# Performance Plan

# FABEC

Third Reference Period (2020-2024)

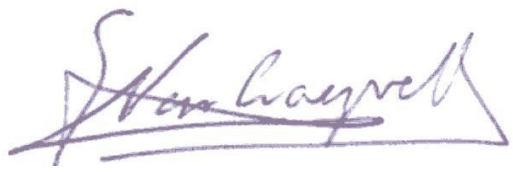
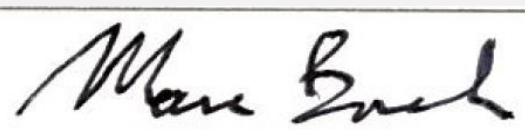
Status: Draft performance plan (Article 12)

Date of issue: 1-10-2019

# Signatories

| Performance plan details | |
|---|---|
| FAB name | FABEC |
| FAB Member States | Belgium, France, Germany, Luxembourg, Netherlands, Switzerland |
| Status of the Performance Plan | Draft performance plan (Article 12) |
| Date of issue | 1-10-2019 |
| Date of adoption of Draft Performance Plan | 1-10-2019 |
| Date of adoption of Final Performance Plan | |

We hereby confirm that the present performance plan is consistent with the scope of Regulation (EU) No 2019/317 pursuant to Article 1 of Regulation (EU) No 2019/317 and Article 7 of Regulation (EC) No 549/2004.

| **Name, title and signature of representative** | |
|---|---|
| **Belgium** | |
| Eugeen Van Craeyvelt, Director-General a.i. of the Belgian Civil Aviation Authority |  |
| **France** | |
| Marc BOREL<br><br>Directeur du Transport Aérien |  |
| **Germany** | |
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| **Luxembourg** | |
| Mr Pierre Jaeger, Director of Civil Aviation Authority, Ministry of Mobility and Public Works |  |
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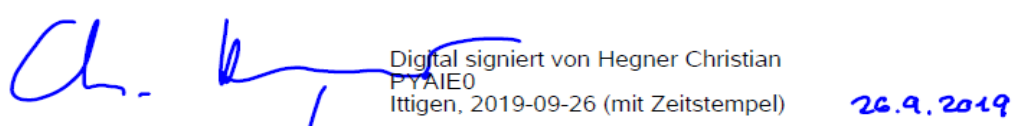
| **Switzerland** | |
| Christian Hegner<br>Director General<br>Federal Office of Civil Aviation (FOCA) |  |

| Additional comments | |
|---|---|

| **Document change record** | | |
|---|---|---|
| Version | Date | Reason for change |
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# 1 - INTRODUCTION

## 1.1 - The situation

| | |
|---|---|
| NSAs responsible for drawing up the Performance Plan | Federal Public Service Mobility and Transport, Belgian Civil Aviation Authority,<br>Belgian Supervisory Authority for Air Navigation Services (BSA-ANS)<br><br>French Civil Aviation Authority, Directorate for Safety of civil aviation;<br>French Civil Aviation Authority, Air Transport Directorate<br><br>German Federal Supervisory Authority for Air Navigation Services<br><br>Luxembourg Civil Aviation Authority<br><br>NSA The Netherlands<br><br>Federal Office for Civil Aviation (FOCA), Safety Division Infrastructure |

### 1.1.1 - List of ANSPs and geographical coverage and services

| | |
|---|---|
| Number of ANSPs | 11 |

| ANSP name | Services | Geographical scope |
|---|---|---|
| skeyes | ATM, MET | Belgium, Luxembourg |
| DSNA | ATM | France |
| DFS | ATM | Germany |
| ANA LUX | ATM, MET | Luxembourg |
| LVNL | ATM | The Netherlands |
| Skyguide | ATM | Switzerland |
| MUAC | ATM | Belgium, Luxembourg, The Netherlands, Germany (North-West) |
| Météo France | MET | France |
| Deutscher Wetterdienst (DWD) | MET | Germany |
| Royal Netherlands Meteorological Institute (KNMI) | MET | The Netherlands |
| Office Féderal de la Météorologie et de Climatologie MétéoSuisse | MET | Switzerland |

**Cross-border arrangements for the provision of ANS services**

| | |
|---|---|
| Number CB arrangements where ANSPs provide services in an other State | 7 |

| ANSPs providing services in the FIR of another State | |
|---|---|
| ANSP Name | Description and scope of the cross-border arrangement |
| LVNL | ATS, FIS, alerting service for Belgium (Skeyes)<br>ATS, FIS, alerting service for Germany (DFS)<br>ATS, FIS, alerting service for Great Britain (NATS) |
| ANA Luxembourg | ATS, FIS for Belgium (Skeyes)<br>ATS, FIS for France (DSNA)<br>ATS, FIS for Germany (DFS) |
| DSNA | AIS (LESU) for Andorra<br>AIS (LNMC) for Monaco<br>ATS (LFSB) - ATS (LFEE) for Switzerland<br>ATS (LFST) - ATS (LFSB) for Germany<br>ATS (LFQQ) for Belgium<br>ATS (LFQQ) - ATS (LFEE) for Great Britain<br>ATS (LFMM) - ATS (LFMN) for Italy |
| SKEYES | ATS, FIS, alerting service for Germany (DFS)<br>ATS, FIS, alerting service, CNS, AIS, MET for Luxembourg (ANA)<br>ATS, FIS, alerting service for The Netherlands (LVNL)<br>ATS, FIS, alerting service for France (DSNA)<br>ATS, FIS, alerting service in Belgium airspace assigned to MUAC |

| | |
|---|---|
| DFS | ATC, FIS, alerting service for The Netherlands (LVNL)<br>ATC, FIS, alerting service for France (DSNA)<br>ATC, FIS, alerting service for Belgium (SKEYES)<br>ATC, AIS, FIS, alerting service for Luxembourg (ANA)<br>ATC, AIS, FIS, alerting service for Switzerland (Skyguide)<br>ATC, alerting service for Poland (PANSA)<br>ATC, AIS, alerting service for Czech Republic (ANS Czech)<br>ATC, AIS, alerting service for Austria (AustroControl) |
| SKYGUIDE | ATS, FIS, alerting service for Italy (ENAV)<br>ATS, alerting service for Austria (AustroControl)<br>ATC, FIS, alerting service, AIS for Germany (DFS)<br>ATS, FIS, alerting service for France (DSNA) |
| MUAC | ATS, FIS, alerting services in Luxembourg airspace above FL245<br>ATS, FIS, alerting services for Denmark<br>ATS, FIS, alerting service for France<br>ATS, FIS, alerting services for Germany |

| | |
|---|---|
| Number CB arrangements where ANSPs from another State provide services in the State | 1 |

| ANSPs established in another Member State providing services in one or more of the State's FIRs | |
|---|---|
| ANSP Name | Description and scope of the cross-border arrangement |
| NATS | ATS, FIS, alerting service, ASM in NL airspace (MUAC) |

## 1.1.2 - Other entities in the scope of the Performance and Charging Regulation as per Article 1(2) last para.

| | |
|---|---|
| Number of other entities | 7 |

| Entity name | Domain of activity | Rationale for inclusion in the Performance Plan |
|---|---|---|
| Belgian Supervisory Authority for Air Navigation Services (BSA-ANS) | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317 |
| French Civil Aviation Authority, Air Transport Directorate | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) |
| German Federal Supervisory Authority for Air Navigation Services | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317 |
| Luxembourg Civil Aviation Authority | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) |
| NSA The Netherlands | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) |
| Federal Office for Civil Aviation (FOCA), Safety Division Infrastructure | Competent authority | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317 |
| Eurocontrol | | Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317 |

## 1.1.3 - Charging zones (see also 1.4-List of Airports)

**En-route**

| | |
|---|---|
| Number of en-route charging zones | 5 |

| | |
|---|---|
| En-route charging zone 1 | Belgium-Luxembourg |
| En-route charging zone 2 | France |
| En-route charging zone 3 | Germany |
| En-route charging zone 4 | Netherlands |
| En-route charging zone 5 | Switzerland |

**Terminal**

| | |
|---|---|
| Number of terminal charging zones | 7 |

| | |
|---|---|
| Terminal charging zone 1 | Belgium EBBR |
| Terminal charging zone 2 | France - Zone 1 |
| Terminal charging zone 3 | France - Zone 2 |
| Terminal charging zone 4 | Germany - TCZ |
| Terminal charging zone 5 | Luxembourg - TCZ |
| Terminal charging zone 6 | Netherlands - TCZ |

| | |
|---|---|
| Terminal charging zone 7 | Switzerland - TCZ |

## 1.1.4 - Other general information relevant to the plan

| Additional comments |
|---|
| Considering the number of cross-border arrangements, they have been collated by ANSP. An extensive summary of these arrangements is annexed. (Annex T - FABEC - Cross-border arrangements.pdf) |

## 1.2 - Traffic Forecasts

### 1.2.1 - En route

**En route Charging zone 1** **Belgium-Luxembourg**

**En route traffic forecast** Local forecast

| **Local Forecast** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 1.240 | 1.275 | 1.312 | 1.349 | 1.369 | 1.394 | 1.413 | 1.432 | 1,8% |
| IFR movements (yearly variation in %) | | 2,9% | 2,9% | 2,8% | 1,5% | 1,8% | 1,4% | 1,3% | |
| En route service units (thousands) | 2.594 | 2.644 | 2.654 | 2.759 | 2.811 | 2.873 | 2.925 | 2.978 | 2,3% |
| En route service units (yearly variation in %) | | 1,9% | 0,4% | 3,9% | 1,9% | 2,2% | 1,8% | 1,8% | |

| Specific local factors justifying not using the STATFOR base forecasts<br>(provide justification below or refer to Annex D for more detailed explanation) |
|---|
| The STATFOR Base scenario from the February 2019 forecast was taken as the starting point. Due to the modification of the requirements for the calculation of en-route service units for the third reference period, the service units shall be calculated according to the actual route flown (during RP2 service units are calculated according to the last filed flight plan).<br>The CRCO made a comparison between the number of service units calculated from actually flown routes and calculated from flight plan. For the charging zone of Belgium/Luxembourg, the difference is estimated at 3.13% (EUROCONTROL Intermediate two-year Forecast – May 2019, Annex 4). This relatively high difference is probably due to the limited size of the Belgium/Luxembourg charging zone with a high proportion of military airspace. Therefore, the STATFOR base forecast is adjusted to the estimated difference in service units as described above. |

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.*

**En route Charging zone 2** **France**

**En route traffic forecast** Local forecast

| **Local Forecast** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 3.241 | 3.328 | 3.418 | 3.479 | 3.542 | 3.606 | 3.671 | 3.737 | 1,8% |
| IFR movements (yearly variation in %) | | 2,7% | 2,7% | 1,8% | 1,8% | 1,8% | 1,8% | 1,8% | |
| En route service units (thousands) | 20.862 | 21.450 | 22.072 | 22.569 | 23.021 | 23.481 | 23.951 | 24.430 | 2,1% |
| En route service units (yearly variation in %) | | 2,8% | 2,9% | 2,3% | 2,0% | 2,0% | 2,0% | 2,0% | |

| Specific local factors justifying not using the STATFOR base forecasts<br>(provide justification below or refer to Annex D for more detailed explanation) |
|---|
| Refer to Annex D for justification of the local forecast. |

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.*

**En route Charging zone 3** **Germany**

**En route traffic forecast** STATFOR Base forecast FEB 2019 (Flight Plan 2017-19, Actual Route 2020-2024)

| **STATFOR Base forecast FEB 2019 (Flight Plan 2017-19, Actual Route 2020-2024)** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 3.259 | 3.404 | - | - | - | - | - | - | - |
| IFR movements (yearly variation in %) | | 4,4% | - | - | - | - | - | - | |
| En route service units (thousands) | 14.374 | 14.989 | - | - | - | - | - | - | - |
| En route service units (yearly variation in %) | | 4,3% | - | - | - | - | - | - | |

**En route Charging zone 4** **Netherlands**

**En route traffic forecast** Local forecast

| **Local Forecast** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 1.287 | 1.329 | 1.329 | 1.362 | 1.378 | 1.397 | 1.413 | 1.427 | 1,4% |
| IFR movements (yearly variation in %) | | 3,2% | 0,0% | 2,5% | 1,2% | 1,4% | 1,1% | 1,0% | |
| En route service units (thousands) | 3.162 | 3.328 | 3.328 | 3.418 | 3.466 | 3.525 | 3.570 | 3.613 | 1,7% |
| En route service units (yearly variation in %) | | 5,2% | 0,0% | 2,7% | 1,4% | 1,7% | 1,3% | 1,2% | |

| Specific local factors justifying not using the STATFOR base forecasts<br>(provide justification below or refer to Annex D for more detailed explanation) |
|---|

NOTE: for reasons of consistent presentation, actual service units for 2017/2018 have been adjusted with the correction factor for charging based on actual routes described below.

The Netherlands will use the growth forecast of STATFOR Base February 2019 as the basis for the RP3 traffic forecast, but will apply two corrections to this forecast:
- Firstly, CRCO figures indicate that the introduction of charging based on actual route will reduce the number of service units in the Dutch en route charging zone by up to 2%. The Dutch NSA considers this reduction to be not insignificant, and therefore a correction is appropriate. CRCO evaluations of the impact of charging based on actual routes covering various time periods lead to different results. The correction applied by the Netherlands is based on the average of the two most recent evaluation: -1,81% (STATFOR February forecast) and -1,97% (STATFOR May Forecast), leading to a correction of -1,89%
- Secondly, actual developments show that traffic growth in 2019 is lagging well behind the 2,6% increase in IFR movements and 2,5% increase in service units included in STATFOR Base February 2019. In fact, since March 2019 monthly service units have been below 2018 levels, and over the first 8 months of the year cumulative growth was -0,1%. Based on these developments, the Netherlands will assume a growth rate of 0,0% for 2019.
Taking into account these adjustments, the IFR movement and service unit forecasts for RP3 have been determined as follows:
- IFR movements 2019 = IFR movements 2018
- Service units 2019 = Service units 2018
- IFR movements 2020-2024 = IFR movements 2019 + growth rate provided by STATFOR Base February 2019
- Service units 2020-2024 = Service units 2019 + growth rate provided by STATFOR Base February 2019 - 1,89% (correction for charging based on actual route)
We have some concerns regarding the question whether a growth rate of over 2% in 2020 and of around 1,5% for the RP3 period is realistic following the experience of zero growth in 2019. To propose a reliable traffic forecast more recent information, taking into account recent developments, should be used. However, at the time of submitting the performance plan, the September 2019 forecast was not yet available.

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.*

**En route Charging zone 5** | **Switzerland**

**En route traffic forecast** | STATFOR Base forecast FEB 2019 (Flight Plan 2017-19, Actual Route 2020-2024)

| **STATFOR Base forecast FEB 2019 (Flight Plan 2017-19, Actual Route 2020-2024)** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 1.110 | 1.167 | 1.204 | 1.240 | 1.258 | 1.280 | 1.297 | 1.316 | 1,8% |
| IFR movements (yearly variation in %) | | 5,2% | 3,2% | 3,0% | 1,5% | 1,7% | 1,3% | 1,5% | |
| En route service units (thousands) | 1.604 | 1.741 | 1.816 | 1.801 | 1.836 | 1.871 | 1.901 | 1.931 | 1,2% |
| En route service units (yearly variation in %) | | 8,6% | 4,3% | -0,9% | 1,9% | 1,9% | 1,6% | 1,6% | |

## 1.2.2 - Terminal

**Terminal Charging zone 1** | **Belgium EBBR**

**Terminal traffic forecast** | STATFOR Base forecast FEB 2019

| **STATFOR Base forecast FEB 2019** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 116,1 | 114,9 | - | - | - | - | - | - | - |
| IFR movements (yearly variation in %) | | -1,1% | - | - | - | - | - | - | |
| Terminal service units (thousands) | 157,8 | 161,1 | - | - | - | - | - | - | - |
| Terminal service units (yearly variation in %) | | 2,1% | - | - | - | - | - | - | |

**Terminal Charging zone 2** | **France - Zone 1**

**Terminal traffic forecast** | Local forecast

| **Local Forecast** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 357,4 | 360,6 | 368 | 376 | 381 | 387 | 391 | 396 | 1,5% |
| IFR movements (yearly variation in %) | | 0,9% | 2,0% | 2,1% | 1,4% | 1,5% | 1,1% | 1,1% | |
| Terminal service units (thousands) | 581,1 | 593,7 | 610,3 | 625,7 | 636,5 | 647,5 | 658,1 | 667,3 | 1,8% |
| Terminal service units (yearly variation in %) | | 2,2% | 2,8% | 2,5% | 1,7% | 1,7% | 1,6% | 1,4% | |

| Specific local factors justifying not using the STATFOR base forecasts<br>(provide justification below or refer to Annex D for more detailed explanation) |
|---|
| Refer to Annex D for justification of the local forecast. |

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.*

**Terminal Charging zone 3** | **France - Zone 2**

**Terminal traffic forecast** | Local forecast

| **Local Forecast** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 566,4 | 571,7 | 584 | 596 | 602 | 609 | 615 | 622 | 1,3% |
| IFR movements (yearly variation in %) | | 0,9% | 2,1% | 2,0% | 1,0% | 1,2% | 1,1% | 1,1% | |
| Terminal service units (thousands) | 518,4 | 528,0 | 548,8 | 561,1 | 566,2 | 573,3 | 580,0 | 587,8 | 1,4% |
| Terminal service units (yearly variation in %) | | 1,8% | 3,9% | 2,2% | 0,9% | 1,2% | 1,2% | 1,3% | |

| Specific local factors justifying not using the STATFOR base forecasts<br>(provide justification below or refer to Annex D for more detailed explanation) |
|---|
| Refer to Annex D for justification of the local forecast. |

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.*

**Terminal Charging zone 4** | **Germany - TCZ**

**Terminal traffic forecast** | STATFOR Base forecast FEB 2019

| **STATFOR Base forecast FEB 2019** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 1.022,3 | 1.061,5 | - | - | - | - | - | - | - |
| IFR movements (yearly variation in %) | | 3,8% | - | - | - | - | - | - | |
| Terminal service units (thousands) | 1.414,4 | 1.464,3 | - | - | - | - | - | - | - |
| Terminal service units (yearly variation in %) | | 3,5% | - | - | - | - | - | - | |

**Terminal Charging zone 5** | **Luxembourg - TCZ**

**Terminal traffic forecast** | STATFOR Base forecast FEB 2019

| **STATFOR Base forecast FEB 2019** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 35,3 | 37,4 | - | - | - | - | - | - | - |
| IFR movements (yearly variation in %) | | 5,9% | - | - | - | - | - | - | |
| Terminal service units (thousands) | 50,9 | 54,4 | - | - | - | - | - | - | - |
| Terminal service units (yearly variation in %) | | 6,9% | - | - | - | - | - | - | |

**Terminal Charging zone 6** | **Netherlands - TCZ**

**Terminal traffic forecast** | STATFOR Base forecast FEB 2019

| STATFOR Base forecast FEB 2019 | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 290,4 | 295,1 | 282,9 | 289,4 | 291,3 | 291,9 | 292,5 | 293,1 | 0,7% |
| IFR movements (yearly variation in %) | | 1,6% | -4,1% | 2,3% | 0,7% | 0,2% | 0,2% | 0,2% | |
| Terminal service units (thousands) | 406,1 | 412,9 | 415,2 | 425,4 | 428,0 | 429,1 | 429,2 | 429,6 | 0,7% |
| Terminal service units (yearly variation in %) | | 1,7% | 0,6% | 2,5% | 0,6% | 0,3% | 0,0% | 0,1% | |

| Comment |
|---|
| Traffic development in the Dutch terminal charging zone faces two major uncertainties:<br>- The future growth of Schiphol Airport. An IFR movement cap of 500k applies until 2020. The Dutch government has decided that further growth after 2020 may be allowed, but only under specific conditions. At the moment of submitting the performance plan, it is not possible to assess the consequences of this decision.<br>- The opening of Lelystad Airport. The opening date of the airport requires a political decision. At the time of submitting the performance plan, no exact date is know.<br>Due to these uncertainties, the Netherlands has decided to use the STATFOR Base forecast of February 2019, as required by the performance and charging regulation, because it is not possible to develop an alternative traffic forecast based on clear assumptions following from available political decisions.<br>ADDITIONAL NOTES: Firstly, we assume that the IFR movement figures provided by STATFOR refer to either departures or arrivals only, and not to total movements (since Schiphol alone already has 500.000 movements). Secondly, we note that STATFOR data on IFR movements includes a decrease of 4,1% in 2019. The background to this decrease is unclear to us, but since these figures do not have any significant effect on the performance plan, we have chosen to maintain the forecast as provided by STATFOR. |

**Terminal Charging zone 7** | **Switzerland - TCZ**

**Terminal traffic forecast** | STATFOR Base forecast FEB 2019

| **STATFOR Base forecast FEB 2019** | 2017A | 2018A | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | CAGR 2019-2024 |
|---|---|---|---|---|---|---|---|---|---|
| IFR movements (thousands) | 222,9 | 225,9 | 229,3 | 234,4 | 236,8 | 240,4 | 243,0 | 246,7 | 1,5% |
| IFR movements (yearly variation in %) | | 1,3% | 1,5% | 2,2% | 1,0% | 1,5% | 1,1% | 1,5% | |
| Terminal service units (thousands) | 283,8 | 291,0 | 296,4 | 303,5 | 307,4 | 311,7 | 315,5 | 321,0 | 1,6% |
| Terminal service units (yearly variation in %) | | 2,5% | 1,9% | 2,4% | 1,3% | 1,4% | 1,2% | 1,7% | |

## 1.3. - FABEC Stakeholder consultation

### 1.3.1. - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| SAFETY: Based on the RP2 performance up to now and a comparison of the current EASA questionnaire with the new questionnaire (latest draft), the NSAs agreed to include the Union-wide targets for Safety in the FABEC RP3 Performance Plan.<br><br>There was hardly feedback to the Safety KPA consulation. Solely two stakeholders (IATA and Easyjet) commented written after the consultation meeting. Both in fact agreed on the approach to stick to the Union-wide targets resulting in an overall little controversial outcome for the KPA Safety.<br><br>The FABEC states decided to stick to the Union-wide performance targets for the KPA Safety as laid down in Commission Implementing Decision (EU) 2019/903. |
| ENVIRONMENT: Concerning the KPA Environment, FABEC underligned the significant correlation between delays and horizontal flight efficiency (HFE) and pointed out, that though targets are set above the yearly reverence values as calculated by the NM, flight efficiency is still very high considering the complexity of FABEC airspace as well as uncontrollable factors such as weather, military action or the proportion of overflights. Though the focus for RP3 projects is clearly in the field of reducing delays (and thereby indirectly improving HFE), investments and airspace restructuring always takes HFE into account. Users accepted this correlation though complaining about the, in their view, lack of ambition by setting targets above the reverence values, especially considering the large investments to be made during RP3. Users pointed out that longer routes result in additional fuel consumption and pose therefore both a financial and environmental challenge. |
| CAPACITY: Globally, airspace users raised general concerns regarding the appropriate level of ambition of the en-route capacity FABEC targets, which is considered too low particularly in the light of recent traffic evolutions which tend to show a downturn in growth. The targets will therefore be easily met and no real changes to the system can be expected.<br><br>An important point of discussion was the fact that delays during summer 2019 are significantly lower than expected (before summer, the NM published a delay forecast at network level for 2019 of 2.46 minutes per flight; following lower delays during summer, the forecast for 2019 is now 1.54 minutes).<br><br>Airspace users consider that this lower than expected traffic, the strong decrease in delays with respect to 2018 achievements and the impact of eNM summer 2019 plan should be considered as an updated basis by FABEC NSAs for RP3 target setting.<br><br>FABEC NSAs acknowledge the fact that performance in FABEC airspace has developed differently from expectations during summer 2019. However, at the same time, they are unable to determine at this stage what the exact causes of the lower than expected delay are: eNM summer measures, better weather conditions, new ATCO working arrangements, fewer strikes and a slowdown in traffic growth all have played their parts.<br><br>Without further analysis over the coming months, NM, ANSPs and FABEC NSAs are unable to determine exactly how large the contribution of various causes were and how traffic and delays will develop till the end of this year. Additionally, several of these causes are outside the influence of FABEC NSAs and ANSPs, with even the relevance, size and scope of eNM measures for future years not yet being clear. It is therefore uncertain whether 2019's better than expected performance will be (fully or partly) repeated in future years.<br><br>In conclusion, FABEC NSAs consider that without further information there is insufficient basis to justify any different, lower en-route capacity FABEC targets than presented during the consultation meeting which are based on RP2 historic achievements and latest available Eurocontrol official traffic and delays forecasts and ANSP expertise and provide lower values than actual FABEC NOP delays forecast. |

INCENTIVE SCHEME: Comments on the main element of the incentive scheme are provided in section 1.3.2, below. In response to user comments, the following statement is made:

*FABEC Council subscribes to the FABEC incentive scheme for en-route capacity (CRSTMP reasons) as developed for the FABEC Performance Plan RP3. The FABEC incentive scheme is in accordance with EU Regulation 2019/317 laying down a performance and charging scheme in the single European sky. The scheme in principle incentivizes through bonus and malus the achievement of the FABEC en route capacity targets by the ANSPs, which are subject to the performance plan. The airspace users have challenged the FABEC en route capacity targets and the incentive scheme at the consultation meeting on 5 September in light of the performance delivered over the first part of 2019, specifically the summer period, and the proposed FABEC en route capacity targets for RP3. The FABEC Council is pleased to see this performance, but it has to be acknowledged that the root causes for this performance over the first part of 2019 as well as the possible structural effect for the coming years need further assessment.*

*The currently available information does not provide sufficient ground to alter the proposed FABEC en route capacity targets as the stakeholders proposed at the consultation. The FABEC Council is neither in the position to alter the incentive scheme as advocated by the airspace users, meaning freezing the bonus for the ANSPs in case the FABEC en route capacity targets are achieved. The FABEC Council commits to deciding on an annual basis whether such a freeze might be suitable in case of the achievement of the en route capacity at a later stage, only when all information concerned is available and depending on the efforts made by the ANSPs to achieve the target.*

## 1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| **Topic of consultation** | **Applicable** | **Results of consultation** |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | Select | Not discussed at FABEC consultation; part of national level consultations. |
| Charging policy | Yes | Not discussed at FABEC consultation; part of national level consultations. |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | The FABEC en route incentive scheme uses a symmetrical maximum amount of bonus and penalty. Based on RP2 lessons learnt, this maximum fixed percentage corresponds to 0,5% of the determined costs.<br><br>Airspace User representatives explained that the incentive scheme should be asymmetric to reflect the risk sharing. They consider that airlines carry 80% of risk. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | The FABEC en route incentive scheme will apply both points of the modulation mechanism as referred to the Annex XIII of the regulation IR (EU) 2019/317: to enable significant and unforeseen changes in traffic to be taken into account and to limit the scope of incentives to cover only CRSTMP delay causes.<br><br>Airspace User representatives did not understand the pivot values going up and down as they should have more stability in the system with the money put into the system (better technology, more ATCOs). In addition, to limit the scope of incentives to cover only CRSTMP delay causes is not supported. |

| | | |
|---|---|---|
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | The FABEC en route incentive scheme is elaborated with a dead band around the pivot value in recognition of the volatile nature of performance at current delay levels. Only penalising does not serve the purpose of improving performance.<br><br>Airspace User representatives did not agree such a symmetric approach. They consider that only a penalty scheme should be developed to manage performance. With reference to the, in the opinion of the users, low and unambitious level of FABEC pivot values, such an incentive scheme does not incentivize ANSPs to perform better but does award a bonus without the expected quality of service. |
| Establishment or modification of charging zones | Select | Not discussed at FABEC consultation; part of national level consultations. |
| Establishment of determined costs included in the cost base for charges | Yes | Not discussed at FABEC consultation; part of national level consultations. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | Select | Not discussed at FABEC consultation; part of national level consultations. |
| Where applicable, decision to apply the simplified charging scheme | Select | Not discussed at FABEC consultation; part of national level consultations. |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Not discussed at FABEC consultation; part of national level consultations. |

## 1.3.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** | |
|---|---|
| Stakeholder group composition | FABEC ATSPs (ANA Luxembourg, DFS, DSNA, LVNL, MUAC, skeyes and skyguide); MET Alliance on behalf of MET providers |
| Dates of main meetings / correspondence | General FABEC stakeholder consultation meeting, 5 September |
| Main issues discussed | See minutes of the meeting |
| Actions agreed upon | See minutes of the meeting |
| Points of disagreement and reasons | See minutes of the meeting |
| Final outcome of the consultation | See minutes of the meeting |

| Additional comments |
|---|
| |

| **#2 - Airspace Users** | |
|---|---|
| Stakeholder group composition | Lufthansa, Ryanair, Condor, Brussels Airlines, Easyjet, IATA, A4E |
| Dates of main meetings / correspondence | General FABEC stakeholder consultation meeting, 5 September |
| Main issues discussed | See minutes of the meeting |
| Actions agreed upon | See minutes of the meeting |
| Points of disagreement and reasons | See minutes of the meeting |
| Final outcome of the consultation | See minutes of the meeting |

| Additional comments |
|---|
| |

| #3 - Professional staff representative bodies | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Not consulted by the NSA; consultation of staff is considered the responsibility of the ANSPs. |

| #4 - Airport operators | |
|---|---|
| Stakeholder group composition | ACI was invited to the FABEC stakeholder consultation meeting as representative body for the airports. A representative of Aeroports de Paris attended the meeting. |
| Dates of main meetings / correspondence | General FABEC stakeholder consultation meeting, 5 September |
| Main issues discussed | See minutes of the meeting |
| Actions agreed upon | See minutes of the meeting |
| Points of disagreement and reasons | See minutes of the meeting |
| Final outcome of the consultation | See minutes of the meeting |

| Additional comments |
|---|
| |

| #5 - Airport coordinator | |
|---|---|
| Stakeholder group composition | EUACA was invited to the FABEC stakeholder consultation meeting as representative body for the airport slot coordinators. No representative attended the meeting. |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| |

| #6 - Other (specify) | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |

| | |
|---|---|
| Final outcome of the consultation | |

| Additional comments |
|---|
| |

## 1.3.1 - Belgium Luxembourg en route Stakeholder consultation

### 1.3.1.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| Airspace users questioned skeyes cost of capital and level of investment. The NSA decided to revise the cost of capital. There is uncertainty on the growth of traffic. The traffic scenario was adjusted, but only with regard to the change of the distance factor, as there are not enough data available to justify an additional adjustment. |

### 1.3.1.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| **Topic of consultation** | **Applicable** | **Results of consultation** |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | Yes - for some FAB Member States | Airspace users were informed on the intention of the Belgian and Luxembourg NSAs to adjust the STATFOR base forecast scenario to reflect the change of the distance factor. No comments were received for the airspace users. |
| Charging policy | Yes | No comments received. |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | Not discussed as this was treated by the FABEC consultation held on the 5th of September. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | Not discussed as this was treated by the FABEC consultation held on the 5th of September. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | Not discussed as this was treated by the FABEC consultation held on the 5th of September. |
| Establishment or modification of charging zones | No | No charging zones were modified. |
| Establishment of determined costs included in the cost base for charges | Yes | See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels and raised doubts about the benefit of the activities and investments that will generate these costs. The NSAs interacted with the ANSPs to make sure all investments and activities are generated in a cost efficient way. However, the NSAs have not reconsidered any of those with the objective of reducing costs. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | No | Not applicable. |
| Where applicable, decision to apply the simplified charging scheme | No | Not applicable. |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Airspace users questioned the level of investments of skeyes, and commented that the benefit of the investments was not demonstrated enough. Skeyes replied that a lot of equipment had to be replaced due to end-of-life. For MUAC, airspace users questioned the investements on new consoles and training centre. MUAC added that these investments were necessary to handle traffic and ensure enough positions for OJTs. |

### 1.3.1.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** | |
|---|---|
| Stakeholder group composition | skeyes, MUAC, ANA |
| Dates of main meetings / correspondence | 29 August 2019 |
| Main issues discussed | Cost-efficiency tartget for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario. |
| Actions agreed upon | |
| Points of disagreement and reasons | One ANSP raised concerns about the drop in traffic that occurred since the start of the eNM measures. The NSA replied that it is aware of this situation, but decided to not take this into account because there are not enough data available to justify an alternative scenario. Additionally, there is no indication on future eNM measures available at this point in time. |

| | |
|---|---|
| Final outcome of the consultation | The NSA decided to use the STATFOR base traffic scenario adjusted to the new distance indicator (-3,13%, based on Annex 4: Preparation of the Service Units Forecast for 2020 provided by CRCO of STATFOR May 2019 intermediate forecast). |

| Additional comments |
|---|
| |

| **#2 - Airspace Users** | |
|---|---|
| Stakeholder group composition | Brussels Airlines, TUI, Lufthansa, IATA, IAG |
| Dates of main meetings / correspondence | 29 August 2019 |
| Main issues discussed | Cost-efficiency tartget for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario. The main topics discussed were: Financial plan of skeyes (especially: the new cost allocation methodology for skeyes between Terminal and en route. skeyes' ATCO-training and their costs, cost of capital and skeyes' staff increase), financial plan of MUAC (especially: increase in costs and depreciation periods) and ANA Luxembourg (especially: increase in costs). |
| Actions agreed upon | |
| Points of disagreement and reasons | Airspace users raised concerns about the cost evolution at skeyes during RP3. Specifically, questions were raised on why more costs were allocated to en route away from terminal, on why ATCO training was not outsourced and why ATCOs did not have to pay for their training themselves and on the increase in non-ATCO staffing.<br>Skeyes indicated for the new cost allocation methodology that it was better in line with operational requirements. This new methodology was verified by the Belgian NSA. Concerning ATCO training, it was stated that this already had been outsourced to EPN Belgium and that paying prospective ATCOs during their training was a standard among ANSPs. The increase in non-ATCO staffing was necessary because skeyes needs the technicians and project managers to realize its planned investments.<br>Additionally, questions were raised on the return on equity used. According to the airspace users, the percentage used should be lower. skeyes indicated that the choice of financing means was a shareholder decision and could not be decided by meeting attendees.<br>For MUAC, airspace users regretted the 20% increase in costs. MUAC indicated that this was mainly due to a new social agreement, which created an equivalent of 28 FTE ATCOs, which are necessary to cope with the current capacity situation.<br>Airspace users indicated that ANA was lacking staff cost limitation measures. ANA replied they intend to invest 27 M€ during RP3, and that the state will bear all the depreciation costs. Indeed there is no charge for the users related to the depreciation costs, the cost of capital and the cost of the electro-technical service. All together this represents an amount of 16 M€ for the RP3 period. |
| Final outcome of the consultation | In conclusion, the Belgian and Luxembourg NSAs decided to accept the financial plans of skeyes, MUAC and ANA to be included in the cost-base of the Belgian-Luxembourg en route charging zone for RP3, apart from the Cost of Capital of skeyes, which will be adjusted. No substantial comments were raised on the proposed traffic scenario. |

| Additional comments |
|---|
| |

| **#3 - Professional staff representative bodies** | |
|---|---|
| Stakeholder group composition | N/A |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Not consulted by the NSA; consultation of staff is considered the responsibility of the ANSPs. |

| **#4 - Airport operators** | |
|---|---|
| Stakeholder group composition | N/A |
| Dates of main meetings / correspondence | |

| | |
|---|---|
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Airport operators were not invited. |

| **#5 - Airport coordinator** | |
|---|---|
| Stakeholder group composition | N/A |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Airport coordinators were not invited. |

| **#6 - Other (specify)** | |
|---|---|
| Stakeholder group composition | N/A |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| |

## 1.3.2 - Belgium terminal Stakeholder consultation

### 1.3.2.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| Airspace users questioned skeyes cost of capital and level of investment. The NSA decided to revise the cost of capital.<br>skeyes requested to increase delay targets compared to RP2 due to the new VVIP procedure. Airspace users complained that this increase should be absorbed by the ANSP. The NSA agreed to the proposal of skeyes. |

### 1.3.2.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| **Topic of consultation** | **Applicable** | **Results of consultation** |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | No | No comments were made on the use of the February STATFOR Base forecast. |
| Charging policy | Yes | In accordance with the third management contract between the State and skeyes, the State decides each year the part of the determined costs for EBBR terminal charging zone financed by the users and the part financed by other revenues. No decision has been taken yet for the period 2020-2024. In 2019, the Belgian state borne 24.97% of the total costs for EBBR |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | An asymmetric incentive scheme was introduced. With a maximum bonus of 0.125% and a maximum penalty of 0.25%. Airspace user welcomed asymmetric scheme but would prefer a bigger bonus. After the consultation, the Belgian NSA decided to elevate the maximum penalty up to 0.5%. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | Belgian Terminal incentive scheme will be based upon CRSTMP-delay only. There will be no modulation applied for unforeseen and significant changes. No comments were made. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | Proposed deadband was presented to the airspace users. No comments were made. |
| Establishment or modification of charging zones | No | No charging zones were modified. |
| Establishment of determined costs included in the cost base for charges | Yes | See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels and raised doubts about the benefit of the activities and investments that will generate these costs. The NSA interacted with skeyes to make sure all investments and activities are generated in a cost efficient way. However, the NSA has not reconsidered any of those with the objective of reducing costs. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | No | Not applicable. |
| Where applicable, decision to apply the simplified charging scheme | No | Not applicable. |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Airspace users questioned the level of investments of skeyes, and commented that the benefit of the investments was not demonstrated enough. Skeyes replied that a lot of equipment had to be replaced due to end-of-life. |

### 1.3.2.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** | |
|---|---|
| Stakeholder group composition | skeyes |
| Dates of main meetings / correspondence | 29 August 2019 |
| Main issues discussed | skeyes requested to set an additional buffer of 0.05 minutes per delay per flight for RP3 due to the new VVIP procedure at Brussels Airport, which implies escort flight by the Federal Police helicopter. |
| Actions agreed upon | The Belgian NSA agreed to include this additional buffer because skeyes has no managerial control on the situation occuring the additional delay. |

| | |
|---|---|
| Points of disagreement and reasons | Lufthansa regretted that skeyes did not keep the same capacity target as during RP2, because costs increased by 20%. |
| Final outcome of the consultation | The NSA agreed to skeyes request. |

| Additional comments |
|---|
| |

| **#2 - Airspace Users** | |
|---|---|
| Stakeholder group composition | Brussels Airlines, TUI, Lufthansa, IATA |
| Dates of main meetings / correspondence | 29 August 2019 |
| Main issues discussed | Cost-efficiency tartget for the Belgian Terminal charging zone, comprising the costs of skeyes (especially: investment level and cost of capital) and the NSA, as well as the capacity target with corresponding incentive scheme. |
| Actions agreed upon | |
| Points of disagreement and reasons | Airspace users raised concerns about the cost evolution at skeyes during RP3. Specifically, questions were raised on the investment level and cost of capital.<br>Skeyes indicated that the investments were necessary due to end-of-life. Additionally, questions were raised on the return on equity used. According to the airspace users, the percentage used should be lower. skeyes indicated that the choice of financing means was a shareholder decision and could not be decided by meeting attendees.<br>Concerning the capacity target, airspace users regretted its rise, but welcomed the asymmetric incentive scheme, although it perceived the penalty as not substantial enough. The NSA replied that the capacity target was adjusted due to a new VVIP procedure which was beyond skeyes managerial control. |
| Final outcome of the consultation | In conclusion, the Belgian NSAs decided to accept the financial plan of skeyes to be included in the cost-base of the Belgian Terminal charging zone for RP3, apart from the Cost of Capital, which will be adjusted. Taking into account the comments of the airspace users, the maximum penalty of the incentive scheme will be revised upwards to 0.5% of the determined costs. |

| Additional comments |
|---|
| |

| **#3 - Professional staff representative bodies** | |
|---|---|
| Stakeholder group composition | N/A. |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Not consulted by the NSA; consultation of staff is considered the responsibility of the ANSPs. |

| **#4 - Airport operators** | |
|---|---|
| Stakeholder group composition | N/A. No airport operator was invited |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Airport operators were not invited. |

| **#5 - Airport coordinator** | |
|---|---|
| Stakeholder group composition | N/A. No airport coordinator was invited. |

| | |
|---|---|
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Airport coordinators were not invited. |

| **#6 - Other (specify)** | |
|---|---|
| Stakeholder group composition | N/A. |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| |

## 1.3.3 - France consultation

### 1.3.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| As a preliminary comment, stakeholders welcomed the consultation meeting and the level of quality of the information provided by NSA and ANSP. In addition, they explained their need of more transparency and data available.<br>Regarding the main points raised by stakeholders such as the reference value 2019, the en route/terminal cost allocation of air navigation charges and the investments or additional measures contributing to enhance the capacity, discussions were fruitfull with stakeholders. Some of them point out that relevant information on investments and human ressources with a level of transparency will enable a good tracking allowing a better understanding.<br>Concerning the RP3 traffic scenario (en route and both terminal charging zones) and the WACC, stakeholders did not agree with the proposals. On the other hand, the WACC value has been revised with a lower figure as requested by NSA.<br><br>Note that airlines bankruptcies (Aigle Azur, XL Airways and Thomas Cook) which happened after the consultation meeting will have a significant effect on 2019's growth. In that respect, final proposed traffic growth (SU) for 2019 compared to 2018 are the following ones: +2.9% for en route charging zone and +2.8% for Terminal charging zone 1 and +3.9% for Terminal charging zone 2. The RP3 traffic scenario has been also slightly revised for terminal charging zone 1 while keeping the same yearly growth as STATFOR Base scenario (see Annex D_FR_Local traffic forecast)<br><br>Finally, DTA received in the afternoon of 30 September 2019 the attached paper and annex from IATA (see Annex C_FR_Consultation - National French Stakeholders consultation 4JULY2019 IATA comments and Annex C_FR_Consultation - National French Stakeholders consultation 4JULY2019 IATA comments_annex) which present their comments and requests as made during, or at the end of the consultation day of 4 July 2019.<br><br>While noting that this paper comes long after the report from that consultation day that was orally endorsed by IATA in a later meeting opportunity, and that it is consistent with the said report, DTA considers that the additional information and justifications provided as outcome to the consultation adequately answered these comments and requests as well, to the extent feasible. |

