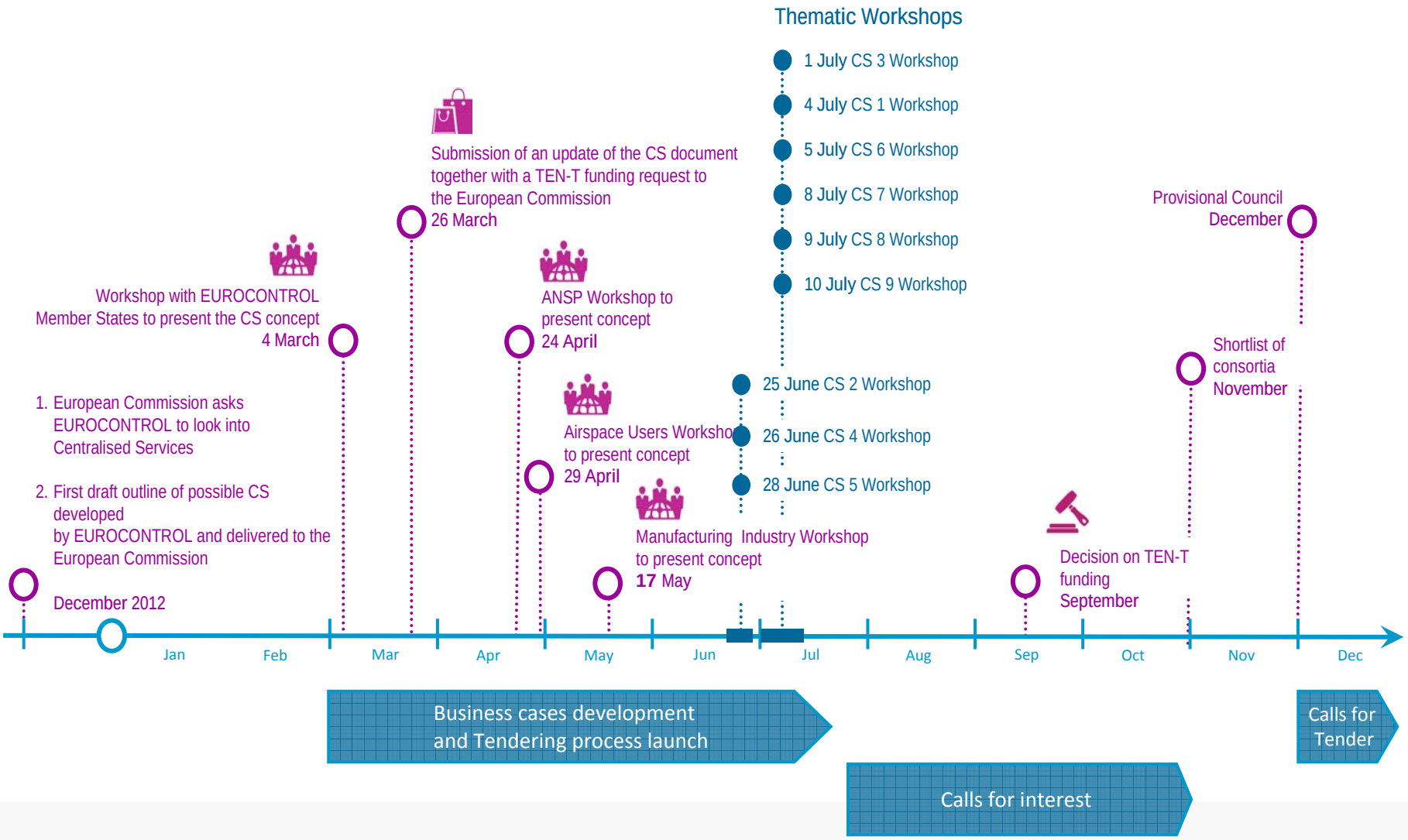
- 10 July 13
  CS#9 (DATACOM – DCS)

Conclusions

Centralised Services Programme is progressing well

- ALL Stakeholders are informed
- Programme Management reinforced
- CBAs, CONOPS being progressed
- CFI being finalised

Centralised services (CS): 2013 milestones



EUROCONTROL

Centralised Service #1 Workshop: Flight Plan & Airport Slot Consistency Service (FAS)

Minutes

Location	EUROPA, EUROCONTROL headquarters
From/to	4 July 2013, 10:00 – 15:30
Participants	Luc Laveyne (ACI EUROPE) Frederic Rousseau (Airbus ProSky) Birgit Krenzin (Airport Coordination Germany /EUACA) Lee Campbell (ACL Airport Coordination Ltd UK) James Cole (ACL Airport Coordination Ltd UK) Peter Hones (ACL Airport Coordination Ltd UK) Jean Michel Cardi (Astrium) Gerhard Wagner (Austro Control) Filip Pardon (Belgocontrol) Patrick Roose (Belgocontrol) Hilde Van Den Houten (Belgocontrol) Didier Hocq (BSC Belgian Slot Coordination/EUACA) Peter Danailov (BULATSA) Veselin Stoyanov (BULATSA) Mariana Anguelova (Bulgaria, States Liaison Office with EUROCONTROL) Philippe Wattecamps (BULL) Gudrun Held (DFS) Harald Ohmstede (DFS) Frank Weber (DFS) Stuart Wain (DG MOVE) Dimitry Honcmeni Siwe (DGAC France) Philippe Masson (EADS ASTRIUM) Andrea Fumasoni (ENAV) Debora Palombi (ENAV) Pamela Bell (Eurocity) Seán Mac Mahon (Eurocity) Eric Herbane (COHOR French Slot Coordination/EUACA) Juan Bosco Morales De Los Rios (everis) Javier Marino (FCC Industrial) Eduardo Velasco (FCC Industrial) Theodor Zeh (FREQUENTIS) Evridiki Christaki (Greece, States Liaison Office with EUROCONTROL) Tim Hardy (Heathrow Airport Ltd.) Jozsef Bakos (HungaroControl) László Szeness (HungaroControl)

Jorge Dias (IFAIMA)
Gonzalo Quiles (Indra)
Laura Serrano (Ineco)
Roman Gerike (Information Design One)
Robert Peters (Information Design One)
Ibán Alvarez (Isdefe)
Bert Imminga (KLM)
Frantisek Pestun (LPS Slovak Republic)
Pavol Gelinger (LPS Slovak Republic)
Miroslav Mizner (LPS Slovak Republic)
Wolfgang Queissner (Lufthansa)
Anthony Haidon (MATS)
Ian Souter (NATS)
Jaime Borges (Nav Portugal)
Rui Neves (NAV Portugal)
Catalin Marinca (ROMATSA)
Adrian Stefan (ROMATSA)
Wolfgang Gallistl (Slot Coordination Austria)
Augustin Lamprecht (Slovakia, States Liaison Office with EUROCONTROL)
Rasa Siupienyte (SE Oro navigacija)
Eric Marfurt (Skyguide)
Sandra Peter (Skyguide)
Erich Rindlisbacher (Slot Coordination Switzerland)
Ansgar Kruse (TUIfly)
Mehtap Erdogan (Turkey, States Liaison Office with EUROCONTROL)
Anthony Stevens (UK CAA)

EUROCONTROL Agency

Bo Redeborn (Principal Director ATM)
Alberto Varano (Principal Director Resources)
Joe Sultana (Director Network Manager)
Herman Baret (CS Programme Manager)
Paul Adamson (NM/Airports)
Jean-Pierre Aiguier (NM/NTS)
Matthis Birenheide (NM/Airports)
Stephen Burke (Systems Upgrade and Architecture)
Eva Contreras (Procurement)
Shanda Cordingley (Systems Upgrade and Architecture)
James Derisson (Deployment Support)
Vanessa Hicter (SES)
François Huet (PRU)
David Krautheim (Procurement)
Nathalie Le Cam (DSS Office)
Paula Leal De Matos (Transversal Performance & Methods)
Idalina Mendes Videira (Systems Upgrade and Architecture)
Simon Scott-Kemball (Corporate Communications)
Eric Tourneur (CNS)
Andy Woollin (Ops Domains and Training)

1. WELCOME AND INTRODUCTION

(B. Redeborn - slides)

1.1 Mr Redeborn, Principal Director ATM at EUROCONTROL, welcomed participants to this specific centralised services (CS) workshop on CS No. 1, the Flight Plan and Airport Slot Consistency Service (FAS).

1.2 In his presentation, Mr Redeborn stressed that performance is central to making European ATM competitive, and that the CS are designed to reduce significantly the cost of one controlled flight hour in Europe. As the various SESAR initiatives head towards implementation, a choice needs to be made, Mr Redeborn stated, as to which level these should be deployed – local, FAB/regional, or central/pan-European.

1.3 Mr Redeborn explained that following a request by the European Commission in late 2012, EUROCONTROL had analysed the SESAR initiatives, of which he believed that around 30% could be implemented at a regional/FAB level, and around ten candidates are proposed to be deployed at a central, pan-European level.

1.4 All of these services, he noted, involve managing data centrally, with the aim of improving predictability, reliability and consistency. Mr Redeborn stated that EUROCONTROL has the required experience in managing CS such as for example the CFMU, CRCO and EAD; it possesses the independence and impartiality that are essential to such common projects; and as the Network Manager, the Agency has a detailed understanding of how the network is evolving.

1.5 After explaining the definition of the CS, and outlining the nine CS proposed so far, Mr Redeborn presented a snapshot of the existing capabilities for each proposed CS on the EUROCONTROL and the ANSP side.

1.6 Mr Redeborn gave participants an overview of the stakeholder approach to date, starting with the workshops for stakeholder groups (States, ANSPs, airspace users, and the manufacturing industry), and moving on to the CS-specific workshops for interested parties from all stakeholder groups. This was all, he emphasised, part of an overall change process which would be progressively digested as the CS take shape.

1.7 CS, he emphasised, would provide the basic building blocks for a cost-effective European network operation, managed by EUROCONTROL, but where the set-up and operation of the service of each CS would be put out to tender in which ANSPs and the manufacturing industry of the EUROCONTROL Member States would be eligible to bid. The services would be managed under a performance-based contract: EUROCONTROL would therefore not bid for these services, Mr Redeborn emphasised, and thus would avoid entering into any competition with the ANSPs. The CS would share a common communication infrastructure, linked by a network service-oriented architecture, and under the responsibility of the Network Manager.

1.8 The idea would be to create a pan-European market for a limited number of ATM support services, ancillary services, whereby ANSPs would be able, in consortia, to bid to provide the respective CS beyond their current national boundaries. These services, Mr Redeborn stressed, are not intended to interfere with ANSPs' direct service delivery to airspace users, but instead to provide enhanced efficiency and lower costs.

1.9 Mr Redeborn concluded by reiterating EUROCONTROL's desire to make the system more cost-effective and to help the States and their ANSPs to approach their performance targets, and for the system to become more efficient for the airspace users. The CS would enable Member States ANSPs to participate in delivering such services at a pan-European level, beyond national boundaries, and enable the ATM manufacturing industry to provide cutting-edge technology stemming from SESAR developments.

1.10 Click here to read the slides.

1.11 Mr Redeborn then invited participants to introduce themselves in a tour de table.

2. CENTRALISED SERVICES CONCEPT

(J. Sultana – slides)

2.1 In his presentation, Mr Sultana outlined the rationale behind the CS proposed, namely that the evolution of European ATM is dependent on high-quality data, the provision of which could be most effectively made through a centralised concept, rather than at a local or national level. This would open up certain data services to the market, and improve cost-effectiveness, defragmentation, pan-European harmonisation, and interoperability, thereby making a strong contribution to the realisation of national performance plans.

2.2 EUROCONTROL, Mr Sultana explained, believes that the time is right, with the approach of RP2, in the context of the Single European Sky to examine the SESAR initiatives and determine which should best be implemented at what level.

2.3 He went on to explain the principles behind the CS concept, and the main characteristics of the nine CS currently being proposed by the Agency. The CS, he underlined, represent a basic building block for greater cost-efficiency. Their set-up and operation will be put out to tender, and a formal service-provider relationship established under a performance-based contract. The CS will be interlinked as well as integrated with existing services, and will share a common network service-oriented architecture. Governance would require an extension of the relevant EU regulatory provisions.

2.4 Mr Sultana explained that the CS would bring key benefits to all actors, helping States come closer to meeting their performance targets, enabling ANSPs to be part of service provision beyond their national borders, providing an early realisation of SESAR deployment benefits, and enabling manufacturers to develop cutting-edge technology that could be extended beyond Europe.

2.5 Click here to see the slides.

3. CS1 IN THE CONTEXT OF IDP, PCP, ESSIP AND ICAO
(B. Redeborn – slides)

3.1 Mr Redeborn explained how the CS in general conform with the Interim Deployment Programme (IDP), interact with the Pilot Common Project (PCP), and will influence future Common Projects. The CS were also mapped, he noted, to the ATM Master Plan Level 3 (ESSIP), and to ICAO's GANP.

3.2 Turning to CS1, Mr Redeborn examined its specific linkages to the above.

3.3 Click here to see the slides.

4. DISCUSSION, 1ST ROUND
(All)

4.1 Following the first set of presentations, Mr Redeborn invited participants to express their views in a round of questions, the main threads of which are reflected below.

4.2 Asked to **quantify the improvements CS1 would deliver for airspace users that would justify such a service**, Mr Sultana explained that FAS was needed to address the bottlenecks of the future at airports. At the moment, he noted, discrepancies between planning and actual operations are an everyday issue, but do not impact the network significantly; however, as traffic picks up, he emphasised that EUROCONTROL expected CS1 to become increasingly relevant. He pointed to the study currently conducted by EUROCONTROL that the airport infrastructures (runways, parking stands, etc.) will become the bottleneck of the future (Challenges of Growth 2013).

4.3 On **whether airlines would have to pay for this service**, Mr Redeborn reiterated that operation of the CS would be financed through the Agency Budget, with an application for TEN-T funds to help the Agency set these services up, and thus would be at no extra cost to the airlines.