### 1.3.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| Topic of consultation | Applicable | Results of consultation |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | Yes - for all FAB Member States | <u>En route Service units</u><br>Traffic forecasts take into consideration the latest STATFOR Base forecast including May 2019 update and M3 data (based on actual routes flown and not on flight plan trajectory).<br>Considering the evolution of global risks which could be occured at short or medium term by impacting the air traffic, the current annual 2020 – 2024 RP3 traffic growth is set at +2.25 % for 2020 and then 2 % per annum between 2021 and 2024 while keeping the same annual average growth rate as STATFOR base forecast.<br><br><u>Terminal Service units</u><br><u>Charging zone 1</u>:<br>in order to ensure a more regular profile while keeping the same annual average growth rate as STATFOR Base forecast, traffic forecasts take into account a lower growth in 2020 (2.5% instead of 3.5%) and a higher growth in 2024 (1.4% instead of 0.4%).<br><u>Charging zone 2</u>:<br>Same yearly growths as STATFOR Base scenario (from +2.2% in 2020 to +1.3% in 2024). |
| Charging policy | Yes | The global charging policy for France has been presented and concerns inter alia:<br>- adjustment mechanisms, in particular the CEF funds for which complementary information has been transmitted to stakeholders as a follow-up of the consultation meeting,<br>- cross financing between both terminal charging zones,<br>- the 2020 French Unit rates for en route and both terminal charging zones. |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | Symmetric approach for setting-up the maximum bonus and the maximum penalty of the Terminal incentive scheme: 0.5% of determined costs. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | <u>Terminal incentive scheme</u><br>the modulation mechanism takes into account one of both possibilities, i.e. to limit the scope of incentives to cover only delay causes with the codes C,R,S,T,M and P of the ATFCM user manual. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | <u>Terminal incentive scheme</u><br>the symmetric range around the pivot value is fixed at +/- 50%. |
| Establishment or modification of charging zones | No | |
| Establishment of determined costs included in the cost base for charges | Yes | A complete picture of determined costs for en route and terminal, including cost allocation methodology (see Annex C_FR_Consultation - National French Stakeholders consultation_4JULY2019_Minutes) has been presented. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | No | |
| Where applicable, decision to apply the simplified charging scheme | No | |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | The RP3 monitoring process regarding capital expenditures and investments costs will enable a good tracking of investments with a level of transparency of the implementation of expected benefits associated to such new and existing investments. Complementary information oon investments costs has been transmitted to stakeholders as a follow-up of the consultation meeting. |

### 1.3.3.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** | |
|---|---|
| Stakeholder group composition | DSNA representatives |
| Dates of main meetings / correspondence | Tuesday 4th June |
| Main issues discussed | Based on proposed agenda elaborated by NSA, the following topics have been discussed:<br><br>- RP3 traffic forecasts taking into account last updated potential risks which could impact the traffic growth<br>- Elaboration of the reference value for 2019<br>- En route / Terminal cost allocation of air navigation charges<br>- Investments and additional measures contributing to enhance the capacity<br>- Overall evolution of en route and terminal costs in RP3 including mainly costs of the investment program, staff costs, pension costs, operating internal costs, external costs and methodology/parameters for the calculation of the WACC |
| Actions agreed upon | Considering the discussion on the topics in the agenda, a common approach has raised.<br>Nevertheless, NSA has requested additional information for studying more in depth some of the topics (see Annex C_FR_Consultation - National consultation French ANSP_4JUNE2019_Minutes in French). |
| Points of disagreement and reasons | |
| Final outcome of the consultation | A need to get relevant and additional information when NSA considers as useful for a better transparency and understanding. |

| Additional comments |
|---|
| nil |

| **#2 - Airspace Users** | |
|---|---|
| Stakeholder group composition | Airspace users and Airports representatives: IATA, FNAM, SCARA, BAR France, AIR FRANCE, AIR CANADA, SWISS Airlines, LUFTHANSA Group, VUELING, RYANAIR, Groupe ADP |
| Dates of main meetings / correspondence | Thursday 4th July |

| | |
|---|---|
| Main issues discussed | Based on proposed agenda elaborated by NSA, the following topics have been discussed:<br>- RP3 traffic forecasts taking into account last updated potential risks which could impact the traffic growth (see Annex D_FR_Local traffic forecast)<br>- Elaboration of the reference value for 2019<br>- En route / Terminal cost allocation of air navigation charges<br>- Investments and additional measures contributing to enhance the capacity<br>- Overall evolution of en route and terminal costs in RP3 including mainly costs of the investment program, staff costs, pension costs, operating internal costs, external costs and methodology/parameters for the calculation of the WACC |
| Actions agreed upon | **Reference value 2019**<br>Both methodologies (PRB Linear regression between 2015-2018 and Use of the latest 2019 costs estimates) used to set up the en-route baseline value leads to very close results. The most accurate value has been chosen to set the Baseline value, i.e. the latest 2019 costs estimates.<br>=> Airspace users representatives support the methodology and are satisfied that figures have been updated according to M3 data.<br><br>**En route / Terminal cost allocation of air navigation charges**<br>The system for allocating air navigation costs between terminal and en-route is based on a procedure in which more of 1500 costs lines are scrutinized in order to allocate them to either en-route or terminal charging zones through an algorithm decision tree.<br>=> Airspace users representatives take note without disagreement.<br><br>**Investments and additional measures contributing to enhance the capacity**<br>As from 2020, RP3 additional planned investments to enhance capacity amount to an average of +50M€ per year than in RP2: the announced yearly level of 340 M€ will very likely be reached and maintained through RP3.<br>The reinforcement of ATCO resources is a strategic axis: to implement a controlled increase of ATCO staff, especially to consolidate en-route services and in particular in addressing recruitments and adjusting the training capacity and duration (ENAC and in operational units) with more efficiency. Some productivity measures and more flexible rostering have already been introduced in some ACCs and major APP/TWR units<br>=> Airspace users representatives require more transparency and would welcome additional data regarding the operational level of ATCOs to run an expected quality of services and the ability to track them over time<br><br>**- Overall evolution of en route and terminal costs in RP3 (including mainly costs of the investment program, staff costs, pension costs, operating internal costs, external costs)**<br>=> Airspace users representatives reiterate their need to get a good understanding because it enables airlines to assess the interdependency with costs but also to make the link between costs and capacity recovery. |
| Points of disagreement and reasons | **RP3 STATFOR traffic forecasts en route and terminal (CZ1 & CZ2)**<br>En-route: +2.25% (2.0% + 0.25% including M3 DATA) instead of +3.4%, then +2.0% each next year (same yearly average growth as STATFOR Base over the period);<br>TNC CZ 1: +2.5% instead of +3.5% in 2020, then same as STATFOR Base in 2021 / 2022 / 2023 i.e. +1.7% / +1.7% / +1.6%, finally +1.4% instead of +0.4% in 2024 (same yearly average growth as STATFOR Base over the period);<br>TNC CZ 2: same yearly growths as STATFOR Base scenario (from +2.2% in 2020 to +1.3% in 2024).<br>=> Airspace users representatives consider the STATFOR Base scenario as the only one acceptable and do not see any reason to justify alternate reduced traffic scenarios.<br><br>**- Overall evolution of en route and terminal costs in RP3 (methodology/parameters for the calculation of the WACC)**<br>Considering that the risk borne by DSNA during RP3 is higher than the one in 2014 for RP2 due inter alia to the regulatory provision nearly imposing the base traffic scenario proposed by STATFOR, an external consultant (Mazars) has delivered a study with a WACC proposal to be set up at 5.7% which is a “usual” value for companies in regulated sectors.<br>=> Airspace users representatives are strongly opposite of this WACC proposal as DSNA has no real risk in the new regulation and request a lower figure. |
| Final outcome of the consultation | Considering the discussion and the raised points by the Airspace users' representatives, NSA has committed to send by email four additional document which expects to provide more details on:<br>- a more detailed picture and breakdown of major investments,<br>- the forecast of ATCO numbers in OPS and trainees for the next years,<br>- a table with information on depreciation time according to various type of projects,<br>- information on total value of major co-founded projects.<br>The whole package including the Minutes of the meeting was sent by mid September 2019.<br><br>Regarding cost of capital: NSA has finally proposed to lower the WACC and set a RP3 flat WACC value of 5.2%.<br>Regarding traffic forecast, and taking into account recent traffic and economic evolution, NSA has confirmed proposed local traffic scenarios for en route and TNC CZ1 and base scenario for TNC CZ2 (refer to Annex D_FR_Local traffic forecast ). |

| Additional comments |
|---|
| The stakeholders consultation meeting has dealt with Cost efficiency KPA and Terminal Capacity KPA including the Terminal incentive sheme. All other KPAs has been dealt with in the FABEC stakeholders consultation (5th September).<br><br>Additionally, a Strategic consultation meeting held on 21 May 2019 was organized by French ANSP with the participation of French NSA (Attendance: NM, SJU, Airspace users, Airports and Meteorological services representatives).<br>In the context of elaboration of the performance plan, this meeting consisted in a stakeholders consultation to present and explain the French ANSP investments roadmap to stakeholders (see Minutes in Annex C).<br><br>In relation with this meeting, two major draft documents were distributed and are available in Annex C & E:<br><br>- the DSNA Strategic Plan 2019-2025 which details the strategy of modernization and performance to which the DSNA is committed in order to meet challenges for the three horizons 2019-20, 2022-23 and beyond 2025;<br><br>- the French ATM Strategy (FAS) which is a Strategic Plan to modernize the French Airspace and Air Traffic Management. DSNA and IATA are cooperating on the development and implementation of the strategy outlined in this document and its accompanying plans to support the modernization of airspace and ATM in France and across Europe. FAS is an opportunity to consolidate a national CDM platform to involve our stakeholders.<br><br>Both documents have been presented to stakeholders and discussed during panel sessions. An additional panel reguarding current performance review was also held during the meeting.<br><br>In terms of investments, the key milestone will be the implementation of 4-flight in French ACCs. AIrspace users welcomed this large investment plan but also expressed concerns regarding:<br><br>- the postponment of some projects during RP2 and the impact on RP3 costs of the delayed implementation of 4-Flight;<br>- the effect of such a large implementation plan on capacity during RP3;<br>- the risk associated to this deep technological oriented change (need for a back-up plan in case of late implementation);<br>- airports representatives also expressed the need for some additional quick-wins projects on the top of large scale implementation such as SYSAT project.<br><br>As outcome of this meeting and to take into account stakeholders views, it has been raised that DSNA strategy will be consolidated notably by:<br><br>- managing the risk collectively;<br>- communicating to reduce societal risks;<br>- taking into account the cost of transition (need to find quick wins);<br>- getting a balance between technology improvements and HR. |

| **#3 - Professional staff representative bodies** | |
|---|---|
| Stakeholder group composition | National union representatives: CFDT, UNSA, USAC-CGT, FEETS-FO, SNCTA |
| Dates of main meetings / correspondence | Tuesday 9th July |
| Main issues discussed | Based on proposed agenda, the following topics have been discussed:<br>- RP3 traffic forecasts taking into account last updated potential risks which could impact the traffic growth<br>- Elaboration of the reference value for 2019<br>- En route / Terminal cost allocation of air navigation charges<br>- Investments and additional measures contributing to enhance the capacity<br>- Overall evolution of en route and terminal costs in RP3 including mainly costs of the investment program, staff costs, pension costs, operating internal costs, external costs and methodology/parameters for the calculation of the WACC |
| Actions agreed upon | n/a |
| Points of disagreement and reasons | n/a |
| Final outcome of the consultation | National union representatives were satisfied by getting RP3 relevant information while pointing out the need of transparency in order to prepare the discussions related to the next social agreement. |

| Additional comments |
|---|
| Although a consultation is not required for the professional staff representative bodies, a so-called Performance meeting was held only as an information one. |

| **#4 - Airport operators** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |

| | |
|---|---|
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| see French National Consultation meeting on 4th of July |

| **#5 - Airport coordinator** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| n/a |

| **#6 - Other (specify)** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| n/a |

## 1.3 - Stakeholder consultation - Germany 21 Aug 2019

### 1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| Airspace Users focussed on transparency and expressed their wish to receive more information on the composition of the cost base with focus on staff costs as well as on investments with a focus on cost-benefit-analyses as they did not see a direct user benefit in all investments. In addition, stakeholders underlined that uncertain costs such as determined costs for the "Zukunfts- und Kapazitätspakt" as well as investments of DFS should be closely monitored and unspent moneys should be returned to the users. Also the calculation of the baseline, taking into account 2019 actual costs modulated for RP3 methodoloy was questioned.<br>With regard to the introduction of a Drone Detection System (DDS), Airspace Users criticized both it's inclusion into the cost base for Terminal Services as well as the lack detail as far as the planning is concerned.<br>Concerning the incentive scheme for terminal services, Airspace Users noted that considering the past years' performance, reaching a target that includes a considerable buffer should not be rewarded financially.<br><br>As a consequence, GE NSA is going to provide more detailed information on the development of staff costs at DFS (notably from 2019 to 2020) as well as on investments and certain other points of the cost base. In addition, the targets for terminal services and the respective incentive scheme were revised. |

### 1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| Topic of consultation | Applicable | Results of consultation |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | No | DFS raised the issue that in 2019, traffic growth is decreasing in comparison with the STATFOR Forecast Base Scenario that was published in February 2019 and also in comparison with the STATFOR Forecast that was published in May 2019.<br><br>However, Airspace Users underlined the fact that traffic had been underestimated in RP2. |
| Charging policy | Yes | ./. |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | Considering the proposed target that included buffers for various risks, the symmetric Incentive Scheme that was presented, was not considered appropriate by the Airspace Users. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | For the mandatory incentive scheme for terminal services, only delay that is attributed to the causes C, R, S, T, M and P according to the ATFCM manual are taken into account. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | ./. |
| Establishment or modification of charging zones | No | |
| Establishment of determined costs included in the cost base for charges | Yes | Stakeholders asked for more transparency on certain elements of the cost base (staff DFS, State) while complaining about the overall cost development (DFS, MUAC, State). |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | No | |
| Where applicable, decision to apply the simplified charging scheme | No | |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Stakeholders asked for more transparency on the specific investment projects including CBAs and the effect on performance targets. |

### 1.3.3 - Consultation of stakeholder groups on the performance plan

| #1 - All stakeholders | |
|---|---|
| Stakeholder group composition | ANSPs: DFS Deutsche Flugsicherung GmbH, MUAC, DWD (German Weather Service); Airlines: Condor Flugdienst GmbH, Deutsche Lufthansa Group, easyJet, IAG, Ryanair, SAS Scandinavian Airlines, TUIFly; Airline Associations: BARIG Board of Airline Representatives in Germany, BDF Bundesverband der Deutschen Fluggesellschaften, IATA International Air Transport Association; Professional staff representative bodies: ATCEUC Air Traffic Controllers European Unions Coordination, DFS Gesamtbetriebsrat, GdF Gewerkschaft der Flugsicherung, IFATSEA International Federation of Air Traffic Safety Electronics Associations; Airport Operators: FraPort AG; Others: German AirForce (ZentrLuftOp), Eurocontrol, European Commission, Performance Review Body. |
| Dates of main meetings / correspondence | Wednesday, 21 August 2019; deadline for handing in written comments: Thursday, 5 September 2019. |
| Main issues discussed | Full consultation according to Articles 10 (4) and 24 (2) of the IR (EU) 2019/317 of the draft performance plan, including on the performance targets and incentive schemes contained therein as well as the intended establishment of the determined costs included in the cost base for en route and terminal charges, new and existing investments, service unit forecasts and charging policy for the reference period concerned.<br><br>In particular<br>- general assumptions on inflation and traffic<br>- determined costs and investments of DFS (including DDS and FTE development), MUAC and DWD<br>- determined costs for state costs<br>- targets for terminal services including a proposal for the respective incentive scheme and<br>- the expected chargeable unit rates for 2020<br>were presented and discussed. |
| Actions agreed upon | DFS consented to provide more detailed information in investment projects including a more detailed explanation on their effect on performance targets. The NSA also consented to provide futher information on the development of the composition of the State cost base over the course of RP2 and RP3 as well as to review the target setting and the incentive scheme for terminal services. |
| Points of disagreement and reasons | ./. |

| | |
|---|---|
| Final outcome of the consultation | NSA has proposed lower targets for terminal services as well as an incentive scheme taking into account that the set target already includes buffers for technical and staffing risks. More detailed information was included in the Draft Performance Plan and/or distributed to the stakeholders. |

| Additional comments |
|---|
| In addition to the only national consultation, a consultation on FABEC level was held on 5 September 2019 in Luxemburg, dealing with the performance targets in the key performance areas Safety, Environment and Capacity for en route services including the respective incentive scheme.<br><br>All stakeholders were invited to the only national consultation. Representatives of the European Commission and the Performance Review Body were admitted as observers.<br><br>The invitation as well as the presentations and the minutes are available as Annex C to this performance plan. |

## 1.3 - Luxembourg terminal Stakeholder consultation

### 1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| The subjects of the terminal consultation were the terminal cost-efficiency, including the established modulation of air navigation charges and the traffic risk sharing mechanism, as well as the terminal capacity including the terminal incentive scheme. After the presentation by ANA and DAC/NSA, a question & answer session allowed the airspace users to formulate any questions and comments. The users stressed out that the amount of information provided during the presentation was hard to follow and that they regret the fact that the presentation was not handed out before the meeting. Questions raised by the users were the following: if SIS costs are included in the PP; how ANA determines the required number of ATCOs; why ANA estimates the ATCO failure rate at 50%; how ANA copes with delay; why parts of electricity costs ar not borne by the aerodrome budget; why the target value for ATFM delay (CRSTMP causes) have been set to 0,05 min/flight; if VFR flights are excluded; why the CO2 factor is not included in the modulation; etc. After an open discussion and explanations provided by ANA and DAC/NSA it was felt that the users were not in opposition to the proposed performance plan. Additionally the presentation was sent to the users right after the consultation with an additional week time to provide questions and comments in written form. No further comments from the users were received and the DAC/NSA did not see the necessity to make changes to the proposed performance plan. |

### 1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| Topic of consultation | Applicable | Results of consultation |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | No | n/a |
| Charging policy | Yes | No specific comments by the stakeholders |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | No comments formulated about the maximum financial advantages and disadvantages in the incentive scheme. |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | The proposal for using CRSTMP causes only has not been challenged by the users. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | No specific comments by the stakeholders |
| Establishment or modification of charging zones | No | |
| Establishment of determined costs included in the cost base for charges | Yes | No specific comments by the stakeholders |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | Yes - for some FAB Member States | Luxembourg terminal incentive scheme will be based upon CRSTMP-delay only. The users didn't challenge this choice, |
| Where applicable, decision to apply the simplified charging scheme | No | n/a |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | The proposed investments have been detailed. The cost of these investments will be fully borne by the State. |

### 1.3.3 - Consultation of stakeholder groups on the performance plan

| #1 - ANSPs | |
|---|---|
| Stakeholder group composition | ANA |
| Dates of main meetings / correspondence | National stakeholder consultation 3 September 2019 |
| Main issues discussed | See agenda of the meeting (Annex C_LU_Consultation - Agenda of the meeting.pdf) |
| Actions agreed upon | See minutes of the meeting (Annex C_LU_Consultation - Minutes of the meeting.pdf) |
| Points of disagreement and reasons | See minutes of the meeting (Annex C_LU_Consultation - Minutes of the meeting.pdf) |
| Final outcome of the consultation | No changes to the proposed performance plan |

| Additional comments |
|---|

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|---|
| |

| #2 - Airspace Users | |
|---|---|
| Stakeholder group composition | Luxembourg Airport Users Committee |
| Dates of main meetings / correspondence | National stakeholder consultation 3 September 2019 |
| Main issues discussed | See agenda of the meeting (Annex C_LU_Consultation - Agenda of the meeting.pdf) |
| Actions agreed upon | See minutes of the meeting (Annex C_LU_Consultation - Minutes of the meeting.pdf) |
| Points of disagreement and reasons | See minutes of the meeting (Annex C_LU_Consultation - Minutes of the meeting.pdf) |
| Final outcome of the consultation | No changes to the proposed performance plan |

| Additional comments |
|---|
| The Luxembourg Airport Users Committee has been invited to the national stakeholder consultation. The AUC represents all the airlines active on Luxembourg airport. |

| #3 - Professional staff representative bodies | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Not invited and consulted by the NSA as it is considered the responsability of the ANSP. |

| #4 - Airport operators | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| The airport operator was not invited. |

| #5 - Airport coordinator | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| N/A |

| #6 - Other (specify) | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |

| | |
|---|---|
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| N/A |

## 1.3.6. - Netherlands Stakeholder consultation

### 1.3.6.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| The Netherlands intentionally organised its consultation meeting on the national elements of the FABEC performance plan at an early stage, to ensure there would be sufficient time available to take stakeholder comments into account in the further development of the plan. Stakeholders were clearly informed that this would be the only consultation meeting, but that written comments would be welcome following the meeting.<br>The RP3 plans for the Netherlands include an extensive portfolio of projects and activities to modernise ANS provision. This portfolio does however lead to cost increases. The main points raised during the consultation meeting were a general concern of airspace users regarding cost increases, and a particular concern regarding the limited view of the benefits to users of the various planned projects and activities. In general, users requested significantly more detail on various elements of the plan. Users did not question any particular planned projects or activities that were presented during the meeting.<br>In response, following the consultation meeting, effort has been put into creating a clearer view on benefits of the various planned projects and initiatives, noting that such benefits are not always quantifiable, and can be related to performance areas that are outside the scope of the performance scheme, such as sustainability, security and business continuity. Benefits are also not always directly aimed at airspace users.<br>The Netherlands considers transparancy towards stakeholders as important, but also stresses the need for a correct allocation of roles. Several requests from users for detailed information go beyond the appropriate level of consultation and the evaluation of such detailed information is considered as the role of the regulator.<br>Stakeholders were provided with information on all required topics for consultation before and during the meeting, but failed to comment on the available and complete information in many cases, asking for further details despite having informed that there would be no further consultation meeting. |

### 1.3.6.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| **Topic of consultation** | **Applicable** | **Results of consultation** |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | Yes - for some FAB Member States | Users were informed about the intention of the Netherlands to make two adjustments to STATFOR base forecast for the en route zone (see relevant part of this performance plan). These adjustments were described in the material provided before the consultation meeting, and (briefly) discussed during the meeting. Users made no comments during the meeting - possibly due to time limitations. In their written response, users only commented on the correction due to charging based on actual routes, asking for updated information on the effect on the DUC, despite the fact that this information was already included in the material distributed before the meeting. Since users made no clear comments on the information provided, no changes were made in response to user comments. Users made several comments regarding the impact of uncertainty around the effect of Lelystad and Schiphol on traffic growth. As indicated in the relevant part of this performance plan, in the absence of government decisions regarding traffic at these airports, the Netherlands is unable to justify any traffic forecast other than the STATFOR base scenario of February 2019. |
| Charging policy | Yes | No comments made by stakeholders |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | Users expressed a preference for a non-symmetric incentive scheme and proposed a maximum penalty of 1% and a maximum bonus of 0,5%. The Netherlands considers a symmetric distribution of bonus and penalty to be the fairest format for an incentive scheme, and therefore has not changes its proposal based on stakeholder feedback. |

| | | |
|---|---|---|
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | Yes | Users do not support the use of CRSTMP-only pivot values. The Netherlands appreciates the issue: ANSPs deliver their performance in terms of CRSTMP-related delays, but users experience all causes of delay. This makes it difficult to define a scheme within the current rules that is fair to both parties. However, since this incentive scheme is part of a performance scheme for ANS provision, we consider it inappropriate to penalise the ANSP for delays that are outside their scope, but equally we do not support awarding a bonus when the performance level is the result of delay causes outside the ANSP scope. We therefore maintain a scheme based on CRSTMP codes only.<br>As a compromise, the NSA proposed to include as an additional condition that a bonus based on CRSTMP-performance would only be awarded if the all causes target has also been met (and vice versa for penalties). This was not supported by the ANSP, and due to questions regarding compliance with the regulation, this option was not pursued. |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | No comments made by stakeholders |
| Establishment or modification of charging zones | No | During RP3, Lelystad airport will be opened for commercial air traffic, and will be added to the termnal charging zone. At the time of the consultation meeting, the assumption in the plan was that Lelystad would be added on 1 January 2020, but it has now been decided to add Lelystad at a later date, through application of the process described in Article 21(5) of the performance regulation. |
| Establishment of determined costs included in the cost base for charges | Yes | See description of main points discussed during the consultation meeting: users expressed general concerns about the cost levels, but did not question the extensive portfolio of projects and activities that lead to these costs. The NSA has continued to work closely with the service providers to ensure all planned activities are delivered in a cost efficient way, but has not reconsidered the overall portfolio with the objective of reducing costs. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | Select | Not applicable. |
| Where applicable, decision to apply the simplified charging scheme | Select | Not applicable. |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Users did not question the need for the proposed investments, but did express concerns about the general level of determined costs resulting from the project portfolio, and about the lack of clarity on expected benefits. In response, more details have been provided in the performance plan on the benefits to users. |

### 1.3.6.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** | |
|---|---|
| Stakeholder group composition | LVNL, MUAC, KNMI |
| Dates of main meetings / correspondence | National stakeholder consultation meeting 2 July |

| | |
|---|---|
| Main issues discussed | Discussion of all national elements of the FABEC performance plan |
| Actions agreed upon | See minutes of the meeting. |
| Points of disagreement and reasons | See minutes of the meeting. |
| Final outcome of the consultation | See minutes of the meeting. |

| Additional comments |
|---|
| |

| **#2 - Airspace Users** | |
|---|---|
| Stakeholder group composition | IATA, BARIN, KLM, Lufthansa, easyJet, Transavia, Air Canada, |
| Dates of main meetings / correspondence | National stakeholder consultation meeting 2 July |
| Main issues discussed | Discussion of all national elements of the FABEC performance plan |
| Actions agreed upon | See minutes of the meeting. |
| Points of disagreement and reasons | See minutes of the meeting. |
| Final outcome of the consultation | See minutes of the meeting. |

| Additional comments |
|---|
| Invitations for the national stakeholder consultation meeting were sent to the ten largest airline custoomers in each of the two charging zones in Dutch airspace, as well as relevant national and international representative bodies (including GA).<br><br>Following the meeting, and in line with airspace user requests, it was decided to update the plan by removing costs for service provision at Lelystad airport. This airport will now be added to the terminal charging zone at a later stage, in line with ARticle 21(5) of the performance regulation. |

| **#3 - Professional staff representative bodies** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Not consulted by the NSA; consultation of staff is considered the responsibility of the ANSPs. |

| **#4 - Airport operators** | |
|---|---|
| Stakeholder group composition | |

| | |
|---|---|
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Schiphol Group, as the main airport operator in the Netherlands, was invited to the general stakeholder consultation meeting, but did not attend. |

| **#5 - Airport coordinator** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| The airport coordinator was not consulted. |

| **#6 - Other (specify)** | |
|---|---|
| Stakeholder group composition | Ministry of Defence |
| Dates of main meetings / correspondence | National stakeholder consultation meeting 2 July |
| Main issues discussed | Discussion of all national elements of the FABEC performance plan |
| Actions agreed upon | See minutes of the meeting. |
| Points of disagreement and reasons | See minutes of the meeting. |
| Final outcome of the consultation | See minutes of the meeting. |

| Additional comments |
|---|
| Ministry of Defence attended the consultation meeting as observer, partly in relation to the planned integration of civil and military service providers during RP3. |

## 1.3 - Switzerland Stakeholder consultation

### 1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

| Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan |
|---|
| Cost Efficiency: Capitalization rules<br><br>The impact of the change in application of capitalization rules has a significant impact on En Route and Terminal charges. In order to reduce the impact for airspace users, Skyguide proposes a mechanism of distributing the charge of these restructuring costs over RP3 and RP4.<br><br>Capacity: Delay level<br><br>An increase delay level is forecasted in En Route and Terminal over RP3. It needs however to be taken into account that skyguide is at a very low level today. Skyguide is implementing a paradigm shift via Virtual Center in order to cope with long-term forecasted traffic increase, but the current forecast represents still an increase vs. today's situation.<br><br>During the Swiss Stakeholder Consultation on 28th August 2019 and after it, there have been follow up discussions. |

### 1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

| **Topic of consultation** | **Applicable** | **Results of consultation** |
|---|---|---|
| Where applicable, decision to diverge from the STATFOR base forecast | Yes - for some FAB Member States | During the Swiss User Consultation on 28th August, the Users were informed on the use of STATFOR Base Forecast FEB 2019 (Flight Plan 2017-19, Actual Route 2020-2024). |
| Charging policy | Yes | Determined costs plus adjustments according to the regulation. No cross-financing between terminal charging zones. |
| Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity | Yes | Please refer to FABEC consultation |
| Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity | No | |
| Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity | Yes | En route Capacity: Please refer to FABEC consultation<br>Terminal Capacity: Symetric range |
| Establishment or modification of charging zones | No | |
| Establishment of determined costs included in the cost base for charges | Yes | The impact of the change in application of capitalization rules has a significant impact on En Route and Terminal charges. In order to reduce the impact for airspace users, skyguide proposes a mechanism of distributing the charge of these restructuring costs over RP3 and RP4. |
| Where applicable, values of the modulated parameters for the traffic risk sharing mechanism | No | |
| Where applicable, decision to apply the simplified charging scheme | No | |
| New and existing investments, and in particular new major investments, including their expected benefits | Yes | Major investments including the identified (today) benefits have been presented. |

### 1.3.3 - Consultation of stakeholder groups on the performance plan

| **#1 - ANSPs** |
|---|

| | |
|---|---|
| Stakeholder group composition | Skyguide Representatives (Capacity, Cost Efficiency, Safety and Environment) |
| Dates of main meetings / correspondence | Multiple Meetings during 2018 and 2019 |
| Main issues discussed | RP3 Performance Planning<br>En route/Terminal cost allocation<br>Traffic Forecast<br>Starting Point<br>Capacity Development in RP3<br>Capitalization Rules<br>National Developments<br>Between others |
| Actions agreed upon | Discussion took place. |
| Points of disagreement and reasons | Various follow-up meetings took place. |
| Final outcome of the consultation | To establish a coordinated NPP. |

| Additional comments |
|---|
| Multiple meetings between skyguide and the NSA have taken place in order to establish a coordinated NPP. |

| **#2 - ANSPs** | |
|---|---|
| Stakeholder group composition | FOCA, METEO CH |
| Dates of main meetings / correspondence | Multiple Meetings during 2019 |
| Main issues discussed | RP3 Performance Planning<br>RP3 Planning Deadlines<br>Regulation Requirements<br>Costs |
| Actions agreed upon | Discussion took place. |
| Points of disagreement and reasons | Various follow-up discussion took place. |
| Final outcome of the consultation | To establish a coordinated NPP. |

| Additional comments |
|---|
| Coordination between FOCA and METEOCH have taken place in order to establish a coordinated NPP. |

| **#3 - Airspace Users** | |
|---|---|
| Stakeholder group composition | IATA, Swiss, United, Air France, Air France- KLM, EasyJet Switzerland, Etihad, Lufthansa Group |
| Dates of main meetings / correspondence | Swiss Stakeholder Consultation |
| Main issues discussed | RP2 + RP3 |
| Actions agreed upon | Please refer to the Swiss Stakeholder Consultation Minutes |
| Points of disagreement and reasons | Please refer to the Swiss Stakeholder Consultation Minutes |
| Final outcome of the consultation | Please refer to the Swiss Stakeholder Consultation Minutes |

| Additional comments |
|---|
| Please refer to the Swiss Stakeholder Consultation Minutes. |

| #4 - Airspace Users | |
|---|---|
| Stakeholder group composition | skyguide + Swiss |
| Dates of main meetings / correspondence | 23-9-2019 |
| Main issues discussed | Impact of a more restrictive application of capitalization rules. |
| Actions agreed upon | Swiss supports skyguide / FOCA proposal to EU Commission to smoothen the financial impact on a longer period than RP3. |
| Points of disagreement and reasons | N/A |
| Final outcome of the consultation | Request to be made to EU Commission. |

| Additional comments |
|---|
| On top of the user consultation, a specific meeting has taken place between skyguide and Swiss. |

| # - Professional staff representative bodies | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| N/A |

| # - Airport operators | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| Airport operators were invited to the user consultation. |

| # - Airport coordinator | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |

| | |
|---|---|
| Final outcome of the consultation | |

| Additional comments |
|---|
| N/a |

| **#5 - Other (specify)** | |
|---|---|
| Stakeholder group composition | |
| Dates of main meetings / correspondence | |
| Main issues discussed | |
| Actions agreed upon | |
| Points of disagreement and reasons | |
| Final outcome of the consultation | |

| Additional comments |
|---|
| |

## 1.4 - List of airports subject to the performance and charging Regulation

### 1.4.1 - Airports as per Article 1(3) (IFR movements ≥ 80 000)

| ICAO code | Airport name | Charging Zone | IFR air transport movements | | | |
|---|---|---|---|---|---|---|
| | | | 2016 | 2017 | 2018 | Average |
| EBBR | Brussels | Belgium EBBR | 218.120 | 232.719 | 229.957 | 226.932 |
| LFPG | Paris/Charles-De-Gaulle | France - Zone 1 | 479.199 | 482.678 | 488.117 | 483.331 |
| LFPO | Paris/Orly | France - Zone 1 | 237.708 | 232.139 | 232.374 | 234.074 |
| LFMN | Nice/Côte d'Azur | France - Zone 2 | 139.549 | 142.623 | 143.599 | 141.924 |
| LFLL | Lyon/Saint-Exupéry | France - Zone 2 | 110.638 | 112.331 | 113.434 | 112.134 |
| LFML | Marseille/Provence | France - Zone 2 | 96.281 | 97.473 | 97.770 | 97.175 |
| LFBO | Toulouse/Blagnac | France - Zone 2 | 90.977 | 98.991 | 97.154 | 95.707 |
| EDDF | Frankfurt | Germany-TMZ | 462.903 | 475.535 | 512.099 | 483.512 |
| EDDM | Munich | Germany-TMZ | 391.744 | 401.849 | 410.528 | 401.374 |
| EDDL | Dusseldorf | Germany-TMZ | 217.041 | 221.067 | 218.391 | 218.833 |
| EDDT | Berlin-Tegel | Germany-TMZ | 183.959 | 171.882 | 185.309 | 180.383 |
| EDDH | Hamburg | Germany-TMZ | 152.323 | 154.478 | 149.338 | 152.046 |
| EDDK | Cologne/Bonn | Germany-TMZ | 134.393 | 138.832 | 141.991 | 138.405 |
| EDDS | Stuttgart | Germany-TMZ | 119.023 | 117.993 | 128.323 | 121.780 |
| EDDB | Schoenefeld-Berlin | Germany-TMZ | 95.088 | 100.122 | 101.054 | 98.755 |
| EHAM | Amsterdam | Netherlands-TMZ | 490.436 | 508.299 | 511.321 | 503.352 |
| LSZH | Zurich | Switzerland-TMZ | 262.610 | 263.549 | 271.578 | 265.912 |
| LSGG | Geneva | Switzerland-TMZ | 183.079 | 183.591 | 180.221 | 182.297 |

### 1.4.2 Other airports added on a voluntary basis as per Article 1(4)

**a) Belgium**

| Number of airports | 0 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |

| Additional comments |
|---|
| |

**a) France**

| Number of airports | 52 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |
| LFSB | Bale/Mulhouse | France - Zone 2 | |
| LFBD | Bordeaux/Merignac | France - Zone 2 | |
| LFPB | Paris/Le Bourget | France - Zone 2 | |
| LFRS | Nantes/Atlantique | France - Zone 2 | |
| LFMT | Montpellier/Méditerranée | France - Zone 2 | |
| LFST | Strasbourg/Entzheim | France - Zone 2 | |
| LFOB | Beauvais/Tillé | France - Zone 2 | |
| LFQQ | Lille/Lesquin | France - Zone 2 | |
| LFRN | Rennes/St-Jacques | France - Zone 2 | |
| LFKJ | Ajaccio/Napoléon-Bonaparte | France - Zone 2 | |
| LFLC | Clermont-Ferrand/Auvergne | France - Zone 2 | |
| LFRB | Brest/Bretagne | France - Zone 2 | |
| LFMD | Cannes/Mandelieu | France - Zone 2 | |
| LFKB | Bastia/Poretta | France - Zone 2 | |
| LFBZ | Biarritz/Bayonne-Anglet | France - Zone 2 | |
| LFBP | Pau/Pyrénées | France - Zone 2 | |
| LFPN | Toussus/Le-Noble | France - Zone 2 | |
| LFTH | Hyères/Le-Palyvestre | France - Zone 2 | |
| LFKF | Figari/Sud-Corse | France - Zone 2 | |
| LFLY | Lyon/Bron | France - Zone 2 | |
| LFMP | Perpignan/Rivesaltes | France - Zone 2 | |
| LFBL | Limoges/Bellegarde | France - Zone 2 | |
| LFRH | Lorient/Lann-Bihoué | France - Zone 2 | |
| LFBT | Tarbes-Lourdes/Pyrénées | France - Zone 2 | |
| LFLB | Chambéry/Aix-les-Bains | France - Zone 2 | |
| LFBH | La-Rochelle/Ile de Ré | France - Zone 2 | |
| LFLS | Grenoble/Isère | France - Zone 2 | |
| LFCR | Rodez/Marcillac | France - Zone 2 | |
| LFKC | Calvi/Sainte-Catherine | France - Zone 2 | |
| LFMV | Avignon/Caumont | France - Zone 2 | |

| | | | |
|---|---|---|---|
| LFMK | Carcassonne/Salvaza | France - Zone 2 | |
| LFBI | Poitiers/Biard | France - Zone 2 | |
| LFMU | Béziers/Vias | France - Zone 2 | |
| LFRK | Caen/Carpiquet | France - Zone 2 | |
| LFBA | Agen/La-Garenne | France - Zone 2 | |
| LFBE | Bergerac/Roumanière | France - Zone 2 | |
| LFMI | Istres/Le-Tubé | France - Zone 2 | |
| LFRD | Dinard/Pleurtuit-Saint-Malo | France - Zone 2 | |
| LFRG | Deauville/Normandie | France - Zone 2 | |
| LFTW | Nîmes/Garons | France - Zone 2 | |
| LFLP | Annecy/Meythet | France - Zone 2 | |
| LFGJ | Dole/Tavaux | France - Zone 2 | |
| LFRQ | Quimper/Pluguffan | France - Zone 2 | |
| LFOK | Châlons/Vatry | France - Zone 2 | |
| LFMH | Saint-Etienne/Bouthéon | France - Zone 2 | |
| LFSL | Brive/Souillac | France - Zone 2 | |
| LFOT | Tours/Val-de-Loire | France - Zone 2 | |
| LFRZ | Saint-Nazaire/Montoir | France - Zone 2 | |
| LFLX | Châteauroux/Déols | France - Zone 2 | |
| LFAQ | Albert/Bray | France - Zone 2 | |
| LFOP | Rouen/Vallée-de-Seine | France - Zone 2 | |
| LFJL | Metz-Nancy/Lorraine | France - Zone 2 | |

| Additional comments |
|---|
| |

**c) Germany**

| Number of airports | 8 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |
| EDDV | Hannover | Germany-TMZ | |
| EDDP | Leipzig | Germany-TMZ | |
| EDDN | Nürnberg | Germany-TMZ | |
| EDDW | Bremen | Germany-TMZ | |
| EDDC | Dresden | Germany-TMZ | |
| EDDG | Münster-Osnabrück | Germany-TMZ | |
| EDDR | Saarbrücken | Germany-TMZ | |
| EDDE | Erfurt | Germany-TMZ | |

| Additional comments |
|---|
| |

**d) Luxembourg**

| Number of airports | 1 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |
| ELLX | Luxembourg | Luxembourg-TMZ | |

| Additional comments |
|---|
| |

**e) Netherlands**

| Number of airports | 3 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |
| EHRD | Rotterdam | Netherlands-TMZ | |
| EHGG | Eelde | Netherlands-TMZ | |
| EHBK | Beek | Netherlands-TMZ | |
| | | | |

| Additional comments |
|---|
| Lelystad airport has been removed from the draft plan, and will be added during RP3 through a modification of the terminal charging zone. |

**f) Switzerland**

| Number of airports | 0 | | |
|---|---|---|---|
| ICAO code | Airport name | Charging Zone | Additional information |

| Additional comments |
|---|

## 1.5 - Services Under Market Conditions

| | |
|---|---|
| Number of services under market conditions | 0 |

## 1.6 - Process followed to develop and adopt a FAB Performance Plan

| Description of the process |
|---|

The following process has been developped within the FABEC States' Financial and Performance Committee (FPC) :

● Setting up Task forces (TF) to :

– coordinate and/or to liaise with any other States or ANSP committees, including the military, or other task forces to be involved and with national representatives for local targets ;

– gather required data and material in the appropriate format from ANSP and national representatives;

– review available data and material in terms of achievability and ambition level;

– develop and agree relevant performance targets;

– draft initial performance plan chapters ;

– consolidate national chapters when drafted locally ;

– ensure integration with final consolidated FABEC performance plan.

→**7 TF:**

– TF1 – General coordination and consultation management

– TF2 – Introduction and general FABEC organization and processes chapters

– TF3 – Costs & investments and SESAR chapters coordination

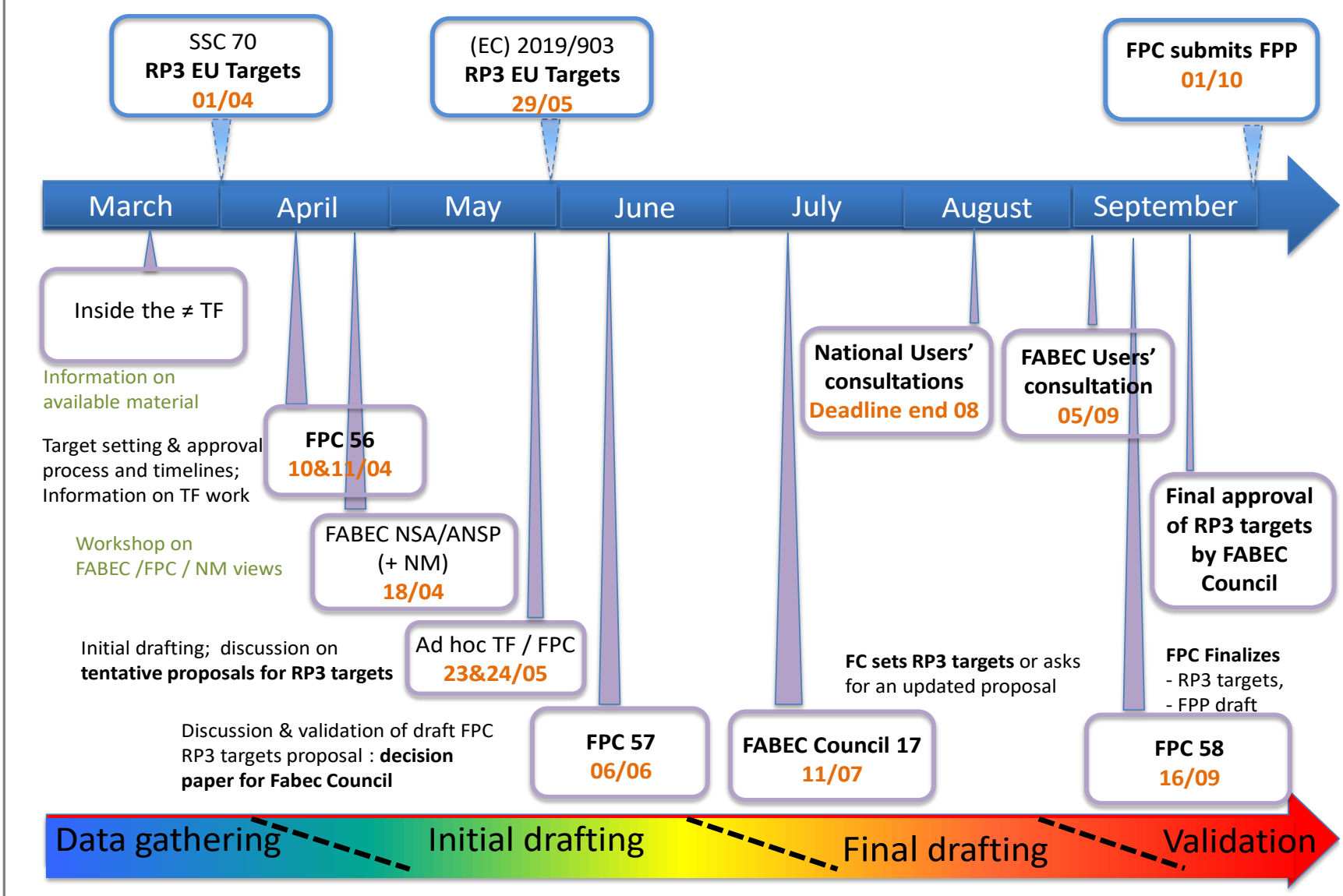
– TF4 – Safety chapters

– TF5 – Capacity and environment chapters

– TF6 – Cross-borders and military dimensions monitoring chapters

– TF7 – Traffic risk sharing and incentive scheme chapters

● with respect of main steps and planning :



## 1.7 - Establishment and application of a simplified charging scheme

| | |
|---|---|
| How many Member States in the FAB intend to apply a simplified charging scheme? | 0 |

# SECTION 2: INVESTMENTS

**2.x - Investments**

- 2.x.1 - Summary of investments
- 2.x.2 - Detail of new major investments
- 2.x.3 - Other new and existing investments

2.1 - Investments - skeyes
2.2 - Investments - DSNA
2.3 - Investments - DFS
2.4 - Investments - ANA LUX
2.5 - Investments - LVNL
2.6 - Investments - skyguide
2.7 - Investments - MUAC
2.8 - Investments - Météo France
2.9 - Investments - DWD
2.10 - Investments - Royal Netherlands Meteorological Institute (KNMI)
2.11 - Investments - MétéoSuisse

**Annexes of relevance to this section**

- ANNEX E. INVESTMENTS

NOTE: The requirements as per Annex II, 2.2.(c) are addressed in item 4.1.2

## 2.1 - Investments - skeyes

### 2.1.1 - Summary of investments

| Number of new major investments | 8 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | Single Data Services solution | 50.500.000 | 46.722.600 | 0 | 92.751 | 391.585 | 850.704 | 1.597.352 | 12 | 78% | 22% | URS : 31/12/2021 Main SAS3 : 31/12/2024 |
| 2 | Digital Tower Center EBLG & EBCI | 11.400.000 | 3.753.400 | 0 | 50.222 | 134.999 | 150.819 | 535.551 | 8 | 100% | 0% | 31-12-2023 |
| 3 | Radio communication | 17.584.000 | 10.636.208 | 22.874 | 189.834 | 929.698 | 1.104.151 | 1.075.501 | 15 | 82% | 18% | 31-12-2021 |
| 4 | Non-cooperative Surveillance Sensors | 20.800.000 | 10.249.200 | 7.509 | 85.755 | 263.902 | 457.832 | 732.677 | 15 | 100% | 0% | First location terminated 31/12/2021 |
| 5 | Cooperative Surveillance sensors | 10.350.000 | 6.479.100 | 11.296 | 44.871 | 157.916 | 309.741 | 578.319 | 15 | 95% | 5% | 31-12-2021 |
| 6 | Refurbishment of building | 15.000.000 | 13.965.000 | 0 | 2.800 | 97.999 | 270.198 | 442.397 | 30 | 79% | 21% | 31-12-2025 |
| 7 | New WAN | 5.400.000 | 4.757.400 | 95.386 | 773.524 | 749.677 | 725.831 | 701.984 | 8 | 87% | 13% | 31-12-2020 |
| 8 | A-SMGCS EBBR | 4.960.000 | 4.960.000 | 19.248 | 132.932 | 177.844 | 238.796 | 528.988 | 15 | 0% | 100% | MLAT : 31/12/2020 Ground radar + Nova : 31/12/2023 |
| Sub-total of **new major investments** above (1) | | 135.994.000 | 101.522.908 | 156.313 | 1.372.689 | 2.903.622 | 4.108.071 | 6.192.770 | | | | |
| Sub-total **other new investments** (2) | | 86.154.000 | 91.317.092 | 5.040.680 | 7.493.933 | 9.194.337 | 10.141.472 | 10.150.027 | | | | |
| Sub-total **existing investments** (3) | | | | 14.268.369 | 10.809.289 | 9.685.099 | 8.455.113 | 7.760.898 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 222.148.000 | 192.840.000 | 19.465.363 | 19.675.912 | 21.783.058 | 22.704.656 | 24.103.695 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.1.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***Single Data Services solution*** | Total value of the asset | ***50.500.000 €*** |
|---|---|---|---|
| Description of the asset | Replacement of the current ATM System by a Single Data Services solution (SAS3) with Eurocontrol MUAC and Belgian Defense. SAS3 will include main, fallback and ultimate solutions. The primary and fallback will be implemented in 2024-2025. The ultimate solution will be implemented in 2021-2022. | | |

| | | |
|---|---|---|
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | ► Major enabler to implement a common operational concept improving the efficiency, military mission-effectiveness and capacity in the Belgian Airspace;<br>► Necessary enabler for a future civil-military integration in Belgium;<br>► Reduction of the cost of ownership for all Parties;<br>► Enabler of future contingency concepts beneficial for all three Parties and increasing availability in case of major outages;<br>► Compliance with Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan; | |
| Joint investment / partnership | Yes | Partnership with Eurocontrol MUAC and Belgian Defense |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | The Single Data Service Solution will enable the following ATM functionnalities: AF 1.1 (Arrival management extended to en-route airspace), AF 3.1 (Airspace Management and Advanced FUA), AF 4.3 (CTOT to TTA for ATFCM)) and AF6 (Initial trajectory sharing) |

| **Name of new major investment 2** | ***Digital Tower Center EBLG & EBCI*** | Total value of the asset | ***11.400.000 €*** |
|---|---|---|---|
| Description of the asset | The 'Digital Towers' program aims to implement a centre that provides remote/digital ATC service to the airports of Liege (~60k movements) and Charleroi (~80k movements). Only the investments allocated to en-route (approach services) are included in the performance plan. The investements allocated to terminal services for Regional airports are not included in the plan. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Results of the consultation of airspace users' representatives | ► Business continuity : Opportunity to deliver contingency – a necessity with the increasing traffic and heavy reliance on single main operator at each airport;<br>► A second location, offering more flexibility, e.g. to accommodate planned refurbishments, carry out training etc<br>► Future proof, offering opportunities for improved service levels | | |
| Joint investment / partnership | Yes | Partnership with Regional airports | |
| Investment in ATM systems | Yes | | |
| If investment in ATM system, type? | New system | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | AOP 14 (Remote Tower Services) | |

| **Name of new major investment 3** | ***Radio communication*** | Total value of the asset | ***17.584.000 €*** |
|---|---|---|---|
| Description of the asset | Installation of remote radiosites (radio equipment, electronic equipment and infrastructure (shelters and pylones)) | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |

| | | |
|---|---|---|
| Level of impact of the investment | Network | The geo-redudancy will improve the resiliency of communication services and limit the risk of traffic disruption at network level |
| | Local | The geo-redudancy will improve the resiliency of communication services and limit the risk of traffic disruption at local level |
| | Non-performance | |
| Quantitative impact per KPA | Safety | N.A. |
| | Environment | N.A. |
| | Capacity | N.A. |
| | Cost Efficiency | N.A. |
| Results of the consultation of airspace users' representatives | This project has been set up in order to improve the redundancy and resilience of the air-ground radio communication infrastructure (chain A, B and C). This includes 18 "new" sites for En-route and Approach.<br>There are 3 objectives in that project: implement geo-redundancy for business continuity reason, get rid of Climax and Increase Radio coverage of the Chain C | |
| Joint investment / partnership | No | |
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | |
|---|---|---|---|
| **Name of new major investment 4** | ***Non-cooperative Surveillance Sensors*** | Total value of the asset | ***20.800.000 €*** |
| Description of the asset | Replacement of non-cooperative sensors (primary radars) in cooperation with Belgian Defense | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | The replacement of non-cooperative sensors will limit the risk of technical failures and the risk of traffic disruption at network level | |
| | Local | The replacement of non-cooperative sensors will limit the risk of technical failures and the risk of traffic disruption at local level | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | N.A. | |
| | Environment | N.A. | |
| | Capacity | N.A. | |
| | Cost Efficiency | N.A. | |
| Results of the consultation of airspace users' representatives | ► Safety<br>► Business Continuity<br>► Cost-efficiency : cost sharing (Rationalisation of ground infrastructure, Workload sharing) | | |
| Joint investment / partnership | Yes | Partnership with Belgian Defense | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

| **Name of new major investment 5** | ***Cooperative Surveillance sensors*** | | Total value of the asset | ***10.350.000 €*** |
|---|---|---|---|---|
| Description of the asset | Replacement of cooperative sensors (Mode_S Bertem and Saint-Hubert) and deployment of Wide Area Multilateration (extension MLAT EBCI, EBLG, and WAM with ADS-B) | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | The replacement of cooperative sensors will limit the risk of technical failures and the risk of traffic disruption at network level | | |
| | Local | The replacement of cooperative sensors will limit the risk of technical failures and the risk of traffic disruption at local level | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | N.A. | | |
| | Environment | N.A. | | |
| | Capacity | N.A. | | |
| | Cost Efficiency | N.A. | | |
| Results of the consultation of airspace users' representatives | ► Safety and Business Continuity<br>► Cost-efficiency : cost sharing (Rationalisation of ground infrastructure, Workload sharing)<br>► lesser rotating antennas: (Reduced maintenance effort, Reduced limitations on WF deployment) | | | |
| Joint investment / partnership | Yes | Partnership with Defense | | |
| Investment in ATM systems | No | | | |
| If investment in ATM system, type? | Click to select | | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | | |

| **Name of new major investment 6** | ***Refurbishment of building*** | | Total value of the asset | ***15.000.000 €*** |
|---|---|---|---|---|
| Description of the asset | The purpose of the project is to put in place future-proof building/workspace that meet the needs for skeyes space (offices, operational room, technical rooms). This project will consist of the refurbishment and/or demolition of the old CANAC buildings and the transformation of H and U buildings in activity-based offices | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | | | |
| | Local | | | |
| | Non-performance | This project is not related to the four performance areas. | | |
| Quantitative impact per KPA | Safety | N.A. | | |
| | Environment | N.A. | | |
| | Capacity | N.A. | | |
| | Cost Efficiency | N.A. | | |

| | | |
|---|---|---|
| Results of the consultation of airspace users' representatives | ► Optimization of the workspace and buildings. Future-proof building<br>► Training and Testing facility for the implementation of the new ATM System<br>► Enabler for a contingency room with partners (Be Defense, MUAC)<br>► Well being of employees<br>► Increase energy performances of Buildings (reduced CO2 emissions)<br>► Availability of enough workspace for new staff and Belgian Defense | |
| Joint investment / partnership | No | |
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | | |
|---|---|---|---|---|
| **Name of new major investment 7** | ***New WAN*** | | Total value of the asset | ***5.400.000 €*** |
| Description of the asset | Creation of a new Wide area network to support all our business and missing critical application as well as all our partner and customers | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | The new WAN will limit the risk of traffic disruption at network level due to network issue (loss of data transfer) | | |
| | Local | The new WAN will limit the risk of traffic disruption at local level due to network issue (loss of data transfer) | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | N.A. | | |
| | Environment | N.A. | | |
| | Capacity | N.A. | | |
| | Cost Efficiency | N.A. | | |
| Results of the consultation of airspace users' representatives | ► Business Continuity: by having a redundant and independent network<br>► Scalability : the new network architecture will ease the connexion of eventual new sites to the network. | | | |
| Joint investment / partnership | No | | | |
| Investment in ATM systems | No | | | |
| If investment in ATM system, type? | Click to select | | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | | |

| | | | | |
|---|---|---|---|---|
| **Name of new major investment 8** | ***A-SMGCS EBBR*** | | Total value of the asset | ***4.960.000 €*** |
| Description of the asset | Replacement of the A-SMGCS data fusion system, the three Surface Movement Radars (SMR) and the MLAT-system | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| | Network | | | |

| | | |
|---|---|---|
| Level of impact of the investment | Local | The replacement of the A-SMGCS will limit the risk of technical failures and traffic disruption by low visibility at Brussels Airport |
| | Non-performance | |
| Quantitative impact per KPA | Safety | N.A. |
| | Environment | N.A. |
| | Capacity | N.A. |
| | Cost Efficiency | N.A. |
| Results of the consultation of airspace users' representatives | ► Continue to guarantee the level of safety and optimization of airport capacity, also during during low visibility operations. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

### 2.1.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | Other new and existing investments related to replacement of end of life equipments, infrastructure optimization, IT, rolling stock... required to provide continuity of air navigation services. The investment plan is detailed in annex E. |

## 2.2 - Investments - DSNA

### 2.2.1 - Summary of investments

| | |
|---|---|
| Number of new major investments | 8 |

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | 4-FLIGHT | 853.400.000 | 238.900.000 | 12.630.503 | 21.136.543 | 28.059.005 | 34.467.526 | 41.337.303 | 8 | 100% | 0% | 2021 to 2025 |
| 2 | AIS/AIM | N/A | 14.725.676 | 2.372.923 | 1.829.686 | 2.210.505 | 2.314.239 | 1.982.840 | 8 | 81% | 19% | Recurrent activities |
| 3 | CDM/AMAN/DMAN/XMAN | 100.000.000 | 57.530.404 | 2.502.317 | 4.561.659 | 5.241.314 | 6.690.751 | 7.779.830 | 8 | 81% | 19% | From 2015 |
| 4 | COFLIGHT | 330.000.000 | 70.000.000 | 7.059.612 | 11.572.917 | 15.787.003 | 18.811.853 | 17.989.289 | 4 | 81% | 19% | 2021 to 2025 |
| 5 | CSSIP | 81.000.000 | 35.873.353 | 5.689.708 | 5.599.853 | 5.879.817 | 6.205.820 | 6.517.077 | 8 | 81% | 19% | 2020 |
| 6 | NVCS | 72.000.000 | 49.998.429 | 2.373.082 | 3.481.161 | 4.833.026 | 6.156.139 | 7.405.864 | 8 | 96% | 4% | 2019-2024 |
| 7 | SYSAT | 500.500.000 | 193.864.219 | 8.502.339 | 14.440.395 | 18.697.545 | 23.131.822 | 27.427.982 | 8 | 63% | 37% | 2021-2030 |
| 8 | MCO and evol NAV/COM/ATM | N/A | 552.768.399 | 58.417.175 | 59.920.298 | 71.114.868 | 83.890.488 | 93.041.647 | 8 | 81% | 19% | Recurrent activities |
| Sub-total of **new major investments** above (1) | | 1.936.900.000 | 1.213.660.481 | 99.547.660 | 122.542.512 | 151.823.084 | 181.668.638 | 203.481.832 | | | | |
| Sub-total **other new investments** (2) | | | 309.872.342 | 20.220.923 | 24.746.587 | 31.914.275 | 37.775.399 | 44.737.881 | | | | |
| Sub-total **existing investments** (3) | | | | 202.733.182 | 178.784.959 | 141.371.463 | 122.732.982 | 111.056.604 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 1.936.900.000 | 1.523.532.823 | 322.501.765 | 326.074.058 | 325.108.822 | 342.177.019 | 359.276.318 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.2.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***4-FLIGHT*** | Total value of the asset | ***853.400.000 €*** |
|---|---|---|---|
| Description of the asset | 4-FLIGHT is a new generation ATM system that provides a fully electronic environment for en-route air traffic control. The system uses data drawn from the COFLIGHT FDPS and features a range of innovative controller tools that will enhance safety and help to optimize the capacity and efficiency of the airspace.<br>The main functions that will be implemented as part of 4-FLIGHT are:<br>• A full set of air traffic controller tools to manage current and future traffic flows.<br>• Tactical Control Tools (TCT) for conflict detection within a 5-minute look-ahead timeframe.<br>• Electronic negotiation of “what if” data that coordinates aircraft flight levels and direct routes with adjacent sectors.<br>• Cooperative tools for shared situational awareness, creating safety and efficiency improvements by a improving the distribution of workload across controllers and network planners.<br>The first operational version of the 4- FLIGHT ATM system has been deployed to the Aix en Provence and Reims ACCs for testing, validation and controller training. An upgraded version of the system is being developed especially for the Paris ACC to support the complexities of the airspace in that region. | | |

| | | |
|---|---|---|
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Some enhancement through reduction in controller workload.<br>Reduction in emissions through use of more optimal routes.<br>Reduction in holding and in low-level vectoring by applying delay management at an early stage of flight, has a positive environmental effect in terms of noise and fuel usage.<br>Capacity increased through the better airspace utilisation to enhance productivity and reduce controller workload.<br>Better use of the available network capacity.<br>Capacity increased through suppression of flight ATFM regulations thanks to local ATFCM measures with the same ATC sector manning.<br>Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for significant increase.<br>Improved airport/TMA capacity.<br>Saving in route distances as well as better fuel efficiency through increased use of preferred flight profiles and improved sectorization.<br>Reduction of flight delays.<br>More efficient planning and operational decision making.<br>Early conflict detection will enable smoother flight patterns, without frequent and sudden control interventions. This will have a moderate influence on airline costs. Moderate benefits for ANSPs due to better deployment of the ATCO workforce, reduced workload per aircraft and workload distribution.<br>Reduced costs through reduction in delays, reduction in low-level holding operations and reduction in low-level tactical vectoring for delay purposes.<br>4-Flight is a cost-effective capacity increase enabler through sector productivity increase and delay cost savings. ANSPs savings derived from staff cost avoidance. Aircraft operators will benefit of en route cost savings and reduction of delays. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | The French FDPS (Flight Data processing System), named CAUTRA, can no longer support evolutions leaded by SESAR. |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | PCP ATM Functionalities : AF4, AF5, AF6 |

| **Name of new major investment 2** | ***AIS/AIM*** | Total value of the asset | ***N/A*** |
|---|---|---|---|
| Description of the asset | Advanced data exchange services are required to communicate up to date aeronautical information (e.g. about flight plans, weather, airport data etc.) that help operational stakeholders to maximize the benefits of new ATM systems and tools. The Aeronautical Information Exchange Model (AIXM) and System Wide Information Management (SWIM) concept set out specifications that enable the distribution of key data in a common digital format. The AIM and SWIM concepts are being delivered via the SESAR programme to provide more accurate and efficient digital aeronautical information to civil and Military ANSPs, airspace users, airport operators, Meteorological service providers and the European Network Manager. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant | Yes | PCP ATM Functionnalities : AF5 | |

| | | |
|---|---|---|
| Benefits for airspace users and results of the consultation of airspace users' representatives | Significant safety impact, through reduced risk of incidents and accidents on runways.<br>Improved consistency, reliability and integrity.<br>No environment impact.<br>Indirect impact on capacity through prevention of delay problems caused by runway excursion incidents.<br>Concerning runway safety, the prevention of accidents is a highly cost-effective measure and the application is based upon the implementation of existing ICAO provisions.<br>Avoidance of repair, correction and re-work activities at data provider and data user level as a necessary step towards the implementation of system wide information management.<br>Customers are consulted at least once a year. Last consultation on technical strategy took place at the 21th May 2019. | |
| Joint investment / partnership | Yes | Eurocontrol has a centralised database (EAD) whose management is entrusted to a private company, “groupEAD” (subsidiary of DFS, AENA and the Frequentis group), which develops and maintains the system, and provide resulting services. |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Replacement | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | PCP ATM Functionnalities : AF5 |

| | | | |
|---|---|---|---|
| **Name of new major investment 3** | ***CDM/AMAN/DMAN/XMAN*** | Total value of the asset | ***100.000.000 €*** |
| Description of the asset | Airport Collaborative Decision Making (ACDM) is about partners (airport operators, aircraft operators/ground handlers, ATC and the Network Operations) working together more efficiently and transparently in the way they work and share data.<br>The Airport CDM project aims to improve the overall efficiency of operations at an airport, with a particular focus on the aircraft turn-round and pre-departure sequencing process.<br>Tools for Collaborative Decision Making : CPDS (Collaborative Pre-Departure Sequence), DMAN (Departure Manager), AMAN (Arrival manager)<br>ACDM tools involve the introduction of new systems and processes at larger airports that focus on:<br>• the creation, refinement and exchange of information at airport and with the network<br>• The progress of each flights’ arrival plan and turnaround<br>• Up to date timings shared for each flight to push back, taxi out and take off; and<br>• An optimized departure sequence<br>ACDM systems allow air traffic controllers to construct an optimized sequence of departures tailored to the prevailing conditions of the runway and the surrounding airspace. ACDM systems also gather the latest estimated landing times for inbound flights (using AMAN and XMAN tools) to improve the management of ground operations that are often the cause of air traffic delays. The systems also provide data sharing services with airspace users, airport and network, to support collaborative decision making and increase resilience during adverse conditions and congested situation. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | | |

| | | |
|---|---|---|
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety :<br>The more effective airside and landside operations management, improved situational awareness of all actors and resulting reduced congestion has a positive effect on safety.<br>Environment :<br>Reduction in holding and in low-level vectoring, by applying delay management at an early stage of flight, has a positive environmental effect in terms of noise and fuel usage.<br>Capacity :<br>Enhanced airport capacity through optimal use of airside and landside facilities and services, better use of airport and ATFM slots.<br>Improved airport/TMA capacity.<br>Cost Efficiency :<br>Punctuality improvements for all Stakeholders will reduce operating costs.<br>Reduced costs through reduction in delays, reduction in low-level holding operations and reduction in low-level tactical vectoring for delay purposes.<br>Reduced reactionary costs due to better anticipation. | |
| Joint investment / partnership | Yes | Collaborative investment with Airport authorities |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | PCP ATM Functionnalities : AF1, AF4, AF2 |

| | | | |
|---|---|---|---|
| **Name of new major investment 4** | ***COFLIGHT*** | Total value of the asset | ***330.000.000 €*** |
| Description of the asset | COFLIGHT is a new generation Flight Data Processing System (FDPS) that is designed to meet the SESAR objective of gate to gate, 4D trajectory management. The system has been developed in collaboration with the Italian ANSP (ENAV) and the SESAR programme. COFLIGHT features a range of advanced functions including 4D trajectory prediction, datalink integration, traffic flow optimization and interoperability across European ACCs.<br>The system is a key enabler for free route airspace and A-FUA, using 4D flight data to detect conflicts in the enroute airspace and share trajectory information between ACCs through common interfaces.<br>When used in conjunction with the new generation ATM system 4-FLIGHT, the COFLIGHT FDPS is expected to deliver significant safety enhancements by improving the accuracy of data about flight positions and profiles, route adherence and conflict detection. Contrary to the existing systems, which are limited to distributing filed flight plan information to controllers, COFLIGHT continuously enriches initial flight plan information with real-time data, based on the actions taken by controllers.<br>COFLIGHT deployment is synchronized with 4 Flight entry into service at Reims, Aix and Athis-Mons ACCs during winter 2021/2022 and winter 2022/2023. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | | |

| | | |
|---|---|---|
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety :<br>Prevention of overloads<br>Reduction of human error.<br>Through the delivery of standard and unambiguous messages (entailing significant error and fatigue reduction), the provision of a communications back up and the possibility of immediate message retrieval, data link communications are a major safety enhancement.<br>Early and systematic conflict detection and conformance monitoring enabled by ground based automated tools will reduce the need for tactical interventions, conformance monitoring reduces the risk of the impact of controllers and pilots errors.<br>Capacity :<br>Better use of the available network capacity.<br>Reduction of controller workload.<br>Increased capacity through both reduction of voice congestion and increase in controller efficiency.<br>Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for capacity increase.<br>Cost efficiency :<br>Reduction of costs induced by delays.<br>More efficient planning and operational decision making. | |
| Joint investment / partnership | Yes | with ENAV |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | PCP ATM Functionalities : AF3, AF4, AF6 |

| | | | |
|---|---|---|---|
| **Name of new major investment 5** | ***CSSIP*** | Total value of the asset | ***81.000.000 €*** |
| Description of the asset | The CSSIP (Ground-Ground Communications under Internet Protocol) program aims to implement a national telecommunications network of new generation based on IP protocols for voice digital conversion and the migration of voice and data communications of the current network to the new one called RENAR-IP.<br>It will provide all voice and data exchanges for the air traffic control purposes. Connected to PENS, it will exchange data with various international networks and simplify the interoperability of systems and applications between adjacent ANSPs. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | PCP ATM Functionalities : AF4, AF6<br>A dual telecom architecture, outlined in SESAR PCP, will ensure consistent availability with the future operational and services requirements to support (SWIM) | |

| | | |
|---|---|---|
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety :<br>With more redundancy CSSIP enhances the total resilience of a system to a network failure.<br>Capacity:<br>Implementation of CSSIP is a tecnological leap that gives our network the needed provisions to handle 4 Flight anfd Coflight needs. it is teherfore a key enabler for these systems in order to fulfill their capacity incres targets.<br>Cost efficiency:<br>More cost efficient as X.25 maintenance costs are increasing while TCP/IP costs are lower.<br>Use of de-facto COTS messaging systems will reduce the cost of messaging services and support any kind of message format including the exchange of new binary data.<br>Reduced costs by reusing Internet off the shelf technologies that can be based on standard hardware. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | PCP ATM Functionalities : AF4, AF6 |

| | | | |
|---|---|---|---|
| **Name of new major investment 6** | ***NVCS*** | Total value of the asset | ***72.000.000 €*** |
| Description of the asset | New-Voice communication System aims to modernize the radio/telephone stations and emergency services operating in the 5 french ACCs and LFPG Airport. This high technology system will bring major changes :<br>- end to end communications of the IP network voice (VoIP)<br>- voice services on our groud to ground long distance communication network under IP (RENAR IP), compatible with the infrastructures of analogical telecomunications<br>- integration of the radio and telephone<br>- integrated radio and telephone backup system offering a new functional level close to the principal system<br>- new functionalities permitting notably to supply a VCS service on a remote system | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety : Maintained or improved.<br>Capacity : Maintained or improved by providing enhanced signalisation functions. Prerequisite of dynamic sectorisation through dynamic allocation of voice resources.<br>Coste Efficiency : Reduced costs by reusing Internet off the shelf technologies that can be based on standard hardware. | | |
| Joint investment / partnership | Yes | Joint investment with MUAC | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | Yes, in discussion to be integrated in the AF3 PCP ATM functionally | |

| | | | |
|---|---|---|---|
| **Name of new major investment 7** | ***SYSAT*** | Total value of the asset | ***500.500.000 €*** |

| | | |
|---|---|---|
| Description of the asset | The program SYSAT aims to modernize the air traffic management of towers and approach control centers in mailand France and Corsica.<br>The implementation of this electronic environment system will begin with a sequenced deployment (Tower system in Winter 2022/23 then Approach) in Orly and a sequenced deployment at CDG from 2021 (SOL@CDG to address as a priority the obsolescence of the A-SMGCS) to 2025 (TWR/APP).<br>In accordance with the recommendations of the CGEDD (General Council for the Environment and Sustainable Development) and before any contract is notified, the SYSAT/Group 2 program has been the subject of an in-depth program review in june 2019. This review has in particular assessed the different options in the area of differentiation by geographic zone and global or modular architecture. A scenario for SYSAT group 2 has been elaborated but at this stage the cost scheme is not yet finalized. The total value of the asset will probably be revised during the RP3 period but the value of the asset allocated to ANS in the scope of the PP is not likely to change, as this program will extend beyond the RP3 timeframe. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety :<br>Reduction of human error.<br>Prevention of overloads.<br>The more effective airside and landside operations management, improved situational awareness of all actors and resulting reduced congestion has a positive effect on safety.<br>Significant, through reduced risk of incidents and accidents on runways.<br>Capacity :<br>Reduction of controller workload.<br>Better use of the available network capacity.<br>Enhanced airport capacity through optimal use of airside and landside facilities and services, better use of airport and ATFM slots.<br>Indirect through prevention of delay problems caused by runways excursion incidents.<br>Cost Efficiency :<br>More efficient planning and operational decision making.<br>Reduction of costs induced by delays.<br>Punctuality improvements for all Stakeholders will reduce operating costs.<br>Concerning runway safety, the prevention of accidents is a highly cost-effective measure and the application is based upon the implementation of existing ICAO provisions. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | EU-TM-0136-M call CEF 2014 ; projects # 048 AF2, #049 AF2, #50 AF2<br>PCP ATM Functionalities : AF1, AF2 |

| | | | |
|---|---|---|---|
| **Name of new major investment 8** | ***MCO and evol NAV/COM/ATM*** | Total value of the asset | ***N/A*** |
| Description of the asset | Maintaining technical equipment in operational condition (MCO) is essential to continue to have a required level of optimal safety especially in a period of on-going optimisation of technical workforce management.<br>It also Includes costs related to operational maintenance for NAV/COM/ATM devices | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | | |

| | | |
|---|---|---|
| Benefits for airspace users and results of the consultation of airspace users' representatives | Safety :<br>Safety is maintained by performing preventive MCO. MCO activities are assessed and prioritized in order to be able to maintain safety at all times.<br>Capacity :<br>Deployment of new systems like 4-Flight and SYSAT induce the need to maintain and modify our legacy systems to be able to interface with these new systems as their deployment will be phased. Maintaining and modifying our legacy systems is a prerequisite to achieving our capacity enhancment targets.<br>Cost Efficiency :<br>We have developed a priority scheme for the obsolescence management of the MCO activity which aims at maintaining safety with in mind cost-effectiveness. The need to replace or buy spare parts for our legacy systems is based on safety needs but also on detailed costs analysis. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Overhaul of | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | PCP ATM Functionalities : AF1, AF5, AF6 |

### 2.2.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | The following investment expenditures, for which the total amount is 309 872 342 € in fixed assets planned over the reference period, consists in:<br><br>- ASMGCS : ground control radar system, already in service on many platforms, implementation in Nice is forecast as a part of the SYSAT program by end 2025,<br>- Facilities : many projects are already ongoing or will be launched during the RP3 period. These projects aim at either maintaining existing facilities in operational conditions or at building new facilities (towers, technical buildings) to replace obsolete ones. This activity will last during the RP3 period and further on,<br>- PBN : this program aims at the modernization of approach procedures. This program will go on during all the RP3 period,<br>- Airspace projects : these are all the projects implementing new air navigation concepts as FRA for example, as well as all the airspace changes needed to provide the best service and capacity to all users (commercial transport, drones, military, general aviation). This activity is ongoing and will last through the RP3 period and further on,<br>- SESAR : these are all the research activities under the SESAR program needed to fulfill the PCP objectives and meet the associated deadlines. The activity will go on during the whole RP3 period and further on,<br>- Datalink : this program implements air ground digital data link transmission. The final version is scheduled for end of 2020,<br>- Cyber SI : this new program encompasses all the activities dealing with cyber security. This program will go on during the RP3 period and further on.<br><br>With regards to existing investments, they refer to the depreciation costs and the cost of capital related to any implementation during RP2. |

### 2.2.4 - Additional comments

Regarding new major and existing investments, airspace users' representatives have been consulted twice during the performance plan drafing period:

- 21st May, specific stakeholders' consultation meeting hold by DSNA and dedicated to investments (meteorological services, airports and airspace users' representatives and NSA representatives attending and participating to panels);

- 4th July, national stakeholders' consultation hold by DTA(French NSA) on the French parts of the RP3 performance plan (traffic scenarios, cost-efficiency, investments and terminal capacity).

Additional material has also been provided to the airspace users, on their request, ahead of the performance plan submission, on RP3 investments costs and on associated CEF funding where relevant.

Please refer to chapter 1.3 for the description of the meetings, attendees, contents of discussions, conclusions and follow-up... Refer also to Annexes C & E for full and detailed consultation material or additional information on DSNA Strategic Master Plan 2019 - 2025 and French ATM strategy.

## 2.3 - Investments - DFS

### 2.3.1 - Summary of investments

| Number of new major investments | 7 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | iCAS architecture project | 71.876.000 | 55.603.000 | 0 | 44.556 | 185.472 | 373.233 | 3.864.126 | 15 | 100% | 0% | 1-12-2025 |
| 2 | iCAS Flight Object IOP | 65.796.767 | 63.565.947 | 173.179 | 735.299 | 1.958.896 | 3.178.881 | 6.655.045 | 8 | 100% | 0% | 1-7-2024 |
| 3 | Data Center | 37.891.000 | 35.732.000 | 672.000 | 1.344.000 | 3.173.333 | 6.968.500 | 9.672.117 | 15 | 80% | 20% | DC1 06/21 and DC2 12/25 |
| 4 | New construction of an office building at the DFS Campus in Munich | 13.529.000 | 12.943.000 | 0 | 145.000 | 599.812 | 1.130.250 | 1.484.375 | 8-33 | 80% | 20% | 15-4-2023 |
| 5 | Drone Detection System | 272.000.000 | 112.000.000 | 0 | 1.600.000 | 3.200.000 | 8.000.000 | 17.600.000 | 5 | 0% | 100% | 2023-2027 |
| 6 | Renovation of the Tower at the Munich airport | 61.200.000 | 61.200.000 | 0 | 0 | 0 | 168.750 | 1.805.438 | 8-40 | 0% | 100% | 2025 |
| 7 | PIPE2 – IP enhancement phase 2 | 32.155.000 | 32.130.000 | 7.000 | 500.000 | 1.500.000 | 2.600.000 | 3.600.000 | 5-8 | 80% | 20% | 2024 |
| Sub-total of **new major investments** above (1) | | 554.447.767 | 373.173.947 | 852.179 | 4.368.855 | 10.617.513 | 22.419.614 | 44.681.101 | | | | |
| Sub-total **other new investments** (2) | | 19.215.675 | 19.215.675 | 367.833 | 882.310 | 1.346.041 | 1.556.709 | 2.079.916 | | | | |
| Sub-total **existing investments** (3) | | | | 94.163.940 | 101.603.554 | 108.580.933 | 117.468.362 | 123.176.400 | | | | |
| *Experience-based DFS management correction*** | | | | -5.344.687 | -11.747.345 | -18.704.171 | -26.532.618 | -33.415.042 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 573.663.442 | 392.389.622 | 90.039.265 | 95.107.374 | 101.840.316 | 114.912.067 | 136.522.374 | | | | |

** The total % enroute+terminal should be equal to 100%.*

*** The table above was extended by an experience-based correction by DFS management to show reduced depreciation figures. This adaption is being made on the assumption of a conservative planning and the experience that the full amount normally will not be needed due to e.g. the application of more innovative and cost-effective systems and services, risks that do not occur or achievements of the purchasing department.*

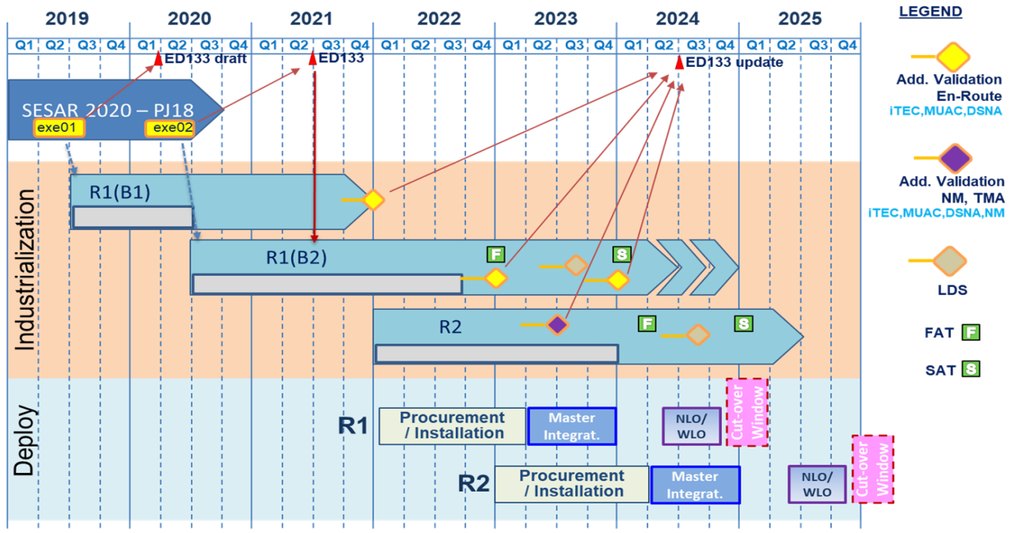
***NB: The table above provides capex for new investments only (the template provided by the european Commission does not foresee that capex for existing investments is filled in for each major investments). Therefore the sum in the last line "Total new and existing investments (1) + (2) + (3)" is valid for the columns on "Determined costs of investment" only.***