4.4 Asked to clarify **whether CS1, in checking compliance of a flight before it departs, could lead to action to suspend**, Mr Sultana explained that this was not the intention: CS1 would not change the existing decision-making process regarding suspension, which remains with the national authorities. CS1, he emphasised, is an improved data matching service that would identify problems.

4.5 On the issue of **flight plans originating outside the NM area**, Mr Sultana stated that in case of mismatch, the national authorities would be alerted, and that CS1 would ensure this happens early on.

4.6 In terms of the **benefits for the Network Operations Plan and the Airport Operations Plan, and whether CS1 would improve functioning in times of**

disruption, Mr Sultana noted that both the NOP and the AOP are based on the principle that the better the planning, the less need for intervention. In case of major events, CS1 would help NM understand demand better.

4.7 On the **impact of CS1 on the regulations**, Mr Sultana explained that CS1 must meet the existing and future requirements of the Airport Slot Regulation – not vice versa.

4.8 As to **whether there was a risk of duplication between CS1 and local A-CDM**, Mr Sultana stated that A-CDM was an input to the process, whereas A-CDM foresees that the data to be generated in CS 1 are made available in the A-CDM process. How inputs are used remains up to the relevant State.

4.9 Asked **whether CS1 and the flow management process would result in two parallel processes**, Mr Sultana stressed that CS1 highlights mismatches between flight plans and airport slots. If there is no discrepancy, no further action is needed. The flow management process starts after the consistency check and therefore is a consecutive process.

4.10 In answer to the question **whether CS1 would purely identify mismatches, or also follow up on the outcomes, or is it just taking a snapshot**, Mr Sultana explained that this would be part of the ops concept but that in his opinion it would make sense to feed the information back into the system to improve network performance.

4.11 Noting that the **issue of matching** had been addressed in various workshops over the years, Mr Sultana reminded participants that the Airport Slot Regulation requires matching but yet does not specify the means to achieve this. CS1, he explained, would identify mismatches but would take no own decision on actions as a result: decision-making would remain at local level. The role of the NM, he emphasised, was to identify issues and make the system work as efficiently as possible.

4.12 On **whether CS1 would incorporate an automated warning stage**, Mr Sultana noted that this would be a good idea to bring into the ops concept.

4.13 In the final question of the first round concerning **whether there was a risk of ending up with as many different parameters for mismatch as there are States**, Mr Sultana emphasised the push for harmonisation which would address this in the ops concept phase.

5. SPECIFICS OF CS1

(J. Sultana - slides)

5.1 The Director Network Manager, Mr Sultana explained that slot allocation is not usually taken into account in ATFM, with flight plans not usually reflecting slots, resulting in over-demand. CS1, he emphasised, would improve predictability and provide for consistency between FPL and airport slots, while at the same time implying no change in the current decision-making chain on whether a flight may operate. CS1 is fully compliant, he stressed, with the Airport Slot Regulation.

5.2 Mr Sultana showed an analysis of IATA, demonstrating that the most slot constraint airports already today are in Europe. So it is important to exploit the available runway capacity to the maximum. Pointing to the already mentioned study, this situation will worsen in the future; therefore with CS 1 any leakage of unused capacity must be identified to smoothen the situation.

5.3 Mr Sultana outlined the main data flows and the architectural fit with SWIM, as well as how CS1 fits into the overall CS architecture. CS1 would, he stated, make better use of airport capacity and unlock airport flexibility by improving predictability.

5.4 Click here to see the slides.

6. COST-BENEFIT ANALYSIS

(A. Varano – slides)

6.1 Mr Varano presented a high-level CBA for CS1. The methodology, he explained, was based on comparing two scenarios over the period 2014-2030: one with the best-case fragmented implementation; and the other with the deployment of CS1, using a conservative approach.

6.2 The CBA considers investment, operating and maintenance costs; operational benefits; and the impact on time to operations. To keep the CBA conservative, likely additional benefits such as knock-on improvements and the innovation that a competitive environment fosters are deliberately excluded. Mr Varano showed the expected gains of CS1 in terms of costs and operating benefits, leading to a cumulated expected total cost saving should CS1 be implemented.

6.3 Click here to read the slides.

7. CONTRACTUAL AND PROCUREMENT ASPECTS

(A. Varano – slides)

7.1 Mr Varano started by outlining the general procurement principles that will apply to the CS as per EUROCONTROL's Contract Regulations. There would, he stated, be two phases: Phase 1 initiation and design, with demonstration that the CS is fit for purpose (by end-2015); and Phase 2 set up and operation (2016 onwards). EUROCONTROL might, he stated, include an option in the CFI to set up and operate the CS for a certain number of years, yet to be defined and which could be different per CS. There will be nine CFIs, one per CS, leading to nine restricted CFTs at the end of 2013.; there might also be offers for the subservices in CS 6 and 7 allowed and separate shortlists would be established following the CFI

7.2 All details to do with the procurement process will be posted on the EUROCONTROL website, where interested parties can consult the list of FAQs

which, Mr Varano stated, would be kept up to date including questions gathered from the various CS workshops, in an anonymous form.

7.3 Click here to read the slides.

8. DISCUSSION, 2ND ROUND
(All)

8.1 A second round of questions was then held.

8.2 Asked **whether EUROCONTROL was prepared to reveal what lies behind its CBA assumptions**, Mr Sultana explained that the CBAs compare the cost of continuing with a fragmented approach, versus going with a centralised approach. He again emphasised the need to remain at a high level to avoid giving market advantage to bidders by publishing the detailed content of the CBAs.

8.3 On **whether it was a "done deal" that the CS would go ahead, with no option to slow down**, Mr Redeborn explained that EUROCONTROL had accelerated to make use of the option to apply for TEN-T funds. Should this not materialise, or should the Agency receive less than it would like, Mr Redeborn noted that EUROCONTROL would have to consider alternative options. However, without centralising some services, States would struggle even harder to meet their performance targets, he pointed out.

8.4 In answer to the question **how the Demand Data Repository (DDR), which sounds similar to that of CS1, fits in relation to this CS**, Mr Sultana explained that as a basic principle, CS data would be integrated into other NM work. In the case of CS1, he stated, will be feeding DDR II with more complete and accurate information. DDR II does not compare airport slots and flight plan information; this is the purpose of CS1.

8.5 As to **which types of organisations EUROCONTROL would expect to see in the consortia**, Mr Varano explained that the Agency would like to see a variety of actors, including preferably two ANSPs in each; important is that the consortia be as diverse as possible. The consortia must be able to comply with the EU regulations, he stressed.

8.6 Asked **whether EUROCONTROL would be prepared in the interest of efficiency to bundle CS, enabling a consortium to apply for several CS together**, Mr Varano restated that there will be separate CFTs, and EUROCONTROL's expectation is that various different partners would come together in separate consortia; this does not prevent one consortium to apply to more than one CS.

8.7 Concerning **who would validate whether the demonstrator was fit for purpose** Mr Sultana explained that EUROCONTROL would make the assessment against ops and technical requirements.

8.8 As to **whether the technical infrastructure would be located at EUROCONTROL**, Mr Sultana answered that this would depend on each CS, and would be decided at a later stage; the idea being that EUROCONTROL owns the IPRs and that the service could be handed over at a later stage to a new service provider. He noted that there was also the question of the backup to be addressed.

8.9 Asked **whether the EU Journal would be used to issue the CFI/CFT**, Mr Sultana stated that they would be issued by EUROCONTROL under EUROCONTROL procurement rules (EUROCONTROL website).

8.10 On the question **whether one or two providers might be selected to operate a CS**, Mr Redeborn explained that this would depend on the nature of the CS: CS1 was expected to be one provider, but in other cases there would be two, such as the European Tracker Service (CS3).

8.11 The final question asked **whether EUROCONTROL would share the information it has with consortia to help them develop a service**, or whether they would have to start from scratch. Mr Sultana explained that EUROCONTROL would supply information as needed, as part of the procurement procedure.

9. CLOSING STATEMENT
(B. Redeborn)

9.1 In conclusion, Mr Redeborn thanked all participants for contributing to the debate on CS1, and emphasised the global goal of the CS to raise performance and cost-efficiency through rationalising and harmonising infrastructure.

9.2 He re-emphasised that CS1 is designed to take a step forward in terms of improving predictability and consistency, and would definitely be needed when growth picks up again.

9.3 On the ops concepts, Mr Redeborn noted that much useful input had already been gathered in this and the previous workshops, and he reiterated his call for all participants to come forward and contribute to defining the ops concepts, be this through established advisory bodies, or through dedicated workshops, or in writing.

EUROCONTROL

CENTRALISED SERVICE #1 WORKSHOP
FLIGHT PLAN & AIRPORT SLOT CONSISTENCY SERVICE

EUROCONTROL'S HEADQUARTERS
RUE DE LA FUSÉE, 96 - 1130 BRUSSELS
EUROPA CONFERENCE ROOM

AGENDA
THURSDAY, 4 JULY 2013

09:30 - 10:00	Registration	
10:00 - 10:30	Welcome and introduction	**Bo Redeborn** Principal Director ATM
10:30 - 11:00	Introduction of participants	Tour de table
11:00 - 11:15	The Centralised Service concept	**Joe Sultana** Director Network Manager
11:15 - 11:35	Centralised Service #1 in the context of IDP, PCP, ESSIP and ICAO	**Bo Redeborn** Principal Director ATM
11:35 - 12:20	**Q&A session**	
12:20 - 13:20	Lunch	
13:30 - 13:50	Specifics of Centralised Service #1	**Joe Sultana** Director Network Manager
13:50 - 14:10	Cost-benefit analysis	**Alberto Varano** Principal Director Resources
14:10 - 14:30	Coffee break	
14:30 - 15:00	Contractual and procurement aspects	**Alberto Varano** Principal Director Resources
15:00 – 15:30	**Q&A session**	

EUROCONTROL

Centralised Service #1
Flight Plan and Airport Slot Consistency Service (FAS)

Bo Redeborn
Principal Director ATM
4 July 2013

Centralised
Services

Why do we need Centralised Services?

- Europe needs to be competitive again!
  - a more competitive European ATM is an important enabler for a more competitive European Aviation environment
- The goal to be achieved: controlled flight hour for significant less cost (one controlled flight hour in the US currently costs around half of what it does in Europe) – see the US/Europe Comparison of ATM-related Operational Performance

SES Single European Sky

- SES has developed the pillars :
  - Performance Scheme
  - Functional Airspace Blocks
  - SESAR (SES R&D Programme)

- We need to connect these pillars now to support the targets of the performance scheme.

- We are coming to the implementation phase of SESAR.

SES Single European Sky

- A choice needs to be made on the ANSP / Centre implementation:
  - At local level
  - At FAB regional level
  - At central/pan-European network level

- We have to agree now on the basis of technical feasibility and a CBA where to deploy, before the investments are made or it will be too late (an investment cycle is at least 10 years).

- It's also vital to include the implementation decisions in the respective performance plans for RP2.

SESAR

- Many SESAR developments need to be implemented at a local level – potentially even at the 80 civil and military control centres across Europe.
- Perhaps 30% could be implemented at a regional/ FAB level.
- 10 candidates for centralised pan-European services have been identified.
- EUROCONTROL has a long-standing experience in centralised services:
  - CFMU (IFPU 1/2)
  - EAD (2 ops sites)
  - CRCO

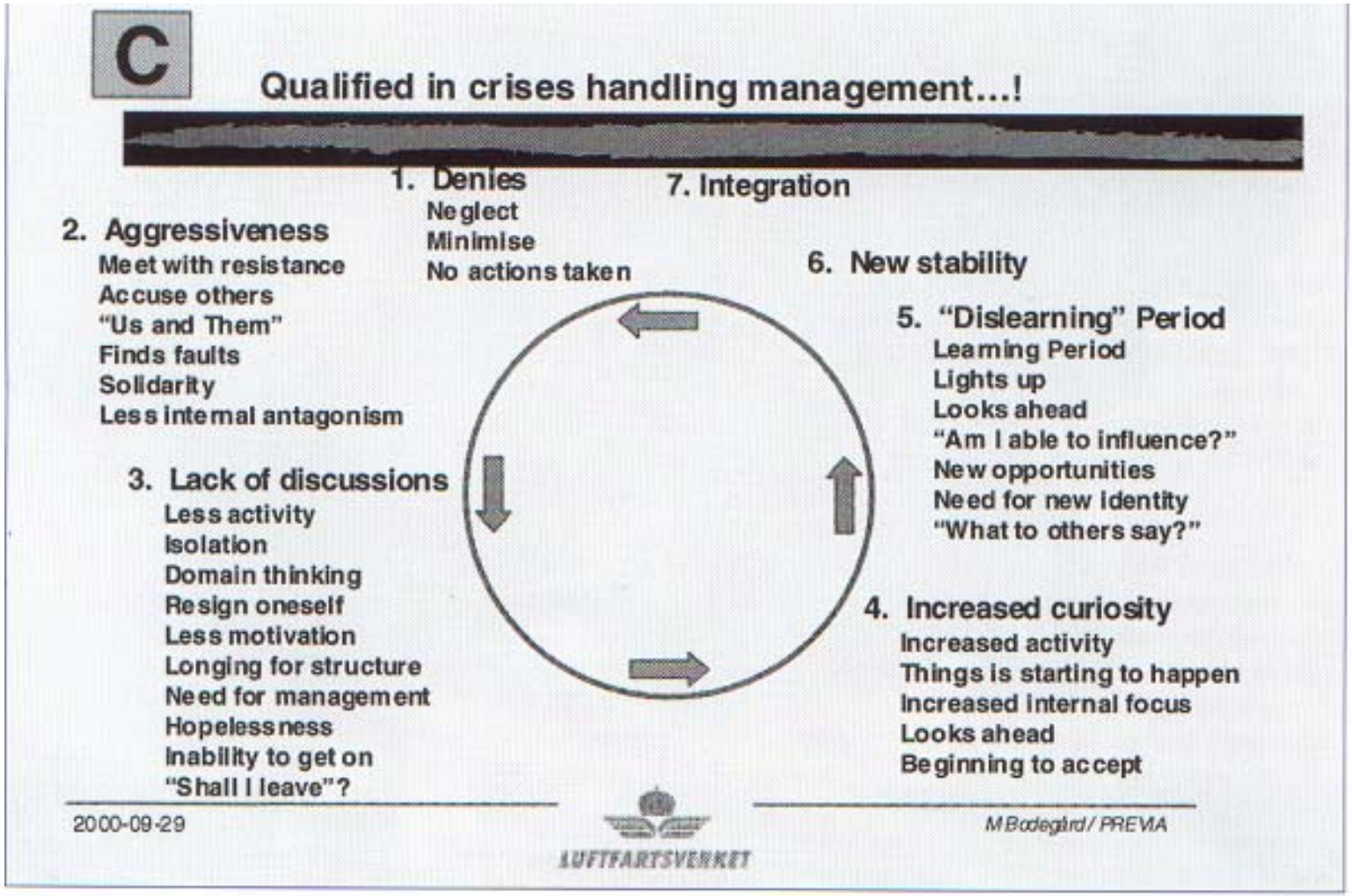
What is a centralised service?

- An air navigation support service or a related function.
- Exercised at central European/network level, bringing significant benefits in cost-effectiveness and harmonisation.
- Contributing significantly to the Performance Targets of the Member States.
- Supporting the implementation of SESAR developments on a central basis.
- Supporting the implementation of SESAR developments to become Pan-European services.
- Supporting the unbundling of ancillary services.
- Enabling service providers/ATM manufacturing industry to work together to provide the service outside of the national boundaries on a pan European level.
- Allowing the implementation of market mechanisms for the centralised services following a tender process - competition for the market.
- Allowing the implementation of performance based contracts between EUROCONTROL and the Service Provider.

Which are the Centralised Services?

- ***Flight Plan and Airport Slot Consistency Service (FAS).***
- 4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP).
- European Tracker Service (ETKR).
- Advanced Flexible Use of Airspace Support Service (AFUAS).
- European ATM Information Management Service (EAIMS).
- Management of Common Network Resources Service (CNR).
- Network Infrastructure Performance monitoring and analysis Service (NIPS).
- Pan European Network Service (PENS).
- Data Communication Service (DCS).
- To be defined.

CHANGE
AHEAD



Phasenmodell des Veränderungsprozesses AIS-Schweden

Existing capabilities for Centralised Services

	EUROCONTROL	ANSP(s)
CS#1 (Slot consistency)	**Tool is available partially**	**Tool developed by 1 ANSP and shared with 3**
CS#2 (4-D planning)	**Partial NM capability (without 4-D)**	**Not available**
CS#3 (European tracker)	**Partially used (ARTAS)**	**ARTAS used by 15 ANSPs**
		Other tracker software
CS#4 (Advanced FUA support)	**Partially available**	**Used by 5 ANSPs**
		Other 3 local ANSP solutions
CS#5 (ATM Info management)	**Partially available and operational**	**>15 ANSPs use EAD**
CS#6 (Common Net. Res. Management)	**7 partially available through pan-European tools**	**Used by most ANSPs**
CS#7 (Network Infra. Perf. Monitoring.)	**Partially available (e.g. ECDN) through pan-European tools**	**Used by most ANSPs**
CS#8 (PENS)	**Contractual arrangement in place**	**>18 ANSPs involved**
CS#9 (Data Com.)	**Does not provide A/G services - support stakeholders**	**ANSPs deploying/maintaining own infrastructure**

Workshops organised

04 March:	CS -	Workshop with EUROCONTROL Member States
24 April :	CS -	Workshop with Air Navigation Service Providers
29 April:	CS -	Workshop with Airspace users
17 May:	CS -	Workshop with Manufacturing industry

Thematic Workshops

25 June:	CS#2 -	4D Trajectory Flight Profile Calculation for planning purposes Service
26 June:	CS#4 -	Advanced Flexible Use of Airspace Support Service
28 June:	CS#5 -	European ATM Information Management Service
1 July:	CS#3 -	European Tracker Service
4 July:	CS#1 -	Flight Plan and Airport Slot Consistency service
5 July:	CS#6 -	Management of Common Network Resources Service
8 July:	CS#7 -	Network Infrastructure Performance monitoring and analysis Service
9 July:	CS#8 -	Pan European Network Service (PENS)
10 July:	CS#9 -	DATACOM

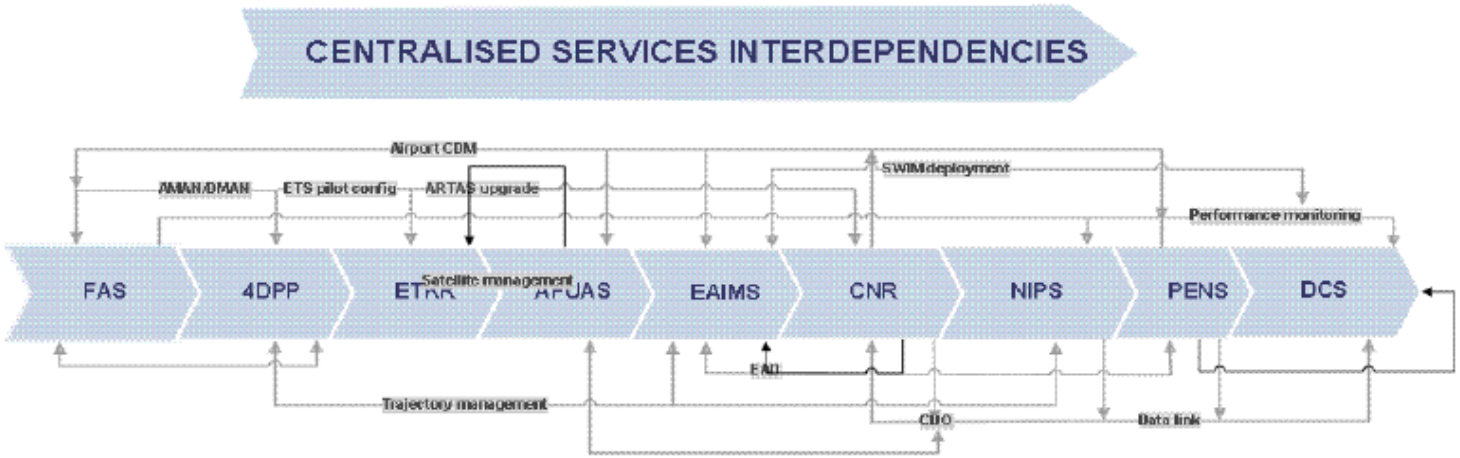
Centralised Services Characteristics

- Addresses the basic building blocks for a cost effective European network operation.
- Set-up and operation of service will be put to tender.
- Industry role and responsibilities clear and unambiguous .
- Service provider relationship established at formal contract level.
- Integration and interface between new central services and existing services.
- User interface specified through common communication infrastructure.
- Linked together via Network service oriented architecture (SOA).
- The proposed 10 centralised services and systems allow some SESAR ideas to be deployed much more efficiently than on a local/national level.

Network
Manager

Benefits

- Links between CS maximise benefits and allow for synergies in support EU Performance targets.



- Taking minimum benefit of SESAR deployment through local, FAB and Central Services – initial estimations €150-200M pa.

- Giving ANSPs, ATM-manufacturers and other interested stakeholders the opportunity to be part of network technical / services provision.

Conclusion

- The evolution of European air traffic management delivered through SESAR is dependent on high quality data which ANSPs, airports and airspace users systems use to deliver their core business.

- CS delivering ATM-related data with objective of cost effectiveness, defragmentation, pan-European harmonisation and interoperability.

- Reducing cost of parallel deployments and contributing to the achievement of national / FAB performance targets.

Conclusion

- Together we can save money and enable FAB States and their ANSPs to come closer to the financial performance targets and to provide airspace users more efficient services.

- The EUROCONTROL Member State ANSPs can participate in delivering these services beyond natural boundaries on a pan-European level.

- ATM Manufacturing industry is providing cutting edge technology stemming from the SESAR developments.

Centralised Service 1

Flight Plan and Airport Slot Consistency Service (FAS)

Flight Plan and
Airport Slot Consistency Service (FAS)

- Match flight plans and airport slots to better exploit airport capacity and improve flight punctuality.
- Create a central data base in which the airport slots and the FPLs are integrated and compared.
- Deviations are identified and communicated for action.
- Support the draft brand new revised Airport Slot Regulation.
- Make full use of existing runway/airport capacities.
- Cooperation of the NM with the European Airport Slot Coordinators
- Technology exists already in some Member States.

Enables the fostering of innovative technology in cooperation with the airports, ACI and EUACA on a Pan-European basis.

EUROCONTROL

Centralised Service #1

Flight Plan and Airport Slot Consistency Service (FAS).

Bo Redeborn
Principal Director ATM
4 July 2013

EUROCONTROL

Centralised Services

June 2013

Centralised
Services

Which are the Centralised Services?

- Flight Plan and Airport Slot Consistency Service (FAS).
- 4D Trajectory Flight Profile Calculation for planning purposes Service (4DPP).
- European Tracker Service (ETKR).
- Advanced Flexible Use of Airspace Support Service (AFUAS).
- European ATM Information Management Service (EAIMS).
- Management of Common Network Resources Service (CNR).
- Network Infrastructure Performance monitoring and analysis Service (NIPS).
- Pan European Network Service (PENS).
- Data Communication Service (DCS).
- To be defined.

Centralised Service 1

Flight Plan and Airport Slot Consistency Service (FAS)

Flight Plan and
Airport Slot Consistency Service (FAS)

- Match flight plans and airport slots to better exploit airport capacity and improve flight punctuality.
- Create a central data base in which the airport slots and the FPLs are integrated and compared.
- Deviations are identified and communicated for action.
- Support the draft brand new revised Airport Slot Regulation.
- Make full use of existing runway/airport capacities.
- Cooperation of the NM with the European Airport Slot Coordinators
- Technology exists already in some Member States.

Enables the fostering of innovative technology in cooperation with the airports, ACI and EUACA on a Pan-European basis.

Centralised Service 2

4D Trajectory Flight Profile Calculation for planning purposes service (4DPP)

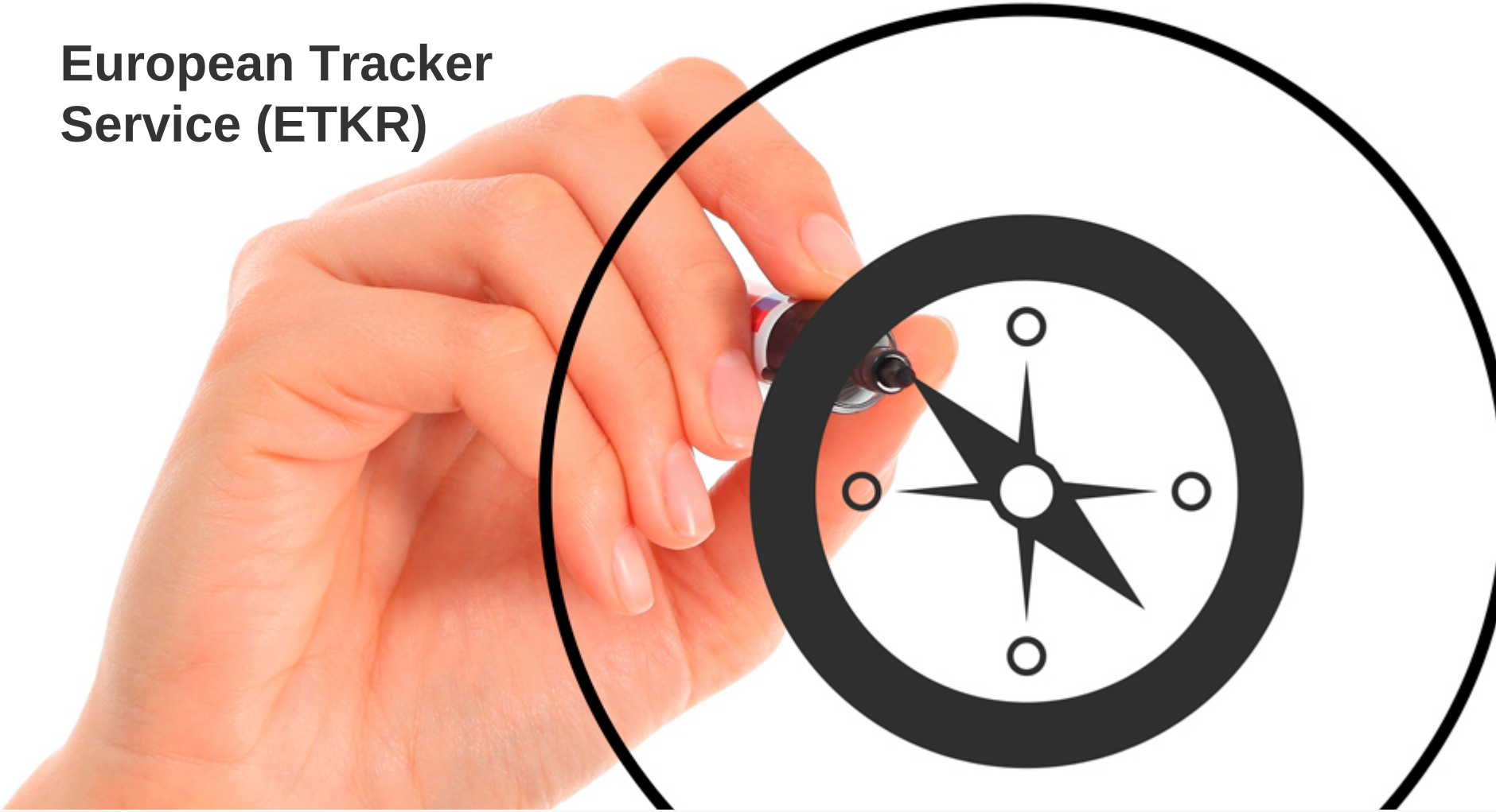
4 D Trajectory Flight Profile Calculation for Planning Purposes Service (4DPP)

- Provide a central reference for the 4D Trajectory Profile for all ATM planning activities with an increased accuracy, allowing reduction of buffers around airspace occupancy, reducing under- / over delivery.
- Centrally processed 4D trajectory.
- Distribute the calculation to the ANSPs/Centres.
- Making full use of existing sector capacities.
- Technology exists already in some Member States.
- Replaces EUROCONTROL/NM legacy system.