### 2.3.2 - Detail of new major investments

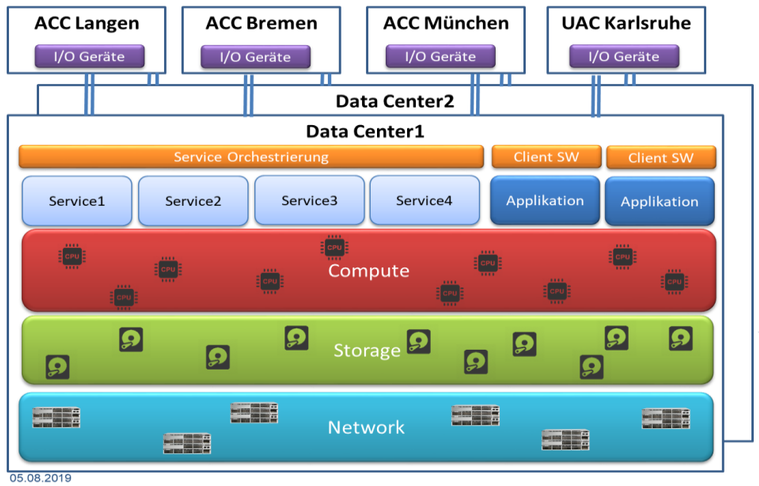
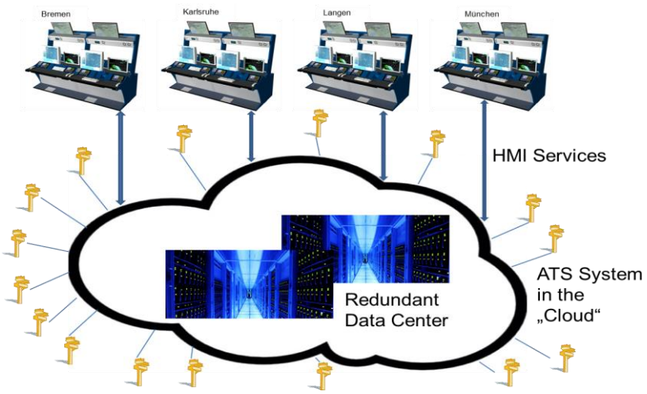
*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***iCAS architecture project*** | Total value of the asset | ***71.876.000 €*** |
|---|---|---|---|

| | | |
|---|---|---|
| Description of the asset | Investments will consist of:<br>- Software licenses with non functional architecture changes in DFS Center ATS System (i. e. Service oriented software concept and Virtualisation for DFS iCAS), and<br>- Hardware with infrastructure changes on all Area Control Center sites (Network and Client computers for iCAS and peripheral systems)<br><br>The new iCAS Architecture and peripheral systems will provide a more cost efficient and flexible mode of operation on Data Center Plattforms, i.e. IaaS, CaaS cloud service models. It is in line with the EATM Masterplan. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | |
| Level of impact of the investment | Network | High impact, ATS systems can be operated more flexible, incl. Cross border. |
| | Local | iCAS architecture will run on the Data Center infrastructure and therefore the number of technical installations will be reduced and the ATS system will provide more flexibility. |
| | Non-performance | |
| Quantitative impact per KPA | Safety | (no impact according to the definition of the indicators in this key performance area) |
| | Environment | (no impact according to the definition of the indicators in this key performance area) |
| | Capacity | (no impact according to the definition of the indicators in this key performance area) |
| | Cost Efficiency | CBA shows positive impact through a reduction of operating- and maintenance-cost |
| Results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. The following objectives associated with the investment were described:<br><br>- Data Center capability of DFS Center ATS System (Core iCAS and peripheral systems),<br>- Cloud Readiness for the ATS System iCAS (including future components) in convergence with activities on iTEC level, and<br>- Migration paths will be described and evaluated, as well as the implementation of the architectures planned and implemented (excluding rollout)<br><br>Together with the data center project (investment #3 below) the iCAS architecture project will contribute to Cost Efficiency by achieving the following objectives:<br>- Efficient implementations of future ATS functionalities with less effort and time,<br>- Flexibility and scalability of ATS/COM systems and services through standardized IT infrastructure,<br>- Optimization of human resources utilization in the whole system lifecycle by new processes and methods, as well as reduction of technology hosting sites,<br>- Cost efficient delivery of ATS Services,<br>- Improvement of Service Continuity by new Fallback / Contingency concepts, and<br>- System architectures with a high degree of transversal functionalities leading to a high degree of reuse.<br><br>As a result, DFS air navigation services can be provided more cost-effectively by reducing commissioning costs and optimizing ATS system technology and infrastructure. | |
| Joint investment / partnership | Yes | Developments will be performed in coordination with iCAS and iTEC partners |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Overhaul of | Data Center readyness for the iCAS ATS-System and peripheral components |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | Contributes to Essential Operational Change 'Virtualisation of Service Provision' [European ATM Master Plan 2019, chapter 4.2.5] |

| Name of new major investment 2 | *iCAS Flight Object IOP* | Total value of the asset | ***65.796.767 €*** |
|---|---|---|---|
| Description of the asset | The iCAS Systemproject iCAS Flight Object IOP will implement the necessary functionality in the iCAS ATM system to prepare the deployment of Flight Object interoperabilty as part of iSWIM in the DFS and LVNL control centers.<br><br>Investments in RP3 will consist of:<br>- Coordination of an European FO IOP Development and Deployment Roadmap,<br>- Common development of new FO IOP Software components with the collaboration of all iTEC Partners and UAC Maastricht,<br>- Integration of new FO IOP Software components in DFS‘ ATS system iCAS, and<br>- Deployment of FO IOP functionality at UAC Karlsruhe and UAC Maastricht (deployment at remaining DFS‘ centres will follow after 2025)<br><br>  | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | Regulation EU Nr. 716/2014 of the European Kommission requires common projects for the implementation of 6 Advanced ATM functions. ATM function #5 describes the implementation of an initial SWIM (iSWIM = initial System Wide Information Management) until 1. Januar 2025. | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. The following objectives associated with the investment were described:<br><br>- Implement new centre-centre coordination standard according EU regulation 716/2014,<br>- Share flight information between all affected Upstream/Downstream centres bi-directionally and real-time, and<br>- Enable next level of seamless cross-border ATC<br><br>Flight Object IOP will enable future Trajectory Based Operations as described within the SESAR CONOPS.<br><br>During the consultation on 21.08.2019 DFS stressed out that in the event that the European Commission will remove IOP from the PCP regulation there is a risk that a majority of ANSP stakeholders withdraw from their IOP deployment roadmaps which will result in loosing the benefit of seamless coordination across Europe. | | |
| Joint investment / partnership | Yes | Flight Object IOP will be developed in the iTEC cooperation and Eurocontrol UAC Maastricht has joind the iTEC collaboration for a common development. | |
| Investment in ATM systems | Yes | | |

| | | |
|---|---|---|
| If investment in ATM system, type? | New system | Two new components a FOM=Flight Object Manager and SWIM=System Wide Information Management will be developed and integrated into the iCAS ATM system. |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | Regulation EU Nr. 716/2014 of the European Kommission requires common projects for the implementation of 6 Advanced ATM functions. ATM function #5 describes the implementation of an initial SWIM (iSWIM = initial System Wide Information Management) until 1. Januar 2025. |

| **Name of new major investment 3** | ***Data Center*** | Total value of the asset | ***37.891.000 €*** |
|---|---|---|---|
| Description of the asset | Plattform to support cost efficient operation modes for ATS Systems, i.e. IaaS, CaaS.<br><br>Data Center project will provide high scalable state of the art IT infrastructure, redundant Data Centers and Wide Area Networks to operate ATS/COM systems operations by efficient state of the art maintenance concepts.<br><br>Investments in RP3 will consist of:<br>- Hardware, i.e two Data Centers incl. Server and network infrastructure investments, costs for Data Center infrastructure and Network update incl. wide area network (WAN), and<br>- Software, i.e. product licenses for virtualisation and cloud features of the Data Center<br><br>  <br>  | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | no impact | |
| | Local | High impact, as operating costs will go down | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | (no impact according to the definition of the indicators in this key performance area) | |
| | Environment | (no impact according to the definition of the indicators in this key performance area) | |
| | Capacity | (no impact according to the definition of the indicators in this key performance area) | |
| | Cost Efficiency | CBA shows positive effects through reduction of operating- and maintenance cost, once all ATS systems are migrated into the Data Center platform. | |

| | | |
|---|---|---|
| Results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. Together with the new iCAS architecture project (investment #1 above) the data center project will contribute to Cost Efficiency by achieving the following objectives:<br>- Efficient implementations of future ATS functionalities with less effort and time,<br>- Flexibility and scalability of ATS/COM systems and services through standardized IT infrastructure,<br>- Optimization of human resources utilization in the whole system lifecycle by new processes and methods, as well as reduction of technology hosting sites,<br>- Cost efficient delivery of ATS Services,<br>- Improvement of Service Continuity by new Fallback / Contingency concepts, and<br>- System architectures with a high degree of transversal functionalities leading to a high degree of reuse.<br><br>As a result, DFS air navigation services can be provided more cost-effectively by reducing commissioning costs and optimizing ATS system technology and infrastructure. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | replacement local IT-infrastructure by a central IT-infrastructure in Data Center |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | (a) Data Center Stufe 1+2 contribute to Essential Operational Change 'Virtualisation of Service Provision' [European ATM Master Plan 2019, chapter 4.2.5];<br>(b) Data Center Stufe 1 is additionally indirectly linked to DVO (EU) 716/2014 because the IT-infrastructural changes are the precondition for realising the project TANGe which will fulfill the mentioned DVO. |

| | | | | |
|---|---|---|---|---|
| **Name of new major investment 4** | ***New construction of an office building at the DFS Campus in Munich*** | | Total value of the asset | ***13.529.000 €*** |
| Description of the asset | Due to legal requirements, the existing old ACC building would need to be extensivle renovated. A CBA comparing the cost for option 1 (the demolition of that building with the construction of a new office buidling for only administrative functions) with option 2 (renovation of the old ACC building) proved option 1 being the less expansive one. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | no impact | | |
| | Local | high impact, as operating costs will go down | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | (no impact according to the definition of the indicators in this key performance area) | | |
| | Environment | (no impact according to the definition of the indicators in this key performance area) | | |
| | Capacity | (no impact according to the definition of the indicators in this key performance area) | | |
| | Cost Efficiency | The demolition of the old building and the new construction of the new office building are having a positive effect, as a refurbishment of the old building would be considerably more expensive than a demolition and new construction. The facility management costs for the new and smaller building are less than for the current old building. | | |
| Results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. DFS explained that by replacing a too large old building with a smaller modern building in Munich, management and operating costs are saved. The costs of renovation the old building were calculated with an amount of approx. 32 Mio. EUR whereas the cost of the new admin-center and demolition of the old building were estimated with an amount of approx. 20 Mio. EUR. Airspace user represenative asked for further basic information regarding the architecture and setting of the building.<br><br>The new building is planned as a building with 100 administrative working places, a storage and social rooms. | | | |
| Joint investment / partnership | No | | | |

| | | |
|---|---|---|
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | |
|---|---|---|---|
| **Name of new major investment 5** | ***Drone Detection System*** | Total value of the asset | ***272.000.000 €*** |
| Description of the asset | In July DFS got the order by the Ministry of transport to establish at all 16 international airports a system to seek, recognize and identify all flight objects flying in the TMA illegally.<br><br>As part of its legal mandate (§§ 27c, 31b LuftVG), DFS is assigned by German MoT with detection and identification of un-cooperative drones at the 16 international airports where it conducts its ATM services.<br>DDS should decrease the safety risk for manned aviation as well as severe interferences at airports by un-allowed drone operations in their vicinity as recently experienced in London and Frankfurt, causing losses up to € 100.000 per minute shut-down time of the airfield (source: TV-Report Plusminus).<br>In a first step of an incremental process to be developed, DFS is elaborating an action plan (until end of September 2019) including the set-up of a prototype for testing available DDS components and solutions within a real-life airport environment (4th quarter 2019).<br>The work structure is designed for close collaboration with all relevant stakeholders affected (airports, airlines, police and aviation authorities).<br><br>The figures shown above are a first very rough estimation. DFS has not made any detailled plan for this project. So there might be large deviations from these figures during the course of the project. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | no impact | |
| | Local | no impact | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | positive impact; evaluation not available at the moment | |
| | Environment | (no impact according to the definition of the indicators in this key performance area) | |
| | Capacity | impact: no generally capacity increase, but avoidance risk of a airport-shutdown because of drones (e.g. Frankfurt 09.05.2019: 0,75 h shutdown, 70 flights cancelled) | |
| | Cost Efficiency | increasing costs; analysis impact on charged rate is part of action-plan (order German MoT) | |
| Results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. DFS explained the estimated cost increase due to DDS of approximative 109 Mio. EUR in the terminal cost base for RP3. DFS experts also expressed their concern regarding cost scenarios of 500 Mio. EUR. This high sensitivity in cost estimation comes from the fact that such a technical system is currently not available on the market. It was discussed among stakeholders and NSA whether the regulation can provide a solution to deal in a fair way with rough cost estimations given the cost risk under Art. 28 IR (EU) 2019/317. Airspace users adressed the political dimension of the costs associated with DDS as reason for the project was a Directive of German MoT, dated July 29 2019, on „Systematic detection of UAS in airport vicinity by DFS“. Airspace users also asked for further details of the cost estimation and sensitive factors with a significant influence on costs. For the time being more detailed information could not be provided. | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |

| | | |
|---|---|---|
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | |
|---|---|---|---|
| **Name of new major investment 6** | ***Renovation of the Tower at the Munich airport*** | Total value of the asset | ***61.200.000 €*** |
| Description of the asset | The Flughafen München GmbH (FMG) informed DFS, that the Tower building at the airport has to be renovated. The FMG owns the building used by DFS and others. The contract between DFS and FMG states that DFS has to bear a 47% share of the renovation costs. As the cost estimation is not yet available, the figures above reflect the estimated cost for the construction of a new tower buildung built by DFS.<br><br>The project is set up to ensure full ATC provision up to and during the period of refurbishment. The project includes installation of full coverage ATC alternative facilities and contingency as well as partnership with the Airport for all activities required to succesfully complete the project. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | no impact | |
| | Local | no impact | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | (no impact according to the definition of the indicators in this key performance area) | |
| | Environment | (no impact according to the definition of the indicators in this key performance area) | |
| | Capacity | (no impact according to the definition of the indicators in this key performance area) | |
| | Cost Efficiency | | |
| Results of the consultation of airspace users' representatives | The investment was consulted on 21.08.2019. DFS presented the followign reasons for the project:<br>- Beyond lifetime climate and heat control with increasing number of outages,<br>- Beyond lifetime elevators with increasing number of outages,<br>- End of lifetime fire safety installation, requiring urgent attention to maintain compliance,<br>- and therefore an increasing risk of non-ATC related short-/medium- and long-term inavailability of ATC services for Munich airport identified, which will be mitigated through the project and prepare the facility for the next 15-20 years of operation.<br><br>With regard to the total capex of the investment airspace users asked for further details of DFS' cost estimation and an explanation why the estimated costs for the tower in Munich are significant higher than for the new tower in Frankfurt. So further explanations were given by DFS:<br><br>The basis for these costs are the calculations / offers of the planners or the general contractor from 2008. Therefore, 2008 was chosen as the base year and the costs have been extrapolated to the relevant years. The allowance for extra charges results from:<br>• A compensation of the fact, that the actual costs of the two towers in Berlin and Frankfurt are below average.<br>• the update of the fee structure for architects and engineers (HOAI),<br>• the experience to need more extensive involvement of special planners, experts and verifiers (such as fire protection, facade, floor, alarm messages, etc.) in current construction projects<br>• and higher fees. | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

| | | | |
|---|---|---|---|
| **Name of new major investment 7** | ***PIPE2 – IP enhancement phase 2*** | Total value of the asset | ***32.155.000 €*** |
| Description of the asset | With the IP upgrading project for the radio and radar sites Phase 1, 144 sites were non-redundantly connected to the MPLS-A network. This is where phase 2 begins, with which the rendundate connection to the locations from phase 1 as well as to all other remote locations will take place. In addition, the Voice-over-IP and Surveillance-over-IP functionality will be introduced throughout DFS.<br><br>The aim is to use an integrated network design to connect the applications of the communication, navigation and surveillance domains in a uniform and future-proof manner with an All-IP network. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | no impact | |
| | Local | The background to the project is the discontinuation of servicing for the multiplexers for 2024 and the replacement of ISDN lines (by | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | The replacement is needed to secure the existing level of safety. | |
| | Environment | (no impact according to the definition of the indicators in this key performance area) | |
| | Capacity | The omission alternative can lead to failures in the data networks, reduce the availability of systems and thus could have a negative impact on capacity and flight profiles in the operational service. | |
| | Cost Efficiency | The impending technology change among telecommunications providers makes infrastructure renewal essential and a delay in the project may increase the cost of operation and reduce the availability of services. | |
| Results of the consultation of airspace users' representatives | tbd | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

## 2.3.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | The main investments during RP3 will be the iCAS Programme (including the above described projects and the product management), MaRS, S-ATM Robusto and RASUM 8.33.<br><br>DFS is engaged in a total of up to 31 combined and separate deployment projects/ initiatives.<br>The Top Deployment Projects by investment volume are:<br>- iCAS System,<br>- Deploying New Radar Technologies (MaRS): Implementation of SES by Improving Performance, Interoperability and Modernizing ATM in Germany,<br>- Deploying a terrestrial European back-up for GNSS (incl. GALILEO) in-line with the European ATM Master Plan,<br>- Deploying Remote Tower (RTC): Implementation of SES by Improving Performance and Modernizing ATM for Tower Service Provision in Germany,<br>- Deployment of next Generation and VoIP Capable Centre Voice Communication System, and<br>- TANGe (project start in RP2)<br><br>Those investments have been described in detail, including the expected benefits per KPA, in the RP2 Performance Plan, Section 2 (Investments), except for Project S-ATM Robusto, which has been introduced as unplanned investment in the Reporting for 2015. Refinements on this detailed information have been and will be provided for each project in the context of the yearly Performance Monitoring Reports (e.g. FABEC Monitoring Report 2018, chapter 4 – CAPEX Report). |

## 2.4 - Investments - ANA LUX

### 2.4.1 - Summary of investments

| | |
|---|---|
| Number of new major investments | 4 |

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | Radar / SUR: A-SMGCS Level 2 and updates | 2.659.797 | 2.659.797 | 11.300 | 37.187 | 173.361 | 176.067 | 178.773 | 15 | | | 31-12-2021 |
| 2 | Communication systems: VCS/VCR, emergency radio; ADD and AMHS | 3.143.150 | 3.143.150 | 17.433 | 45.823 | 267.463 | 273.434 | 356.814 | 10 | | | 31/12/2020<br>31/12/2023<br>31/12/2024 |
| 3 | Navigation systems: ILS24 and PDME, DME-DIK | 1.510.500 | 1.510.500 | 23.870 | 111.278 | 109.687 | 108.096 | 109.642 | 15 | | | 31/12/2020<br>31/12/2024 |
| 4 | Aeronautical Systems: AIS/AIM, eTOD and MET | 4.047.250 | 4.047.250 | 12.822 | 61.963 | 71.050 | 80.137 | 413.806 | 10 | | | 31-12-2021 |
| Sub-total of **new major investments** above (1) | | 11.360.697 | 11.360.697 | 65.424 | 256.252 | 621.561 | 637.734 | 1.059.036 | | | | |
| Sub-total **other new investments** (2) | | 15.656.350 | 7.351.399 | 335.026 | 633.973 | 666.190 | 996.854 | 1.004.252 | | | | |
| Sub-total **existing investments** (3) | | | | 2.591.963 | 2.401.161 | 2.227.275 | 2.161.239 | 2.155.836 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 27.017.047 | 18.712.096 | 2.992.413 | 3.291.385 | 3.515.026 | 3.795.827 | 4.219.124 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.4.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***Radar / SUR: A-SMGCS Level 2 and updates*** | Total value of the asset | ***2.659.797 €*** |
|---|---|---|---|
| Description of the asset | A-SMGCS Level 1 (monitoring) is already installed and operational on ELLX. Level 2 installation ensures the tracking and monitoring of aircraft and transponder equipped vehicles on the aiport as a safety tool. | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Use of A-SMGCS as a ground movement control system (Acft / vehicles) for safe airport OPS. Consultation and user support ensured. | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |
| If investment in ATM system, type? | New system | Ground surveillance and control | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | ESSIP: ESSIP AOP04.1, AOP04.2 (A-SMGCS); ENV01, ATM Masterplan. | |

| **Name of new major investment 2** | ***Communication systems: VCS/VCR, emergency radio; ADD and AMHS*** | Total value of the asset | ***3.143.150 €*** |
|---|---|---|---|
| Description of the asset | Installation of a new voice communication system (HW replacement, 8.33 kHz capable) and voice recording system for ATC. Upgrade of emergency radio to a telephone based system, replacement of ATC Data Display (ADD) and ATC Message Handling System (upgrade) for SUR, Flight Data, weather(current & forecast) as an important safety tool. | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Continuity of voice communication service through a reliable system. The implementation of a voice recording system in ATC is a requirement (AET and DAC recommendation). TWR ADD replacement and upgrade to display relevant ATC info. User consultation planned during local AUC meeting. | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | Basic VCS, data display and flight data and message handling. | |
| If investment in ATM system, type? | New system | Replacement of VCS and installation of a new VCR, replacement of ADD and overhaul of AMHS. | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | Basic VCS system compliant with ESSIP ITY-AGVCS objective for air-ground communication; availability of a stable emergency VCS; and ATC information (compliance with ICAO standards and EUROCONTROL recommendations). | |

| **Name of new major investment 3** | ***Navigation systems: ILS24 and PDME, DME-DIK*** | Total value of the asset | ***1.510.500 €*** |
|---|---|---|---|
| Description of the asset | Implementation of a new Instrument Landing System (ILS) and distance metering equipment (DME) at RW24 and DME -DIK | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Continuity of service and through replacement of existing systems after life-cycle. User consultation planned during local AUC meeting. | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | Basic navigation and landing system. | |
| If investment in ATM system, type? | Replacement investment | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | Availability of navigation systems for all aircraft type. | |

| **Name of new major investment 4** | ***Aeronautical Systems: AIS/AIM, eTOD and MET*** | Total value of the asset | ***4.047.250 €*** |
|---|---|---|---|
| Description of the asset | Implementation of modern AIM / AIS aeronautical, digital production and management systems including digital NOTAM in line with future requirements. Installation of electronic terrain and obstacle data (eTOD) and data management system for all areas as required; | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Availability of flight safety relevant terrain & obstacle data to ensure obstacle clearance in LU airspace and aerodrome. Digital aeronautical data handling | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | Basic aeronautical data and information for ANS. | |
| If investment in ATM system, type? | New system | Implementation of new digitalised AIS/AIM management and work-flow management and NOTAM system. Implementation of new eTOD management system. Replacement of RWY Visual Range (RVR) sensors for MET. | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | ESSIP: INF07 (eTOD) and ITY-ADQ (Aeronautical Data Quality) compliance; compliance with ICAO requirements. Initial implementation steps in line with SESAR ATM MP to create a SWIM enabled aeronautical environment. | |

## 2.4.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | |

## 2.5 - Investments - LVNL

### 2.5.1 - Summary of investments

| Number of new major investments | 8 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | Centralized Approach and remote tower Beek and Eelde | 12.716.000 | 12.716.000 | 0 | 256.212 | 1.297.876 | 1.286.006 | 1.301.544 | 8-20 | 50% | 50% | 2021 |
| 2 | Common voice communication system (VCS) | 18.081.706 | 13.290.706 | 693.601 | 1.381.133 | 1.368.993 | 1.356.854 | 1.344.714 | 15 | 54% | 46% | 2020 |
| 3 | Expansion facilities/ Polaris | 63.397.000 | 49.225.341 | 1.731.161 | 1.731.161 | 1.731.161 | 1.731.161 | 1.841.851 | 40 | 90% | 10% | 2019-2024 |
| 4 | Housing maintenance and sustainability at LVNL | 28.099.000 | 26.437.086 | 98.174 | 364.803 | 809.502 | 1.416.020 | 1.613.608 | 10-40 | 90% | 10% | 2020-2024 |
| 5 | Maintenance investments | 141.408.250 | 141.408.250 | 6.560.015 | 9.699.478 | 11.589.493 | 12.564.554 | 12.195.762 | 3-20 | 68% | 32% | 2020-2024 |
| 6 | Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations | 122.602.696 | 109.528.696 | 526.233 | 517.155 | 513.394 | 8.025.846 | 8.675.943 | 20 | 100% | | 2022-2023 |
| 7 | System Wide Information Management (SWIM) | 12.409.000 | 12.409.000 | 631.900 | 625.895 | 910.741 | 1.535.726 | 1.936.325 | 8 | 54% | 46% | 2020-2024 |
| 8 | Tower system | 29.046.000 | 29.046.000 | 1.109.713 | 1.095.713 | 1.081.139 | 1.066.565 | 1.597.709 | 8-20 | | 100% | 2020 |
| Sub-total of **new major investments** above (1) | | 427.759.652 | 394.061.079 | 11.350.797 | 15.671.550 | 19.302.299 | 28.982.732 | 30.507.456 | | | | |
| Sub-total **other new investments** (2) | | 29.780.074 | 29.780.074 | 914.942 | 2.298.423 | 3.036.730 | 4.059.641 | 4.634.253 | | | | |
| Sub-total **existing investments** (3) | | | | 12.092.637 | 10.818.049 | 9.676.571 | 8.214.813 | 7.005.757 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 457.539.726 | 423.841.153 | 24.358.376 | 28.788.022 | 32.015.600 | 41.257.186 | 42.147.466 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.5.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***Centralized Approach and remote tower Beek and Eelde*** | Total value of the asset | ***12.716.000 €*** |
|---|---|---|---|

| | | |
|---|---|---|
| Description of the asset | The aim of the project is to relocate the provision of the Air Traffic Control Services (ATS) of two airports in the Netherlands, Maastricht Aachen Airport and Groningen Airport Eelde, by creating a Remote Tower Center (RTC) at Schiphol's facilities and deploying Remote Towers in the two relocated airports and centralise approach. The local maintenance organization at the two airports is going to be integrated into the Schiphol maintenance organization.<br><br>This means that the tower controller will control the airport on another location by (amongst other information) camera's that are installed on the airport which gives him the visual information about the runways, the movement area and the airspace. It is a requirement that the system must be able to support multiple remote tower operations in the future.<br><br>The project will contribute to the re-design of the Dutch airspace, increasing the harmonisation and improving the civil-military cooperation between Air Traffic Control the Netherlands (LVNL) and Royal Netherlands Air Force Command (RNLAF) since the Dutch military controllers are already established in Schiphol's area. Moreover, it will optimise the efficiency of the Air Traffic Control Service at the two concerned airports. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | |
| Level of impact of the investment | Network | No impact expected |
| | Local | Centralized approach is an enabler for, and will contribute to, the Dutch airspace redesign (it lead to more possibilities to design the Dutch airspace) and the harmonisation, improved cooperation and integration of Dutch civil and military services . |
| | Non-performance | No impact expected |
| Quantitative impact per KPA | Safety | No impact expected or better |
| | Environment | No impact expected |
| | Capacity | No impact expected or better |
| | Cost Efficiency | The project will optimise the efficiency of the Air Traffic Control Service at the two concerned airports EHBK and EHGG. The initial study states that after the investment in the remote tower (commissioning in 2021), the break-even point is reached in 2031. After commissioning the remote tower technology is scalable to more civil or militairy towers so more efficiency can be reached. This will most likely increase when the multiple tower concept is implemented. |
| Results of the consultation of airspace users' representatives | | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | AOP14 – Remote Tower Services<br>The remote tower concept enables air traffic control services (ATS) and aerodrome flight information services (AFIS) to be provided at aerodromes where such services are either currently unavailable, or where it is difficult or too expensive to implement and staff a conventional manned facility.<br>This Objective proposes to remotely provide ATC services and AFIS for one aerodrome handling low to medium traffic volumes or two low-density aerodromes. The basic configuration, which does not include augmentation features, is considered suitable for ATC and AFIS provision at low density airfields. However, the level and flexibility of service provision can be enhanced through the use of augmentation technology, such as an ATC surveillance display, surveillance and visual tracking, infra-red cameras etc.<br><br>Cost Efficiency: Cost reduction for ATS by optimisation of ATCOs. Remote ATS facilities will be cheaper to maintain, able to operate |

| **Name of new major investment 2** | ***Common voice communication system (VCS)*** | | Total value of the asset | ***18.081.706 €*** |
|---|---|---|---|---|
| Description of the asset | The activity aims to deploy a Voice over Internet Protocol (VoIP) based Voice Communication System (VCS) for civil and military Air Traffic Control below flight level 245, in the Netherlands.<br>The activity concerns an extension and upgrade of the current VCS. VoIP will be added to increase interoperability. The common VCS is a shared communication system with LVNL's military partner. It enables LVNL to have a three-lane voice communication system. This means that if the first lane VCS gets disabled, two more independent lanes still exist to handle a full traffic load. It also brings new functionalities. Communications between air traffic controllers across borders nowadays run via telephone connections, but the telecom networks will not support the old digital (E1) and analogue lines in the future. In addition, today it is not easily possible for an air traffic controller in one country to optionally access the radio infrastructure of another country. Only VoIP technology provides the prerequisites for such functions. Furthermore, this technology offers the means of introducing additional performance features that make communications between air traffic controllers and pilots easier and more secure. To implement this technology voice services will have to be fully IP (Internet Protocol)-based and run over an IP network infrastructure and the voice communication systems must be interoperable. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | Increased sustainability of ATS services, if the first lane VCS gets disabled (in case of a failure of other reason), two more independent lanes (VCS) still exist to handle a full traffic load. This will prevent air traffic control from having to completely reduce air traffic in the Netherlands to zero, thus preventing serious disruption of the operation and delay. | | |
| | Local | | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | The three lane system is more stable, with a lower risk of overall failure | | |
| | Environment | | | |
| | Capacity | The three lane concept helps avoid severe capacity restrictions on case of failure of one of the VCSs. | | |
| | Cost Efficiency | By VoIP reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings. | | |
| Results of the consultation of airspace users' representatives | | | | |
| Joint investment / partnership | Yes | Following a joint process with the military has allowed a more cost efficient procurement process. | | |
| Investment in ATM systems | Yes | | | |
| If investment in ATM system, type? | New system | Extension to a three-lane voice communication system shared with LVNL's military partner and using the Voice over Internet Protocol (VoIP) | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Master Plan (non-PCP) | European ATM masterplan COM11.1 – Voice over Internet Protocol (VoIP) in En-Route<br>This Implementation Objective aims at an efficient use of voice over Internet protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation. The initiative covers inter centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. Inter-centre voice communications are currently mainly performed via analogue and digital circuits. This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. | | |

| **Name of new major investment 3** | ***Expansion facilities/ Polaris*** | Total value of the asset | ***63.397.000 €*** |
|---|---|---|---|

| | | |
|---|---|---|
| Description of the asset | Due to various internal and external developments, amongst others the need for more space for the (migration towards a) new ATC system iCAS, the intended CIV/MIL integration of training and education and the outcome of a Contingency study, the present ATC Centre and its infrastructure need to be expanded. Polaris (the name of the new building) will be delivered just before RP3. During RP3 Polaris will be made ready to house a trainings- and education centre for military and civil usage.<br><br>With the Ministry of Infrastructure has been agreed to transform Polaris, as soon as possible, to a contingency centre. This implies that during RP3 work will be carried out to realize this centre. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | |
| Level of impact of the investment | Network | Improved contingency for ATM services in the Dutch airspace |
| | Local | Improved contingency for ATM services in the Dutch airspace |
| | Non-performance | No impact expected |
| Quantitative impact per KPA | Safety | No impact expected |
| | Environment | No impact expected |
| | Capacity | Improved contingency for ATM services in the Dutch airspace |
| | Cost Efficiency | Enabler for setting up a joint civil/military training school. |
| Results of the consultation of airspace users' representatives | Contingency and training centre, non performance costs | |
| Joint investment / partnership | Yes | Joint development with the military, with the purpose of using the facility as a joint training school. |
| Investment in ATM systems | Yes | Polaris is a contingency centre for ATM services |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | |
|---|---|---|---|
| **Name of new major investment 4** | ***Housing maintenance and sustainability at LVNL*** | Total value of the asset | ***28.099.000 €*** |
| Description of the asset | During RP3 LVNL has to invest in renovating the 25 year old office on Schiphol Oost. LVNL has a responsibility as a public service provider to contribute to a better environment and will renovate in a sustainable manner. LVNL will make an effort to reduce its CO2 footprint as an organization by investing in solar panels to generate our own green electricity, make the heath installations more energy efficient, insulate the building, participate in Corporate Biofuel Programme for business flights, waste management, durable office furniture etc. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | No impact expected | |
| | Local | No impact expected | |
| | Non-performance | No impact expected | |
| | Safety | No impact expected | |
| | Environment | Reduced environmental impact from business practices | |
| | Capacity | No impact expected | |

| | | |
|---|---|---|
| Quantitative impact per KPA | Cost Efficiency | Reduction of energy costs by solar panels to generate green electricity, more energy efficient heath installations and insulation of the buildings. |
| Results of the consultation of airspace users' representatives | | |
| Joint investment / partnership | No | |
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Click to select | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | |
|---|---|---|---|
| **Name of new major investment 5** | ***Maintenance investments*** | Total value of the asset | ***141.408.250 €*** |
| Description of the asset | In order to maintain the current level of service provision and to be able to realise beforementioned projects several investments are needed with respect to the ATM system and buildings and infrastructure. These investments are necessary replacements by new systems and overhaul of existing systems and infrastructure. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | No impact expected | |
| | Local | No impact expected | |
| | Non-performance | No impact expected | |
| Quantitative impact per KPA | Safety | No impact expected | |
| | Environment | No impact expected | |
| | Capacity | No impact expected | |
| | Cost Efficiency | No impact expected | |
| Results of the consultation of airspace users' representatives | Maintaining the current level of service provision and to enable other mentioned investments | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |
| If investment in ATM system, type? | Replacement | Replacement investments and overhaul of existing system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | Not applicable for replacement investments | |

| | | | |
|---|---|---|---|
| **Name of new major investment 6** | ***Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations*** | Total value of the asset | ***122.602.696 €*** |

| | | |
|---|---|---|
| Description of the asset | The current AAA-system (FDP) is the core of the LVNL support system for operational services, it allows for the processing of flight plan- and radar data, it handles the display of relevant information on the operational workstations and it includes warning- (safety nets) and planning functions. AAA will no longer meet future operational requirements, like 4D trajectory based operations and SWIM, at a cost-efficient level.<br><br>The iCAS programme objective is to procure and deploy a state-of-the-art, harmonised and interoperable air traffic control system which will be rolled out at all DFS and LVNL control centres. iCAS is an important contribution to LVNL's ability to achieve the implementation of numerous Families of the Deployment Programme of the SESAR Deployment Manager to be deployed for the Pilot Common Project. iCAS features a 4D-trajectory and is designed to provide ATC services within the entire airspace of Germany and the Netherlands including all lower and upper control centre sectors (except in airspace controlled by EUROCONTROL Maastricht UAC).<br><br>iCAS will be used as a fully integrated civil / military ATS system, thus enabling a more "advanced and flexible use of the airspace" (A-FUA) for both civil and military purposes. The key iCAS components Flight Data Processor, Controller Working Position and Middleware are developed in the iTEC Collaboration together with a total of 7 ANSPs thus enabling a cost-efficient procurement as well as ensuring an interoperable system in line with the strategic goals of the Single European Sky (EU No. 552/2004 and EU No. 1070/2009). iCAS-II adds all necessary functions to the iCAS-I system to support ATC services in lower en-route and Terminal Manoeuvring Area (TMA) and to enable the transition between free route airspace and low en-route and terminal airspace operations including the integration with their associated TMAs and Extended Arrival Management systems.<br><br>iCAS will make use of improved high resolution (hi-res) meteorological information as produced and developed by MET ANSP KNMI.<br><br>iCAS will enable the introduction of future operational concepts which are based on 4D-trajectory information and which aim to move from today's tactical ATM operations towards increasingly strategic ATM operations. Preparations will be done for the deployment of Flight information exchange including Flight Object information and use of downlinked aircraft trajectory using EPP. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | Mandated by PCP regulation (EU) No 716/2014;<br>Funded by CEF grant agreements 2015-EU-TM-0196-M, 2016-EU-TM-0117-M and 2017-EU-TM-0076-M. |
| Benefits for airspace users and results of the consultation of airspace users' representatives | - Common Deployment of iCAS into all DFS and LVNL Control Centers enables cost sharing in procurement, deployment and maintenance life cycles thus reducing total iCAS cost of ownership;<br>- The continuity of services is better guaranteed by replacing the current AAA system with the new iCAS;<br>- The advanced conflict management tools of iCAS will increase situational awareness of potential conflicts, so increasing safety;<br>- iCAS will enable improved flight efficiency, allow for optimised routes regarding time and route length therewith reducing fuel burn and CO2 emissions. The improvements can generate benefits in Delay absorption, Delay reduction and User driven prioritisation process;<br>- Increased system support and advanced tools will free the ATCOs from routine tasks providing gains in productivity. A productivity growth could make a capacity growth possible. | |
| Joint investment / partnership | Yes | Partner DFS |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Replacement | Partly a replacement investment (replacing AAA) and partly a new system for Trajectory Based Operations |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | - ATM Functionality: Extended Arrival Management and Performance Based Navigation in the High Density Terminal Manoeuvring Areas, sub-functionality "Arrival Management extended to en-route Airspace";<br>- Flexible Airspace Management and Free Route, sub-functionalities "Airspace Management and Advanced Flexible Use of Airspace" and "Free Route";<br>- Network Collaborative Management, sub-functionality "Collaborative NOP"<br>- Initial System Wide Information Management, sub-functionalities "Cooperative network information exchange"and "Flight information exchange"; |

| Name of new major investment 7 | *System Wide Information Management (SWIM)* | | Total value of the asset | ***12.409.000 €*** |
|---|---|---|---|---|
| Description of the asset | Implementation of System Wide Information Management includes IPv6 based data communication networks, Public Key Infrastructure, SWIM technical infrastructure and systems using web services for the exchance of:<br>- Aeronautical information<br>- Meteorological information<br>- Cooperative network information<br>- Flight information.<br><br>By using open standards and interoperable services based on a Service Oriented Architecture (SOA) information can be shared throughout the system and consistent information is available to all interested. This will provide for sharing of information across different systems. Depending on the type of information an ANSP is a producer or consumer of information. The loose system coupling and separation of information provision and information consumption allow for quick and cost-effective creation of new system interfaces. Information is exchanged by XML based standard data models which makes the information machine readable. Cyber security is an important aspect of SWIM implementation. To exchange information by SWIM services the current systems need to be upgraded, adapted, interfaced or replaced. The actual list of services that LVNL provides will be made available in the common registry. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | Mandated by PCP regulation (EU) No 716/2014;<br>Only a part of the investment activities are funded by CEF grant agreements 2015-EU-TM-0193-M, 2015-EU-TM-0196-M and 2017-EU-TM-0076-M. | | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | - Information can be shared throughout the system and consistent information is available to all interested. Up-to-date information shared with ANSPs and NM supports trajectory based operations and enhance the optimal flow of traffic.<br>- SWIM allow for quick and cost-effective creation of new system interfaces and adaptation and extension of the information exchanged. Implementation of new interfaces can be done separately in the different organisations and participating organisations only implement the parts of the system they need. Both is cheaper than the current situation.<br>- Implementation of trajectory based operations by information exchange with SWIM will lead to an improvement of environment when Flight Objects is also in place (in RP4). With the trajectory based operations ANSP and airline agree, in advance of a flight, upon an optimal trajectory considering the circumstances. This will lead to much efficient trajectories than the ones which currently arise in the tactical phase of the flight. Optimized trajectories reduce fuel consumption and CO2 emissions. | | | |
| Joint investment / partnership | Yes | Only for Common infrastructure components (NewPENS and PKI), partner Eurocontrol | | |
| Investment in ATM systems | Yes | | | |
| If investment in ATM system, type? | New system | | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | - ATM Functionality: "Initial System Wide Information Management", sub-functionalities: "Common infrastructure components", "SWIM Technical Infrastructure and Profiles", "Aeronautical information exchange", "Meteorological information exchange", "Cooperative network information exchange" and "Flight information exchange".<br>- European ATM masterplan: COM12 - NewPENS, INF08.1 - Initial SWIM - Yellow TI Profile, | | |

| Name of new major investment 8 | *Tower system* | Total value of the asset | ***29.046.000 €*** |
|---|---|---|---|

| | | |
|---|---|---|
| Description of the asset | LVNL will deploy a state-of-the-Art tower system at Schiphol Airport to support the implementation of the European ATM Master Plan and the Pilot-Common-Project (PCP) in accordance with the SESAR deployment plan. Realisation of PCP requirements in the TWR domain consists of:<br>- Departure Management Synchronised with Pre-departure sequencing<br>- Departure Management integrating Surface Management Constraints (A-SMGCS 1 and 2)<br>- Airport Safety Nets<br>- Automated Assistance to Controller for Surface Movement Planning and Routing (A-SMGCS routing and planning function)<br><br>The new TWR-system allows the processing of flight plan- and radar data, it handles the display of relevant information on the operational workstations, it handles Electronic Flight Strips, Airport CDM and controls the taxiway centreline lighting. Departure management synchronised with pre-departure sequencing is a means to improve departure flows at Schiphol Airport. Advanced Surface Movement Guidance and Control Systems (A-SMGCS) shall provide optimised taxi-time and improve predictability of take-off times. The routing and planning functions of A-SMGCS shall provide the automatic generation of taxi routes, with the corresponding estimated taxi time and management of potential conflicts. Airport safety nets consist of the detection and alerting of conflicting ATC clearances to aircraft and deviation of vehicles and aircraft from their instructions, procedures or routing which may potentially put the vehicles and aircraft at risk of a collision. | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | Mandated by PCP regulation (EU) No 716/2014;<br>Only a part of the investment activities are funded by CEF grant agreement 2015-EU-TM-0196-M. |
| Benefits for airspace users and results of the consultation of airspace users' representatives | - The new TWR system will enhance safety and reduce hazardous situations on the runway;<br>- The new TWR system will calculate the most operationally relevant route as free as possible of conflicts, reducing taxi time (less fuel burn) and waiting in situations with congestion;<br>- The new TWR system aims at maximising traffic flow on the runway by setting up a sequence with minimum optimised separations. Provide optimised taxi-time and improve predictability. Improved predictability results in more optimal use of available capacity and thus less delays.<br>- No cost efficiency for ANSP expected. Airlines will benefit financially from these activities. | |
| Joint investment / partnership | No | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Replacement | Partly a replacement investment of the current tower system and partly a new system for all PCP sub-functionalities. |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | - ATM Functionality: Airport Integration and Throughput, sub-functionalities "Departure Management Synchronised with Pre-departure sequencing", "Departure Management integrating Surface Management Constraints", "Time-Based Separation for Final Approach", "Automated Assistance to Controller for Surface Movement Planning and Routing" and "Airport Safety Nets".<br>- European ATM masterplan: AOP10 - Time-Based Separation, AOP12 - Improve runway and airfield safety with ATC clearances monitoring, AOP13 - Automated assistance to controller for surface movement planning and routing, AOP16 - Guidance assistance through airfield ground lighting |

## 2.5.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | Additional information regarding both major and other new and existing investments is provided in Annex R. |

## 2.6 - Investments - Skyguide

### 2.6.1 - Summary of investments

| Number of new major investments | 4 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | Virtual Center | 77.765.851 | 77.765.851 | 11.049.261 | 11.346.336 | 10.491.358 | 8.954.102 | 7.944.644 | 8 | 85% | 15% | stepwise |
| 2 | New SIM Generation | 6.284.902 | 4.650.828 | 979.373 | 973.667 | 952.055 | 930.443 | 908.831 | 8 | 54% | 46% | stepwise |
| 3 | Wide Area Multilateration | 6.768.816 | 6.701.128 | 39.267 | 87.114 | 246.423 | 368.353 | 394.712 | 15 | 37% | 63% | stepwise |
| 4 | Smart Radio | 11.686.235 | 10.283.887 | 707.255 | 778.227 | 782.246 | 769.023 | 755.799 | 20 | 65% | 35% | stepwise |
| Sub-total of **new major investments** above (1) | | 102.505.804 | 99.401.693 | 12.775.156 | 13.185.344 | 12.472.082 | 11.021.921 | 10.003.986 | | | | |
| Sub-total **other new investments** (2) | | 193.750.609 | 168.563.030 | 11.188.389 | 14.249.714 | 16.998.045 | 18.636.958 | 20.287.196 | | | | |
| Sub-total **existing investments** (3) | | | | 58.876.713 | 48.275.320 | 39.797.571 | 32.657.003 | 27.493.990 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 296.256.413 | 267.964.723 | 82.840.259 | 75.710.379 | 69.267.698 | 62.315.881 | 57.785.172 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.6.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***Virtual Center*** | Total value of the asset | ***77.765.851 CHF*** |
|---|---|---|---|
| Description of the asset | Upgrading core ATM systems to use modern flexible technology, allowing the reduction of asset costs, and to improve Air Traffic Controller efficiencies and affordable capacity management against predicted traffic growth. This includes infrastructure improvements such as service orientated software architecture, voice over IP for radios (VCS), as well as sector and tool improvements for the controllers. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | | |
| | Local | Yes | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | yes | |
| | Environment | no | |
| | Capacity | Yes | |
| | Cost Efficiency | Yes | |
| Results of the consultation of airspace users' representatives | Lower costs, enable longer range options to affordably improve capacity and provide business continuity options | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |

| | | |
|---|---|---|
| If investment in ATM system, type? | New system | This is a mixture of new systems and improving processes, overhauling old systems, and replacing old systems |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| **Name of new major investment 2** | ***New SIM Generation*** | Total value of the asset | ***6.284.902 CHF*** |
|---|---|---|---|
| Description of the asset | Replacement of end of life asset also including new capabilities that reduce the instructor to learner ratio, and should enable faster training, affordably by use of voice recognition | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | | |
| | Local | Yes | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | Yes | |
| | Environment | | |
| | Capacity | Yes | |
| | Cost Efficiency | Yes | |
| Results of the consultation of airspace users' representatives | Lower costs, affordably maintain ATCO capacity | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |
| If investment in ATM system, type? | Overhaul of | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

| **Name of new major investment 3** | ***Wide Area Multilateration*** | Total value of the asset | ***6.768.816 CHF*** |
|---|---|---|---|
| Description of the asset | Deploy MLAT to replace end of asset life secondary radar. MLAT allows lower running costs and affordably improve coverage in the complicated Swiss mountain geography. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | | |
| | Local | yes | |
| | Non-performance | | |
| Quantitative impact per KPA | Safety | yes | |
| | Environment | | |
| | Capacity | yes | |
| | Cost Efficiency | yes | |
| Results of the consultation of airspace users' representatives | Lower costs, safely maintain capacity | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |

| | | |
|---|---|---|
| If investment in ATM system, type? | Overhaul of | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| | | | | |
|---|---|---|---|---|
| **Name of new major investment 4** | ***Smart Radio*** | | Total value of the asset | ***11.686.235 CHF*** |
| Description of the asset | Replaces obsolescent main radio equipment across Switzerland, compliant with EC implementing rule for 8.33 kHz, and VOIP enabled to support the Virtual Centre implementation). This project started in 2013 and is due to complete in 2021 fully. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | | | |
| | Local | Yes | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | Yes | | |
| | Environment | | | |
| | Capacity | Yes | | |
| | Cost Efficiency | Yes | | |
| Results of the consultation of airspace users' representatives | Lower costs, maintain capacity, EC implementing rule compliance, virtual centre enabling | | | |
| Joint investment / partnership | No | | | |
| Investment in ATM systems | Yes | | | |
| If investment in ATM system, type? | Overhaul of existing system | | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | | |

## 2.6.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | To comply with EU efficiency targets (amortisation reduction contribution), SKYGUIDE will reduce its annual investment amount by ~ 20% over the next 5 years. During the next 2 years (where our detailed plans are possible) there will be few new material investments beyond those mentioned above. Existing investments are to complete projects in progress which aim to either maintain/improve the 4 main KPAs for capacity, efficiency, environment and of course safety, or to keep the business operations running (facilities, back office, etc.); there are up to 70 small projects across the business addressing these topics in any year. |

## 2.7 - Investments - MUAC

### 2.7.1 - Summary of investments

| Number of new major investments | 5 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | IOP-G Programme (IOPG) | 19.900.000 | 15.050.000 | 0 | 0 | 0 | 0 | 0 | 15 | 100% | | 1-1-2025 |
| 2 | New ATCO Consoles (NCON) | 18.126.000 | 17.600.000 | 0 | 0 | 0 | 0 | 1.034.000 | 5 to 20 years | 100% | | 2024 |
| 3 | Renovation Building (RENV) | 18.789.000 | 18.789.000 | 572.577 | 1.145.154 | 1.135.284 | 1.125.414 | 1.115.544 | 15 to 20 years | 100% | | annually |
| 4 | Data Centre Modernisation (DCMO) | 7.462.000 | 4.700.000 | 426.934 | 853.868 | 845.498 | 837.128 | 828.758 | 5 to 20 years | 100% | | 2020 |
| 5 | Back up Voice Communication System (BVCS) | 5.200.000 | 5.200.000 | 0 | 0 | 0 | 0 | 375.265 | 15 years | 100% | | 2024 |
| Sub-total of **new major investments** above (1) | | 69.477.000 | 61.339.000 | 999.511 | 1.999.022 | 1.980.782 | 1.962.542 | 3.353.567 | | | | |
| Sub-total **other new investments** (2) | | 26.474.000 | 15.609.000 | 1.697.000 | 3.024.000 | 3.222.000 | 3.338.000 | 3.577.000 | | | | |
| Sub-total **existing investments** (3) | | | | 8.341.385 | 4.344.901 | 3.781.690 | 3.667.529 | 3.115.661 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 95.951.000 | 76.948.000 | 11.037.896 | 9.367.923 | 8.984.472 | 8.968.070 | 10.046.228 | | | | |

** The total % enroute+terminal should be equal to 100%.*

**General note**: Figures provided are for MUAC as a whole. Determined costs are shared by the four MUAC States. Part of overall MUAC cost, including relevant depreciation and cost of capital, is paid by the German MOD for the provision of services to OAT.