Supports fostering of innovative technologies - as this will be the first centralised 4 D Trajectory system in the world.

Centralised Service 3

European Tracker Service (ETKR)



European Tracker Service (ETKR)

- Enable the creation of an ECAC wide consistent high quality Air Situation Picture and the provision of its requested subsets to any user of processed surveillance in formation, civil and military.
- The ATM systems get centralised track services that take into account data sent by numerous surveillance sensors. The tracking system processes and unifies all data, in order to provide fused information.
- Technology exists already with ARTAS (ATM surveillance Tracker And Server) in EUROCONTROL.

Allows to foster innovative technologies - as this will be the first centralised Tracker Service in the world.

Advanced Flexible Use of Airspace Support Service (AFUAS)

- Provides collaborative civil-military ASM decision-making processes.
- Builds on the Advanced Flexible Use of Airspace (FUA) Concept.
- Makes better use of available airspace.
- Allows military to use larger airspaces for missions on an absolute time-limited basis.
- Allows civil traffic to fly shorter routes.
- Provides ASM data visibility and ASM performance feedback.
- Technology exists already in some Member States.

Allows to foster innovative technologies in cooperation with the Military.

Centralised Service 5

European ATM Information Management Service (EAIMS)

European ATM Information Management Service (EAIMS)

- Accurate and timely information are organised and provided through system wide interoperability.
- Existing EAD enlarged with WX & Airport data, digital NOTAM, ADQ compliance.
- Pre-departure Static and Dynamic data including ATC planning, ASM and ATFCM.
- Integrated pan-European AIS service including meteo data.
- Extension to airports and airspace users.

Allows to make use of the already existing, well recognised EAD system and service.

Allows to integrate the weather data into a central service.

Allows to accelerate early deployment of new SWIM technology.

Centralised Service 6

Management of Common Network Resources Service (CNR)

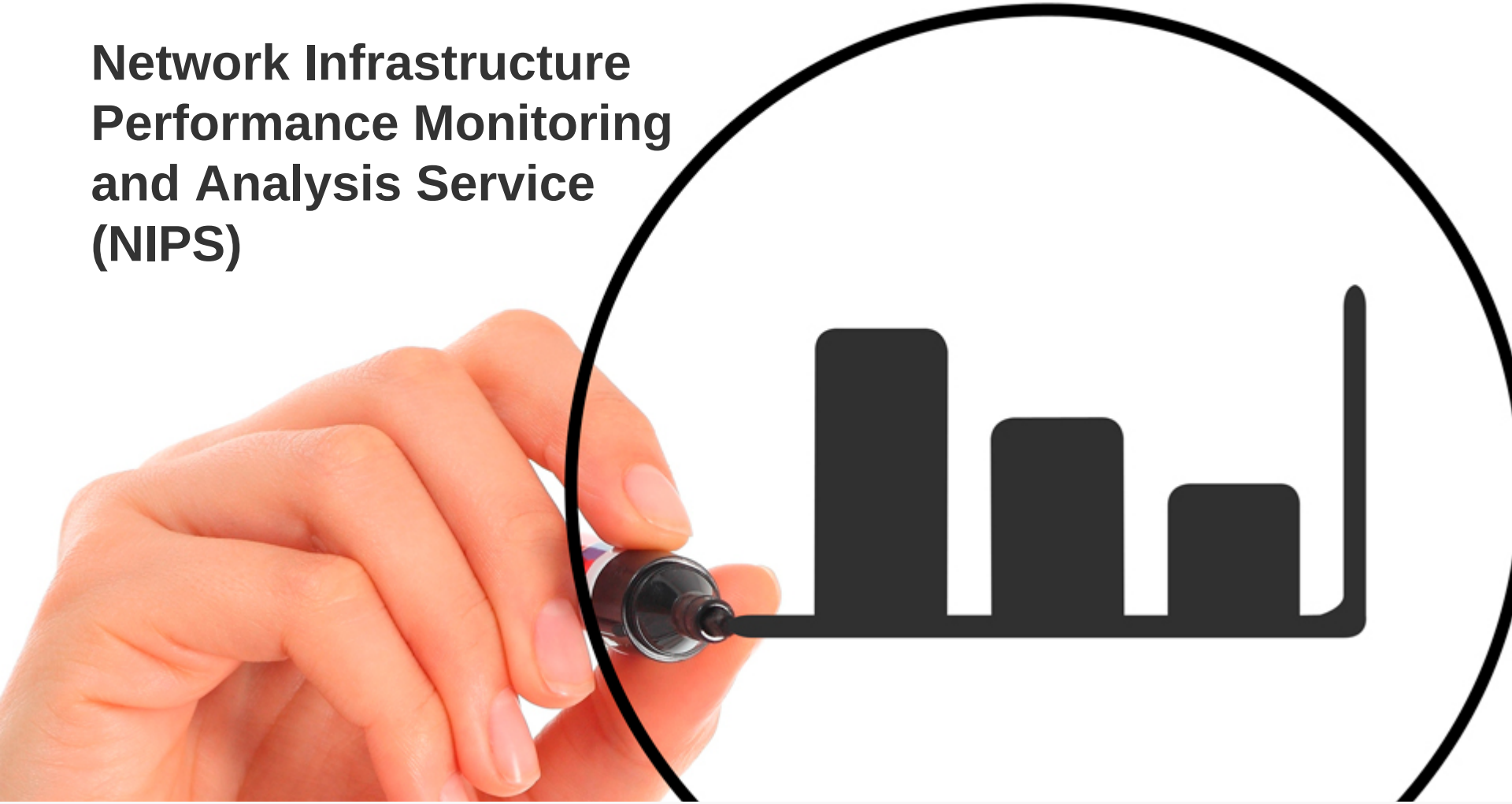
Management of Common Network Resources Service (CNR)

- Management of common network resources – transponder codes, frequencies for CNS systems, AFTN Message addresses directory, IP addresses, security certificate and keys.
- Key resources which require coordination between stakeholders
- Groups common network resources into a critical mass for management efficiency
- Provides tools and data needed to network to operate

Most are already accepted as centralised services

Centralised Service 7

Network Infrastructure Performance Monitoring and Analysis Service (NIPS)



Network Infrastructure Performance Monitoring and Analysis Service (NIPS)

- Ensure safe functioning and anomaly resolution of common/distributed CNS infrastructure
- Data-link communication, satellite navigation, surveillance avionics,1030/1090 RF bands, TCAS function, Height Monitoring
- Central service sets up/operates sensors, analysis tools and databases to collect data, measures performance, detect anomalies
- Offered to fulfil national responsibilities to ensure safe airborne infrastructure

Many of these services are already accepted as centralised services.

Centralised Service 8

Pan-European Network Service (PENS)

Pan-European Network Service (PENS)

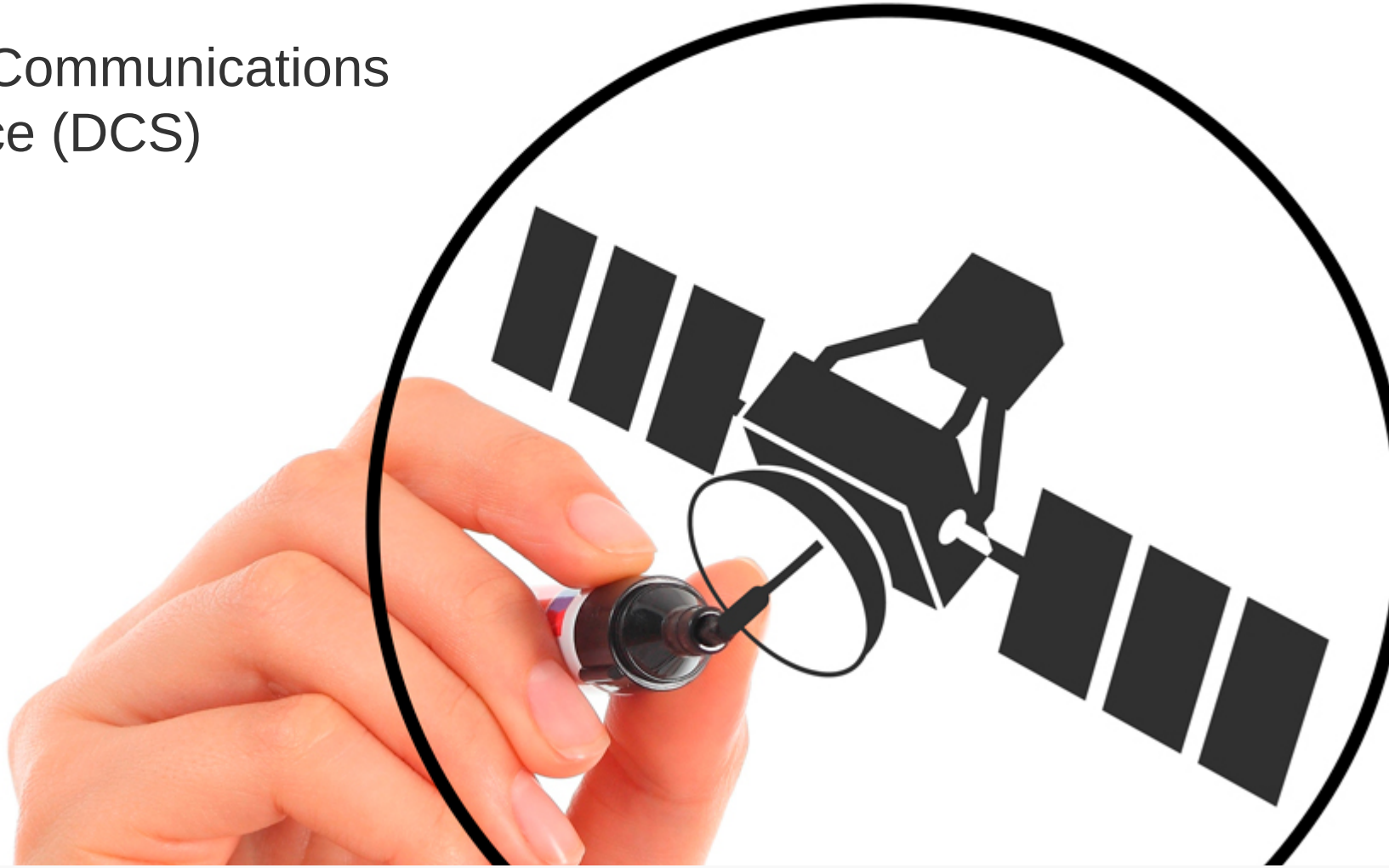
- Supporting all data exchange of ATM applications, paving the way to SWIM applications.
- Currently in use for NM centralised functions (NM + EAD).
- ANSP/ATM applications are planned to migrate to PENS.
- Central supervision of all technical network.
- Gateway to interconnect all ATM stakeholders via rationalised infrastructure and avoidance of multiple interconnection negotiations and additional costs.

PENS services are developed and run by Industry, EUROCONTROL acting as a “contractual agent”.

Fosters European innovative Network Services.

Centralised Service 9

Data Communications Service (DCS)



Data Communications Service (DCS)

- Demonstrator for centralised infrastructure to Data Link (as standardised by ICAO and SES) to aircraft and also ATC centres.
- AOC services (today based on ACARS or FANS).
- ADS-C services for ATM and AOC.
- Future i4D and full 4D trajectory management messaging services.
- Flight information services.
- Airport coordination services.

Centralised Service 10

To be defined

Centralised Services Characteristics

- Addresses the basic building blocks for a cost effective European network operation.
- Set-up and operation of service will be put to tender.
- Industry role and responsibilities clear and unambiguous .
- Service provider relationship established at formal contract level.
- Integration and interface between new central services and existing services.
- User interface specified through common communication infrastructure.
- Linked together via Network service oriented architecture (SOA).
- The proposed 10 centralised services and systems allow some SESAR ideas to be deployed much more efficiently than on a local/national level.

Governance

- Procedures, accountability and governance can be ensured through extension appropriate European regulatory Network Manager provisions.
- User groups part of the governance process.
- Independent and inter-governmental EUROCONTROL approach guarantee of equal and fair service to all stakeholders.

Link with SES2+

- SES2+ includes clear references to ECTL initiative on CS
- SES2+ would require EU Council and EP to introduce in the legislative SES package the market opening of the support services as a network efficiency enabler
- EC consider that the CS concept has the potential to help in the delivery of improved performance in the European ATM system
- EC offers full political support to this initiative.

Summary

- CS in general are aimed at more cost effective ATM support services while contributing to better quality of service.
- CS1 ensures that European processed surveillance is available as an essential part of an integrated quality data set needed by the actors of the European ATM.
- CS in general and CS1 will support and enable future improvements of ATM in Europe.

Network
Manager

The Centralised Services – Information Session

CS#1 – FAS

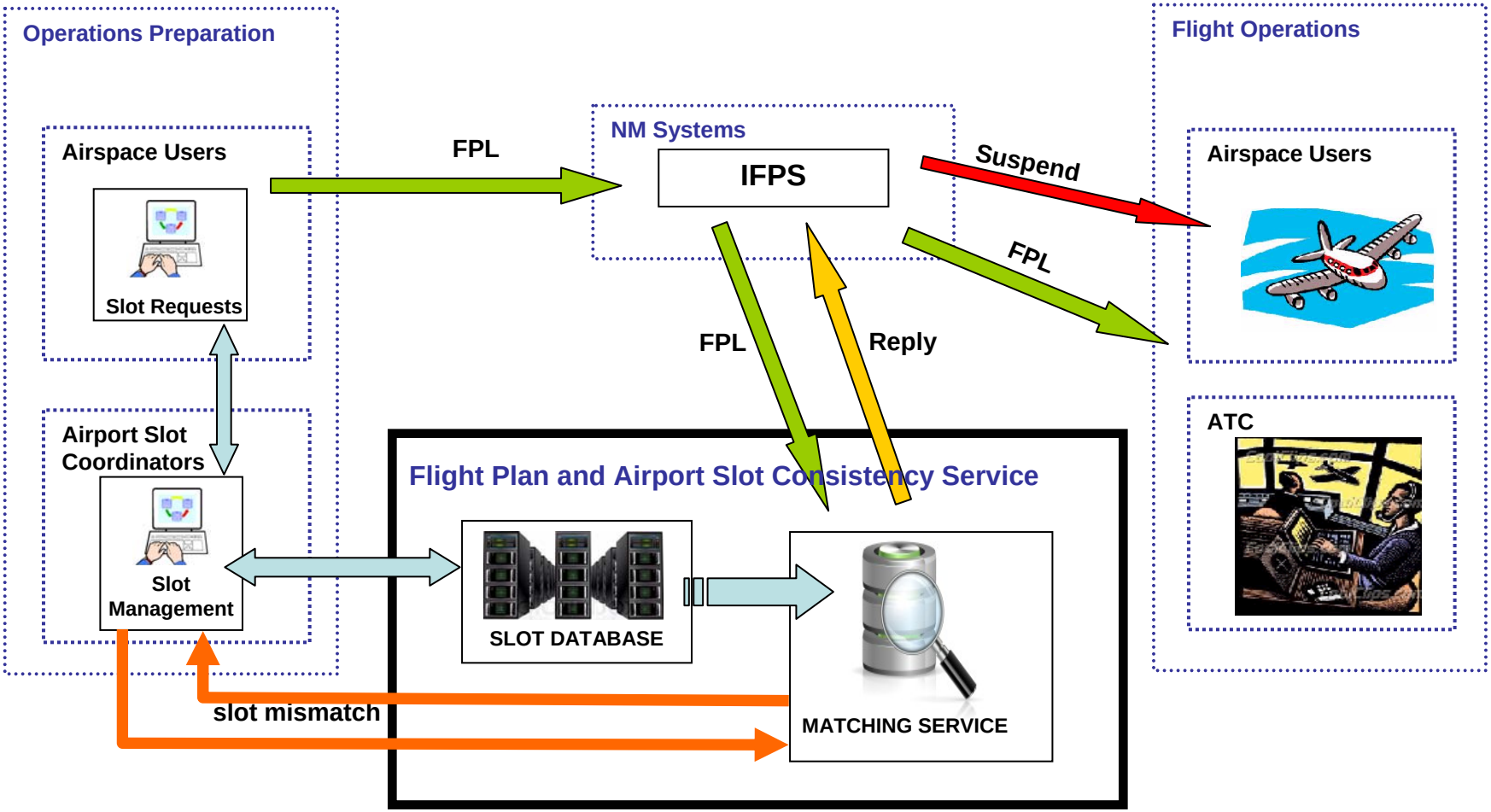
Flight Plan and Airport Slot Consistency Service

CS#1 in context of IDP, PCP, ESSIP and ICAO

Bo Redeborn
Principal Director ATM

4 July 2013

CS#1 Flight Plan and Airport Slot Consistency Service



CS and SES

- Centralised Services are CONFORM with the Interim Deployment Programme (IDP)
  - Conformity analysis initiated by EUROCONTROL, to be further completed in the IDSG Expert Team – last meeting 27th June
- Centralised Services INTERACT with the Pilot Common Project (PCP)
  - Analysis on-going under EC mandate to SJU – to be finalised early July – first results shown further
- Centralised Services will INFLUENCE future Common Projects (CP)
- EC will cover related regulatory activities
- Centralised Services have also been linked with the ATM Master Plan Level 3 (ESSIP) and also with ICAO GANP

The clusters of the CS relationships with IDP

1. **No relationships between IDP activities and CS**
   - **No possible relationships identified**
   - ➢ **Action: No Action required**

2. **IDP deployment is improved by the independent CS capabilities**
   - **CS improvements in this category can be of 2 kinds:**
     - **Independent function improvements**
     - **Development of supporting options**
   - ➢ **Action: Keep informed on CS development to maximise improvements**

3. **IDP is a pre-requisite for CS**
   - **CS uses the IDP outputs which is essential to establish the CS.**
   - ➢ **Action: dependencies between CS and IDP to be analysed and decide if actions are required**

4. **IDP deployment is an alternative to the CS solution**
   - **CS offers a different solution to IDP**
   - ➢ **Action: Deeper analysis to decide the best way forward**

CS#1 conformity with IDP

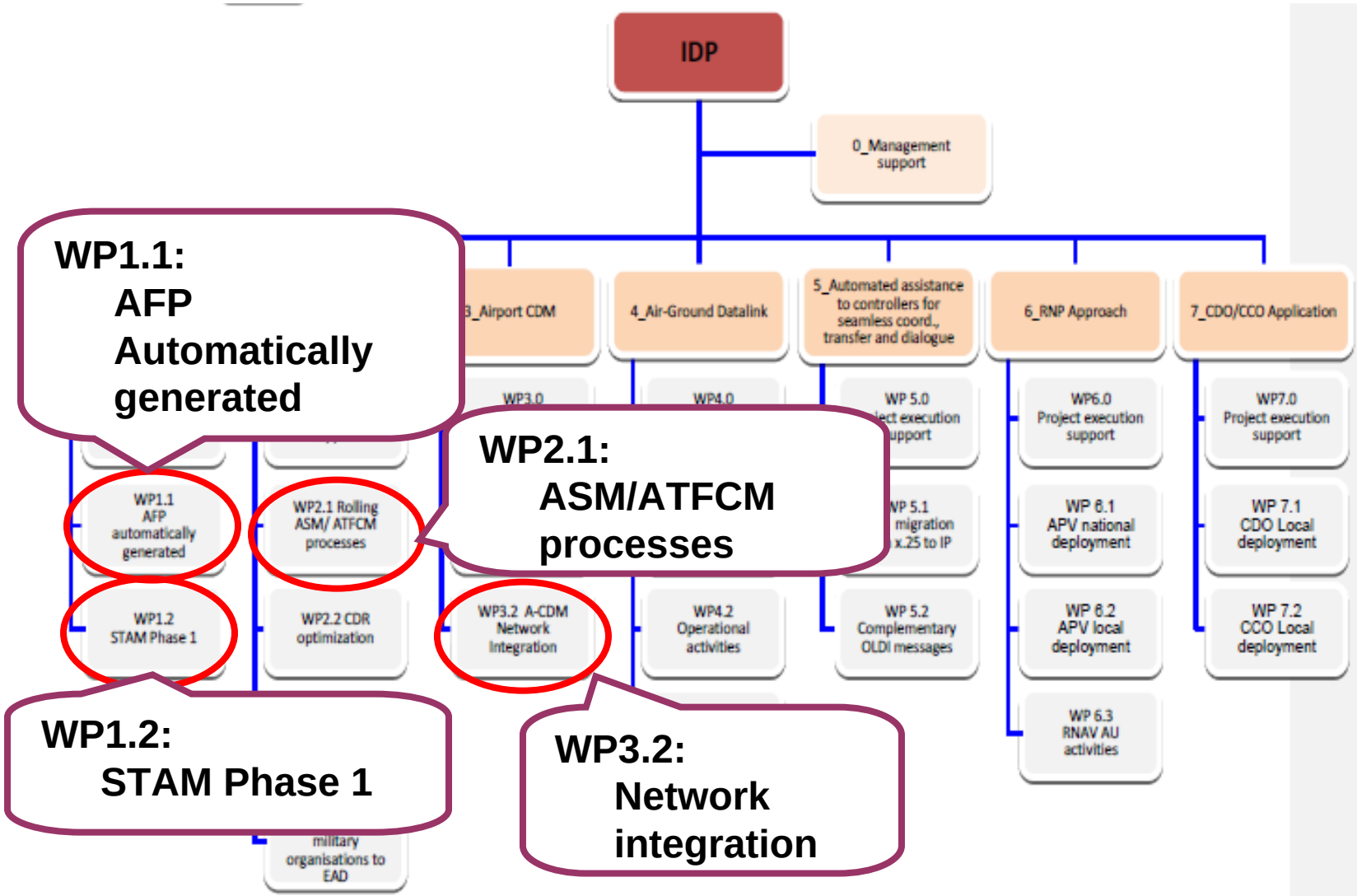
1 Flight Plan and Airport Slot Consistency Service

CS #	CS Title	Relationship cluster	IDP WP	Comment
1	**Flight Plan and Airport Slot Consistency Service**	**Independent function improvements**	**1.1; 1.2; 2.1; 3.2**	**Better Flight Plan alignment with slots will benefit to the IDP deployments**
2	**4D Trajectory Flight Profile Calculation for Planning Purpose Service**	Independent function improvements	1.1; 1.2; 2.1; 3.2	Planning purpose 4D Trajectory Flight Profile data quality improvements will benefit to the IDP deployments
3	**European Tracker Service**	No relationships	None	No IDP activity deals with Surveillance
4	**AFUA Support Service**	IDP is a pre-requisite for CS	2.1	CS4 builds on IDP FUA deployments
5	**European ATM Information Management Service (EAIMS)**	Independent function improvements	2.1; 2.4; *(1.1)*	AIM data quality improvements will benefit to the IDP deployments
6	**MNG of Common network Resources Services**	Development of supporting options	Almost All	CS Centralised management of network resources and security can improve cost effectiveness of the operations of the IDP deployments
7	**Network Infrastructure Performance Monitoring and Analysis Service**	Development of supporting options	4; *(6)*	CS Centralised Performance Monitoring can improve cost effectiveness of the operations of the IDP deployments.
8	**PENS**	Development of supporting options	Almost All	Centralised PENS supervision and PENS gateway can improve cost effectiveness of the operations of the IDP deployments
9	**Data Communication Service**	Development of supporting options	*4 and potentially 6*	Data Communication Services rationalised by CS can improve the IDP deployments. (initial analysis)

CS#1: further explanation of dependency CS-IDP

- **Relationship cluster : Independent function improvements**
- **Nature of the operational/technical relationship:**
  - **CS1 ensures the match between Flight Plans and Airport slot for a more effective use of Airport capacity and for improved predictability**
  - **No change of existing interfaces ensures independence between CS1 and IDP**
- **Benefits relationships:**
  - **IDP => CS1**
    - **Up to date Flight Plans thanks to AFP updates (WP1.1) improves CS#1**
  - **CS1 => IDP**
    - **More predictable Traffic Demand improves benefits of STAM (WP1.2), FUA (WP2.1) and Airport CDM (WP3)**

IDP Work Breakdown Structure / CS#1 relevance



CS#1 and PCP

1 Flight Plan and Airport Slot Consistency Service

CS #	CS Title	LINK PCP ATM Functionalities
1	**Flight Plan and Airport Slot Consistency Service**	**AF#4 Network Collaborative Management** **Dependency limited to pre-flight phase incl. move from CTOT to TTA**
2	**4D Trajectory Flight Profile Calculation for Planning Purpose Service**	AF#3 Flexible Airspace Management & Free Route AF#4 Network & Collaborative Management AF#6 Initial Trajectory Information Sharing (i4D)
3	**European Tracker Service**	None
4	**AFUA Support Service**	AF#3 Flexible Airspace Management & Free Route
5	**European ATM Information Management Service (EAIMS)**	AF#3 Flexible Airspace Management & Free Route AF#4 Network & Collaborative Management AF#5 iSWIM
6	**MNG of Common network Resources Services**	AF#5 iSWIM (in relation to SWIM administration) Limited to CS6 sub activity 4, 5 and 6. ATC-ATC SWIM profile exchange
7	**Network Infrastructure Performance Monitoring and Analysis Service**	None
8	**PENS**	Generic enabler of several AFs as communication layer
9	**Data Communication Service**	Not directly. However if done for the Deployment Baseline (ATNB1) then it should be considered for AF#6 Initial Trajectory Information Sharing (ATNB2)

CS#1 relationships with PCP – more info

- Relationship cluster : Independent function improvements

- Nature of the interdependency:
  - Links with following ATM Master Plan Aggregated ATM Technology Changes for Step 1: Airspace Management Systems, AMAN, AMAN/SMAN/DMAN integration, Enhanced FDP, Enhanced DCB, Flight Planning and demand data, Airport CDM (AOP).

- Qualification of the impact:
  - The CS improves the demand predictability and as a result the Step 1 investments will be more beneficial.