### 2.7.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***IOP-G Programme (IOPG)*** | | Total value of the asset | ***19.900.000 €*** |
|---|---|---|---|---|
| Description of the asset | MUAC is preparing the implementation of the Flight Object (FO), supported by the Blue SWIM Profile. The IOPG Programme comprises additional validations to complement the validations under SESAR1 & SESAR2020, the development and integration of the SWIM Node and Flight Object Manager (common project with iTEC) and the modifications to the legacy systems. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.) | Yes | Initial SWIM Implementing Rule 716/2014 of the Pilot Common Projects (PCP) | | |
| Level of impact of the investment | Network | | | |
| | Local | | | |
| | Non-performance | | | |

| | | |
|---|---|---|
| Quantitative impact per KPA | Safety | |
| | Environment | |
| | Capacity | |
| | Cost Efficiency | |
| Benefits for airspace users and results of the consultation of airspace users' representatives | Access to common flight data can result in improved coordination in user-preferred route environments, safety, robustness and concepts of operation. Costs saving through common development of the Blue SWIN Node and Flight Object Manager with iTEC. | |
| Joint investment / partnership | Yes | |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | New system | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | PCP | AF#5,family5-6-2 |

| **Name of new major investment 2** | ***New ATCO Consoles (NCON)*** | Total value of the asset | ***18.126.000 €*** |
|---|---|---|---|
| Description of the asset | The objective of this project is to provide the Next Generation Consoles for the ATCOs in the OPS-room and Test and Training room (TTR), flexibly locatable in a brighter OPS Room | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | Integration of FUA Cell in OPS Room | |
| | Local | Additional sectors to handle peak traffic increase, and enable support to the network | |
| | Non-performance | No | |
| Quantitative impact per KPA | Safety | No direct impact on safety | |
| | Environment | No | |
| | Capacity | Yes, as MUAC will be able to support additional sectors | |
| | Cost Efficiency | Reduce the need for (night) tests in the OPS Room | |
| Results of the consultation of airspace users' representatives | | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | Yes | | |
| If investment in ATM system, type? | New system | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

| **Name of new major investment 3** | ***Renovation Building (RENV)*** | Total value of the asset | ***18.789.000 €*** |
|---|---|---|---|
| Description of the asset | Continuous replacement of obsolete technical and electrical installations including the large renovation N-building, replacement access control system, replacement UPS N-building , replacement main power supply S-building , replacement UPS M-building , replacement chillers and dry coolers N-building , replacement chillers and dry coolers S-building, replacement terrain and fence lighting, replacement outside sewerage | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| | Network | | |

| | | |
|---|---|---|
| Level of impact of the investment | Local | |
| | Non-performance | Yes |
| Quantitative impact per KPA | Safety | |
| | Environment | |
| | Capacity | |
| | Cost Efficiency | |
| Results of the consultation of airspace users' representatives | | |
| Joint investment / partnership | No | |
| Investment in ATM systems | No | |
| If investment in ATM system, type? | Replacement | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

| **Name of new major investment 4** | ***Data Centre Modernisation (DCMO)*** | Total value of the asset | ***7.462.000 €*** |
|---|---|---|---|
| Description of the asset | The data Centre Modernisation project aims at the upgrade of the equipment rooms and their installations and facilities to the Uptime Institute TIER III level. Besides that, the project will deliver processes and tooling to efficiently plan the rack-space and adminsiter the assets and their physical (network) interconnections. | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | |
| Level of impact of the investment | Network | No | |
| | Local | No | |
| | Non-performance | The upgrade of the infrastructure is needed in order to ensure that the platform remains capable to support current and future IT needs. | |
| Quantitative impact per KPA | Safety | No | |
| | Environment | Improved energy consumption, fire protection and physical security | |
| | Capacity | No | |
| | Cost Efficiency | No | |
| Results of the consultation of airspace users' representatives | | | |
| Joint investment / partnership | No | | |
| Investment in ATM systems | No | | |
| If investment in ATM system, type? | Click to select | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | |

| **Name of new major investment 5** | ***Back up Voice Communication System (BVCS)*** | Total value of the asset | ***5.200.000 €*** |
|---|---|---|---|
| Description of the asset | This project's aim is to replace the current Back-up Voice Communication System (B-VCS). | | |

| | | |
|---|---|---|
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | |
| Level of impact of the investment | Network | None |
| | Local | None |
| | Non-performance | This is a replacement project, without direct impact on network or local performance |
| Quantitative impact per KPA | Safety | The project is in the initiation phase. At this stage, it is too early to quantify it's impact per KPA. |
| | Environment | |
| | Capacity | |
| | Cost Efficiency | |
| Results of the consultation of airspace users' representatives | Potential cost-savings through partnership in procurement and maintenance; improved reliability and capacity of the B-VCS system. | |
| Joint investment / partnership | Yes | A study is ongoing to investigate potential partnerships. The outcome of the study is due for early 2020. |
| Investment in ATM systems | Yes | |
| If investment in ATM system, type? | Replacement | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | |

## 2.7.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | The **existing** investments with the highest significance in terms of operational and financial impact are : **new FDPS** which will be fully depreciated at the end of 2020 (3.7 M€ in 2020), new **VCS** (3.5M€ of depreciation over RP3), the **Radio Direction Finder** (1.2 M€ over RP3), the **MUAC office Cloud operations OBS** (1.1 M€ over RP3) and the **BEEK transmitter station** (0.6 M€ over RP3). The **new** investments with the highest significance are disclosed in section 2.7.1. **Other new** investment projects includes among others Post Analysis and Intelligence (PABI), Radio Direction Finder Extension, ADS-C , ATM Portal, Manpower Planning Suite and System Control Co-location. |

## 2.8 - Investments - Météo France

### 2.8.1 - Summary of investments

| | |
|---|---|
| Number of new major investments | 0 |

### 2.8.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | As sole provider of meteorological services to air navigation designated in France, Meteo France has to ensure to plan dedicated investments. In that respect, Meteo France expects to plan yearly a level of depreciation costs of approximately 18M€ (see RP3 table costs).<br>During RP3, new and existing investments are mainly related to the modernization of meteorological radar network, weather observation stations and the implementation of a supercomputer (not dedicated to aeronautical services) for enhancing the computing power. |

## 2.9 - Investments - Deutscher Wetterdienst (DWD)

### 2.9.1 - Summary of investments

| | |
|---|---|
| Number of new major investments | 0 |

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| Sub-total of **new major investments** above (1) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Sub-total **other new investments** (2) | | 1.805.000 | 495.000 | 205.000 | 205.000 | 205.000 | 205.000 | 205.000 | | | | |
| Sub-total **existing investments** (3) | | | | 2.132.901 | 2.134.395 | 2.017.305 | 2.048.563 | 2.075.109 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 1.805.000 | 495.000 | 2.337.901 | 2.339.395 | 2.222.305 | 2.253.563 | 2.280.109 | | | | |

** The total % enroute+terminal should be equal to 100%.*

***NB: The table above provides capex for new investments only (the template provided by the european Commission does not foresee that capex for existing investments is filled in for each major investments). Therefore the sum in the last line "Total new and existing investments (1) + (2) + (3)" is valid for the columns on "Determined costs of investment" only.***

### 2.9.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

### 2.9.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | Other new investment as defined in accordance with Art. 2 (13) and (15) IR (EU) 2019/317 for RP3 is AutoMETAR.<br><br>AutoMETAR:<br>The AutoMETAR project will aim at the German Weather Service to fully automate the airport weather declarations at international traffic airports on the basis of the requirements set out in ICAO Annex 3 and Doc 9837 N/454. Full automation will increase the medium term performance through rapid data integration and a fully automatic 24/7 service offer. Therewith, DWD follows the global trend in automatization of weather observation and will gain a high performance system for the required airport weather reports METAR and MetReport/Special based on ICAO Annex 3 and ICAO Doc 9837. The project started in 2014 and will end with a full automatization in 2022.<br><br>Existing investments are LLWAS, ASDUV, RVR_E, common projects (MET-GATE, Adverse Weather). The respective cost of those investments as well as other depreciation of fixed assets are included in the table above.<br><br>LLWAS:<br>DWD implemented a Low Level Windshear Alert System at the airports Frankfurt and Munich to improve the detection and warning of wind shear, strong winds, turbulence and wake turbulence. Using a LIDAR and a X-band Radar the system allows to detect hazardous wind situations in the terminal area. Following the recommendation of ICAO Annex 3, the system generates automatic wind shear alerts. In a first step the data and the alerts are used by forecasters at the meteorological watch offices. In case of wind shear the forecasters contact DFS air traffic controller. The goal is to bring the warnings directly to customers via ASDUV Systems and with a tool using geowebservices.<br><br>ASDUV:<br>ASDUV is the Automatic Weather Observing System (AWOS) working at all German international airports. The system processes all sensor data at the airports like temperature/dew point, QNH, wind, RVR, clouds, significant weather and provides the weather reports METAR/SPECI, MetReport/Special and other special data telegrams for ATS Systems and the air traffic controllers. Since 2016 the new ASDUV System is in operational use at all international airports. Due to new requirements of ICAO and the automatization of the weather observation (AutoMETAR) DWD has to invest into hardware and software developments.<br><br>RVR_E:<br>For all weather operations the runway visual range and the cloud base are significant meteorological parameters to be determined by DWD along the runways and at the thresholds / glide path. The visibility sensors have been replaced by new modern systems. The ceilometers to determine cloud amount and cloud base will be replaced as well soon. The newly implemented visual range method allows for an improved visual range determination at airports by a new sensor type and contributes more safety in the terminal area.<br><br>SESAR common projects (MET-GATE, Adverse Weather):<br>The provision of harmonised meteorological products and services contributes to the objectives from SES, notably in increasing aviation safety but also in minimising flight delays and thus increasing capacity. In the context of Adverse Weather, flight meteorological products from various national European meteorological services are brought together so as to produce a Europe-wide harmonised meteorological picture. |

## 2.10 - Investments - Royal Netherlands Meteorological Institute (KNMI)

### 2.10.1 - Summary of investments

| | |
|---|---|
| Number of new major investments | 0 |

### 2.10.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | The main new investment will be the introduction of LIDARs at Schiphol airport, which will support LVNL in various activities to improve capacity and reduce arrival ATFM delays. |

## 2.11 - Investments - Office Féderal de la Météorologie et de Climatologie MétéoSuisse

### 2.11.1 - Summary of investments

| Number of new major investments | 1 |
|---|---|

| # | Name of new major investment (i.e. above 5 M€) | Total value of the asset (capex or contractual leasing value) | Value of the assets allocated to ANS in the scope of the PP | **Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency) | | | | | Lifecycle (Amortisation period in years) | Allocation (%)* | | Planned date of entry into operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | | Enroute | Terminal | |
| 1 | AMAROC | 6.100 | | 0 | 0 | 0 | 0 | 610 | 10 | 50% | 50% | 1-1-2024 |
| Sub-total of **new major investments** above (1) | | 6.100 | 0 | 0 | 0 | 0 | 0 | 610 | | | | |
| Sub-total **other new investments** (2) | | | | | | | | | | | | |
| Sub-total **existing investments** (3) | | | | 472 | 472 | 472 | 472 | 472 | | | | |
| **Total new and existing investments** (1) + (2) + (3) | | 6.100 | 0 | 472 | 472 | 472 | 472 | 1.082 | | | | |

** The total % enroute+terminal should be equal to 100%.*

### 2.11.2 - Detail of new major investments

*NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.*

| **Name of new major investment 1** | ***AMAROC*** | | Total value of the asset | ***6.100 CHF*** |
|---|---|---|---|---|
| Description of the asset | AMAROC: **A**uto**m**etar/**a**utoreport **ro**und the **c**lock. The goal of this project is to improve the quality of the automatic observations. Medium-term goal is to reduce the costs by introducing complete automatic observations at the airports. | | | |
| The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? | No | | | |
| Level of impact of the investment | Network | none | | |
| | Local | yes | | |
| | Non-performance | | | |
| Quantitative impact per KPA | Safety | none | | |
| | Environment | none | | |
| | Capacity | none | | |
| | Cost Efficiency | reducing cost in the medium-term | | |
| Results of the consultation of airspace users' representatives | The Swiss Stakeholder consultation took place on 28th August. There was no questions on this regard. | | | |
| Joint investment / partnership | No | | | |
| Investment in ATM systems | No | | | |
| If investment in ATM system, type? | Click to select | | | |
| If investment in ATM system, Reference to European ATM Master Plan / PCP | Click to select | | | |

### 2.11.3 - Other new and existing investments

| | |
|---|---|
| Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period | Life-cycle  investements average costs 390/year (above average 2021/22 due to replacement of RVR sensors) |

# SECTION 3: PERFORMANCE TARGETS AND MEASURES FOR THEIR ACHIEVEMENT

**3.1 - Safety targets**

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

**3.2 - Environment targets**

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

**3.3 - Capacity targets**

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

**3.4 - Cost efficiency targets**

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

3.4.3 - Pension assumptions

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

3.4.5 - Restructuring costs

**3.5 - Additional KPIs / Targets**

**3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs**

3.6.1 - Interdependencies and trade-offs between safety and other KPAs

3.6.2 - Interdependencies and trade-offs between capacity and environment

3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

3.6.4 - Other interdependencies and trade-offs

**Annexes of relevance to this section**

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)

ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)

ANNEX F. BASELINE VALUES (COST-EFFICIENCY)

ANNEX H. RESTRUCTURING MEASURES AND COSTS

ANNEX M. COST ALLOCATION

ANNEX J. OPTIONAL KPIs AND TARGETS

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

# SECTION 3.1: SAFETY KPA

**3.1 - Safety targets**

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety national performance targets

b) Detailed justifications in case of inconsistency between local and Union-wide safety targets

c) Main measures put in place to achieve the safety performance targets

**Annexes of relevance to this section**

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

# 3 - PERFORMANCE TARGETS AT LOCAL LEVEL

## 3.1 - Safety targets

### 3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

**a) Safety performance targets**

| | | | | | | |
|---|---|---|---|---|---|---|
| | Number of Air Traffic Service Providers | 7 | | | | |
| **skeyes** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **DSNA** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **DFS** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **ANA LUX** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **LVNL** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **Skyguide** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |
| **MUAC** | Safety policy and objectives | Select Level | Select Level | Select Level | Select Level | C |
| | Safety risk management | Select Level | Select Level | Select Level | Select Level | D |
| | Safety assurance | Select Level | Select Level | Select Level | Select Level | C |
| | Safety promotion | Select Level | Select Level | Select Level | Select Level | C |
| | Safety culture | Select Level | Select Level | Select Level | Select Level | C |
| | Additional comments | | | | | |

**b) Detailed justifications in case of inconsistency between local and Union-wide safety targets**

| |
|---|
| Not applicable. |

** Refer to Annex O, if necessary.*

**c) Main measures put in place to achieve the safety performance targets**

| |
|---|
| Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) TF three times a year as permanent agenda item.<br>Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs. |

** Refer to Annex O, if necessary.*

# SECTION 3.2: ENVIRONMENT KPA

**3.2 - Environment targets**

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

a) FAB environment performance targets

b) Detailed justifications in case of inconsistency between FAB targets and FAB reference values

c) Main measures put in place to achieve the environment performance targets

**Annexes of relevance to this section**

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

## 3.2 - Environment targets

### 3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

**a) FAB environment performance targets**

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| FAB reference values | 2,90% | 2,83% | 2,75% | 2,75% | 2,75% |
| **FAB targets** | 3,25% | 3,25% | 3,25% | 3,15% | 3,00% |

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| **ANSP contribution to FAB targets** | Value | Value | Value | Value | Value |
| **skeyes** | 7,12% | 7,12% | 7,12% | 7,12% | 7,12% |
| ANSP contribution to FABEC target | Both EASA and the Network Manager instruct Airspace Users and the ANSPs to respectively not ask and grant directs. Therefore, flown trajectories will tend to match the planned ones for which the inefficency was within the skeyes AoR was above 12% in 2018. In addition, the re-routing of flights, set by the Network Manager to reduce traffic congestion in the core area, will negatively impact flight efficiency.<br><br>Within skeyes airspace, reducing extra nautical miles to improve KEA is very challenging. Reducing track miles can be done at tactical level (direct routes, use of released military areas…) or by proposing better (shortest) routes to the airspace users (flight planning).<br><br>At tactical level, the current campaign “Stick to your flight Plan” organized by the Network Manager to deal with the capacity at network level during the summer is limiting skeyes’ possibilities for HFE improvement as no direct or shortcut can be given anymore. Should these measures be put in place for each summer in RP3, any improvement at tactical level cannot be expected.<br><br>A better use of the military airspaces could also support HFE improvement but then again, the eNM measures will not allow to use these military areas at tactical level.<br><br>Another option is to improve flight planning by proposing shortest routes to the airspace users. However, FRA, which has been identified as an important enabler for HFE improvement by the PRB, is also out of scope of skeyes as MUAC is controlling the airspace above FL245.<br><br>Therefore, little improvement of KEA is expected during RP3. For information, the skeyes horizontal flight inefficiency in 2018 (7,12%) represented approximatively 2818 extra nautical miles per day.<br><br>FUA improvement (see FABEC FUA improvements implementation under end of chap. 3.2.1 c) enhancement of the FUA concept). | | | | |
| **DSNA** | 3,33% | 3,33% | 3,33% | 3,15% | 3,00% |
| ANSP contribution to FABEC target | The following initiatives will have an impact on flight efficiencies during RP3:<br><br>- New sets of night DCT in DSNA airspace.<br>- GT ESSO (new organization South West of Bordeaux ACC) and SWAFFLE (new sectors > FL375 in North of Bordeaux ACC).<br>- Shorter route for traffic to Chambery Airport, SMART SKI process.<br>- Change in division level of LMH in Paris airspace (dynamic sectorisation).<br>- XStream in Paris ACC.<br>- YB sector in Reims (dynamic sectorisation).<br>- IAM project: improvement of Interface Aix ACC-Marseille APP for traffic to/from Marseille airport.<br>- IAG project to improve interface of Marseille ACC with Geneva ACC.<br>- New SID/STAR for Basel for northbound traffic.<br><br>- FUA improvement (see FABEC FUA improvements implementation under end of chap. 3.2.1 c) enhancement of the FUA concept).<br><br>- Full FRA implementation supported by new ATM system 4-Flight planned by 2025 with COFLIGHT IOP and mid-term conflicts detection tools; meanwhile FRA initial implementation in France, which has begun through DCT compliance (PCP) during RP2, will take place end 2021 in Brest ACC Atlantic sector and Bordeaux ACC and in 2022 in Paris ACC, in 2023 for Brest (full FRA), and Marseille and Reims ACCs. | | | | |
| **DFS** | 3,24% | 3,24% | 3,24% | 3,10% | 2,95% |

| | | | | | |
|---|---|---|---|---|---|
| ANSP contribution to FABEC target | The following initiatives implemented in 2019 will have an impact on flight efficiencies:<br><br>- 28 FEB 2019: implementation of a set of RAD App.4 DCTs to prepare DFS FRA Solution 2a for FRA implementation H24 (RAD App 4 DCTs and ATS routes changes). Those DCT implemented in several small package shall prepare ATCOs in this area for more DCT flight planning prior implementation of large-scale FRA operations. To avoid major changes and requirement for ATCO training simulations, the implementation was split into smaller packages, to keep ATCO availability on board not affected.<br><br>- 25 APR 2019: implementation of xborder Free Route Airspace (FRA) between Maastricht UAC and Kopenhagen FIR and DFS Karlsruhe UAC and Kopenhagen FIR and Swedish FIR for flights departing or arriving in Denmark or Sweden to offer shorter route options.<br><br>- 07 NOV 2019: implementation of a set of RAD App.4 DCTs for DFS FRA Solution 2b (RAD App 4 DCTs and ATS routes changes).<br><br>- 05 DEC 2019: ATS route changes in Karlsruhe UAC FRA cells EDUU_South and EDUU_West as well as in Munich FRA cell EDMM_South to enable DFS FRA Solution 2b in preparation for step 2c FRA implementation H24 above FL245.<br><br>- 05 DEC 2019: 82 ATS routes changes from existing CDR1/2/3 concept into single CDR concept (SCC). The SCC idea is to improve usage of released military airspaces by civil aviation.<br><br>- 05 DEC 2019: update of several routes in southern area in coordination with skyguide changing TRA DVORDME to DME only. Those routes are now reclassified to RNAV routes in skyguide AoR.<br><br>- 05 DEC 2019: replacement of PSA NSB with 5LNC SPESA to enable RNAV operations in this area.<br><br>- 05 DEC 2019: changes to approximately 90 ATS routes in Hannover UIR in preparation of Maastricht UAC H24 FRA implementation to enable shorter planning options for flight operating in this area.<br><br>- FUA improvement (see FABEC FUA improvements implementation under end of chap. 3.2.1 c) enhancement of the FUA concept). | | | | |
| **LVNL** | 7,22% | 7,22% | 7,22% | 7,20% | 7,18% |
| ANSP contribution to FABEC target | Improved horizontal and vertical flight efficiency will be achieved through the national airspace redesign programme. During RP3, horizontal flight efficiency is mainly expected to benefit from a redesign of the airspace in the southeastern part of Dutch airspace, and in particular the potential move of a military training area from the southeast to the north.<br><br>Other intitiatives during RP3 that will deliver or enable improved flight efficiency are the implementation of the new LVNL ATM system (iCAS), the integration of the civil and military service providers (enabling more efficient airspace use) and the introduction of PBN.<br><br>FUA improvement (see FABEC FUA improvements implementation here under). | | | | |
| **Skyguide** | 4,78% | 4,78% | 4,78% | 4,65% | 4,50% |
| ANSP contribution to FABEC target | Skyguide ambition is to maintain its 2018 performance despite traffic growth increase and NM measures to reduce delays. The FRA implementation can't improve significantly the situation since the internal part of Skyguide HFE is already reduced. Most of the inefficiency (80%) is at the interfaces (network inefficiency) over which Skyguide has little control.<br><br>Measures to improve the performance were implemented and are foreseen. For instance, an additional set of national and cross-border Direct Routes (DCT) including Long Range Direct Routes were introduced in CH FIR in March and November 2017. Their effective use might increase with time.<br><br>A Free Route Airspace (FRA) project, which will allow Airspace Users to plan and fly direct routes, is in progress and should become effective in 2021.<br><br>Moreover, the decrease of CH unit rates in 2018 compared to 2017 might influence Airspace Users to plan and therefore fly more efficient routes within the FABEC.<br><br>FUA improvement (see FABEC FUA improvements implementation under end of chap. 3.2.1 c) enhancement of the FUA concept).<br><br>However, impact of these changes is minimal as the internal Swiss inefficiency was as low as 0.98% in 2018 meaning that trajectories are already quite direct. The size of the military airspace in Switzerland prevents a reduction of the internal component of the HFE, when those military airspaces are active. The issue mainly lies at the interfaces (i.e.: the 'network component' of the indicator). | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Since the Network Manager instructed the Airspace Users and the ANSPs to respectively not ask and grant directs, flown trajectories will tend to match the planned ones for which the inefficiency was above 7.7% in 2018. The re-routing of flights also set by the Network Manager to reduce traffic congestion in the core area will negatively impact flight efficiency.<br><br>Therefore, even if measures are foreseen to reduce inefficiencies, the interdependency between the environmental and capacity KEA (increase of traffic and NM measures to reduce delays) should induce a performance in CH exceeding the 4.5% figure targeted for RP3. | | | | |
| **MUAC** | 2,29% | 2,29% | 2,29% | 2,20% | 2,15% |
| ANSP contribution to FABEC target | The following initiatives implemented in 2019 will have an impact on flight efficiencies:<br><br>FRAM 2:<br>- Phase 2 X border with Copenhagen: In progress for implementation March 2019.<br><br>- Phase 3 FRA H24: In progress for implementation December 2019.<br><br>- To achieve compliance, by the end of 2021, with the Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014, Maastricht UAC will implement Free Route Airspace within its Area of Responsibility.<br><br>Improvement of ASM process:<br><br>- BE : the FL365+ project has progressed, in 2018, from a pure tactical phase to a plannable phase. The TRA South is now managed above FL365 via UUP at D-1 and as such plannable by the AOs.<br><br>- NL : In 2019, The Netherlands will progress from “CDR activation” to “Area activation” which will allow for a better predictability and traffic distribution between DECO and BSG. All routes will be available for flight planning 24/7 and closed by FUA. NL has recently accepted the creation of the MUAC FUA cell (expected Q4 2019)<br><br>- GE : A trial has started to plan the TRA 302 on H-5 basis and the TRA302A even on a D-1 basis, improving predictability.<br><br>- FUA improvement (see FABEC FUA improvements implementation under end of chap. 3.2.1 c) enhancement of the FUA concept). | | | | |

**b) Detailed justifications in case of inconsistency between FAB targets and FAB reference values**

Following the traffic increase, the KEA indicator increased by 5% (0,16 pp: from 3,24% to 3,40%) between 2014 and 2016. In 2017, KEA performance improved significantly despite the continued strong traffic growth. However, since 2017, performance has been almost stable.

This has been the result of the balance between different developments. On the one hand, the introduction of operational changes such as FRA, but also be related to a change in the KEA calculation method. On the other hand, the actual increase of delays in the FABEC area, and the impact of the massive rerouting introduced by NM summer plans agreed with ANSP to mitigate those delays. As both (positive and negative) development continue, it seems not possible to foresee a better achievement than current FABEC KEA level before the capacity issue is solved.

KEA is subject to many interdependencies, as well as factors outside the control of ANSPs (capacity, military, airspace users behavior, real benefits of FRA implementation, weather etc). These interdependencies and their impact are addressed in chapter 3.6 of this performance plan.

Nevertheless, in consistency with the capacity targets ambition, introducing a -40% target delays decrease between 2022 and 2023, mitigating capacity and staffing issues and implementing new modern ATM system, FABEC States decided to set the KEA FABEC target for 2023 and 2024 at a lower level than during 2020 - 2022 years in order to contribute to the achievement of the EU wide target.

** Refer to Annex P, if necessary.*

**c) Main measures put in place to achieve the environment performance targets**

The main measures put in place to achieve the target are implemented by the FABEC ANSPs and described above in their individual contribution description.

In addition to those individual measures, the following measures are planned at FABEC level to be implemented to mitigate the performance gaps experienced during RP2:

- Network Manager examined all route changes announced by FABEC ANSPs in the European Route Network Improvement Plan (ERNIP) up to 2019 resulting in theoretical percentage point (pp) reduction of inefficiency of:

• 0.03 pp in 2017
• 0.09 pp in 2018
• 0.21 pp in 2019

This assessment was based on a traffic sample for 9 Sep 2016 considering that CDRs are open and no military activity takes place (isolating the effect of ANSP route changes).

- Focus on 10 most important City Pairs in SOLDES meetings on the biggest inefficiencies and biggest difference between KEA and KEP to improve flight efficiency.
- Concentrate on interfaces to other FABs with the biggest inefficiencies (e.g. Interface UK/ Ireland, South-West FAB, Baltic FAB) and elaborate efficient connections.
- Engagement in the eNM activities, which will help reduce network wide delays, but will have a negative impact on the HFE.
- Monitor Airline-behaviour choosing individual routings due to low fuel prices in order to optimize total cost of flight regardless of shortest routes offers.
- Organise Stakeholder RAD-Workshops to simplify restriction definitions and reduce number of restriction. Simulations prepared by the NM as an input to the FABEC Performance Roadmap have shown that between the AIRAC cycle 1713 and 1813 an efficiency of 0.07pp MILON and 0.08pp MILOFF have been introduced within the FABEC airspace.

By far the largest benefit of FABEC wide and even inter FAB collaboration currently can be expected by the Free Route project and the Extended Arrival Management (XMAN) project.

The FABEC Performance Management Group (PMG) in collaboration with the Network Manager assessed on an annual basis the step-by-step improvements of FRA benefits. The simulation results were created by Network Management using SAAM assessments and were aggregated on annual level assuming STATFOR growth rates from FEB 2018 Forecast. The analysis shows that the FRA implementation will enable an annual route reduction of nearly 50M NM by 2023. While the benefits of the two initiatives Night Network and City Pair keep on contributing since 2012, maximum DCT and FRA benefits will only be achieved at the end of RP3 and RP4. The envisaged route reduction creates a significant reduction in fuel consumption, and consequently creates a cost saving to the airlines. The projects' costs were assumed to be 44 million € in total and distributed across 12 years. The total benefit generated can be discounted to a base year, to display the real value of the change to the users:

- Net Benefit of FRA in 2012 terms (years 2012 - 2025): €1,395M

- Net Benefit of FRA in 2018 terms (years 2012 - 2025): €1,766M

The Extended Arrival Management and Performance Based Navigation in the High Density Terminal Manoeuvring Areas functionality is expected to improve the precision of approach trajectory as well as facilitate traffic sequencing at an earlier stage, thus allowing reducing fuel consumption and environmental impact in descent/arrival phases. The XMAN performance impact was assessed with support of AMAN systems in operations, numerous trials and real-/fast-time simulations. Studies summarised in the FABEC XMAN Performance Case have shown that on average, XMAN can generate savings of between 50kg ("low" benefit) and 100kg ("high" benefit) per affected flight. The analysis shows that over the 2016 to 2025 period the fuel reductions will be between 280K tonnes and 358K tonnes, which would result in airline benefits of €133.2M-€255.4M (present value, in 2018 terms) and a reduction of CO2 emissions of  883K tonnes to 1,766K tonnes.

Other FABEC cross-borders initiatives contributing to a better environment performance are described in chapter 4.1.

An additional driver to environment performance enhancement is the enhancement of the FUA concept.

The implementation of the FUA concept within FABEC members is still heterogeneous, in terms of dedicated organization or efficiency; some States have already implemented A-FUA concepts as e.g. Military Variable Profile Areas, Variable geometric Areas and a more dynamic use of them. As proposed by FABEC (Airspace Committee and Standing Committee OPS) the Joint FUA Task Force is working to harmonize in the long-term the implementation and the application of the FUA/A-FUA concepts within the FABEC area.

At mid-term, a FABEC Working group is working to enhance coordination between national AMCs by improving the real time data exchange capacity.

At short-term, for 2019, there is a particular focus on training AMC Personal and Qualification harmonization. FABEC plans to organize an inter-AMC Workshop to improve cooperation between FABEC AMCs. The end result of all these improvements should be better performance of the network notably by:

- military airspace reservations being tailored to the actual military needs, potentially offering the possibility to shorten trajectories.

- better predictability of military activities at national as well as at FABEC Level allowing the network to take into account the military requirements as soon as possible and mitigate the effect on the network.

In addition, as part of the NM 2019 action plan and on the top of FABEC ongoing airspace design initiatives, it has been decided to set up a FABEC/NM Airspace Design Coordination Group (ADCG) which final goal is to define a Target Plan for implementation of a FABEC Optimized Airspace Structure, an optimum FABEC sectorisation, a FRA cross-border and ATS route structure below FRA.

This implementation plan is planned to be validated in Spring 2020 and an ad-hoc internal FABEC validation process will be defined accordingly. In order to optimize all FABEC measures, make them consistent at network level and deliver the highest possible HFE benefits, FABEC is currently working with NM in the framework of the future European Route Network Improvement Plan (ERNIP)- Part 2 - to define a FABEC Catalogue of Airspace Projects for years 2020 - 2025.

The objective of this catalogue will be the enhancement of European ATM capacity, flight efficiency and environmental performance through the development and implementation of an improved ATS route network, Free Route Airspace and TMA systems structures supported by corresponding improvements to the airspace structure and the optimal utilisation rules.

The FABEC Catalogue of Airspace Projects 2020-2025 will provide a network consolidated picture of FABEC projects and the evaluation of their expected performance.

A close cooperation and synchronisation is  ensured between the Network Manager and all the operational stakeholders of FABEC in the preparation of the FABEC Catalogue of Airspace Projects 2020-2025.