CS#1 relationship with ESSIP

 # 1

Flight Plan and Airport Slot Consistency Service

CS #	CS Title	Relationship cluster	Related ESSIP Objectives
1	Flight Plan and Airport Slot Consistency Service	Independent function improvements	AOM19 (Advanced Airspace Management) AOP05 (Airport Collaborative Decision Making) FCM01 (Enhanced tactical flow management services) FCM03 (Collaborative flight planning) FCM04 (STAM) Phase 1 FCM05 (Rolling NOP)

CS#1 and ICAO GANP in Perspective

 # 1

Flight Plan and Airport Slot Consistency Service

Contributes to integration of airport with ATM

B1-ACDM - Optimised Airport Operations through Airport-CDM

Is also used to improve performance of flow management

B1-NOPS - Enhanced Flow Performance through Network Operational Planning

Works initially with FPL2012, Extended FPL and then FF-ICE

B1-FICE - Increased Interoperability, Efficiency & Capacity though FF-ICE/1 application before Departure

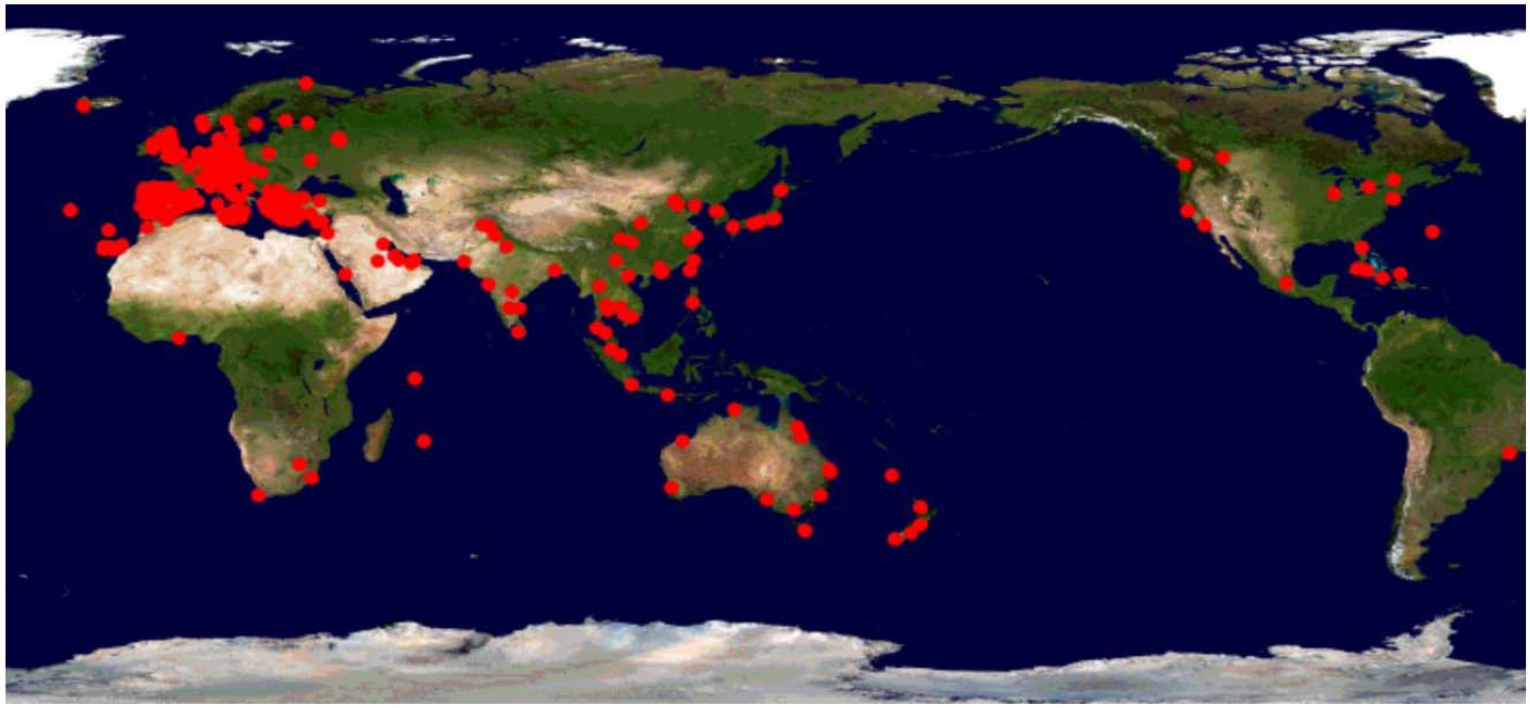
Is enabled by IPV-6 ground network in GANP COM roadmap (CS8 – PENS)

The Centralised Services – Information Session

CS#1 - Flight Plan & Airport Slot Consistency (FAS)

Joe Sultana
Director Network Manager
04 July 2013

Slot Constrained Airports



Ops Conference
Regional Capacity

28

15-17 April 2013, Vienna

Source IATA

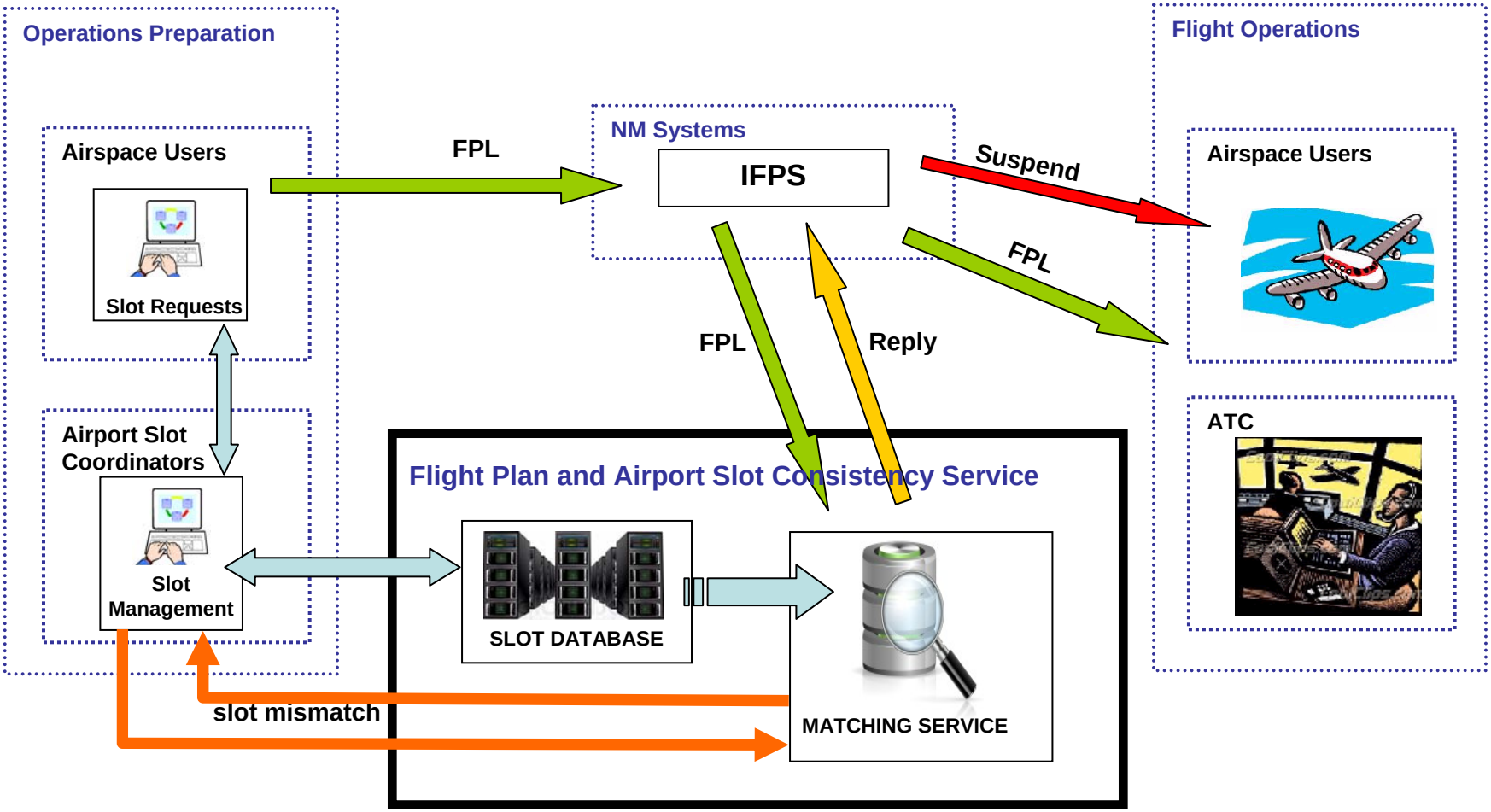
CS#1 Context

- Airports are coordinated because demand exceeds their capacity
- Today airport slot allocation is usually not taken into account in Air Traffic Flow Management (ATFM)
- Flight Planning does not necessarily consider allocated airport slots
- Flight plans do not reflect airport slots (few exceptions for GA/BA traffic in some States)
- Flights appear outside their airport slot tolerance or even without airport slot
- This leads to over demand and consequently ATFM regulations creating delay for all flights
- CS#1 will support to enhance predictability and consistency

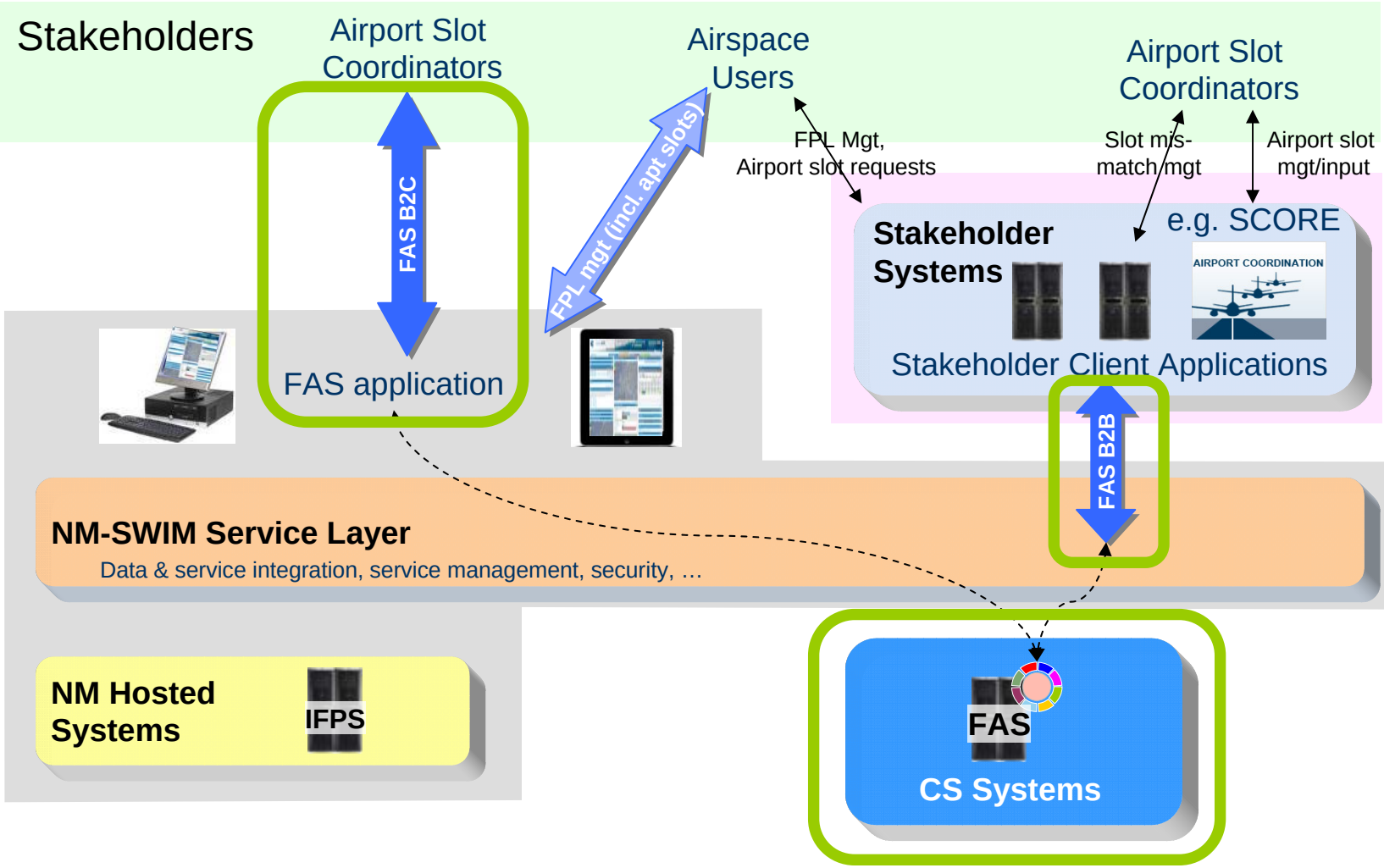
CS#1 Scope & Purpose

- Ensure consistency between FPL and Airport Slot
  - Ensure effective use of airport capacity
  - Improve punctuality/predictability
- All ECTL coordinated airports
- Requires:
  - FPL data (from IFPS)
  - Airport slot data (from Airport Coordinators)
  - Means to compare FPL and airport slot
- Suitable for outsourcing (development and operation)
- Fully respecting airport slot regulation
- No change in decision-making chain whether flight can operate
- Timeframe
  - Development 2014/5, Demonstrator 2015, Operation 2016 onwards

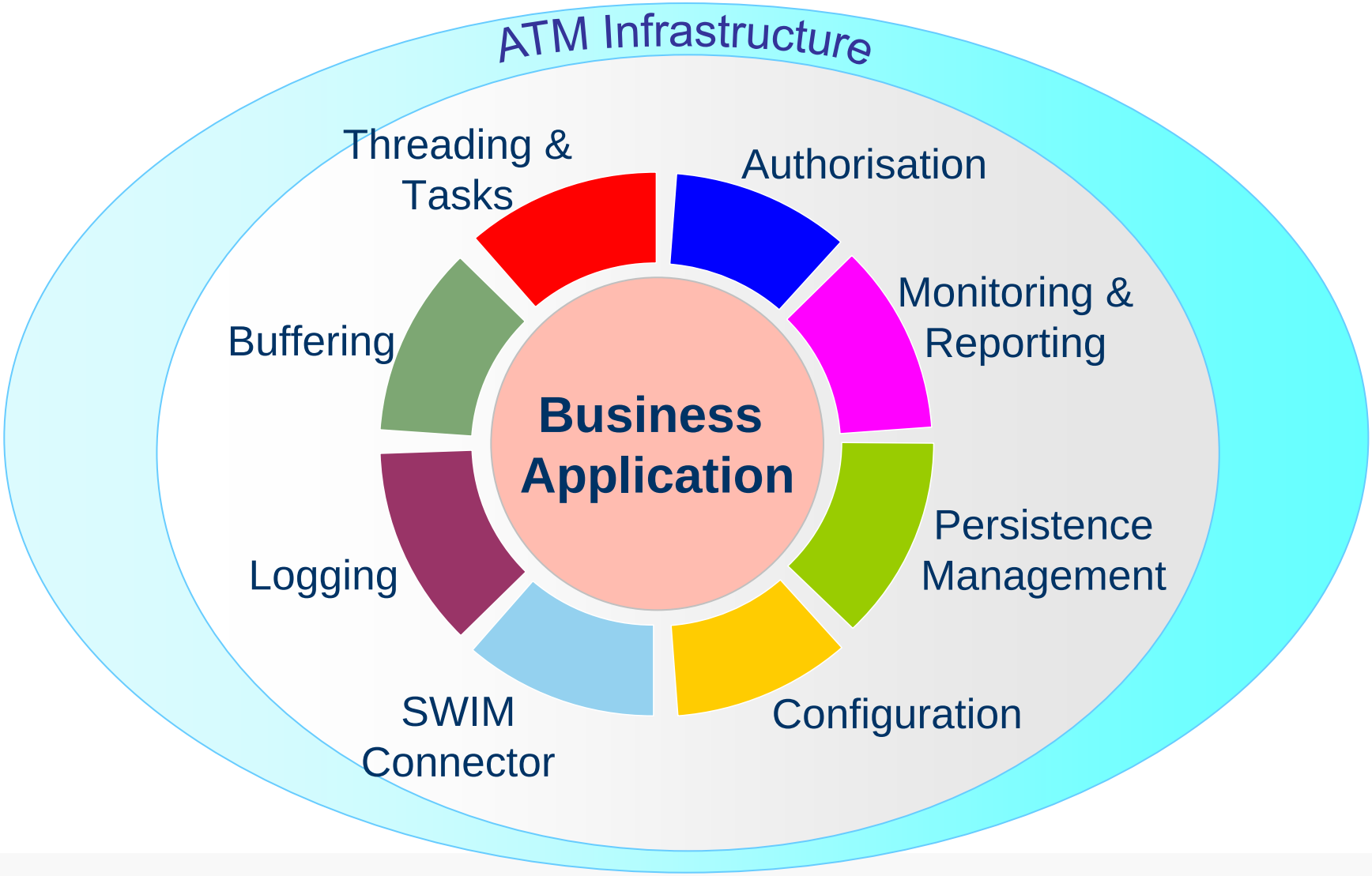
CS#1 Main Data Flows



CS#1 Architecture with NM-SWIM Platform

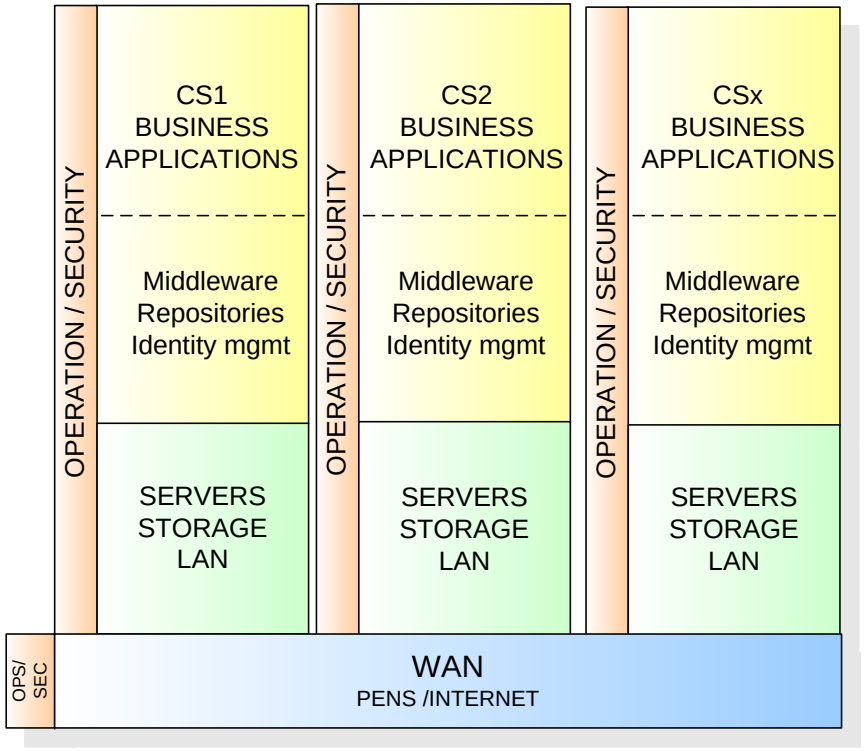


NM-SWIM Platform Common Services

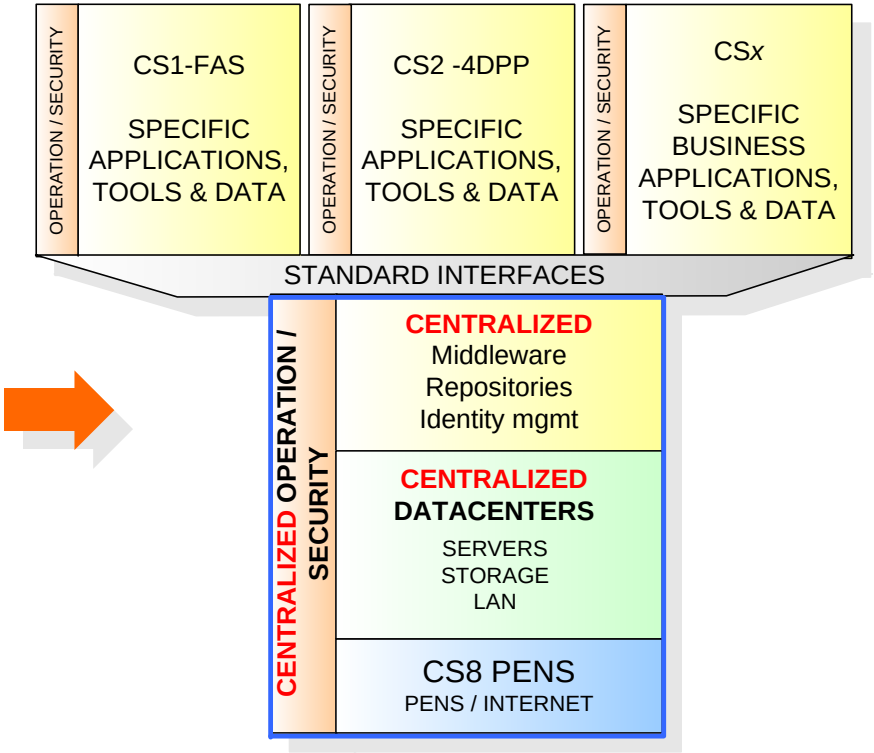


CS Infrastructure

Without Infra consolidation …



With Infra consolidation...



Why CS#1 should be Centralised

- Avoids fragmentation in Europe
- Allows for harmonised and pre-defined rules
- Secures impartiality
- Allows expanding the service to all EUROCONTROL area
- Reduced development cost
- Reduced operating cost
- Allows industry to participate
- Faster implementation at European level

CS#1 Concluding Remarks

- Recent update on Challenges of Growth report 2013 demonstrate the need to make better use of existing airport capacity
- Aligning flight plans and airport slots supports better management of the Network and better use of available capacity
- Better predictability unlocks required operational flexibility
- The services supports the better integration of airports with the Network
- Business opportunity is offered to the aviation industry driving the Single European Sky
- Overall cost reduction is embedded
- EUROCONTROL invites ATM Stakeholders to participate over the next months in the development of an OPS concept for CS#1 (FAS)

Preliminary Cost-Benefit Analysis
CS#1 Flight Plan and Airport Slot Consistency

Alberto Varano
Principal Director Resources
4 July 2013

CBA Method

- Preliminary CBA at feasibility stage to assess value of the CS concept

- CBA compares 2 scenarios:
  - Current best case fragmented implementation inc. FAB deployments and SESAR Common Project deployments
  - Deployment of Centralised Service

- For robust CBA, uncertainties addressed through conservative assumptions:
  - ‘High’ Costs for Centralised Service Scenario
  - ‘Low’ Costs for Fragmented scenario

CBA Method (2)

- CBA quantifies impact of deploying CS on aviation stakeholders: ANSP, EUROCONTROL, Airlines and other Airspace Users

- CBA takes account of
  - Investment costs, Operating and Maintenance Costs
  - Operational benefits such as fuel burn, ATCO productivity and QoS
  - The cost and benefit impact of time to operations

- Not included in the CBA:
  - knock on effects on costs and benefits of enabling better performance (e.g. better data quality will lead to improvement of services)
  - Impact of tendering the services. The competition in tendering , can lead to best innovative solutions in the most cost efficient conditions

CBA Scenarios

- *<u>Fragmented Deployment</u>: Current situation with decentralised management will remain unchanged, resulting in inefficient use of airport capacity. Later, deployment of airport slot consistency service will be necessary at State or FAB level (FAB level addressed here), due to upcoming airport regulation closing the gap to the SES legislation.*

- *<u>Centralised Service</u>: Only one technical solution applied for all Member States. It will deliver an integrated (Pan)-European solution, which is highly automated and running 24/7.The services will enable early compliance to Single Sky principles.*

- <u>Timeframe</u>:
  - <u>CS Scenario</u>: Development of new services CS#1 2014-2015. Implementation of new CS#1 by 2016-2017. Operations will gradually start in 2016 for the new service. Fully operational in 2017.
  - <u>Fragmented Deployment</u> (new services): It is not likely that the fragmented approach will deliver a full operational service within the same timeframe. Development of service may take until 2020 to be fully operational by 2022.

CBA Dates

Fragmented Deployment					
Start of Development	End of Development	Start Deployment	End Deployment	Start Operations	Full Operations
2014	2020	2021	2022	2021	2022

Centralised Service (CS#1)					
Start of Development	End of Development	Start Deployment	End Deployment	Start Operations	Full Operations
2014	2015	2016	2017	2016	2017

Centralised Service vs Fragmented Flight Plan and Airport Slot Consistency

Costs				Operational Benefits			
Investment Costs	**Operating & Maintenance Costs**	**ATCO Costs**	**Time to Operations**	**Fuel burn / Route Extension**	**CO2 Tax Savings**	**ATCO productivity**	**QoS (Delay Savings)**
↓	↓	→	↓	CS #1 will reduced airborne holding and delay on the Apron, traffic will be more predictable, will support reducing buffers. These are not quantified in the CBA			↓

CS#1 will bring full delay benefits 5 years earlier than in Fragmented Deployment

Costs

- The CS#1 Centralised Service will achieve cost reduction through lower investment, operating & maintenance costs.
- Time to reach full operations is 5 years shorter with the Centralised Service

Investment Cost	Operating & Maintenance Cost	ATCO Cost	Time to Operations	Other Cost
-	-	0	-	-
Investment cost is 9 times lower for the centralised service	The yearly operating costs can be cut up to 4 times with centralised services		The new service can be implemented much faster	Cost for performance reporting will be lower due to only one source with harmonised data
CS#1 will cost 3.3 M€ vs 30 M€ in fragmented deployment	CS#1 will cost 3 M€ vs 14 M€ in fragmented deployment		4 years for CS#1 vs 9 years for fragmented deployment to reach full operations	Currently not quantified in CBA

Operational Benefits

- CS#1 can bring significant operational benefits by limiting the disruption that flights with no valid airport slots bring to operations.
- A conservative quantification of delay saved by this service is 13.3 M€ per year. This saving is also a benefit in the fragmented deployment scenario but starts later than in the centralised service scenario

Fuel burn / Route Extension	CO2 Tax Savings	ATCO productivity	QoS (Delay)	Other benefits
Marginal improvement through avoidance of airborne holding at destination airports, less congestion on the Apron (better airport throughput). Not quantified in CBA.	Potential for reduced airborne holding at the destination airports. Not quantified in CBA	Marginal improvement in ATCO productivity when traffic is more predictable. Trust in the information can reduce inbuilt buffers. Not quantified in CBA	800 flights per day with no airport slot, each causing 1 minute delay to other flights results in potential savings of 13.3 M€ per year. This saving will also be felt in the fragmented scenario but 5 years later in full operations	Transparency, enabler for rolling NOP, enabler for 4D trajectory, better linkage of planning with operations (enhances predictability). More predictability may result in increased declared capacities. Not quantified in CBA

Preliminary Cost Benefit Analysis Results

CS#1 Flight Plan and Airport Slot Consistency

- Deployment of CS#1 reduces European ANS costs by approximately 11 M€ a year
- Total cost saving with CS#1 is 117 M€ in 2014-2030
- CS#1 brings early additional benefit of 67 M€ in delay savings compared to fragmented deployment

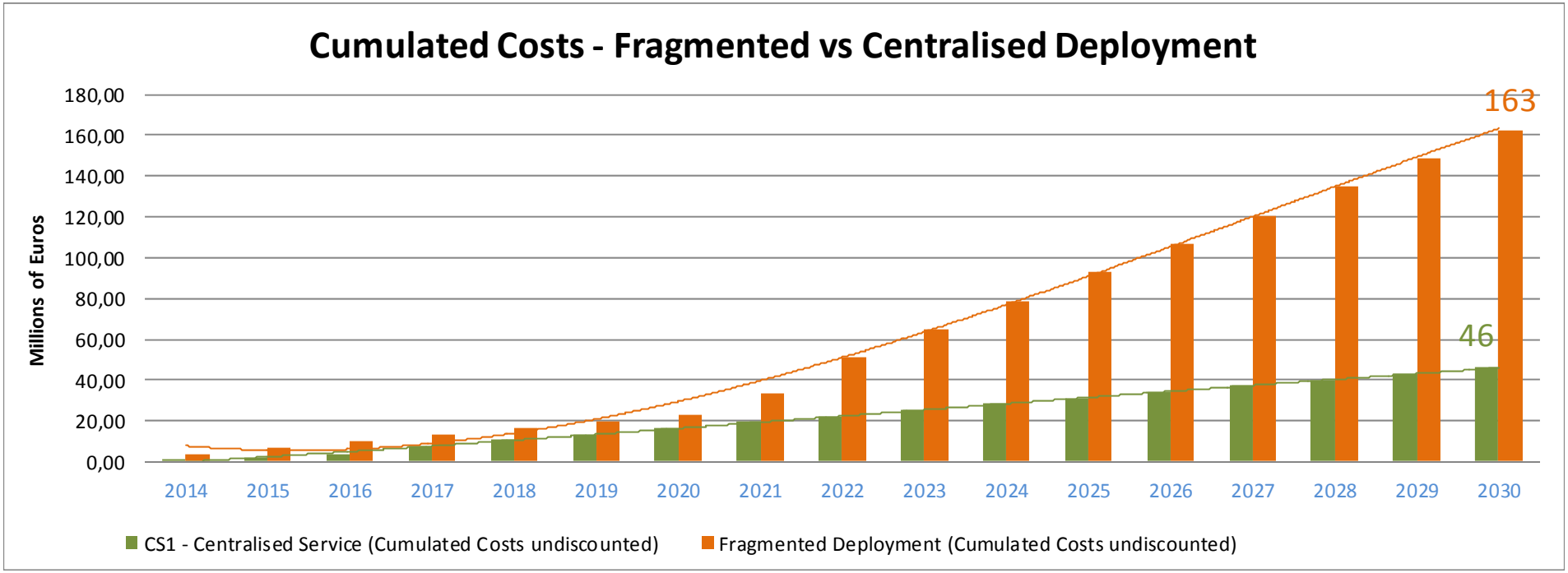
Fragmented Deployment

Annual Operating Costs	Cumulated Operational Benefits	Cumulated Cost 2014 - 2030
14 M€	126 M€ undiscounted	163 M€ undiscounted