** Refer to Annex P, if necessary.*

# SECTION 3.3: CAPACITY KPA

**3.3 - Capacity targets**

3.3.1 - Capacity KPI #1: En route ATFM delay per flight
- a) FAB capacity performance targets
- b) Detailed justifications in case of inconsistency between FAB targets and FAB reference values
- c) Main measures put in place to achieve the target for en-route ATFM delay per flight
- d) ATCO planning
  - d.1) skeyes
  - d.2) DSNA
  - d.3) DFS
  - d.4) LVNL
  - d.5) MUAC
  - d.6) Skyguide

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight
- 3.3.2.1 - Belgium
  - a) National performance targets
  - b) Contribution to the improvement of the European ATM network performance
  - c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight
- 3.3.2.2 - France
- 3.3.2.3 - Germany
- 3.3.2.4 - Luxembourg
- 3.3.2.5 - Netherlands
- 3.3.2.6 - Switzerland

**Annexes of relevance to this section**

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

## 3.3 - Capacity targets

### 3.3.1 - Capacity KPI #1: En route ATFM delay per flight

**a) FAB capacity performance targets**

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| FAB reference values | 0,69 | 0,68 | 0,51 | 0,37 | 0,36 |
| **FAB targets** | 3,45 | 3,88 | 3,61 | 2,19 | 1,78 |

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| **ANSP contribution to FAB targets** | Value | Value | Value | Value | Value |
| **skeyes** | 0,64 | 0,61 | 0,56 | 0,48 | 0,48 |

| | |
|---|---|
| ANSP contribution to FABEC target | The ATCO recruitment is ongoing but the capacity gap should not be closed prior 2021.<br><br>The replacement of the en-route ATM system at Brussels ACC is planned to take place in 2023-2024, which will lead to capacity restrictions during implementation.<br><br>Within the framework of the e-NM measures, specific RAD restrictions have been created for skeyes in order to reduce the overall traffic complexity by strategically reducing the number of conflicting traffic streams.<br><br>The development of a complexity assessment tool is still ongoing (live trial during summer 2020, expected to be operational in 2021).<br><br>Additional capacity will be provided throughout RP3 by implementations of a new ATM system compliant with PCP requirements (which should be shared with MUAC and Belgian Defence) and a renewed WAN network (end of deployment 2021).<br><br>The rationalization of infrastructure, systems and equipment will be increased during RP3 enhancing capacity by reinforcing business continuity and improving resilience.<br><br>Civ-Mil co-location will take place end 2019, first benefits expected in 2020.<br><br>Better application of FUA will be enabled by the implementation in 2019 of colocation of the Air Traffic Control Centre of Belgian Defence in skeyes ACC. |
| | Additional justification regarding local capacity targets for skeyes is provided in Annex Q of this FABEC performance plan. |

| | | | | | |
|---|---|---|---|---|---|
| **DSNA** | 3,12 | 2,52 | 2,00 | 1,91 | 1,29 |

| | |
|---|---|
| ANSP contribution to FABEC target | DSNA strategy to address current capacity issues and reduce delays is mainly based on a major investments plan aiming at modernizing ATM tools and on a full set of human ressources measures addressing both ATCO shortage and better productivity.<br><br>Full data link services will be available in all French ACC as from end 2020 enabling 10% capacity increase (with an assumption of 75% connected flights).<br><br>After ERATO implementation in Brest (2015) and Bordeaux (2016) ACCs providing 5 to 25% additional capacity, 4-Flight new ATM system (including COFLIGHT new FPS) will be implemented in Reims and Marseille ACCs winter 2021/2022 (20 to 30% additional capacity), March 2023 in Paris ACC (20 to 30% additional capacity). Final implementation in Brest and Bordeaux ACCs and upgrades in Marseille and Reims ACCs, including mid-term conflicts detection tools, beginning of RP4 (after Paris olympic games) will deliver additional 10 to 15% capacity.<br><br>Regarding Human ressources, which is the second main driver for enhancing capacity, the following measures will be implemented:<br><br>- On the top of ongoing recruitments and training (100 ATCO/year), an additional recruitment plan should be launched during RP3 but still requires the signature of a new social agreement between DGAC, the Unions and the French Government (negociation phase will begin end 2019); an additional 4th class of ATCO has already been announced as from 2020, enabling the ab-initio training of 130 ATCO.<br><br>- New rostering evolution and flexibility measures should also be implemented according to this social agreement; |

| | | | | | | |
|---|---|---|---|---|---|---|
| | - New initiatives have been launched in order to enhance productivity (tranfert of some airspaces under level 195 in Paris, Reims, Bordeaux and Brest ACCs to approches, local adaption of current rostering), to decrease ATCO initial training (-15% by 2025) and qualification time (intermediate qualification). The launching of a DSNA-ENAC study on both initial training at the academy and and on-the-job training at ACC, has been announced.<br><br>All those combined measures (including eNM summer plans mitigation) should provide between 30 and 50% overall additional capacity during RP3.<br><br>This capacity enhancement plan has an impact on the DSNA costs base and the related interdependencies are described and assesssed in chapters 3.4.1 regarding cost-efficiency and 3.6 regarding general interdependencies.<br><br>More detailed information regarding the investments plan and the implementation timeline is provided in the draft "DSNA Strategic Master Plan 2019 - 2025" and in the draft "French ATM Strategy" (FAS) defined in collaboration with IATA. Both documents, which have been presented to users during the consultation phase, are annexed (Annex E) to this performance plan.<br><br>An online version of the draft FAS is available: | | | | | |
| **DFS** | | 2,73 | 4,14 | 4,24 | 1,48 | 1,28 |
| ANSP contribution to FABEC target | With the aim of reducing delays, DFS has set up an extensive capacity initiative with more than 90 measures in the areas of capacity, staffing, network and framework conditions.<br><br>At short notice recently, the most important measure is has been the eNM/S19 initiative, which will offload the airspace of Karlsruhe UAC by nearly 700 flights per day. Several measures will help increasing the available number of ATCO hours on board at short notice. ATCO activities on other duties (e.g. projects) will be reduced to a minimum.<br><br>As a short to medium term measure, DFS recruits ready entries and increases the amount of ATCO trainees to a maximum. However, effects will only be gradually materialised over the next years.<br><br>New ATM system iCAS will be implemented in all DFS ACCs, providing additional capacity. | | | | | |
| **LVNL** | | 0,13 | 0,17 | 0,17 | 0,21 | 0,13 |
| ANSP contribution to FABEC target | A Capacity increase for sector 3 (southern part of the airspace) will play out its full potential in 2019, helping to avoid/reduce future en-route ATFM delays.<br><br>A large airspace redesign project associating MoT, MoD, LVNL, MUAC and the military service provider (CLSK) will be explored till 2020 and deployed as from 2023, providing additional capacity but main benefits are expected to occur from RP4.<br><br>A new ATC system will be implemented in 2023 in cooperation with DFS as part of the iTEC consortium. It will enable additional support tools to ATCOs leading to better operational performance in late RP3 and during RP4.<br><br>An overall capacity management programme will also help deliver capacity improvements - although most initiatives within this programme are aimed at improving terminal capacity. | | | | | |
| **Skyguide** | | 0,47 | 0,64 | 0,64 | 0,86 | 1,36 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ANSP contribution to FABEC target | The main technical program providing major capacity enhancement in Switzerland, the Virtual Centre program, aiming at a flexible service-oriented approach will be implemented during RP3 but will bring benefit as from RP4 only.<br><br>Airspace re-sectorization in both Geneva and Zurich (full dynamic sectorization with one sector defined per flight level in the upper airspace), to tackle the excess of demand in sectors that cannot be anymore de-coupled today or in sectors where adverse conditions have a high negative impact, is planned during RP3 but will bring benefit as from 2025 only.<br><br>An adaptation of the current sectorizations is planned in both Geneva and Zurich ACCs for 2020, aiming at solving local bottleneck issues. This consists of optimizing one upper sector which faces regularly an excess of demand, a new way of regrouping some sectors, or splitting the upper and the lower airspace at FL265 instead of FL245 in Geneva ACC. Whereas, in ZRH ACC, the goal is to reduce delays when under adverse weather conditions with new possibilities of regrouping 2 sectors. These initiatives should help reduce pressure on ATFM delays.<br><br>A significant ATCO recruitment plan on a very tense market has been developed since 2018 together with cross qualification of ATCO between sector-groups in order to tackle the significant wave of retirement expected over 5 years (loss of 20% of workforce).<br><br>The NOP 2018 showed a delay forecast for skyguide which reached 0.47 min/flt in 2021 and 0.64 min/flt in 2022. This delay forecast didn't include disruptions. This delay forecast only partly takes account of weather related delay (for instance, in 2018, 0.15 min/flt at network level was included in the delay forecast whereas the observation reached 0.44 min/flt!).<br>Moreover, traffic evolution in both skyguide's sub-units where delays were generated displayed a huge discrepancy with the STATFOR forecast. Between January 2017 and December 2018, traffic increased by 17.6% in Zurich UAC and 10.9% in Geneva UAC whereas the baseline STATFOR forecast, published in 2015, foresaw a 2.1% and 2.3% traffic increase in Switzerland for 2017 and 2018 respectively. This means that the capacity that was foreseen for a period of approximately 8 years was used in only 2 years, leading to reach current capacity limits. Only disruptive new technologies will enable a significant increase of capacity in the future, these technologies – as stated above – are not available yet, but will be implemented through the Virtual Center development<br><br>The eNM/ANSPs measures, associated with high delays in the network led to a significant traffic volatility, which has an impact in the ops room. Supervisors lose confidence in the traffic and complexity prediction tool they monitor, they therefore tend to regulate traffic or to take ATFCM measures earlier than before.<br>Moreover, the impact of eNM/S19 or S18 on traffic evolution has not been clarified yet and knowledge of explanation for high traffic increase in both Geneva and Zurich upper airspaces is missing. If a significant part of this traffic increase is due to the eNM measures, it would not be worth to invest in capacity as, when the eNM measures will have been ceased to exist, traffic will be rerouted outside Switzerland. | | | | | |
| **MUAC** | | 0,95 | 0,90 | 0,80 | 0,65 | 0,40 |
| ANSP contribution to FABEC target | To cope with the staffing situation, MUAC is taking several measures, including training of new staff, cross training of ATCOs, a new agreement with the social partners for mitigating measures and (further) scrutinizing of involvement of operational staff in developments. Furthermore, a study is undergoing to reduce the number of sectors open during the night.<br><br>In the latest input to the NOP (Jan'19), MUAC quoted an annual capacity increase of 3% (against a projected traffic increase of 15-20% up to 2022). MUAC initiatives to further increase capacity are the addition of a 3rd layer in the DECO sector group (March 2018) and UK interface improvements (part of AD4 project).<br><br>The potential benefit of several airspace studies for the HANNOVER and BRUSSELS sector groups is being evaluated. If found feasible and beneficial to the network, the actual implementation should take place as from 2019.<br><br>Furthermore, MUAC took an active part in developing measures at network level aimed at safeguarding or increasing throughput while decreasing delay. MUAC sees further opportunities in this area in improved and harmonized ASM. Also the exclusion of short-duration high-workload flights is under investigation. | | | | | |

**b) Detailed justifications in case of inconsistency between FAB targets and FAB reference values**

During RP1, and at the time of developing RP2 plans, traffic growth was lower than forecasts and its future was uncertain. As a result, the main focus of all stakeholders was on cost-efficiency, and ANSPs aimed to control costs, i.a. through reducing or delaying recruitments and investments. In reality, FABEC airspace - like the rest of Europe - has experienced unforeseen high traffic growth since 2015, as well as significant traffic shifts.

FABEC ANSPs have reacted to this but measures required to increase capacity in a structural manner need time to be implemented and become effective (e.g. hiring and qualifying new ATCO need 3 to 5 years), investment and related operational changes for additional capacity also need several years and may imply provisional capacity reduction for training and safe commissioning purposes. In this interim period, during RP2, FABEC is experiencing high delays, while some major measures for capacity within FABEC will be implemented during RP3 - but take time to deliver.

In the current context of continued traffic growth, and even though the +1,7% per year in average IFR movements growth during RP3 according to the last STATFOR February 2019 traffic forecast is lower than the RP2 trend:
- In the next years, despite extensive plans of NM with ANSPs going far beyond the FABEC area, including rerouting plans, a number of FABEC ACCs are still facing an imbalance between traffic and capacity including staffing issues,
- Although some good progress is being witnessed in some FABEC ACCs, measures enabling capacity to match the demand will be implemented during or till end RP3 (9 out of 13 ACC expected to experience capacity shortages during RP3 are FABEC ACC),
- According to the latest NOP edition delays forecast, EU wide capacity target and NM FABEC reference values are considered by FABEC NSAs as unachievable (NM delays forecast for FABEC between 2,91 up to 5,88 min/flight between 2021 and 2024, compared to reference values decreasing from 0,69 in 2020 to 0,36 in 2024).

The European Commission has recognized this situation, stating that it will take local circumstances and current delay performance into account when assessing the consistency of proposed national or FAB targets with the Union-wide targets. Such local circumstances may lead in some areas to setting capacity targets which differ from the reference values calculated by the Network Manager, provided that there is a clear indication that the capacity situation in those areas will improve to accommodate the capacity demand at local and network levels.

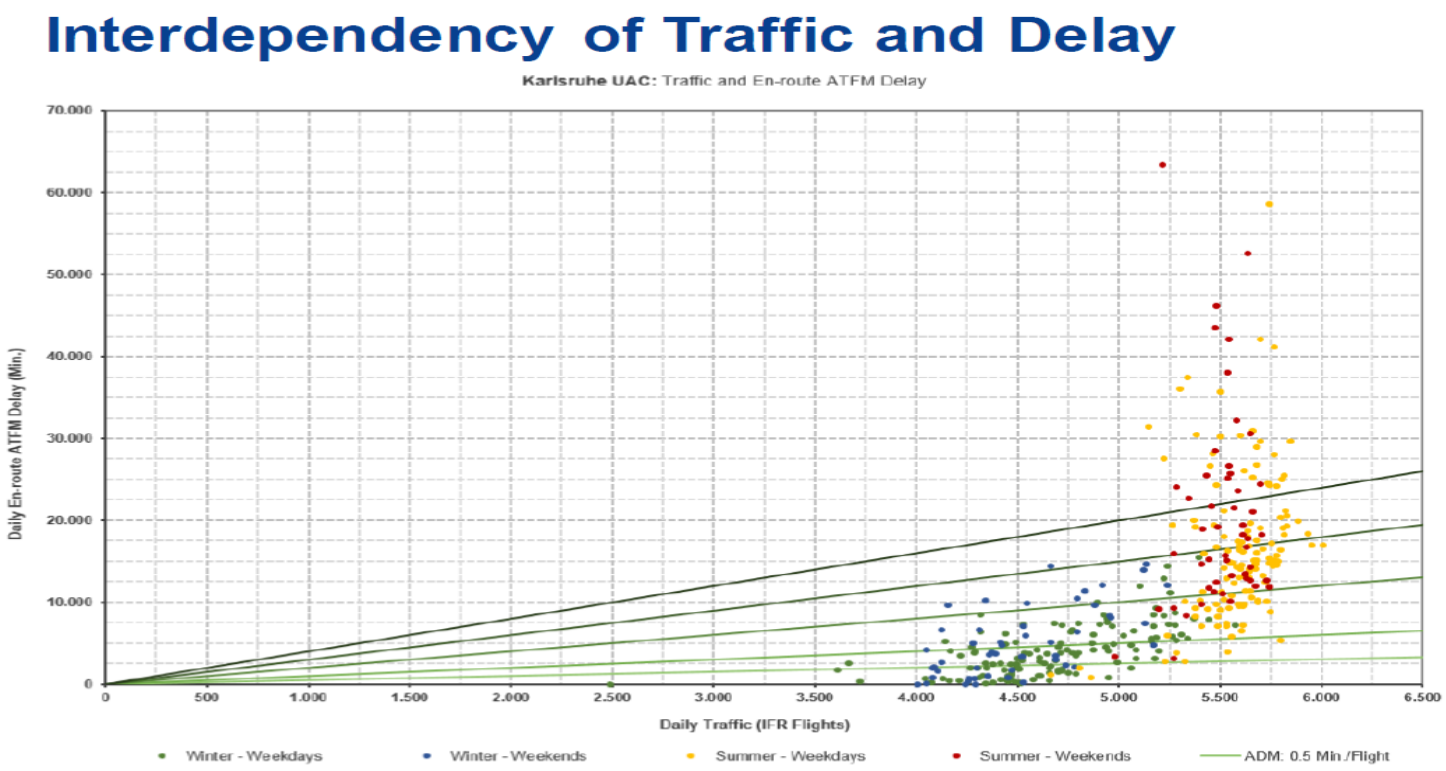
FABEC ANSPs already planned major capacity enhancement measures for RP3 to remedy this situation, including implementing global and local individual ACCs measures agreed with the NM (see list of main contributive measures above and detailed individual measures in the latest NOP 2019 – 2024 edition).

The main drivers such as ATCO hiring and training will progressively deliver benefits during the period (2021 for Marseille, 2022 for Bordeaux, 2023 for Karlsruhe, Bremen and Langen, 2024 for Paris and not before 2025 in Reims).

Major 4-Flight  new ATM system implementation in France is planned end 2021 in Reims, beginning of 2022 in Marseille, winter 2022/2023 in Paris and winter 2024/2025 in Brest and Bordeaux while ICAS ATM system implementation will take place in 2021 in Munich, 2023 in Amsterdam, March 2022 in Bremen and Karlsruhe and March 2023 in Langen. Training phase for ATCO and transition plans for commissioning phase will impact local capacity provision.

Development of more flexible and efficient rostering according to traffic evolution will require social agreements that take place end 2019 beginning 2020 in France and Germany.

Major uncertainties remain regarding further traffic development and volatility. It is important to consider that, if an ACC operates close to its capacity limits, minor variations in traffic levels can lead to significant changes in the amount of delay. The example below of Karlsruhe ACC,  generated for traffic and delay of 2018, shows the exponential impact on delays of the traffic evolution. In some cases, even without more traffic in total, just a local traffic shift is enough to overload sectors and to create a large amount of delays.




Otl the full implementation of ATCO hiring plans, which are not totally under the responsibility of the ANSP, depending on the attractiveness of the recruitment (MUAC, skeyes, skyguide and DFS are currently experiencing difficulties), the success conversion rates of ab-initios, the relatively high number of upcoming retirements and, for France, the outcomes of the next social agreement for 2020 – 2024 to be negotiated also with French ministry of Finances.

In such a context, the targets proposed by FABEC States are taking into account those local circumstances, and are considered achievable by the FABEC NSAs, but remain more ambitious than the lowest NOP forecast and have also to be examined in the light of their interdependencies with cost-efficiency area (see chapters 3.4 and 3.6).

** Refer to Annex Q, if necessary.*

**c) Main measures put in place to achieve the target for en-route ATFM delay per flight**

The main measures put in place to achieve the target are implemented by the FABEC ANSP and described above in their individual contribution description.

In addition to those major drivers to capacity enhancement, full set of detailed measures contributing also to local capacity improvements are listed in the last NOP 2019 - 2024 edition. A useful tool has also been developed by FABEC ANSPs to give an overview and general information on all projects launched by FABEC ANSPs: https://www.fabec.eu/opmap/

FABEC collaboration with NM should also contribute to enhance capacity and mitigate delays through eNM/ANSPs summer plans, local transition plans and delays CDM mitigation measures.

In addition, as part of the NM 2019 action plan and on the top of FABEC ongoing airspace design initiatives, it has been decided to set up a FABEC/NM Airspace Design Coordination Group (ADCG) which final goal is to define a Target Plan for implementation of a FABEC Optimized Airspace Structure, an optimum FABEC sectorisation, a FRA cross-border and ATS route structure below FRA. This implementation plan is planned to be validated in Spring 2020 and an ad-hoc internal FABEC validation process will be defined accordingly.

In order to optimize all FABEC measures, make them consistent at network level and deliver the highest possible benefits, this will be embedded in the future edition of the European Route Network Improvement Plan (ERNIP)- Part 2 - which will include a FABEC Catalogue of Airspace Projects for years 2020 - 2025 which provide a network consolidated picture of FABEC projects and the evaluation of their expected performance. A close cooperation and synchronisation is ensured between the Network Manager and all the operational stakeholders of FABEC in the preparation of this FABEC Catalogue of Airspace Projects 2020-2025.

Other FABEC cross-border initiatives contributing to a better capacity performance are also described in chapter 4.1.
Annexes E & Q of this FABEC performance plan also provide some additional documents describing national strategies and investments to provide technical and operational improvements already presented to the airspace users or additional justification material regarding individual ANSP capacity issues.

** Refer to Annex Q, if necessary.*

| | |
|---|---|
| **d) ATCO planning** | ***See additional comments*** |

| Additional comments |
| --- |
| En Route capacity target has strong interdependencies with Safety and Environment targets and with Cost-efficiency target. Those are addressed in Chapter 3.6 of this FABEC performance plan.<br>The financial incentive scheme implemented by FABEC regarding this En Route capacity target is fully described in chapter 5.2.1.<br>Regarding ATCO planning, FABEC NSAs and ANSPs question if ATCO planning figures are legally required by the performance regulation to be included in the Performance Plan for RP3, as it is neither a prescribed indicator nor were this information part of the consultation discussion. In addition, FABEC NSAs question if this is the right level of detail to be monitored by the EC. Technically the plans are and will always be subject to change, creating the unnecessary burden of tracking, supervising and explaining the figures within the SES performance scheme domain. In addition, the details of the planned evolution of ATCO numbers within an ANSP with several ACCs are socially sensitive.<br><br>However ATCO hiring and assigment is one of the major driver for current capacity and staffing issues solving. ACE figures are provided and can be referred to as an initial information regarding the ANSP plans.<br><br>Nevertheless, FABEC States consider that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitement plans management.<br><br>These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP3.<br><br>There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves.<br><br>Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees.<br><br>The final retirement age is firmly set by law, but in many countries employees may go earlier. ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE per ANSP.<br><br>Before the planned ATCO FTE can reasonably be reported, a revised specification for information disclosure is required, clearly describing how to count ATCOs partially working in projects (another uncertainty factor) and (very important) standardising the assumptions for the uncertainties mentioned above.<br><br>For those ANSP having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs.<br><br>It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP3 and working conditions (salaries, extra hours, rostering) will be renegociated after the submission of this FABEC performance plan. Outcomes of such negociations, in which ANSP and unions but also Ministeries of Finance or Public administration are involved, will have an impact on those figure.<br><br>Additional information regarding ATCO hiring plans and their impact on cost-efficiency for some ANSP is also provided in chapters 3.4 (cost-efficiency) & 3.6 (interdependencies) of this FABEC Performance Plan. |

## 3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

### 3.3.2.1 - Belgium

**a) National performance targets**

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| | | Target | Target | Target | Target | Target |
| **National level** | | 1,82 | 1,71 | 1,61 | 1,5 | 1,5 |
| Additional comments | | | | | | |
| **Airport level** | ***EBBR-Brussels*** | 1,82 | 1,71 | 1,61 | 1,5 | 1,5 |
| | Airport contribution to national targets | EBBR is the only Belgian airport incorporated in the Performance Plan. | | | | |

**b) Contribution to the improvement of the European ATM network performance**

*An increase in CRSTMP delay is expected for EBBR due to the introduction of new measures to escort VVIPs using a police helicopter (P cause, beyond ANSP managerial control).*

** Refer to Annex Q, if necessary.*

**c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight**

*Additional capacity will be provided throughout RP3 by implementations of a new ATM system compliant with PCP requirements (which should be shared with MUAC and Belgian Defence). ATCOs will be recruited at maximal capacity to compensate forecasted retirements and to manage forecasted traffic.*

** Refer to Annex Q, if necessary.*

### 3.3.2.2 - France

### a) National performance targets

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| **National level** | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 |
| Additional comments | According to EUROCONTROL Seven-Year Forecast February 2019 (Ref. Doc643_7-yrFC_2019-2025_Feb2019) published by the Network Manager, the terminal navigation service units forecasts show a moderate growth for both charging zones: Low, Base and High scenarios giving a trend 2024/2020 respectively ay 0.3%, 1.8% and 1.9% for the first Charging Zone (CDG & ORY) and at 0.0%, 1.4% and 2.2% for the second Charging Zone.<br><br>The national capacity targets have been set taking into account the actual RP2 performance for terminal capacity. They are set constant over the period, implying that DSNA shall accomodate this moderate growth of traffic on the main French airports during the whole RP3 building on implementations of new ATM terminal systems and/or airspace design projects while major works are also planned during RP3 (on runways, taxiways or towers) as well as international events management (Olympic Games 2024 organized in France from 26th July to 11th August).<br><br>Performance targets and achievements in RP2: | | | | | |

| | 2015 | 2016 | 2017 | 2018 | *Average 2015-2018* |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | |
| National level (mn/flight) | 0,6 | 0,6 | 0,6 | 0,6 | *0,6* |
| Actual (mn/flight) | 0,34 | 0,59 | 0,48 | 0,4 | *0,45* |

Based on the RP2 performance achievements , the national RP3 performance targets are set at 0.4 mn/flight.

| | | | | | | |
|---|---|---|---|---|---|---|
| | ***LFPG-Paris/Charles-De-Gaulle*** | 0,80 | 0,80 | 0,80 | 1,10 | 1,10 |
| | Airport contribution to national targets | As the first French airport in terms of IFR movements and passengers, Paris-CDG remains the major contributor to the French terminal capacity target. The runway 09L/27R will be renovated in summer 2020 and a new TWR system, so-called SYSAT, will be implemented in the first half of RP3 without strong expected impact on the capacity. An airspace project for restructuring the CDG airspace areas is planned to be implemented as from 2023. In this context, ATFM regulations will be needed for dealing with the ATCO training phases and the adapatation process of such a new airspace project. | | | | |
| | ***LFPO-Paris/Orly*** | 1,20 | 1,30 | 1,30 | 1,30 | 1,20 |
| | Airport contribution to national targets | During RP3, infrastructures will be rebuilt at the West of the airport platform. The work phases are planned from 2021 to 2024 and will impact significantly the capacity airside. Besides , a new TWR system, so-called SYSAT, will be implemented as from 2022 in both steps (TWR: Winter 2022/2023 ; APP: Winter 2023/2024) in parallel with the ATCO training phases and the adapatation process of such a new airspace project. | | | | |
| | ***LFMN-Nice/Côte d'Azur*** | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 |
| | Airport contribution to national targets | Nice-Côte d'Azur airport should face a moderate air traffic growth during RP3. In terms of enhancement of the capacity, the Collaborative Decision Making (CDM) concept will optimize in RP3 the airside resources such as parkings or taxiways. In addition, an evolution of A-SMGCS will be implemented in RP3. | | | | |
| | ***LFLL-Lyon/Saint-Exupéry*** | 0,44 | 0,46 | 0,48 | 0,50 | 0,50 |
| | Airport contribution to national targets | Based on air traffic growth around 5% in terms of IFR flights the last two years, Lyon Saint-Exupéry airport should only face the same expected traffic increase without major technical or airspace projects which could impact the capacity. | | | | |
| | ***LFML-Marseille/Provence*** | 0,16 | 0,16 | 0,17 | 0,17 | 0,17 |
| | Airport contribution to national targets | During RP3, the technical projects concern the repair of the main runway in summer 2020, the renovation of the Terminal 1 building between 2020 and 2023 and important works on Taxiway C in 2023. Marseille Provence airport should face a moderate air traffic growth. | | | | |
| | ***LFBO-Toulouse/Blagnac*** | 0,30 | 0,30 | 0,30 | 0,30 | 0,30 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Airport contribution to national targets | In summer 2020, the main technical projects concern the renovation of the TWR and the repair of the main runway. In addition, the events such as "Airbus demonstration flights" which are not planned in advance or "Francazal Air Show" biennially could impact punctually the capacity. During RP3, Toulouse Blagnac airport should face a moderate air traffic growth. | | | | |
| | ***Others*** | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 |
| | ***LFSB-Bale/Mulhouse*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBD-Bordeaux/Merignac*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFPB-Paris/Le Bourget*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRS-Nantes/Atlantique*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMT-Montpellier/Méditerranée*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFST-Strasbourg/Entzheim*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFOB-Beauvais/Tillé*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFQQ-Lille/Lesquin*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRN-Rennes/St-Jacques*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFKJ-Ajaccio/Napoléon-Bonaparte*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLC-Clermont-Ferrand/Auvergne*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRB-Brest/Bretagne*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMD-Cannes/Mandelieu*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFKB-Bastia/Poretta*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBZ-Biarritz/Bayonne-Anglet*** | | | | | |
| | Airport contribution to national targets | | | | | |
| **Airport level** | ***LFBP-Pau/Pyrénées*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFPN-Toussus/Le-Noble*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFTH-Hyères/Le-Palyvestre*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFKF-Figari/Sud-Corse*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLY-Lyon/Bron*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMP-Perpignan/Rivesaltes*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBL-Limoges/Bellegarde*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRH-Lorient/Lann-Bihoué*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBT-Tarbes-Lourdes/Pyrénées*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLB-Chambéry/Aix-les-Bains*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBH-La-Rochelle/Ile de Ré*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLS-Grenoble/Isère*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFCR-Rodez/Marcillac*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFKC-Calvi/Sainte-Catherine*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMV-Avignon/Caumont*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMK-Carcassonne/Salvaza*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBI-Poitiers/Biard*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMU-Béziers/Vias*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRK-Caen/Carpiquet*** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Airport contribution to national targets | | | | | |
| | ***LFBA-Agen/La-Garenne*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFBE-Bergerac/Roumanière*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMI-Istres/Le-Tubé*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRD-Dinard/Pleurtuit-Saint-Malo*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRG-Deauville/Normandie*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFTW-Nîmes/Garons*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLP-Annecy/Meythet*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFGJ-Dole/Tavaux*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRQ-Quimper/Pluguffan*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFOK-Châlons/Vatry*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFMH-Saint-Etienne/Bouthéon*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFSL-Brive/Souillac*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFOT-Tours/Val-de-Loire*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFRZ-Saint-Nazaire/Montoir*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFLX-Châteauroux/Déols*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFAQ-Albert/Bray*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFOP-Rouen/Vallée-de-Seine*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***LFJL-Metz-Nancy/Lorraine*** | | | | | |
| | Airport contribution to national targets | | | | | |

**b) Contribution to the improvement of the European ATM network performance**

The improvement of the European ATM network performance will take into consideration the gate-to-gate efficiency. Regarding the main French airports, the following supporting projects or enablers have already contributed in some airports and should also contribute in the other ones to this expected enhancement:

- Airport Collaborative Decision Making (A-CDM),
- Departure manager (DMAN), Continuous climb operations (CCO),
- Continuous descent operation (CDO),
- Arrival manager (AMAN/XMAN),
- Time-Based Separation (TBS) and
- Advanced Surface Movement Guidance and Control System (A-SMGCS).

** Refer to Annex Q, if necessary.*

**c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight**

During RP3, high performing airport and terminal area operations as well as advanced air traffic services will be implemented for the benefit of the main French airports performance.

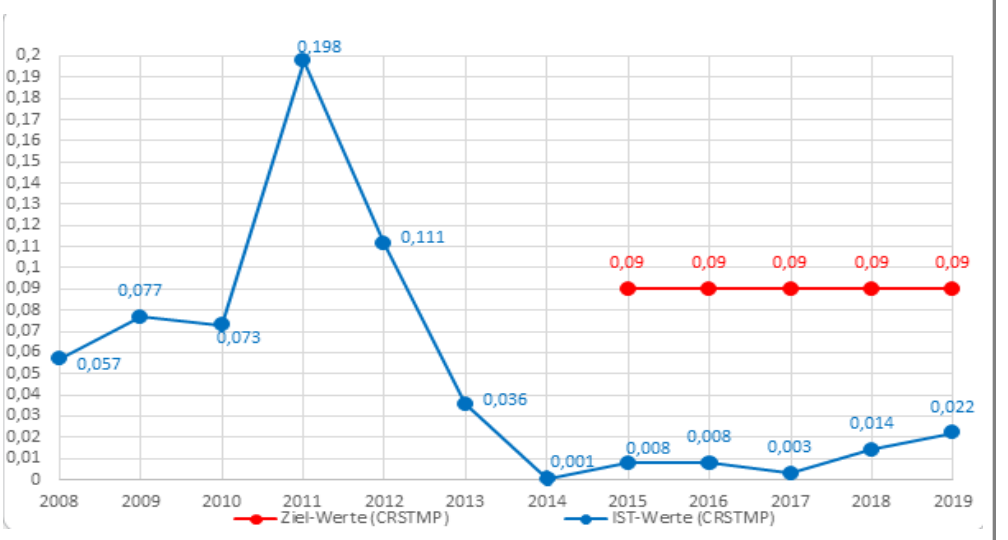
The French Local Single Sky ImPlementation (LSSIP) describes yearly the implementation objectives progress of these main measures which contribute to the ongoing improvement of ATM network performance.

** Refer to Annex Q, if necessary.*

### 3.3.2.3 - Germany

### a) National performance targets

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| **National level** | 0,66 | 0,655 | 0,65 | 0,645 | 0,635 |
| Additional comments | As in RP2, the national performance targets do take into account a constant buffer for non-CRSTMP delay of 0.56min/flight in addition to the target for CRSTMP-delay that is used as a pivot value for the incentive scheme.<br><br>As for the CRSTMP-delay target, Germany is proposing an ambitious though also realistically achievable target.<br><br>Thus, Germany is taking into account the ANSP performance in RP2 while including a constant buffer for risks associated with technical failure, the inauguration of BER airport and a buffer for already known staffing issues decreasing from 2020 to 2024. | | | | |




| | | | | | | |
|---|---|---|---|---|---|---|
| **Airport level** | ***EDDF-Frankfurt*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDM-Munich*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDL-Dusseldorf*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDT-Berlin-Tegel*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDH-Hamburg*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDK-Cologne/Bonn*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDS-Stuttgart*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDB-Schoenefeld-Berlin*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDV-Hannover*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDP-Leipzig*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDN-Nürnberg*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDW-Bremen*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDC-Dresden*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDG-Münster-Osnabrück*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDR-Saarbrücken*** | | | | | |
| | Airport contribution to national targets | | | | | |
| | ***EDDE-Erfurt*** | | | | | |
| | Airport contribution to national targets | | | | | |

### b) Contribution to the improvement of the European ATM network performance

*Active participation in the "Airport Integration Taskforce" to assess conceptual changes of ATFCM based procedures to airports to integrate them as full part of the ATM Network.*

** Refer to Annex Q, if necessary.*

**c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight**

*Extension of the training capacities at the academy up to the maximum possible training amount per year.*
*Hiring of external ATCO, so-called "Ready Entries".*
*Maximum possible use of supervisors and clerks.*

** Refer to Annex Q, if necessary.*

### 3.3.2.4 - Luxembourg

**a) National performance targets**

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| **National level** | 0,12 | 0,12 | 0,12 | 0,12 | 0,12 |
| Additional comments | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Airport level** | ***ELLX-Luxembourg*** | 0,12 | 0,12 | 0,12 | 0,12 | 0,12 |
| | Airport contribution to national targets | | | | | |

**b) Contribution to the improvement of the European ATM network performance**

** Refer to Annex Q, if necessary.*

**c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight**

*- Implementation of an additional (third) position in TWR (ground) and APP (feeder).*
*- Recruitment and training of a significant number of additional ATCOs.*
*- Renewal of several ATC and CNS systems.*

** Refer to Annex Q, if necessary.*

### 3.3.2.5 - Netherlands

### a) National performance targets

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| | | Target | Target | Target | Target | Target |
| **National level** | | 2 | 1,8 | 1,6 | 1,4 | 1,2 |
| Additional comments | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Airport level** | ***EHAM-Amsterdam*** | 2,20 | 1,98 | 1,76 | 1,54 | 1,32 |
| | Airport contribution to national targets | | | | | |
| | ***EHRD-Rotterdam*** | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| | Airport contribution to national targets | | | | | |
| | ***EHGG-Eelde*** | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| | Airport contribution to national targets | | | | | |
| | ***EHBK-Beek*** | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| | Airport contribution to national targets | | | | | |
| | | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| | Airport contribution to national targets | | | | | |

### b) Contribution to the improvement of the European ATM network performance

Schiphol Airport is one of the major sources of arrival ATFM delay in the European network, and a reduction in this delay would provide a positive contribution to the performance of the network.

** Refer to Annex Q, if necessary.*

### c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

Although the majority of delays at Schiphol are so called 'non-CRSTMP delays', i.e. delays that are outside the direct influence of the ANSP, a number of initiatives are planned to reduce the occurrence of relevant external factors (e.g. insufficient aerodrom capacity) or, where reducing the occurrence is not possible, to reduce the impact (e.g. weather delays).

Main measures are:
- Increased peak hour capacity: this activity includes a number of measures to improve peak hour capacity, which makes the terminal operation at Schiphol better able to cope with tactical variations in traffic flows, without having to initiate ATFCM measures
- Capacity management: this activity also includes a set of different measures, which complement the measures to increase capacity - rather than adding more capacity, the capacity management activity aims to ensure that optimum use is made of the available capacity.
- Extended Arrival Management

(see annex R, providing addditional information on cost efficiency targets, for further details on these measures)

** Refer to Annex Q, if necessary.*

### 3.3.2.6 - Switzerland

### a) National performance targets

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| | Target | Target | Target | Target | Target |
| **National level** | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| Additional comments | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Airport level** | ***LSZH-Zurich*** | 0,20 | 0,20 | 0,20 | 0,20 | 0,20 |
| | Airport contribution to national targets | | | | | |
| | ***LSGG-Geneva*** | 0,45 | 0,45 | 0,45 | 0,45 | 0,45 |
| | Airport contribution to national targets | | | | | |

### b) Contribution to the improvement of the European ATM network performance

*The RP3 Terminal capacity target for Switzerland represents an improvement by 30% compared with the RP2 Terminal capacity target.*
*This is possible thanks to the enhancement of the staffing situation in both Geneva (mainly) and Zurich TWR/APP units. However, following the court case we had in July 2019, the ATCO market is under high pressure, a sound attention to the long term ATCO manpower planning needs to be ensured during RP3.*

** Refer to Annex Q, if necessary.*

### c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

*In Geneva TWR/APP, the sustained effort in recruiting ATCOs in order to ensure an optimum level of performance will remain the reference point for improvement.*
*The e-strip project (step 1 at TWR in 2019 and step 2 at APP in 2022) coupled with AMAN and the deployment of the traffic and complexity prediction tool for TWR/APP (CRYSTAL) in 2020 will participate in enhancing the operational level of performance in spite of the forecasted traffic increase.*
*In Zurich TWR/APP, the sustained effort in recruiting ATCOs will be the cornerstone of a successful performance improvement as well. To harvest benefits of the Advance Runway Safety Improvements as per 2019 through the activation of crossed RWY when under North wind conditions (increase of capacity) will also represent an important step forward. On top of these, to de-complexify the TMA (launch in 2019 with the creation of a second Departure position to address safety issues; SID concept to South-West with a reduced separation management in 2021; parachute management and optimization of East arrival concept in 2022), the deployment of the traffic and complexity prediction tool for TWR/APP (mid 2020), the e-coordination Departure-ACC (mid 2021), Datalink Departure Clearance (mid 2021) or the Optimized separation on runway (mid 2022), will as well be key enablers to enhance performance towards the end of RP3.*
*The benefits of any of these initiatives will materialize around 1 year after their respective operational deployment date.*
*Traffic evolution according to STATFOR baseline scenario (Terminal Navigation Service Units, Growth): in 2020, +2.4%; in 2021, +1.3%; in 2022, +1.4%; in 2023, +1.2% and in 2024, +1.7% will keep pressure on the whole airport system*

** Refer to Annex Q, if necessary.*

# SECTION 3.4: COST-EFFICIENCY KPA

**3.4 - Cost efficiency targets**

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS
3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS
3.4.3 - Pension assumptions
3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services
3.4.5 - Restructuring costs

**Annexes of relevance to this section**

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX H. RESTRUCTURING MEASURES AND COSTS
ANNEX M. COST ALLOCATION
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

NOTE: The following requirements as per Annex II, 3.3 are addressed in the Annexes A and B:

Point 3.3 (d) on cost-allocation;
Point 3.3 (e) on the return on equity and cost of capital;

Point 3.3 (f) on assumptions for pension costs and interest on debt for other entities, inflation forecast and adjustments beyong IFRS;
Point 3.3 (g) on adjustments to the unit rates carried over from previous reference periods;
Point 3.3 (h) on costs exempt from cost-sharing;
Point 3.3 (k) reporting tables and additional informations.

# SECTION 3.4.1: KPI #1: Determined unit cost (DUC) for en route ANS

**3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS**

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)
b) Cost-efficiency performance targets
c) Description and justification of the methodology used to estimate the baseline values

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs
e) Description and justification of the consistency between local and Union-wide cost-efficiency targets
f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS

En Route Charging Zone #1 - Belgium-Luxembourg
En Route Charging Zone #2 - France
En Route Charging Zone #3 - Germany
En Route Charging Zone #4 - Netherlands
En Route Charging Zone #5 - Switzerland

**Annexes of relevance to this section**

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX M. COST ALLOCATION
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

NOTE: The following requirements as per Annex II, 3.3 are addressed in the Annexes A and B:

Point 3.3 (d) on cost-allocation;
Point 3.3 (e) on the return on equity and cost of capital;

Point 3.3 (f) on assumptions for pension costs and interest on debt for other entities, inflation forecast and adjustments beyong IFRS;
Point 3.3 (g) on adjustments to the unit rates carried over from previous reference periods;
Point 3.3 (h) on costs exempt from cost-sharing;
Point 3.3 (k) reporting tables and additional informations.

## 3.4 - Cost efficiency targets

### 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

**En Route Charging Zone #1 - Belgium-Luxembourg**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 217.242.536 |
| **2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)** | 2.654.285 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **81,85** |

**b) Cost-efficiency performance targets**

| En route charging zone<br>Name of the CZ | Baseline 2014<br>2014 B | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2014A-2024D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|---|---|
| Total en route costs in nominal terms (in national currency) | | | 249.313.725 | 266.926.792 | 281.410.058 | 290.739.265 | 299.630.513 | | |
| **Total en route costs in real terms (in national currency at 2017 prices)** | **161.485.138** | **217.242.536** | **237.256.932** | **249.746.133** | **258.975.588** | **263.149.129** | **266.608.636** | **5,1%** | **4,2%** |
| YoY variation | | | 9,2% | 5,3% | 3,7% | 1,6% | 1,3% | | |
| Total en route Service Units (TSU) | 2.362.094 | 2.654.285 | 2.759.006 | 2.811.427 | 2.873.278 | 2.924.997 | 2.977.647 | 2,3% | 2,3% |
| YoY variation | | | 3,9% | 1,9% | 2,2% | 1,8% | 1,8% | | |
| **Real en route unit costs (in national currency at 2017 prices)** | **68,37** | **81,85** | **85,99** | **88,83** | **90,13** | **89,97** | **89,54** | **2,7%** | **1,8%** |
| YoY variation | | | 5,1% | 3,3% | 1,5% | -0,2% | -0,5% | | |
| Real en route unit costs (in EUR2017) [1] | **68,37** | **81,85** | **85,99** | **88,83** | **90,13** | **89,97** | **89,54** | **2,7%** | **1,8%** |
| YoY variation | | | 5,1% | 3,3% | 1,5% | -0,2% | -0,5% | | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,00** |

**c) Description and justification of the methodology used to estimate the baseline values**

The baseline values for determined costs has been estimated by using the actual costs available for the preceding reference period and adjusted to take account of latest available cost estimates.

In 2018, actual costs of Air Navigation Services in the Be/Lux charging zone amounted to 183,525 million euros in 2018 (in nominal terms).

For 2019, the company costs of skeyes were forecasted at the lowest level of detail possible (General Ledger account level) : as a general rule, 2018 served as the starting point for the estimates with the application of inflation and other obvious cost drivers (e.g. # FTE, # of vehicles, etc) when applicable. When 2018 did not show to be representative, the average of the last 3 years was used so as to exclude any peak. Though, the most important costs types were subject to a detailed and separate “zero-based” build-up : this was particularly true for the (i) investments projects and (ii) payroll cost evolution.
For projects, account has been taken of the existing status and the pipeline (as of Q2/2019). With regards to personnel forecast, the starting baseline was the reality as of Q2/2019 and did take the natural attrition (pension) as well as operational needs into consideration ; replacements and recruitments were added on this base together with impact of social negotiations.
The costs estimates for skeyes in 2019 represent an increase of 19.7 million (Real, prices 2017) compared to 2018. This cost increase is due to the following factors:

- Additional recruitments of staff to support the investments projects, with a significant portion coming from compulsory replacements (business continuity) and/or legal obligations;
- Social agreements on business continuity with unions;
- Additional recruitments of aspirant-ATCOs to ensure business continuity and prepare the wave of pre-retirement in the period 2020-2024;
- Increase of training costs due to the recruitment of additional ATCOs;
- Conclusion of new maintenance contracts for equipment and infrastructure not foreseen in 2014;
- Evolution of risk exposition to claims and court decisions requiring financial provisions;
- Increased depreciation charges due to (i) full time impact of 2018 investments, (ii) finalization of assets under construction initiated before 31.12.2018 and (iii) new investment initiated or rolled-out during 2019.

Additionally, the cost allocation methodology of skeyes for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). This change in the methodology compared to the previous reference period corresponds to a transfer of 14.6 million € (Real, prices 2017) from the terminal charging zones to the en-route charging zone.

The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M). This change in the methodology compared to the previous reference period corresponds to a transfer of 0.5 million € (Real, prices 2017) from the en-route charging zones to the terminal charging zone .