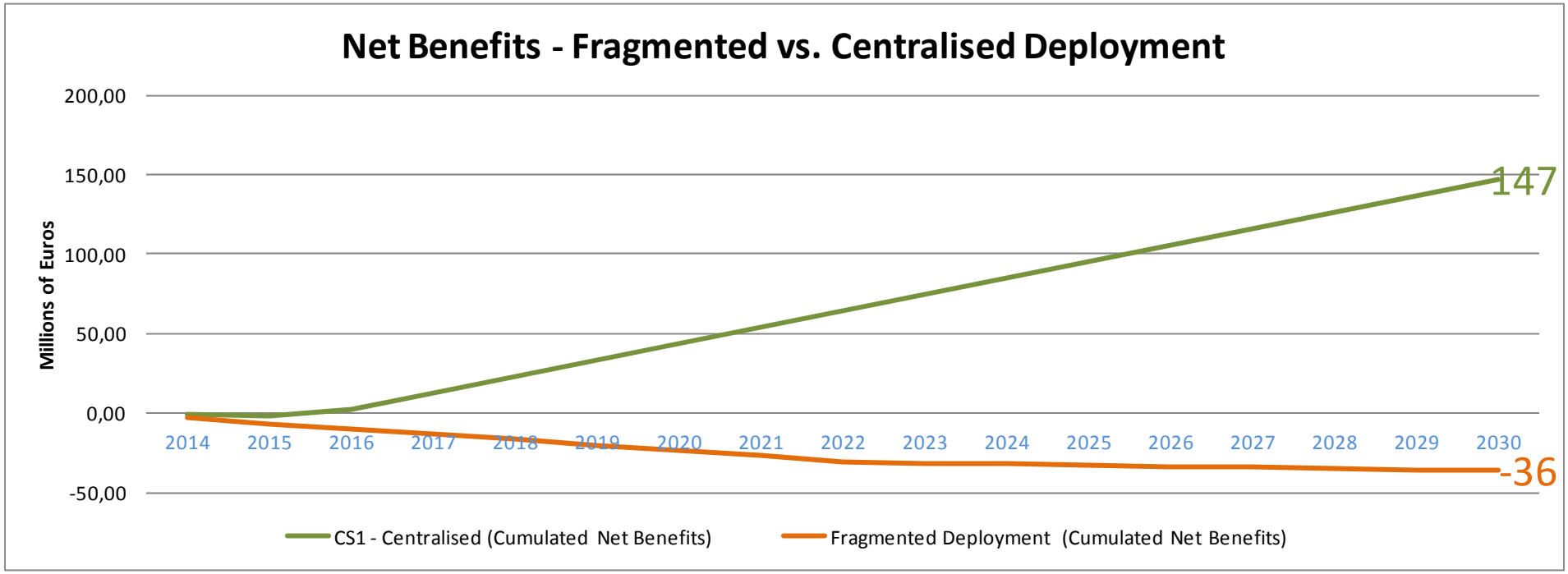
CS#1 Flight Plan and Airport Slot Consistency

Annual Operating Costs	Cumulated Operational Benefits	Cumulated Cost 2014 - 2030
3 M€	193 M€ undiscounted	46 M€ undiscounted

- Cost of CS#1 is lower than Fragmented Deployment in 2014-2030
- Total cost saving reaches 117 M€ by 2030



CS#1 is cost beneficial whereas Fragmented Deployment is not worthwhile



PROCUREMENT PROCEDURE

Relating to the initiation, design and demonstration of the Centralised Services including an optional initial set-up and operations

Alberto Varano
Principal Director Resources
4 July 2013

GENERAL PROCUREMENT PRINCIPLES

General Public Procurement Principles

(i.a.w. EUROCONTROL contract regulations)

- Open competition
- Objectivity, fairness and equal treatment
- No conflict of interest
- Transparency
- Evaluation carried out with greatest care and total impartiality
- Best value for money

BACKGROUND

The process of setting up a Centralised Service consists of 2 phases:

- **Phase 1**: initiate and design the Centralised Service and demonstrate that it is fit for purpose by the end of 2015.

  The Call for Interest (CFI) might include an option to set-up and operate – as part of Phase2 - the Centralised Service for a certain number of years (which will likely be different for the respective CS).
- **Phase 2**: set-up the successful Centralised Service and operate it from 2016 onwards.

PROCUREMENT PROCESS

- Call for Interest (CFI) which will result in nine shortlists of selected candidates (consortium) - one for each Centralised Service – established by EUROCONTROL.

- The objective of the upcoming CFI will be to enable interested parties to establish the necessary partnerships to submit an application and to provide proof of the required experience and track record complying with the requirements of the CFI.

- Subsequently, restricted Calls for Tenders (CfT) will be launched for each Centralised Service to the short-listed consortia.

PUBLICATION

- EUROCONTROL will publish the Call for Interest on the EUROCONTROL procurement website.

- Available documentation for each Centralised Service will include all relevant information such as the CFI Requirements, Technical Specifications, Submission Form which potential tenderers will be able to download directly from the website.

- Mechanism for Questions and Answers will be put-in-place (website). Questions from Parties, which are of general interest, will be made available to all (originator will be made anonymous).

EXCLUSION AND SELECTION CRITERIA

- Only consortia are invited to express their interest for one or several Centralised Services (one submission per CS): *a specifically established grouping or consortium of private and public enterprises*.

- Exclusion criteria apply to each and every member of the grouping or consortium.
  - Any legal entity participating in the CFI procedure must not be in a situation of conflict of interest, bankruptcy, having committed legal offences or not complying with current laws and regulations.

  - Any legal entity participating in the CFI procedure must have the legal, economic, financial and technical capacity required.

TIMELINE

- Launch of the Call for Interest - July 2013
- Deadline for requests for clarifications – 30 August 2013
- Deadline for the submission of expressions of interest – 30 September 2013
- Launch of Call for Tenders – End 2013

CS1 - FAS - ANNEX 12 - EUROCONTROL
Member States and airport coordination levels

No	State	IATA	ICAO	APT Name	Coord Level Summer	Coord Level Winter
1	Albania					
2	Armenia					
3	Austria	VIE	LOWW	VIENNA INTERNATIONAL	3	3
3	Austria	INN	LOWI	INNSBRUCK	2	3
4	Belgium	BRU	EBBR	BRUSSELS NATIONAL	3	3
5	Bosnia and Herzegovina					
6	Bulgaria	SOF	LBSF	SOFIA	3	3
7	Croatia	SPU	LDSP	SPLIT	2	1
8	Cyprus	PFO	LCPH	PAPHOS	2	2
9	Czech Republic	PRG	LKPR	PRAGUE	3	3
10	Denmark	CPH	EKCH	COPENHAGEN AIRPORT - KASTRUP	3	3
		BLL	EKBI	BILLUND AIRPORT	3	3
11	Finland	HEL	EFHK	HELSINKI-VANTAA	3	3
12	France	CDG	LFPG	PARIS CHARLES-DE-GAULLE	3	3
		ORY	LFPO	PARIS ORLY	3	3
		NCE	LFMN	NICE COTE D'AZUR	3	3
		LYS	LFLL	LYON SAINT-EXUPERY	3	3
		CEQ	LFMD	CANNES MANDELIEU	3	
13	Georgia (01/01/2014)					
14	Germany	FRA	EDDF	FRANKFURT	3	3
		DUS	EDDL	DUSSELDORF	3	3
		MUC	EDDM	MUNICH	3	3
		STR	EDDS	STUTTGART	3	3
		TXL	EDDT	BERLIN TEGEL	3	3
		SXF	EDDB	BERLIN SCHOENEFELD	3	3
15	Greece	SKG	LGTS	THESSALONIKI-MACEDONIA	3	3
		CHQ	LGSA	CHANIA	3	1
		JKH	LGHI	CHIOS	3	1
		CFU	LGKR	CORFU	3	1
		HER	LGIR	HERAKLION	3	1
		KLX	LGKL	KALAMATA	3	1
		AOK	LGKP	KARPATHOS	3	1
		KVA	LGKV	KAVALA	3	1
		EFL	LGKF	KEFALLINIA	3	1
		KGS	LGKO	KOS	3	1
		JMK	LGMK	MYKONOS	3	1
		MJT	LGMT	MYTILENE	3	1
		GPA	LGRX	PATRAS-ARAXOS	3	1
		PVK	LGPZ	PREVEZA-LEFKAS	3	1
		RHO	LGRP	RHODES	3	1
		SMI	LGSM	SAMOS	3	1
		JSI	LGSK	SKIATHOS	3	1
		SKG	LGTS	THESSALONIKI-MACEDONIA	3	3
		JTR	LGSR	THIRA	3	1
		ZTH	LGZA	ZAKINTHOS	3	1
		JSH	LGST	SITIA	3	1
		KIT	LGKC	KITHIRA	3	1

No	State	IATA	ICAO	APT Name	Coord Level Summer	Coord Level Winter
		VOL	LGBL	N.ANCHIALOS	3	1
		ATH	LGAV	ATHENS	1	1
16	Hungary	BUD	LHBP	BUDAPEST LISZT FERENC	2	2
17	Ireland	DUB	EIDW	DUBLIN	3	3
18	Italy	FCO	LIRF	ROME Fiumicino - Leonardo da Vinci	3	3
		BGY	LIME	BERGAMO - Orio al Serio	3	3
		CIA	LIRA	ROME Ciampino - G.B. Pastine	3	3
		CAG	LIEE	CAGLIARI - Elmas	3	3
		CTA	LICC	CATANIA - Fontanarossa	3	3
		FLR	LIRQ	FIRENZE - Peretola	3	3
		LIN	LIML	MILANO Linate - Forlanini	3	3
		MXP	LIMC	MILANO Malpensa	3	3
		NAP	LIRN	NAPOLI - Capodichino	3	3
		PMO	LICJ	PALERMO - Falcone Borsellino	3	3
		TRN	LIMF	TORINO - Caselle	3	3
		VCE	LIPZ	VENICE - Marco Polo	3	3
		PNL	LICG	PANTELLERIA - Isola di Pantelleria	3	NIL
		LMP	LICD	LAMPEDUSA - Isola di Lampedusa	3	NIL
19	Latvia				NIL	NIL
20	Lithuania				NIL	NIL
21	Luxembourg	LUX	ELLX	LUXEMBOURG	2	2
22	Malta	MLA	LMML	MALTA international airport	2	2
23	Moldova				NIL	NIL
24	Monaco				NIL	NIL
25	Montenegro				NIL	NIL
26	Netherlands	AMS	EHAM	AMSTERDAM SCHIPHOL	3	3
		RTM	EHRD	ROTTERDAM THE HAGUE AIRPORT	3	3
		EIN	EHEH	EINDHOVEN AIRPORT	3	3
27	Norway	OSL	ENGM	OSLO GARDERMOEN	3	3
		BGO	ENBR	BERGEN FLESLAND	3	3
		SVG	ENZV	STAVANGER SOLA	3	3
28	Poland	WAW	EPWA	WARSAW	3	3
		POZ	EPPO	POZNAN	3	1
29	Portugal	LIS	LPPT	LISBON	3	3
		OPO	LPPR	OPORTO	3	3
		FNC	LPMA	MADEIRA	3	3
		FAO	LPFR	FARO	3	2
30	Romania				NIL	NIL
31	Serbia				NIL	NIL
32	Slovakia	BTS	LZIB	BRATISLAVA -MR Stefanik	2	2
33	Slovenia	LJU	LJLJ	LJUBLJANA	2	2
34	Spain	ALC	LEAL	ALICANTE	3	3
		BCN	LEBL	BARCELONA-EL PRAT	3	3
		BIO	LEBB	BILBAO	3	3
		FUE	GCFV	FUERTEVENTURA	3	3

CS1 - FAS - ANNEX 12 - EUROCONTROL
Member States and airport coordination levels

No	State	IATA	ICAO	APT Name	Coord Level Summer	Coord Level Winter
		LPA	GCLP	GRAN CANARIA	3	3
		XRY	LEJR	JEREZ	3	3
		SPC	GCLA	LA PALMA	3	3
		ACE	GCRR	LANZAROTE	3	3
		AGP	LEMG	MÁLAGA-COSTA DEL SOL	3	3
		PMI	LEPA	PALMA DE MALLORCA	3	3
		TFN	GCXO	TENERIFE NORTE	3	3
		TFS	GCTS	TENERIFE SUR	3	3
		MAD	LEMD	MADRID-BARAJAS	3	3
		LEI	LEAM	ALMERÍA	3	2
		IBZ	LEIB	IBIZA	3	2
		MAH	LEMH	MENORCA	3	2
35	Sweden	ARN	ESSA	STOCKHOLM-ARLANDA	3	3
		BMA	ESSB	STOCKHOLM-BROMMA	3	3
36	Switzerland	GVA	LSGG	GENEVA	3	3
		ZRH	LSZH	ZURICH	3	3
37	The former Yugoslav Republic of Macedonia				NIL	NIL
38	Turkey	IST	LTBA	ISTANBUL / ATATURK	3	3
		AYT	LTAI	ANTALYA	3	2
39	Ukraine	KBP	UKBB	KIEV - BORYSPIL INTL	3	3
40	United Kingdom of Great Britain and Northern Ireland	MAN	EGCC	MANCHESTER	3	3
		LGW	EGKK	LONDON GATWICK	3	3
		STN	EGSS	LONDON STANSTED	3	3
		LTN	EGGW	LONDON LUTON	3	3
		LHR	EGLL	LONDON HEATHROW	3	3
		LCY	EGLC	LONDON CITY	3	3