The forecast for the year 2019F in Table 1 (and sustaining details) of Annex A has been established after the change in cost allocation and in the same setup as the RP3 to have a consistent baseline; as a matter of fact, this departs from historically published RP2 figures. The impact of this change can be summarized as follows :

| Nominal (in K EUR) | Starting base update - old APP + BE NSA keys | Starting base update - new APP + BE NSA keys |
|---|---|---|
| | 2019F | 2019F |
| skeyes | 127783 | 143021 |
| BE NSA | 1496 | 962 |
| MUAC Belgium | 59729 | 59729 |
| Eurocontrol agency Belgium | 11744 | 11744 |
| TOTAL Belgium | 200752 | 215456 |
| ANA Luxembourg | 6963 | 6963 |
| LUX NSA | 87 | 87 |
| MUAC Luxembourg | 1847 | 1847 |
| Eurocontrol agency Luxembourg | 875 | 875 |
| TOTAL Luxembourg | 9772 | 9772 |
| Total costs | 210524 | 225228 |
| *Evolution costs* | | 7,0% |
| Total service units | 2654 | 2654 |
| *Evolution service units* | | 0,0% |
| Unit cost nominal [in EUR] | 79,32 | 84,86 |

The Belgian contribution to MUAC will increase by 6.7 million € (Real, prices 2017), from 50.8 million € to 57.5 million €, the Luxembourg conntribution will increase by 0.2 million €, from 1.6 million € to 1.8 million € between 2018 and 2019. This cost increase is due to:

- the measures initiated to tackle staffing delay issues in the Brussels sectors: ab initio training program was relaunched with maximum throughput and a new social agreement implemented as from 1 July 2019 to increase ATCO flexibility and availability;
- the increased allocation to the MUAC budget for the transfer of pension costs and support services from the EUROCONTROL Agency;
- the revised GAT sharing keys within MUAC Member States resulting in an increase for Belgium from 31.3208% in 2018 to 31.5912% in 2019.

ANA costs 2019:
The baseline value for determined costs has been estimated by taking into account the actual 2018 costs, the budget for 2019 and the latest available information. The increase of costs from 2018 to 2019 is due to :
- an increase of the operating costs, mainly due to the training costs of the ab initio's
- an increase of the depreciation costs due to a catch-up in the investments planning and the activation of main investments in 2019. These costs are fully borne by the State and have no impact on the unit rate.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The level of the baseline value is adjusted to the new cost allocation methodology for the costs related to the approach services of skeyes as this is a better reflection of the operational reality. Equally, the shift in cost allocation related to the costs of the Belgian NSA is related to a better reflection of operational reality.

** Refer to Annex F, if necessary.*

**e) Description and justification of the consistency between local and Union-wide cost-efficiency targets**

It will not be possible to achieve the Union-wide cost-efficiency target for the following reasons:
- The complexity of the Belgian-Luxembourg airspace.
- Change of methodology for billing of service units.
- For skeyes:
    - strengthening the ATCO workforce to improve business continuity and increase capacity
    - ageing of the ATCOs workforce
    - investment plan in equipment
    - investments in resources (non ATCO)
    - pay roll evolution
- For MUAC:
    - Investments in productivity to increase capacity in RP3

see also Annex R for more detailed information.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS**

See above.

** Refer to Annex R, if necessary.*

## 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

### En Route Charging Zone #2 - France

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | | |
|---|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | **1.322.898.728** | |
| **2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)** | **22.127.956** | **0,25%** |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **59,78** | |

**b) Cost-efficiency performance targets**

| En route charging zone<br>France | Baseline 2014<br>2014B | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2014A-2024D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|---|---|
| Total en route costs in nominal terms (in national currency) | | | 1.382.370.892 | 1.410.874.087 | 1.433.867.232 | 1.456.790.600 | 1.489.725.076 | | |
| **Total en route costs in real terms (in national currency at 2017 prices)** | **1.209.671.162** | **1.322.898.728** | **1.330.344.361** | **1.341.689.504** | **1.345.553.483** | **1.348.074.602** | **1.359.770.941** | **1,2%** | **0,6%** |
| YoY variation | | | 0,6% | 0,9% | 0,3% | 0,2% | 0,9% | | |
| Total en route Service Units (TSU) | 18.543.719 | 22.127.956 | 22.569.394 | 23.020.782 | 23.481.197 | 23.950.821 | 24.429.838 | 2,8% | 2,0% |
| YoY variation | | | 2,0% | 2,0% | 2,0% | 2,0% | 2,0% | | |
| **Real en route unit costs (in national currency at 2017 prices)** | **65,23** | **59,78** | **58,94** | **58,28** | **57,30** | **56,29** | **55,66** | **-1,6%** | **-1,4%** |
| YoY variation | | | -1,4% | -1,1% | -1,7% | -1,8% | -1,1% | | |
| Real en route unit costs (in EUR2017) 1 | **65,23** | **59,78** | **58,94** | **58,28** | **57,30** | **56,29** | **55,66** | **-1,6%** | **-1,42%** |
| YoY variation | | | -1,4% | -1,1% | -1,7% | -1,8% | -1,1% | | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,0** |

**c) Description and justification of the methodology used to estimate the baseline values**

Two different methods have been used, leading to very close results: PRB proposal to use a Linear regression between 2015 and 2018 and the use of the latest 2019 costs estimates.

The application of these methodologies give the same results with only a tiny difference. The value considered as the best possible 2019 determined costs estimate has been chosen to set the Baseline value.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The main parameters used to set the 2019 level for the baseline values are the actual en route air navigation costs and service units for years 2015 to 2018 and the latest available local traffic forecast for 2019 (refer to Annex D for details).

Based on such data, the baseline value for 2019 determined costs has been estimated by two methods whose results are very close:

1.Using the latest available cost estimates for 2019 at mid-year adjusted to be expressed in 2017 prices: 1 322 898 728 € (refer to Annex F for details),

2.Using an extrapolation methodology by linear regression as proposed by PRB: 1 315 169 746 €.

The reference value for the 2019 DUC is then derived by dividing the 2019 determined costs by the latest local traffic forecast for 2019 : 22 127 956 Service Units (STATFOR Base May update expressed in M3 DATA as been used for this calculation).

The use of the latest available cost estimates for 2019 methodology thus gives a baseline value for 2019 DUC of 59.78 € (in 2017 prices).

The use of the linear regression methodology, as proposed by PRB, gives a baseline value for 2019 DUC of 59.43 € (in 2017 prices).

Both methodologies give very close results and the most accurate value taking into account the latest available actual costs data for 2019 has been chosen. Methodologies used and final choice have been presented and approved by the users during the consultation meeting.

** Refer to Annex F, if necessary.*

**e) Description and justification of the consistency between local and Union-wide cost-efficiency targets**

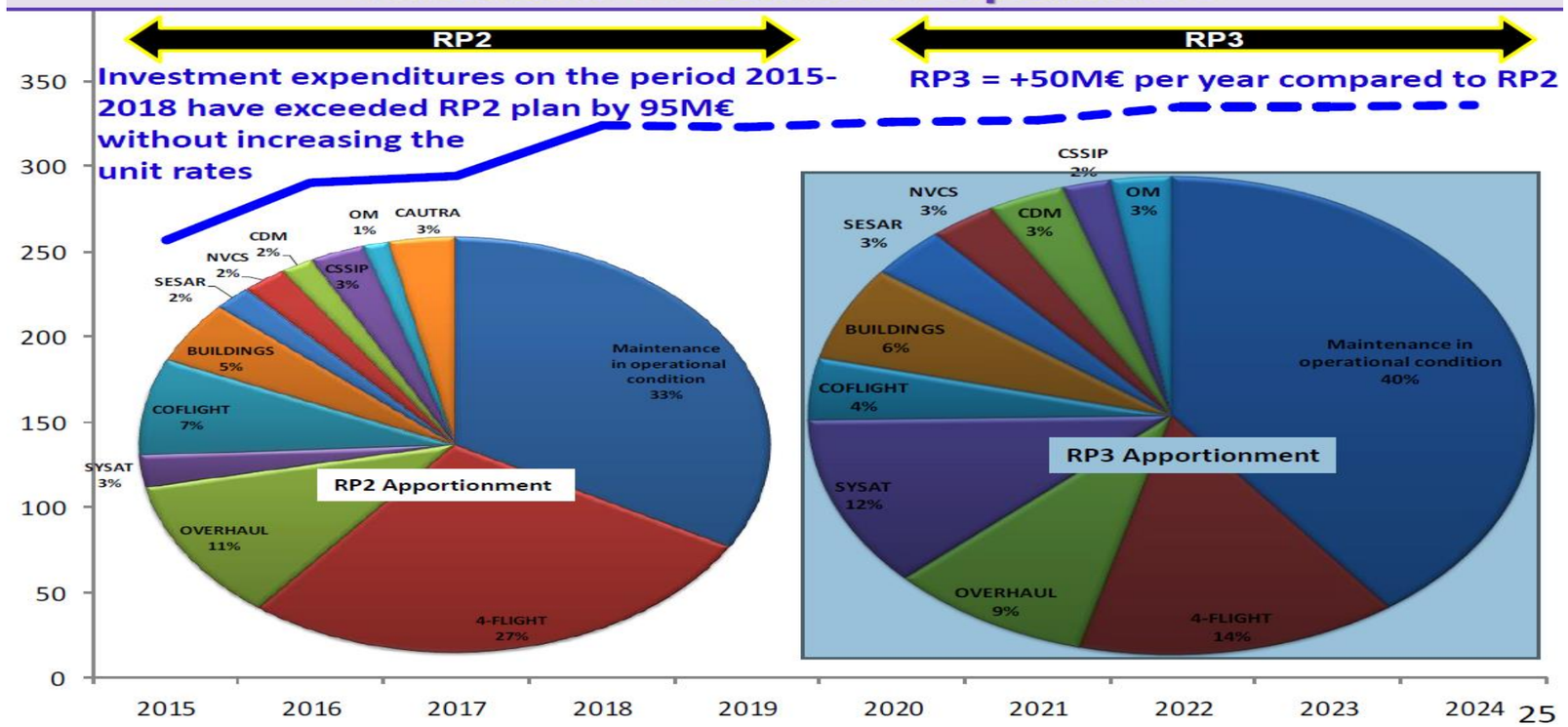
2020 unit rate will decrease by -3.5% to be set at 58.69€, which is the combination of the reset of determined traffic in 2020 and adjustments from RP2 (-42M€ for traffic, +7M€ for inflation, -5M€ for penalty due to incentive scheme, -18M€ for European funds: a total amounting to -58M€).

Globally, RP3 costs are planned to grow by +2.2% per year in average in nominal terms.

The higher increase is borne (+4% per year in average in nominal terms) by the cost of the investments program (necessary to solve current capacity and staffing issues, additional 50M€ per year in average with regard to RP2) and by staff costs (en-route recruitments, productivity measures) where a strong effort has been made on external and operating costs.

During RP2 the investments expenditures have exceeded the plan by 95M€ without increasing the unit rate. As from 2020, RP3 additional planned investments to enhance capacity amount to an average of +50M€ per year. Such a high level of expenses is required but has to be negotiated with French Ministry of Finances. However, it should be noted that in 2018, the total capital expenditures has already exceeded 300M€ and it is very likely it will be maintained through RP3.

# Additional investment expenditure



The investment plan and expected benefits have been presented to the users the 21st May during an ad-hoc consultation meeting: the current draft DSNA strategic Master Plan 2019-2025 contains all details regarding this ambitious investments plan and associated roadmap and is annexed to this performance plan for further reading (annex E).

Resulting annual depreciation costs will progressively rise during RP3 from 167M€ up to 194M€ in 2024.

Staff costs increase (+2.1% per year in average in nominal terms) is the second cost item participating to the RP3 increase of the cost base.

Part of the ongoing measures relating to human resources, implemented under the current 2016 – 2019 social agreement, still require additional time to be fully effective and reach their maximum impact. After a decade of continuous reduction (-10% over the years since 2009), ATCO are being recruited at a higher speed (100 per year) but will be trained and qualified during RP3 (as from 2021), some productivity measures and more flexible rostering have been introduced in some ACC but not yet in all French ACC.

Next RP3 social agreement will consider the continued growth of traffic and the need to implement a controlled increase of ATCO, especially to consolidate en-route services and will in particular address recruitments, adjusting training capacity (both at ENAC and in the ACC), initial training duration, 4-FLIGHT training, short term social improvements. It will need to guarantee a good level of service to manage air traffic while training the ATCO for the implementation of the new systems. In particular, the organization and implementation of the training required to transform controllers into the electronic environment and the new control tools within the framework of the 4-FLIGHT and SYSAT programs represents a safety and performance issue, which may have an impact on the organization of continuing training in relation to the organization of the operational work.

Currently 70 ATCO retire each year. It has already been announced that a 4th ATCO class will increase the ongoing recruitment plan up to 130 ATCO per year from year A PRECISER. Five years are still needed to train and fully qualify them. This should enable an additional 143  ATCO in OPS (trainees included) by 2024 compared to 2019.

The combination of retirements and increased staffing needs requires that the recruitment competition attracts a sufficient number of good candidates. That’s why this competition will be integrated in 2020 in an existing general engineer competition called “Banque du concours polytechnique”, giving it a better visibility.

Given this volume of recruitment and the need to accelerate operational training, a more efficient organization of initial training will be studied to be less dependent on the operational constraints of the management of control centres. In this respect, a study will be launched by ENAC and DSNA in order to develop a new ATCO training methodology aiming at reducing the duration of the training and adapting the ENAC training calendar in order to minimize the impact on ATCO in OPS availability in French ACC implementing the new 4-FLIGHT system in the next years. In addition, some short term recruitments modalities and a 4th class of ab-initio ATCO will be implemented at ENAC in 2020 in order to speed up the ATCO increase in ACCs facing staffing issues.

This will have to be discussed with staff representatives and within the framework of the French 2020 budget law and the triennial budget program. A good balance has to be found between recruitment and productivity measures.

DSNA cost-efficiency gap with EU wide target is mainly justified by the fact that the gap between EU target (-1.9% per year) and proposed DUC reduction (-1.42% per year) is due to additional expenditures on human resources (recruitment and productivity measures costs) and investments to increase capacity.

An internal simulation of 2024 costs trend without implementing such human resources and investments measures, which combined benefits have been estimated to an additional +50% capacity, shows that it would have enabled DSNA to implement a -2.0% DUC reduction per year, which is better than EU wide target. However, at this stage, it remains difficult to fully detail staff costs measures as the social agreement will be negotiated in the end of year 2019 with the unions and the content has to get approval by the French Government (Ministries of transport and Ministry of Finances), the goal is  to get the social agreement signed to cover RP3. The detailed calculation of the determined costs linked to the measures already decided is given in Annex R of the FABEC performance plan.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS**

DSNA planned costs evolution is limited during RP3 (+0.5% per year at 2017 prices): increase in real terms is lower than during RP2.

DSNA staff costs, which are the main driver for costs evolution, are contained with regard to capacity and staffing issues to be addressed, as it has been presented above.

Regarding pension costs, the major assumption which is that the contribution to the “CAS pension”, which is the specific amount calculated from gross wages, will be set flat and at the same level of RP2 (74.6%) even if some uncertainties remain regarding future modification of the French pension regime for civil servants. Uncontrollable costs recovery mechanism will secure the funding of pensions. Corresponding adjustments will be made during the next reference period (RP4).

Comparing the inflation rates of RP2 and RP3, a decrease of the trend for staff costs can be noted (+7% during RP2 vs +2% during RP3 in real terms).

RP3 external costs have also been contained. During RP3, they will increase less than inflation thanks to renegotiation of some arrangements (contracts with skyguide or Jersey for example, evolution of EUROCONTROL costs, etc.).

Operating costs will remain flat at 2017 prices during RP3.

Regarding cost of capital, in the beginning of RP2, the WACC was 4.8%. In 2018, it was 5.1%, due to a lower average interest on debts, but in the meantime, the debt was reduced and the structure of capital has changed. This leads to an updated WACC estimates at the end of RP2 of 5.6%.

During the consultation meeting, DSNA presented the summarized results of a study performed by a finance and accounting consultant (Mazars) to justify suitable WACC values for DSNA for RP3, based on data relating to companies showing similar environment, including airport operators, ENAV, electricity, gas and water supply company. The outcome of the study was a set of possible values for DSNA WACC ranging from 5.1% (Low) through 5.7% (Medium) to 6.1% (High), according to Beta(equity) values resulting from the sample of analyzed companies.

Airline representatives in the meeting rejected the WACC value of 5.7% (Mazars Medium) proposed by DSNA for years 2020 to 2024, arguing a lack of exposure to risk, some proposing 4%.

After the consultation meeting, DTA reviewed the assumptions made in the Mazars study. In this review, DTA considered:
- the latest risk-free values recorded by end August 2019 (instead of April 2019),
- the latest estimates of the Debt interests in future years
- based on the figures from DSNA balance sheet 2018, figures from balance sheets of previous years and likely evolutions of net debt and equity in the coming years, the resulting Net Debt / Equity sharing in percentage (rather 35%-65% instead of 30%-70%),
- the fact that, due to rising economic incertitude factors and the new rules on investment costs better protecting airlines in regulation EU No 2019/317, DSNA will be no less exposed to risks (including traffic risk) than over RP2, rather more.

All in all, DTA concluded that a figure between 5.2% and 5.3% would be justified (flat over the period).
With roundings, DSNA finally puts forward 5.2%, which DTA deems acceptable to take on board the performance plan, both for En-route and TNC.

** Refer to Annex R, if necessary.*

## 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

**En Route Charging Zone #3 - Germany**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 1.030.531 |
| **2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)** | **15.410** |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **64,53** |

**b) Cost-efficiency performance targets**

| En route charging zone<br>Name of the CZ | Baseline 2014<br>2014 B | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2014A-2024D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|---|---|
| Total en route costs in nominal terms (in national currency) | | | **1.137.664** | **1.171.660** | **1.162.040** | **1.184.881** | **1.211.869** | | |
| **Total en route costs in real terms (in national currency at 2017 prices)** | **1.032.792** | **1.030.531** | **1.093.986** | **1.110.122** | **1.083.487** | **1.085.907** | **1.091.330** | **0,5%** | **1,0%** |
| YoY variation | | | 6,2% | 1,5% | -2,4% | 0,2% | 0,5% | | |
| Total en route Service Units (TSU) | 12.806 | 15.410 | 15.993 | 16.318 | 16.688 | 17.007 | 17.329 | 2,8% | 2,0% |
| YoY variation | | | 3,6% | 2,0% | 2,2% | 1,9% | 1,9% | | |
| **Real en route unit costs (in national currency at 2017 prices)** | **80,65** | **66,87** | **68,40** | **68,03** | **64,93** | **63,85** | **62,98** | **-2,2%** | **-1,0%** |
| YoY variation | | | 2,3% | -0,5% | -4,6% | -1,7% | -1,4% | | |
| Real en route unit costs (in EUR2017) [1] | | | | | | | | | |
| YoY variation | | | | | | | | | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | |

**c) Description and justification of the methodology used to estimate the baseline values**

**General:** Statfor Forecast May 2019 has been used as the latest available service units forecast minus 70.000 flights OAT, adjusted for actual routes flown (M3 = M2 + 0,15%).
**DFS:** The cost figure shows the latest forecast 2019. This value is increased by the pension cost, which will increase the determined cost from 2020 onwards due to the reduction of the interest rate to 2,85% for RP3.
**DWD, MUAC**: Actual costs for 2019 were taken into account.
**State:** For estimating the 2019 baseline values, planned costs for 2019 as well as the latest forecast for Eurocontrol contributions were taken into account.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

**DFS:** The baseline value for the determined cost reflects the actual forecast (02/19) increased by the pension cost effect, stemming from the reduction of the interest rate between RP2 (3.54%) and RP3 (2.85%). As in the performance plan for RP2 this effect is an allowed cost effect increasing the determined costs in the performance plan.
**State:** Planned costs were taken into account rather than the latest available costs as temporary vacancies that are currently being filled would distort the baseline.

** Refer to Annex F, if necessary.*

**e) Description and justification of the consistency between local and Union-wide cost-efficiency targets**

**State:** A considerable increase in Eurocontrol contribution can not be offset by the reduction of relative supervisory costs, despite an increase of staff at the NSA.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS**

** Refer to Annex R, if necessary.*

## 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

**En Route Charging Zone #4 - Netherlands**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 218.576.199 |
| **2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)** | 3.328.000 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **65,68** |

**b) Cost-efficiency performance targets**

NOTE: TSU for 2014 and 2019 have been adapted with standard correction factor of -1,89% to account for charging based on actual route, to allow for correct comparison

| **En route charging zone**<br>**Name of the CZ** | **Baseline 2014**<br>**2014 B** | **Baseline 2019**<br>**2019 B** | **RP3 Performance Plan (determined 2020-2024)**<br>**2020 D** | <br>**2021 D** | <br>**2022 D** | <br>**2023 D** | <br>**2024 D** | **CAGR**<br>**2014A-2024D** | **CAGR**<br>**2019B-2024D** |
|---|---|---|---|---|---|---|---|---|---|
| Total en route costs in nominal terms (in national currency) | | | 252.879.673 | 256.433.990 | 256.992.233 | 269.492.253 | 275.577.966 | | |
| **Total en route costs in real terms (in national currency at 2017 prices)** | **179.481.165** | **218.576.199** | **241.443.756** | **241.529.108** | **238.066.913** | **246.206.031** | **247.626.470** | **3,3%** | **2,5%** |
| YoY variation | | | 10,5% | 0,0% | -1,4% | 3,4% | 0,6% | | |
| Total en route Service Units (TSU) | 2.715.010 | 3.328.000 | 3.417.856 | 3.465.706 | 3.524.623 | 3.570.443 | 3.613.288 | **2,9%** | **1,7%** |
| YoY variation | | | 2,7% | 1,4% | 1,7% | 1,3% | 1,2% | | |
| **Real en route unit costs (in national currency at 2017 prices)** | **66,11** | **65,68** | **70,64** | **69,69** | **67,54** | **68,96** | **68,53** | **0,4%** | **0,9%** |
| YoY variation | | | 7,6% | -1,3% | -3,1% | 2,1% | -0,6% | | |
| Real en route unit costs (in EUR2017) [1] | **66,11** | **65,68** | **70,64** | **69,69** | **67,54** | **68,96** | **68,53** | **0,4%** | **0,9%** |
| YoY variation | | | 7,6% | -1,3% | -3,1% | 2,1% | -0,6% | | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,00** |

**c) Description and justification of the methodology used to estimate the baseline values**

Cost development in recent years has been driven by initiation of wide range of projects, as described in Annex R. As a result, there has been only a limited relationship between the development costs and traffic during the latter part of RP2. Baseline values have therefore been based on latest actual cost estimates for all entities, as this approach reflect the most appropriate basis for determining cost and cost efficiency trends in RP3.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

Not applicable.

** Refer to Annex F, if necessary.*

**e) Description and justification of the consistency between local and Union-wide cost-efficiency targets**

Cost development in RP3 is driven by a wide range of projects. Justification for these projects and associated determined costs are provided in Annex R.

Also provided as part of Annex R is a factsheet developed by LVNL regarding evolution of ATCO numbers. In principle, LVNL has sufficient ATCOs available for operations, any shortage in ATCO numbers mainly affects their essential expert support to project activities. Since this is considered a cost efficiency issue rather than a capacity issue, the factsheet is provided here rather than as an annex to support capacity targfets.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS**

Cost development will be monitored and discussed with relevant parties on a regular basis. If deviations between planned and actual DUC occur or are expected to occur, this will be discussed between the NSA and the relevant party or parties to determine a) causes and b) possible measures. Because DUC is dependent on external factors (in particular traffic development) as well as a number of assumptions which become more uncertain towards the end of the RP, the need for measures will be determined on a case-by-case basis. If non-achievement of DUC targets is justified by circumstances, and/or is in the interest of airspace users or their customers, this may lead to a situation where no further measures are taken.

** Refer to Annex R, if necessary.*

## 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

**En Route Charging Zone #5 - Switzerland**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 173.080.155 |
| **2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)** | 1.751.714 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **98,81** |

**b) Cost-efficiency performance targets**

| **En route charging zone**<br>**Name of the CZ** | **Baseline 2014**<br>**2014 B** | **Baseline 2019**<br>**2019 B** | **RP3 Performance Plan (determined 2020-2024)**<br>**2020 D** | <br>**2021 D** | <br>**2022 D** | <br>**2023 D** | <br>**2024 D** | **CAGR**<br>**2014A-2024D** | **CAGR**<br>**2019B-2024D** |
|---|---|---|---|---|---|---|---|---|---|
| Total en route costs in nominal terms (in national currency) | | | 199.049.485 | 198.022.116 | 193.341.234 | 190.529.952 | 188.887.752 | | |
| **Total en route costs in real terms (in national currency at 2017 prices)** | **152.788.522** | **173.080.155** | **194.962.253** | **192.364.893** | **186.233.696** | **181.939.352** | **178.826.463** | **1,6%** | **0,7%** |
| YoY variation | | | 12,6% | -1,3% | -3,2% | -2,3% | -1,7% | | |
| Total en route Service Units (TSU) | 1.376.550 | 1.751.714 | 1.800.908 | 1.835.634 | 1.871.324 | 1.901.227 | 1.931.129 | 3,4% | 2,0% |
| YoY variation | | | 2,8% | 1,9% | 1,9% | 1,6% | 1,6% | | |
| **Real en route unit costs (in national currency at 2017 prices)** | **110,99** | **98,81** | **108,26** | **104,79** | **99,52** | **95,70** | **92,60** | **-1,8%** | **-1,3%** |
| YoY variation | | | 9,6% | -3,2% | -5,0% | -3,8% | -3,2% | | |
| Real en route unit costs (in EUR2017) [1] | **99,88** | **88,92** | **97,42** | **94,30** | **89,56** | **86,12** | **83,33** | **-1,8%** | **-1,3%** |
| YoY variation | | | 9,6% | -3,2% | -5,0% | -3,8% | -3,2% | | |

| | |
|---|---|
| National currency | **CHF** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,11** |

**c) Description and justification of the methodology used to estimate the baseline values**

Latest cost forecast (= Budget 2019) has been taken as baseline value for RP3. For 2019 traffic starting point, STATFOR Base February 2020 has been adjusted for Actual Flown Route (3.54%).

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

Taking out the impact of increased transformation costs linked to Virtual Center, Baseline value is quite aligned with Actual 2018. As a reminder, skyguide invested roughly between 15% and 20% more than planned in RP2, generating progressively additionnal calculated cost at the pace of the entry into operation of the various components of VC.

** Refer to Annex F, if necessary.*

**e) Description and justification of the consistency between local and Union-wide cost-efficiency targets**

As additional costs have been added due to a more restrictive application of capitalization rules as of 2020 and due to the fact  the baseline value 2019 has not been corrected accordingly, the EU wide target is not achieved. However, after retreatment of these restructuring costs, the EU-wide target would be achieved.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS**

Various efficiency measures are implemented in order to keep costs fairly stable (without impact of more restrictive application of capitalization rules).

** Refer to Annex R, if necessary.*

# SECTION 3.4.2: KPI #2: Determined unit cost (DUC) for terminal ANS

**3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS**

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)
b) Cost-efficiency performance targets
c) Description and justification of the methodology used to estimate the baseline values

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs
e) Description and justification of the contribution of the the local targets to the performance of the European ATM network
f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #1 - Belgium EBBR
Terminal Charging Zone #2 - France - Zone 1
Terminal Charging Zone #3 - France - Zone 2
Terminal Charging Zone #4 - Germany - TCZ
Terminal Charging Zone #5 - Luxembourg - TCZ
Terminal Charging Zone #6 - Netherlands - TCZ
Terminal Charging Zone #7 - Switzerland - TCZ
Terminal Charging Zone #8 -
Terminal Charging Zone #9 -
Terminal Charging Zone #10 -
Terminal Charging Zone #11 -

**Annexes of relevance to this section**

ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX M. COST ALLOCATION
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

NOTE: The following requirements as per Annex II, 3.3 are addressed in the Annexes A and B:
Point 3.3 (d) on cost-allocation;
Point 3.3 (e) on the return on equity and cost of capital;

Point 3.3 (f) on assumptions for pension costs and interest on debt for other entities, inflation forecast and adjustments beyong IFRS;
Point 3.3 (g) on adjustments to the unit rates carried over from previous reference periods;
Point 3.3 (h) on costs exempt from cost-sharing;
Point 3.3 (k) reporting tables and additional informations.

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

**Terminal Charging Zone #1 - Belgium EBBR**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 34.465.175 |
| **2019 latest available service units forecast** | 164.537 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **209,47** |

**b) Cost-efficiency performance targets**

| Terminal charging zone<br>Name of the CZ | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|
| Total terminal costs in nominal terms (in national currency) | | 42.789.232 | 45.596.761 | 47.269.113 | 48.395.511 | 50.249.236 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **34.465.175** | **40.677.064** | **42.627.386** | **43.478.279** | **43.792.150** | **44.715.351** | **5,3%** |
| YoY variation | | 18,0% | 4,8% | 2,0% | 0,7% | 2,1% | |
| Total terminal Service Units (TNSU) | 164.537 | 168.486 | 172.193 | 176.842 | 180.025 | 183.445 | 2,2% |
| YoY variation | | 2,4% | 2,2% | 2,7% | 1,8% | 1,9% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **209,47** | **241,43** | **247,56** | **245,86** | **243,26** | **243,75** | **3,1%** |
| YoY variation | | 15,3% | 2,5% | -0,7% | -1,1% | 0,2% | |
| Real terminal unit costs (in EUR2017) [1] | **209,47** | **241,43** | **247,56** | **245,86** | **243,26** | **243,75** | **3,1%** |
| YoY variation | | 15,3% | 2,5% | -0,7% | -1,1% | 0,2% | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,00** |

**c) Description and justification of the methodology used to estimate the baseline values**

The baseline values for determined costs has been estimated by using the actual costs available for the preceding reference period and adjusted to take account of latest available cost estimates.

In 2018, actual costs of Air Navigation Services in the Brussels terminal charging zone amounted to 36,43 million euros in 2018 (in nominal terms).

For 2019, the company costs of skeyes were forecasted at the lowest level of detail possible (General Ledger account level) : as a general rule, 2018 served as the starting point for the estimates with the application of inflation and other obvious cost drivers (e.g. # FTE, # of vehicles, etc) when applicable. When 2018 did not show to be representative, the average of the last 3 years was used so as to exclude any peak. Though, the most important costs types were subject to a detailed and separate “zero-based” build-up : this was particularly true for the (i) investments projects and (ii) payroll cost evolution.
For projects, account has been taken of the existing status and the pipeline (as of Q2/2019). With regards to personnel forecast, the starting baseline was the reality as of Q2/2019 and did take the natural attrition (pension) as well as operational needs into consideration ; replacements and recruitments were added on this base together with impact of social negotiations.
The costs estimates for skeyes in 2019 represent an increase of 19.7 million (Real, prices 2017) compared to 2018. This cost increase is due to the following factors:
- Additional recruitments of staff to support the investments projects, with a significant portion coming from compulsory replacements (business continuity) and/or legal obligations;
- Social agreements on business continuity with unions;
- Additional recruitments of aspirant-ATCOs to ensure business continuity and prepare the wave of pre-retirement in the period 2020-2024;
- Increase of training costs due to the recruitment of additional ATCOs;
- Conclusion of new maintenance contracts for equipment and infrastructure not foreseen in 2014;
- Evolution of risk exposition to claims and court decisions requiring financial provisions;
- Increased depreciation charges due to (i) full time impact of 2018 investments, (ii) finalization of assets under construction initiated before 31.12.2018 and (iii) new investment initiated or rolled-out during 2019.

Additionally, the cost allocation methodology of skeyes for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). This change in the methodology compared to the previous reference period corresponds to a transfer of 4.9 million € (Real, prices 2017) from EBBR terminal charging zones to the en-route charging zone.

The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M). This change in the methodology compared to the previous reference period corresponds to a transfer of 0.1 million € (Real, prices 2017) from the en-route charging zones to the EBBR terminal charging zone .

The forecast for the year 2019F in Table 1 (and sustaining details) of Annex A has been established after the change in cost allocation and in the same setup as the RP3 to have a consistent baseline; as a matter of fact, this departs from historically published RP2 figures. The impact of this change can be summarized as follows :

| Nominal (in K EUR) | Starting base update - old APP + BE NSA keys | Starting base update - new APP + BE NSA keys |
|---|---|---|
| | 2019F | 2019F |
| skeyes | 40217 | 35161 |
| BE NSA | 520 | 619 |
| Total costs | 40737 | 35780 |
| *Evolution costs* | | -12,2% |
| Total service units | 164,5 | 165 |
| *Evolution service units* | | 0,0% |
| Unit cost nominal [in EUR] | 247,64 | 217,51 |

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The level of the baseline value is adjusted to the new cost allocation methodology for the costs related to the approach services of skeyes as this is a better reflection of the operational reality. Equally, the shift in cost allocation related to the costs of the Belgian NSA is related to a better reflection of operational reality.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

The following elements of skeyes will have an effect on the local targets:

- strengthening the ATCO workforce to improve business continuity and increase capacity
- ageing of the ATCOs workforce
- investment plan in equipment
- investments in resources (non ATCO)
- pay roll evolution

see also Annex R for more detailed information.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

| |
|---|
| See above. |

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

### Terminal Charging Zone #2 - France - Zone 1

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | **51.877.872** |
| **2019 latest available terminal service units forecast** | **610.259** |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **85,01** |

**b) Cost-efficiency performance targets**

| Terminal charging zone | Baseline 2019 | RP3 Performance Plan (determined 2020-2024) | | | | | CAGR |
|---|---|---|---|---|---|---|---|
| France Zone 1 | 2019 B | 2020 D | 2021 D | 2022 D | 2023 D | 2024 D | 2019B-2024D |
| Total terminal costs in nominal terms (in national currency) | | 53.796.190 | 54.583.173 | 55.100.994 | 56.198.015 | 57.399.479 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **51.877.872** | **51.688.412** | **51.805.155** | **51.586.041** | **51.907.922** | **52.317.299** | **0,2%** |
| YoY variation | | -0,4% | 0,2% | -0,4% | 0,6% | 0,8% | |
| Total terminal Service Units (TNSU) | 610.259 | 625.653 | 636.550 | 647.547 | 658.141 | 667.346 | 1,8% |
| YoY variation | | 2,5% | 1,7% | 1,7% | 1,6% | 1,4% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **85,01** | **82,62** | **81,38** | **79,66** | **78,87** | **78,40** | **-1,6%** |
| YoY variation | | -2,8% | -1,5% | -2,1% | -1,0% | -0,6% | |
| Real terminal unit costs (in EUR2017) 1 | **85,01** | **82,62** | **81,38** | **79,66** | **78,87** | **78,40** | **-1,6%** |
| YoY variation | | -2,8% | -1,5% | -2,1% | -1,0% | -0,6% | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,0** |

**c) Description and justification of the methodology used to estimate the baseline values**

For Terminal charging zone, the latest available costs estimates methodology has been chosen to set the 2019 terminal baseline values.

The PRB methodology (linear regression proposed by PRB for en-route baseline value setting) was not considered as fully relevant for terminal costs, mainly due to the establishment of a 2nd Terminal charging zone in France during RP2 (in 2017).

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The main parameters used to set the 2019 level for the baseline values are the actual terminal air navigation costs and service units for years 2015 to 2018 and the latest available STATFOR forecast for 2019.

Based on such data, the baseline value for 2019 determined costs for Terminal charging zone 1 has been estimated by using the latest available costs estimates for 2019 at mid-year adjusted to be expressed in 2017 prices: 51 877  872 € (refer to Annex F for details).

The reference value for the 2019 DUC is then derived by dividing the 2019 determined costs by the latest estimates traffic forecast for 2019 taking into account actual traffic January - September 2019 and local estimate for October - December 2019: 610 259 Service Units.

The use of the  latest available cost estimates for 2019 methodology thus gives a baseline value for 2019 DUC of 85.01 € (in 2017 prices).

Methodology used and final choice have been presented and approved by the users during the consultation meeting.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

The evolution of the Determined unit costs for RP3 in real terms (2017 prices) for Terminal charging zone 1 is -1,6% per year.

It should also be noted that for the users this cost-efficiency trend  adds up with the -25% reduction of the Terminal charging zone 1 unit rate during RP2, due to the full reallocation of the Aviation Civile Tax to DGAC.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

DSNA Terminal planned costs evolution is very limited during RP3 (+0.2% per year at 2017 prices).

DSNA staff costs, which are the main driver for costs evolution, are growing less than inflation.

Regarding pension costs, the major assumption which is that the contribution to the “CAS pension” which is the specific amount calculated from gross wages will be set flat and at the same level of RP2 (74.6%) even if some uncertainties remain regarding future modification of the French pension regime for civil servants. Uncontrollable costs recovery mechanism will secure the funding of pensions. Corresponding adjustments will be made during the next reference period (RP4).

RP3 external costs have also been contained. During RP3, they will increase less than inflation thanks to renegotiation of some arrangements.

Operating costs will remain flat at 2017 prices during RP3.

Regarding cost of capital, in the beginning of RP2, the WACC was 4.8%. In 2018, it was 5.1%, due to a lower average interest on debts, but in the meantime, the debt was reduced and the structure of capital has changed. This leads to an updated WACC estimates at the end of RP2 of 5.6%.

During the consultation meeting, DSNA presented the summarized results of a study performed by a finance and accounting consultant (Mazars) to justify suitable WACC values for DSNA for RP3, based on data relating to companies showing similar environment, including airport operators, ENAV, electricity, gas and water supply company. The outcome of the study was a set of possible values for DSNA WACC ranging from 5.1% (Low) through 5.7% (Medium) to 6.1% (High), according to Beta(equity) values resulting from the sample of analyzed companies.

Airline representatives in the meeting rejected the WACC value of 5.7% (Mazars Medium) proposed by DSNA for years 2020 to 2024, arguing a lack of exposure to risk, some proposing 4%.

After the consultation meeting, DTA reviewed the assumptions made in the Mazars study. In this review, DTA considered:
- the latest risk-free values recorded by end August 2019 (instead of April 2019),
- the latest estimates of the Debt interests in future years
- based on the figures from DSNA balance sheet 2018, figures from balance sheets of previous years and likely evolutions of net debt and equity in the coming years, the resulting Net Debt / Equity sharing in percentage (rather 35%-65% instead of 30%-70%),
- the fact that, due to rising economic incertitude factors and the new rules on investment costs better protecting airlines in regulation EU No 2019/317, DSNA was no less exposed to risks (including traffic risk) than over RP2, rather more.

All in all, DTA concluded that a figure between 5.2% and 5.3% would be justified (flat over the period).
With roundings, DSNA finally puts forward 5.2%, which DTA deems acceptable to take on board the performance plan, both for En-route and TNC.

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

### Terminal Charging Zone #3 - France - Zone 2

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | **194.676.337** |
| **2019 latest available terminal service units forecast** | **548.830** |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **354,71** |

**b) Cost-efficiency performance targets**

| Terminal charging zone | Baseline 2019 | RP3 Performance Plan (determined 2020-2024) | | | | | CAGR |
|---|---|---|---|---|---|---|---|
| France - Zone 2 | 2019 B | 2020 D | 2021 D | 2022 D | 2023 D | 2024 D | 2019B-2024D |
| Total terminal costs in nominal terms (in national currency) | | 201.614.603 | 204.317.242 | 206.674.042 | 210.489.011 | 214.107.453 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **194.676.337** | **193.287.541** | **193.329.965** | **192.760.701** | **193.495.669** | **193.959.381** | **-0,1%** |
| YoY variation | | -0,7% | 0,0% | -0,3% | 0,4% | 0,2% | |
| Total terminal Service Units (TNSU) | 548.830 | 561.092 | 566.201 | 573.252 | 579.996 | 587.762 | 1,4% |
| YoY variation | | 2,2% | 0,9% | 1,2% | 1,2% | 1,3% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **354,71** | **344,48** | **341,45** | **336,26** | **333,62** | **330,00** | **-1,4%** |
| YoY variation | | -2,9% | -0,9% | -1,5% | -0,8% | -1,1% | |
| Real terminal unit costs (in EUR2017) 1 | **354,71** | **344,48** | **341,45** | **336,26** | **333,62** | **330,00** | **-1,4%** |
| YoY variation | | -2,9% | -0,9% | -1,5% | -0,8% | -1,1% | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,0** |

**c) Description and justification of the methodology used to estimate the baseline values**

For Terminal charging zone, the latest available costs estimates methodology has been chosen to set the 2019 terminal baseline values.

The PRB methodology (linear regression proposed by PRB for en-route baseline value setting) was not considered as fully relevant for terminal costs, mainly due to the establishment of a 2nd Terminal charging zone in France during RP2 (in 2017).

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The main parameters used to set the 2019 level for the baseline values are the actual terminal air navigation costs and service units for years 2015 to 2018 and the latest available STATFOR forecast for 2019.

Based on such data, the baseline value for 2019 determined costs for Terminal charging zone 1 has been estimated by using the latest available costs estimates for 2019 at mid-year adjusted to be expressed in 2017 prices : 194 676 337 € (refer to Annex F for details).

The reference value for the 2019 DUC is then derived by dividing the 2019 determined costs by the latest estimates traffic forecast for 2019 taking into account actual traffic January - September 2019 and local estimate for October - December 2019: 548 830 Service Units.

The use of the  latest available cost estimates for 2019 methodology thus gives a baseline value for 2019 DUC of 354.71 € (in 2017 prices).

Methodology used and final choice have been presented and approved by the users during the consultation meeting.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

The evolution of the Determined unit costs for RP3 in real terms (2017 prices) for Terminal charging zone 2 is -1,4% per year.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

DSNA Terminal planned costs evolution is a slight decrease during RP3 (-0,1% per year at 2017 prices).

DSNA staff costs, which are the main driver for costs evolution, are growing less than inflation.

Regarding pension costs, the major assumption which is that the contribution to the “CAS pension” which is the specific amount calculated from gross wages will be set flat and at the same level of RP2 (74.6%) even if some uncertainties remain regarding future modification of the French pension regime for civil servants. Uncontrollable costs recovery mechanism will secure the funding of pensions. Corresponding adjustments will be made during the next reference period (RP4).

RP3 external costs have also been contained. During RP3, they will increase less than inflation thanks to renegotiation of some arrangements.

Operating costs will remain flat at 2017 prices during RP3.

Regarding cost of capital, in the beginning of RP2, the WACC was 4.8%. In 2018, it was 5.1%, due to a lower average interest on debts, but in the meantime, the debt was reduced and the structure of capital has changed. This leads to an updated WACC estimates at the end of RP2 of 5.6%.

During the consultation meeting, DSNA presented the summarized results of a study performed by a finance and accounting consultant (Mazars) to justify suitable WACC values for DSNA for RP3, based on data relating to companies showing similar environment, including airport operators, ENAV, electricity, gas and water supply company. The outcome of the study was a set of possible values for DSNA WACC ranging from 5.1% (Low) through 5.7% (Medium) to 6.1% (High), according to Beta(equity) values resulting from the sample of analyzed companies.

Airline representatives in the meeting rejected the WACC value of 5.7% (Mazars Medium) proposed by DSNA for years 2020 to 2024, arguing a lack of exposure to risk, some proposing 4%.

After the consultation meeting, DTA reviewed the assumptions made in the Mazars study. In this review, DTA considered:
- the latest risk-free values recorded by end August 2019 (instead of April 2019),
- the latest estimates of the Debt interests in future years
- based on the figures from DSNA balance sheet 2018, figures from balance sheets of previous years and likely evolutions of net debt and equity in the coming years, the resulting Net Debt / Equity sharing in percentage (rather 35%-65% instead of 30%-70%),
- the fact that, due to rising economic incertitude factors and the new rules on investment costs better protecting airlines in regulation EU No 2019/317, DSNA was no less exposed to risks (including traffic risk) than over RP2, rather more.

All in all, DTA concluded that a figure between 5.2% and 5.3% would be justified (flat over the period).
With roundings, DSNA finally puts forward 5.2%, which DTA deems acceptable to take on board the performance plan, both for En-route and TNC.

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

**Terminal Charging Zone #4 - Germany - TCZ**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 289.243 |
| **2019 latest available service units forecast** | **1.517** |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **190,71** |

**b) Cost-efficiency performance targets**

| **Terminal charging zone**<br>**Name of the CZ** | **Baseline 2019**<br>**2019 B** | **RP3 Performance Plan (determined 2020-2024)**<br>**2020 D** | **2021 D** | **2022 D** | **2023 D** | **2024 D** | **CAGR**<br>**2019B-2024D** |
|---|---|---|---|---|---|---|---|
| Total terminal costs in nominal terms (in national currency) | | **209.687** | **214.836** | **214.368** | **241.850** | **265.045** | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **289.243** | **195.998** | **195.630** | **189.762** | **208.644** | **224.039** | **-4,2%** |
| YoY variation | | -47,6% | -0,2% | -3,1% | 9,1% | 6,9% | |
| Total terminal Service Units (TNSU) | 1.517 | 1.555 | 1.569 | 1.588 | 1.599 | 1.613 | 1,0% |
| YoY variation | | 2,5% | 0,9% | 1,2% | 0,7% | 0,9% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **190,71** | **126,04** | **124,68** | **119,47** | **130,48** | **138,89** | **-5,1%** |
| YoY variation | | -51,3% | -1,1% | -4,4% | 8,4% | 6,1% | |
| Real terminal unit costs (in EUR2017) [1] | | | | | | | |
| YoY variation | | | | | | | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | |

**c) Description and justification of the methodology used to estimate the baseline values**

**General:** Statfor Forecast February 2019 has been used as the latest available service units forecast.
**DFS:** The cost figure shows the latest forecast 2019. This value is increased by the pension cost, which will increase the determined cost from 2020 onwards due to the reduction of the interest rate to 2,85% for RP3.
**State:** For estimating the 2019 baseline values, planned costs for 2019 as well as the latest forecast for Eurocontrol contributions were taken into account.
**DWD, MUAC:** Actual costs for 2019 were taken into account.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

**DFS:** The baseline value for the determined cost reflects the actual forecast (02/19) increased by the pension cost effect, stemming from the reduction of the interest rate between RP2 (3.54%) and RP3 (2.85%). As in the performance plan for RP2 this effect is an allowed cost effect increasing the determined costs in the performance plan.
**State:** Planned costs were taken into account rather than the latest available costs as temporary vacancies that are currently being filled would distort the baseline.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

**Terminal Charging Zone #5 - Luxembourg - TCZ**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 13.592.922 |
| **2019 latest available service units forecast** | 55.444 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **245,17** |

**b) Cost-efficiency performance targets**

| Terminal charging zone<br>Name of the CZ | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|
| Total terminal costs in nominal terms (in national currency) | | 15.355.166 | 15.939.813 | 16.671.670 | 17.481.656 | 18.051.572 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **13.592.922** | **14.682.118** | **15.021.012** | **15.471.620** | **15.991.263** | **16.278.179** | **3,7%** |
| YoY variation | | 8,0% | 2,3% | 3,0% | 3,4% | 1,8% | |
| Total terminal Service Units (TNSU) | 55.444 | 56.912 | 58.039 | 59.213 | 60.478 | 62.112 | 2,3% |
| YoY variation | | 2,6% | 2,0% | 2,0% | 2,1% | 2,7% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **245,17** | **257,98** | **258,81** | **261,29** | **264,42** | **262,08** | **1,3%** |
| YoY variation | | 5,2% | 0,3% | 1,0% | 1,2% | -0,9% | |
| Real terminal unit costs (in EUR2017) [1] | **245,17** | **257,98** | **258,81** | **261,29** | **264,42** | **262,08** | **1,3%** |
| YoY variation | | 5,2% | 0,3% | 1,0% | 1,2% | -0,9% | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,00** |

**c) Description and justification of the methodology used to estimate the baseline values**

The baseline value for determined costs has been estimated by taking into account the actual 2018 costs, the budget for 2019 and the latest available information for 2019.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

The increase of costs is due to an increase of the operating costs, mainly due to the training costs of the ab initio's and to an increase of the depreciation costs due to
a catch-up in the investments planning and the activation of main investments in 2019. The depreciation costs are fully borne by the State and have no impact on the unit rate.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

ANA will put efforts to contain costs in a changing environment. A recent study on the airport capacity established by Eurocontrol demonstrates that the capacity of ELLX can increase significantly.
Among all the recommendations, 2 are directly linked to the ANSP. The first one is related to the management of traffic on the movement area: in addition to improving the ground infrastructure, ANA is planning to implement a third position at the TWR (Ground Position), which will result in a decongestion of the TWR “AIR” frequency and de facto increase the capacity.
The second one is to reduce lateral separation between aircraft in ELLX airspace: ANA plans to respond to the current and future significant traffic increase by implementing a third position at the approach, the feeder position, allowing the ANSP to increase the capacity within its small airspace.

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

**Terminal Charging Zone #6 - Netherlands - TCZ**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 79.112.721 |
| **2019 latest available service units forecast** | 415.200 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **190,54** |

**b) Cost-efficiency performance targets**

| Terminal charging zone<br>Name of the CZ | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|
| Total terminal costs in nominal terms (in national currency) | | 88.108.243 | 88.923.808 | 90.328.682 | 92.384.659 | 93.629.598 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **79.112.721** | **83.776.346** | **83.317.320** | **83.340.083** | **84.097.846** | **83.782.529** | **1,2%** |
| YoY variation | | 5,9% | -0,5% | 0,0% | 0,9% | -0,4% | |
| Total terminal Service Units (TNSU) | 415.203 | 425.400 | 428.000 | 429.100 | 429.200 | 429.600 | 0,7% |
| YoY variation | | 2,5% | 0,6% | 0,3% | 0,0% | 0,1% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **190,54** | **196,94** | **194,67** | **194,22** | **195,94** | **195,02** | **0,5%** |
| YoY variation | | 3,4% | -1,2% | -0,2% | 0,9% | -0,5% | |
| Real terminal unit costs (in EUR2017) [1] | **190,54** | **196,94** | **194,67** | **194,22** | **195,94** | **195,02** | **0,5%** |
| YoY variation | | 3,4% | -1,2% | -0,2% | 0,9% | -0,5% | |

| | |
|---|---|
| National currency | **EUR** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,00** |

**c) Description and justification of the methodology used to estimate the baseline values**

Cost development in recent years has been driven by initiation of wide range of projects, as described in Annex R. As a result, there has been only a limited relationship between the development costs and traffic during the latter part of RP2. Baseline values have therefore been based on latest actual cost estimates for all entities, as this approach reflect the most appropriate basis for determining cost and cost efficiency trends in RP3.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

Not applicable.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

Cost development in RP3 is driven by a wide range of projects. Justification for these projects and associated determined costs are provided in Annex R.

Also provided as part of Annex R is a factsheet developed by LVNL regarding evolution of ATCO numbers. In principle, LVNL has sufficient ATCOs available for operations, any shortage in ATCO numbers mainly affects their essential expert support to project activities. Since this is considered a cost efficiency issue rather than a capacity issue, the factsheet is provided here rather than as an annex to support capacity targfets.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

Cost development will be monitored and discussed with relevant parties on a regular basis. If deviations between planned and actual DUC occur or are expected to occur, this will be discussed between the NSA and the relevant party or parties to determine a) causes and b) possible measures. Because DUC is dependent on external factors (in particular traffic development) as well as a number of assumptions which become more uncertain towards the end of the RP, the need for measures will be determined on a case-by-case basis. If non-achievement of DUC targets is justified by circumstances, and/or is in the interest of airspace users or their customers, this may lead to a situation where no further measures are taken.

** Refer to Annex R, if necessary.*

## 3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

**Terminal Charging Zone #7 - Switzerland - TCZ**

**a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)**

| | |
|---|---|
| **2019 baseline value for the determined costs (in real terms and in national currency)** | 102.695.610 |
| **2019 latest available service units forecast** | 296.400 |
| **2019 baseline value for the determined unit costs (in real terms and in national currency)** | **346,48** |

**b) Cost-efficiency performance targets**

| Terminal charging zone<br>Name of the CZ | Baseline 2019<br>2019 B | RP3 Performance Plan (determined 2020-2024)<br>2020 D | <br>2021 D | <br>2022 D | <br>2023 D | <br>2024 D | CAGR<br>2019B-2024D |
|---|---|---|---|---|---|---|---|
| Total terminal costs in nominal terms (in national currency) | | 119.579.337 | 120.193.906 | 120.583.661 | 119.800.730 | 117.813.248 | |
| **Total terminal costs in real terms (in national currency at 2017 prices)** | **102.695.610** | **117.088.163** | **116.709.366** | **116.138.480** | **114.414.470** | **111.603.105** | **1,7%** |
| YoY variation | | 14,0% | -0,3% | -0,5% | -1,5% | -2,5% | |
| Total terminal Service Units (TNSU) | 296.400 | 303.500 | 307.400 | 311.700 | 315.500 | 321.000 | 1,6% |
| YoY variation | | 2,4% | 1,3% | 1,4% | 1,2% | 1,7% | |
| **Real terminal unit costs (in national currency at 2017 prices)** | **346,48** | **385,79** | **379,67** | **372,60** | **362,64** | **347,67** | **0,1%** |
| YoY variation | | 11,3% | -1,6% | -1,9% | -2,7% | -4,1% | |
| Real terminal unit costs (in EUR2017) [1] | **311,79** | **347,17** | **341,66** | **335,30** | **326,34** | **312,87** | **0,1%** |
| YoY variation | | 11,3% | -1,6% | -1,9% | -2,7% | -4,1% | |

| | |
|---|---|
| National currency | **CHF** |
| [1] Average exchange rate 2017 (1 EUR=) | **1,11** |

**c) Description and justification of the methodology used to estimate the baseline values**

Latest cost forecast (= Budget 2019) has been taken as baseline value for RP3. Adjustmetns have been made for the following elements: change in allocation keys in MET costs
+ costs for renewal of GVA TWR.

** Refer to Annex F, if necessary.*

**d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs**

Taking out the impact of Baseline Adjustments, investments into capacity and transformation costs linked to Virtual Center, Baseline value is quite aligned with Actual 2018.

** Refer to Annex F, if necessary.*

**e) Description and justification of the contribution of the the local targets to the performance of the European ATM network**

As additional costs have been added due to a more restrictive application of capitalization rules as of 2020 and due to the fact the baseline value 2019 has not been corrected for this accordingly DUC is stable on average over RP3. However, after retreatment of these restructuring costs, DUC efficiency p.a. represents 0.9%.

** Refer to Annex R, if necessary.*

**f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS**

Various efficiency measures are implemented in order to keep costs fairly stable (without impact of more restrictive application of capitalization rules).

** Refer to Annex R, if necessary.*

# SECTION 3.4.3: Pension assumptions

**3.4.3: Pension assumptions**



skeyes
DSNA
DFS
ANA LUX
LVNL
Skyguide
MUAC

## 3.4.3 - Pension assumptions - skeyes

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | **23.354** | **25.407** | **27.250** | **28.994** | **30.827** |
| En-route activity | 69,8% | 70,1% | 70,6% | 71,1% | 71,3% |
| Terminal activity | 27,3% | 27,1% | 26,7% | 26,3% | 26,2% |
| Other activities | 2,8% | 2,8% | 2,7% | 2,6% | 2,5% |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Yes-2 |
|---|---|

| **Civil servants** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 50.439 | 53.970 | 58.063 | 62.024 | 66.184 |
| Employer % contribution rate to this scheme | 35% | 35% | 35% | 35% | 35% |
| **Total pension costs in respect of this scheme** | **17.654** | **18.890** | **20.322** | **21.709** | **23.164** |
| Number of employees the employer contributes for in this scheme | 517 | 529 | 546 | 554 | 560 |

| **Contractual employees** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 37.970 | 43.039 | 44.991 | 46.858 | 48.608 |
| Employer % contribution rate to this scheme | 8,86% | 8,86% | 8,86% | 8,86% | 8,86% |
| **Total pension costs in respect of this scheme** | **3.364** | **3.813** | **3.986** | **4.152** | **4.307** |
| Number of employees the employer contributes for in this scheme | 441 | 480 | 482 | 483 | 482 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| The State pension scheme in place is a "Pay-As-You-Go" scheme based on career duration and income earned.<br>- for civil servants, skeyes makes a contribution of 35% to the State for each civil servants.<br>- for contractual employees, skeyes makes a contribution of 8.86% to the State.<br>Regulations on pension are a prerogative of the Federal State. The existing regulatory regime may be consulted on https://www.sfpd.fgov.be/fr/centre-de-connaissances/legislation. At this moment, there is no information available on whether changes of those regulations are to be expected during RP3. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| The pension cost "state pension scheme" is budgetted taking into account the current national pension regulations and the increase in pensionable payroll (increase in staff numbers and salary increase). |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the |
|---|
| The pension costs have been determined based on existing regulatory regime. Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated. |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Yes-2 |
|---|---|

| **Civil servants** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 0 | 0 | 0 | 0 | 0 |
| Employer % contribution rate to this scheme | 0 | 0 | 0 | 0 | 0 |
| **Total pension costs in respect of this scheme** | **0** | **0** | **0** | **0** | **0** |
| Number of employees the employer contributes for in this scheme | | | | | |

| **Contractual employees** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 822 | 838 | 855 | 872 | 890 |
| Employer % contribution rate to this scheme | 14% | 14% | 14% | 14% | 14% |
| **Total pension costs in respect of this scheme** | **115** | **117** | **119** | **122** | **124** |
| Number of employees the employer contributes for in this scheme | 4 | 4 | 4 | 4 | 4 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| skeyes has a defined contribution pension scheme for members of the Executive Committee which are contractual employees. Skeyes pays premiums to an insurance company under an extra group insurance contract. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|

| |
|---|
| The pension cost "defined contribution pension scheme" is budgetted taking into account the current contract and an annual indexation. |

| |
|---|
| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
| The pension costs have been determined based on existing regime. Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated. |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| | |
|---|---|
| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | Yes |
| Is the occupational "Defined benefits" pension scheme funded? | Yes |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 37.148 | 42.201 | 44.136 | 45.986 | 47.718 |
| **Total pension costs in respect of this scheme** | 2.222 | 2587 | 2823 | 3012 | 3232 |
| - in respect of regular pension costs | 0 | 0 | 0 | 0 | 0 |
| - in respect of non-recurring deficit repair | 0 | 0 | 0 | 0 | 0 |
| - reported as staff costs (in reporting tables) | 2.222 | 2587 | 2823 | 3012 | 3232 |
| - not reported as staff costs (in reporting tables): please use comment box | 0 | 0 | 0 | 0 | 0 |
| **Actuarial assumptions** | | | | | |
| % discount rate | Not available | | | | |
| % projected increase in benefits | | | | | |
| % annual increase in salaries | | | | | |
| % expected return on plan assets | | | | | |
| Net funding surplus / deficit | | | | | |
| Number of employees the employer contributes for in this scheme | 437 | 476 | 478 | 479 | 478 |

| |
|---|
| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
| skeyes has a defined benefit scheme for contractual staff members (excluding the Executive Committee). Skeyes pays premiums to an insurance company under an extra group insurance contract. |

| |
|---|
| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
| The pension cost "defined benefit pension scheme" is budgetted taking into account the current contract, evolution in contractual staff numbers and salary increases. |

| |
|---|
| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
| Not applicable |

| |
|---|
| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
| The pension costs have been determined based on existing regime. Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated. |

## 3.4.3 - Pension assumptions - DSNA

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | **207.886** | **212.155** | **215.699** | **218.714** | **222.443** |
| En-route activity | 170.863 | 174.770 | 178.095 | 180.995 | 184.499 |
| Terminal activity | 37.023 | 37.385 | 37.604 | 37.719 | 37.944 |
| Other activities | | | | | |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Yes-2 |
|---|---|

| **Civil pensions** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 264.330 | 269.075 | 273.103 | 276.287 | 280.530 |
| Employer % contribution rate to this scheme | 74,6% | 74,6% | 74,6% | 74,6% | 74,6% |
| **Total pension costs in respect of this scheme** | **197.190** | **200.730** | **203.735** | **206.110** | **209.275** |
| Number of employees the employer contributes for in this scheme | 7.244 | 7.248 | 7.336 | 7.330 | 7.377 |

| **State workers** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | **10.696** | **11.425** | **11.964** | **12.603** | **13.167** |
| Number of employees the employer contributes for in this scheme | 360 | 360 | 360 | 360 | 360 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| The ANSP contributes to the "CAS Pensions" (a special budgetary account), which corresponds to a pay-as-you-go scheme. The CAS Pensions was planned by article 21 of the LOLF (organic law related to finance acts) and created by article 51 of 2006 Finance Act.<br>More specifically, the ANSP contributes to 2 programs of the CAS Pensions: program 741 (civil pensions) and program 742 (State workers)<br>References:<br>- Loi organique n° 2001-692 du 1 août 2001 relative aux lois de finances<br>- Loi n° 2005-1719 du 30 décembre 2005 de finances pour 2006<br><br>Pension costs are the sum of the contribution to program 741 and program 742.<br>Contribution to program 741 is equal to the product of the contribution rate times the contribution base. Contribution base to program 741 corresponds to gross salaries (i.e. not including bonuses or premiums). The Ministry of Economy & Finance decides on the contribution rate to program 741 each year.<br>The Ministry of Economy & Finance decides on the contribution amount to program 742 each year.<br><br>The contribution rates to prog. 741 and the contribution to prog. 742 are both deemed uncontrollable, as they are imposed by the Ministry of Economy & Finance. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| An assumption of a flat contribution rate for program 741 has been taken. The rate is flat from year 2013. A pension reform is envisaged at State level. But the date of this reform, if it occurs, is not known at the stage of the development of RP3, nor the form it could take. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| As explained above, the contribution rate is decided by Ministry of Economy & Finance and has been flat since 2013. No change is foreseen at the moment. |

## 3.4.3 - Pension assumptions - DFS

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | **301.782.802** | **309.274.952** | **256.037.293** | **259.958.575** | **263.128.119** |
| En-route activity | | | | | |
| Terminal activity | | | | | |
| Other activities | | | | | |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | No |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 71.982.097 | 75.512.056 | 79.286.545 | 83.152.940 | 86.269.025 |
| Employer % contribution rate to this scheme | 9 | 9 | 9 | 9 | 9 |
| **Total pension costs in respect of this scheme** | **33.639.875** | **35.289.554** | **37.053.511** | **38.873.999** | **40.330.769** |
| Number of employees the employer contributes for in this scheme | 5.360 | 5.437 | 5.492 | 5.516 | 5.501 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| Financed using contributions of for example 18,6% in 2020, split equally between employees and employers (annual contribution assessment ceiling of EUR 82.800 in 2020). Early retirement is possible from 63 years of age subject to contributions for a minimum of 35 years and deduction of up to 14,4% for retiring 48 month before the recommended retirement age. No changes are expected in RP 3. Additional remarks: The figures included in the tables above show the pension assumptions on DFS level. A distinction between EN ROUTE and TERMINAL is not done on contract level. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| Financed using contributions of 18,6% in 2020 up to 18,9% in 2024, split equally between employees and employers (annual contribution assessment ceiling of EUR 82.800 in 2020 up to EUR 92.400 in 2024). |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the |
|---|
| To manage the risk of the state pensions ex-ante is not possible. Therefore we use best estimates from the experts from the HR-department. |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Select |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | Yes |
|---|---|
| Is the occupational "Defined benefits" pension scheme funded? | Yes |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 585.684.114 | 601.088.577 | 618.928.604 | 632.702.739 | 646.569.547 |
| **Total pension costs in respect of this scheme** | 268.142.927 | 273.985.398 | 218.983.782 | 221.084.576 | 222.797.350 |
| - in respect of regular pension costs | | | | | |
| - in respect of non-recurring deficit repair | | | | | |
| - reported as staff costs (in reporting tables) | 214.512.927 | 216.657.398 | 218.983.782 | 221.084.576 | 222.797.350 |
| - not reported as staff costs (in reporting tables): please use comment box | 53.630.000 | 57.328.000 | | | |
| **Actuarial assumptions** | | | | | |
| % discount rate | 2,85% | 2,85% | 2,85% | 2,85% | 2,85% |
| % projected increase in benefits | n.a. | n.a. | n.a. | n.a. | n.a. |
| % annual increase in salaries | 2,50% | 2,50% | 2,50% | 2,50% | 2,50% |
| % expected return on plan assets | 2,85% | 2,85% | 2,85% | 2,85% | 2,85% |
| Net funding surplus / deficit | 78.261.927 | 78.349.398 | 78.850.782 | 79.553.576 | 79.148.350 |
| Number of employees the employer contributes for in this scheme | n.a. | n.a. | n.a. | n.a. | n.a. |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| The schemes for pensions are DB schemes. There are various forms of pension provision available to the employees of DFS, which are largely governed by collective agreements.<br>Additional remarks: A split of the total cost per pension scheme in “regular pension costs” and “non-recurring deficit repair” is not possible. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| Under the collective agreement covering pensions, employees who began employment by 31 December 2004 receive old-age, disability and surviving dependant’s pensions. These are defined benefits linked to the respective final salary of the employee. However, employees who entered service from 1 January 2005 receive benefits under the collective agreement covering pensions which are linked to average career earnings. Under this system, each year a pension component is calculated based on the respective income and the old-age pension is determined based on the sum of the annual pension components (“VersTV”).<br>Air traffic controllers and flight data specialists receive transitional retirement benefits based on the final salary to cover the period from the end of their operational activity until the receipt of the statutory pension as well as the pension as explained above (“ÜVersTV”).<br>DFS pays an increased employer contribution for health insurance for the employees who were previously employed as established civil servants with the former Federal Administration of Air Navigation Services (BFS) / the Federal Aviation Office (LBA). This compensates over the entire active period of employment and in retirement for the fact that this staff is no longer covered by the German Civil Service welfare provisions for healthcare (“KTV”). |

| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
|---|
| The exceptional items contain only IFRS conversion effects charged to the airlines on a pro-rata basis. Following the change of the accounting system to IFRS, these IFRS conversion effects are proportionally spread up to 2021 according to Article 7 of Regulation (EU) No. 391/2013. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| Controlling the risk is difficult. Above data has been prepared under the support of a national actuary providing an opinion on the expected interest rates on plan assets in the years 2020-2024. |

## 3.4.3 - Pension assumptions - ANA LUX

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | **338** | **355** | **374** | **397** | **407** |
| En-route activity | 83 | 86 | 92 | 97 | 100 |
| Terminal activity | 161 | 166 | 176 | 188 | 192 |
| Other activities | 93 | 102 | 106 | 111 | 114 |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Yes-2 |
|---|---|

| **Salaried employees** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 4.223 | 4.431 | 4.678 | 4.958 | 5.083 |
| Employer % contribution rate to this scheme | 8% | 8% | 8% | 8% | 8% |
| **Total pension costs in respect of this scheme** | **338** | **355** | **374** | **397** | **407** |
| Number of employees the employer contributes for in this scheme | 56 | 59 | 60 | 61 | 60 |

| **Public servants** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 18.969 | 19.904 | 21.014 | 22.268 | 22.831 |
| Employer % contribution rate to this scheme | 0% | 0% | 0% | 0% | 0% |
| **Total pension costs in respect of this scheme** | **0** | **0** | **0** | **0** | **0** |
| Number of employees the employer contributes for in this scheme | 115 | 122 | 124 | 124 | 124 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| The pension costs depend on the status of the person. For a public servant there is no employer's share, whereby for a salaried employee an employer's share of 8 % exists. Regarding this regulation there are no changes expected for RP3. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| The calculation is based on the assumption that one third of our staff are salaried employees, whereby the other two third are public servants. (as in 2018) |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| Not applicable |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Select |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| Not applicable |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| Not applicable |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|

| |
|---|
| Not applicable |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| | |
|---|---|
| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | Select |
| Is the occupational "Defined benefits" pension scheme funded? | Select |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| - in respect of regular pension costs | | | | | |
| - in respect of non-recurring deficit repair | | | | | |
| - reported as staff costs (in reporting tables) | | | | | |
| - not reported as staff costs (in reporting tables): please use comment box | | | | | |
| **Actuarial assumptions** | | | | | |
| % discount rate | | | | | |
| % projected increase in benefits | | | | | |
| % annual increase in salaries | | | | | |
| % expected return on plan assets | | | | | |
| Net funding surplus / deficit | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| |
|---|
| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
| Not applicable |

| |
|---|
| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
| Not applicable |

| |
|---|
| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
| Not applicable |

| |
|---|
| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
| Not applicable |

## 3.4.3 - Pension assumptions - LVNL

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | 21.280.631 | 21.328.721 | 22.034.689 | 21.916.113 | 23.192.989 |
| En-route activity | 14.151.619 | 14.183.599 | 14.653.068 | 14.683.796 | 15.539.303 |
| Terminal activity | 6.916.205 | 6.931.834 | 7.161.274 | 7.013.156 | 7.421.757 |
| Other activities | 212.806 | 213.287 | 220.347 | 219.161 | 231.930 |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Select |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | No |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 134.252.416 | 134.947.500 | 138.331.735 | 142.688.886 | 144.786.263 |
| Employer % contribution rate to this scheme | 20% | 20% | 20% | 20% | 20% |
| **Total pension costs in respect of this scheme** | **21.280.631** | **21.328.721** | **22.034.689** | **21.916.113** | **23.192.989** |
| Number of employees the employer contributes for in this scheme | 1.132 | 1.148 | 1.158 | 1.161 | 1.171 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| As of 2008 the LVNL financial statements comply with IFRS with the exception of the provisions related to the early retirement arrangements of the operational LVNL-staff (FLNA/IKV; IAS 19 and IAS 19R IFRS). The Netherlands has decided not to implement this specific IFRS item. As a consequence of this decision the majority of the FLNA/IKV obligations is not presented as liabilities in the LVNL balance sheet. To minimize the lack of transparency on this issue, LVNL presents these obligations as ‘off-balance sheet rights and commitments’.<br><br>As in the past users will only be charged for the actual FLNA/IKV expenses. According to LVNL’s Annual Report 2018, the net present value of the defined benefit obligations is about M€ 503 on 31st December 2018, including a standard tax penalty of 52%).<br><br>LVNL has no pension related assets. Only a small part of the early retirement arrangements (M€ 12.9) is included in a balance sheet provision. This concerns mainly the early retirement arrangements of a select number of controllers on the regional airports.<br><br>The pension premium is set by the independent national pension fund ABP. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| The pension costs form a substantial part of the staff costs because the national pension fund (ABP) continuous to have difficulties to meet the mandatory coverage ratio (assets at least 104% of the liabilities). In RP3 we expect the pension premium to remain at 20,13% every year, which is the current premium level in 2019. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| However there is a (cost exempt) risk that structural changes in the pension scheme may occur during RP3 because of the pension discussion currently held in The Netherlands. A new study to the necessary coverage ratio of pension funds in The Netherlands addresses the need for an improved coverage ratio which may lead to increased pension premiums. Besides this study the government and the social partners are negotiating the fundamentals of the current pension scheme. For example new retirement age categories are now discussed upon. This may also lead to changes during RP3. |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | Select |
|---|---|

| Is the occupational "Defined benefits" pension scheme funded? | Select |
|---|---|

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| - in respect of regular pension costs | | | | | |
| - in respect of non-recurring deficit repair | | | | | |
| - reported as staff costs (in reporting tables) | | | | | |
| - not reported as staff costs (in reporting tables): please use comment box | | | | | |
| **Actuarial assumptions** | | | | | |
| % discount rate | | | | | |
| % projected increase in benefits | | | | | |
| % annual increase in salaries | | | | | |
| % expected return on plan assets | | | | | |
| Net funding surplus / deficit | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

## 3.4.3 - Pension assumptions - skyguide

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | 62.917 | 66.176 | 68.517 | 70.613 | 71.671 |
| En-route activity | 38.553 | 40.301 | 41.328 | 42.444 | 43.310 |
| Terminal activity | 13.271 | 13.754 | 14.388 | 14.891 | 15.104 |
| Other activities | 11.094 | 12.121 | 12.802 | 13.278 | 13.258 |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | No |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 255.448 | 262.107 | 267.160 | 271.610 | 271.458 |
| Employer % contribution rate to this scheme | 5,275% | 5,275% | 5,275% | 5,275% | 5,275% |
| **Total pension costs in respect of this scheme** | **13.475** | **13.826** | **14.093** | **14.327** | **14.319** |
| Number of employees the employer contributes for in this scheme | 1.426 | 1.441 | 1.446 | 1.446 | 1.426 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| The state pension (AHV) is a mandatory defined benefit scheme funded on a pay-as-you-go basis through contributions and VAT revenues. Qualification requires at least one year of contributions. The benefit received depends on income and the number of years of contributions. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| Assumptions are based on actual state pension legal contributions. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Yes-5 |
|---|---|

| **ATCOs** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 72.621 | 74.949 | 76.198 | 77.218 | 76.827 |
| Employer % contribution rate to this scheme | 28,7% | 29,4% | 29,6% | 29,7% | 30,3% |
| **Total pension costs in respect of this scheme** | **20.877** | **22.004** | **22.583** | **22.953** | **23.278** |
| Number of employees the employer contributes for in this scheme | 415 | 423 | 425 | 428 | 423 |

| **ATCOs : regional/military** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 20.572 | 22.097 | 23.531 | 24.367 | 25.165 |
| Employer % contribution rate to this scheme | 19,6% | 21,3% | 21,5% | 21,3% | 20,8% |
| **Total pension costs in respect of this scheme** | **4.024** | **4.711** | **5.068** | **5.199** | **5.242** |
| Number of employees the employer contributes for in this scheme | 136 | 144 | 152 | 155 | 156 |

| **AOT** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 91.933 | 94.986 | 98.819 | 102.979 | 104.120 |
| Employer % contribution rate to this scheme | 16,3% | 16,7% | 17,1% | 17,7% | 18,2% |
| **Total pension costs in respect of this scheme** | **14.961** | **15.835** | **16.939** | **18.206** | **18.901** |
| Number of employees the employer contributes for in this scheme | 757 | 767 | 753 | 757 | 742 |

| **Managers** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 36.652 | 36.752 | 36.134 | 36.032 | 35.109 |
| Employer % contribution rate to this scheme | 26,1% | 26,6% | 27,1% | 27,6% | 28,3% |
| **Total pension costs in respect of this scheme** | **9.553** | **9.772** | **9.808** | **9.927** | **9.931** |
| Number of employees the employer contributes for in this scheme | 205 | 202 | 196 | 192 | 185 |

| **Auxiliaries (houlry staff)** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 381 | 381 | 381 | 0 | 0 |
| Employer % contribution rate to this scheme | 7,1% | 7,1% | 7,1% | 0,0% | 0,0% |
| **Total pension costs in respect of this scheme** | **27** | **27** | **27** | **0** | **0** |
| Number of employees the employer contributes for in this scheme | 3 | 3 | 3 | 0 | 0 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|

| |
|---|
| Skyguide manages its occupational defined contribution scheme through a separate legal entity called Skycare. Members receive defined benefits, though the full liability of the scheme is assumed by Skycare. Skyguide is only liable for making contributions to the scheme and so its contributions are assessed on a defined contribution basis. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| Assumptions are based on actual Skycare pension plans contributions. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| | |
|---|---|
| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | No |
| Is the occupational "Defined benefits" pension scheme funded? | No |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| - in respect of regular pension costs | | | | | |
| - in respect of non-recurring deficit repair | | | | | |
| - reported as staff costs (in reporting tables) | | | | | |
| - not reported as staff costs (in reporting tables): please use comment box | | | | | |
| **Actuarial assumptions** | | | | | |
| % discount rate | | | | | |
| % projected increase in benefits | | | | | |
| % annual increase in salaries | | | | | |
| % expected return on plan assets | | | | | |
| Net funding surplus / deficit | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

## 3.4.3 - Pension assumptions - MUAC

### 3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

| Pension costs | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total pension costs** | 13.397 | 14.041 | 39.182 | 42.228 | 45.073 |
| En-route activity | 13.397 | 14.041 | 39.182 | 42.228 | 45.073 |
| Terminal activity | | | | | |
| Other activities | | | | | |

### 3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Select |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

| Are there different contribution rates for different staff categories? If yes, how many? | Select |
|---|---|

| **<Staff category name>** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | | | | | |
| Employer % contribution rate to this scheme | | | | | |
| **Total pension costs in respect of this scheme** | | | | | |
| Number of employees the employer contributes for in this scheme | | | | | |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| |

### 3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

| Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme? | Yes |
|---|---|
| Is the occupational "Defined benefits" pension scheme funded? | Yes |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Total pensionable payroll to which this scheme applies | 167.468 | 175.517 | 183.120 | 190.702 | 198.853 |
| **Total pension costs in respect of this scheme** | 13.397 | 14.041 | 39.182 | 42.228 | 45.073 |
| - in respect of regular pension costs | | | | | |
| - in respect of non-recurring deficit repair | | | | | |
| - reported as staff costs (in reporting tables) | 13.397 | 14.041 | 39.182 | 42.228 | 45.073 |
| - not reported as staff costs (in reporting tables): please use comment box | | | | | |
| **Actuarial assumptions** | | | | | |
| % discount rate | depending on the type of obligations | | | | |
| % projected increase in benefits | | | | | |
| % annual increase in salaries | 3,60% | 3,60% | 3,60% | 3,60% | 3,60% |
| % expected return on plan assets | | | | | |
| Net funding surplus / deficit | | | | | |
| Number of employees the employer contributes for in this scheme | 750 | 750 | 750 | 750 | 750 |

| Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3 |
|---|
| MUAC employees are eligible for membership in the EUROCONTROL defined benefit pension scheme. This scheme is the first and unique pillar for the employees. Contributions from the employees and the employer are paid to the EUROCONTROL pension fund. The pension costs reported in this section relates to 2 different elements : the employer contribution (expressed as a percentage of the basic salary -17.5% in 2019) and the tax compensation on pension. Following a decision from the MUAC Member States, this tax compensation on pensions will be recognised as pension costs in the MUAC costbase following the adoption of a new Maastricht Agreement, which is currently foreseen for 2021. This explains the substantial increase of pension costs over RP3, especially from 2022. |

| Description of the assumptions underlying the calculations of pension costs comprised in the determined costs |
|---|
| One of the main assumptions is the % of the employer contribution which is set at 17.5% in 2019 . According to actuarial studies, this percentage is expected to increase up to 20% during RP3. Another assumption relating to the tax compensation on pension (accounted on a Pay as You Go basis) is the mortality and taxation pressure in the countries were pensioners reside. |

| Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations. |
|---|
| Not applicable. |

| Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users |
|---|
| increase pension age of ATCO and non ATCO. Review of benefits. New HR policy limiting access to permanent contracts of employment |

**3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services**

skeyes
DSNA
DFS
ANA LUX
LVNL
Skyguide
MUAC

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - skeyes

| Select number of loans | Select |
|---|---|

| **Interest rate assumptions for loans financing the provision of air navigation services<br>(Amounts in nominal terms in '000 national currency)** |
|---|

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | In order to lower the weighted average cost of capital and to dilute the cost of equity in this calculation - over RP3, 45% of the new investments will be financed through debt by assumption. Amounts below represent the company total. The share allocated to the specific services are included in the respective determined costs. | | | | |
| Remaining balance (end of year) | 12.547 | 28.603 | 39.670 | 52.779 | 80.481 |
| Average weighted interest rate % | 1,40% | 1,40% | 1,40% | 1,40% | 1,40% |
| Interest amount | 176 | 400 | 555 | 739 | 1.127 |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 12.547 | 28.603 | 39.670 | 52.779 | 80.481 |
| **Average weighted interest rate %** | 1,40% | 1,40% | 1,40% | 1,40% | 1,40% |
| **Interest amount** | 176 | 400 | 555 | 739 | 1.127 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - DSNA

| Select number of loans | Select |
|---|---|

**Interest rate assumptions for loans financing the provision of air navigation services**
**(Amounts in nominal terms in '000 national currency)**

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | The consolidated net debt is presented in the table below in an aggregated manner. This presentation is more usable and appropriate than a detail loan by loan since the DSNA, as part of the DGAC, does not raise its own loans. | | | | |
| Remaining balance (end of year) | 297 | 323 | 347 | 363 | 374 |
| Average weighted interest rate % | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| Interest amount | 3 | 3 | 3 | 4 | 4 |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 297 | 323 | 347 | 363 | 374 |
| **Average weighted interest rate %** | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| **Interest amount** | 3 | 3 | 3 | 4 | 4 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - DFS

| Select number of loans | 2 |
|---|---|

**Interest rate assumptions for loans financing the provision of air navigation services**
**(Amounts in nominal terms in '000 national currency)**

| **Loan #1** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Original amount: 87.500.000 €; date of subsciption: 30.09.2010; maturity date: 05.10.2020; type of loan: debenture loan (Schuldscheindarlehen); type of interest rate: fixed rate | | | | |
| Remaining balance (end of year) | 0 | | | | |
| Interest rate % | 3,007% | | | | |
| Interest amount | 2.631.125 | | | | |

| **Loan #2** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Original amount: 110.000.000 €; date of subscription: 21.02.2013; maturity date: 28.02.2023; type of loan: debenture loan (Schuldscheindarlehen); type of interest rate: fixed rate | | | | |
| Remaining balance (end of year) | 110.000.000 | 110.000.000 | 110.000.000 | 0 | |
| Interest rate % | 2,308% | 2,308% | 2,308% | 2,308% | |
| Interest amount | 2.538.800 | 2.538.800 | 2.538.800 | 2.538.800 | |

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | | | | | |
| Remaining balance (end of year) | | | | | |
| Average weighted interest rate % | - | - | - | - | - |
| Interest amount | | | | | |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 110.000.000 | 110.000.000 | 110.000.000 | 0 | 0 |
| **Average weighted interest rate %** | 4,70% | 2,31% | 2,31% | - | - |
| **Interest amount** | 5.169.925 | 2.538.800 | 2.538.800 | 2.538.800 | 0 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - ANA LUX

| Select number of loans | Select |
|---|---|

| Interest rate assumptions for loans financing the provision of air navigation services<br>(Amounts in nominal terms in '000 national currency) |
|---|

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | No loans, financing 100% through equity. | | | | |
| Remaining balance (end of year) | | | | | |
| Average weighted interest rate % | - | - | - | - | - |
| Interest amount | | | | | |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 0 | 0 | 0 | 0 | 0 |
| **Average weighted interest rate %** | - | - | - | - | - |
| **Interest amount** | 0 | 0 | 0 | 0 | 0 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - LVNL

| Select number of loans | 4 |
|---|---|

| **Interest rate assumptions for loans financing the provision of air navigation services<br>(Amounts in nominal terms in '000 national currency)** |
|---|

| **Loan #1** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Commercial loans BNG (existing loans, fixed interest rates) | | | | |
| Remaining balance (end of year) | 2.600 | 650 | - | - | - |
| Interest rate % | 4,60% | 4,60% | 4,60% | 4,60% | 4,60% |
| Interest amount | 162 | 53 | 3 | | |

| **Loan #2** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Treasury banking loans (existing loans, fixed interest rates):<br>- (no. 2227, 2013) - 1,130%<br>- (no. 2376, 2014) - 0,670%<br>- (no. 2377, 2014) - 2,280%<br>- (no. 3180, 2019) - 0,640%<br>- (no. 1644, 2010) - 2,890% | | | | |
| Remaining balance (end of year) | 40.949 | 37.344 | 34.363 | 31.382 | 28.402 |
| Interest rate % | | | | | |
| Interest amount | 638 | 572 | 508 | 450 | 391 |

| **Loan #3** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Treasury banking 2019 - new loan | | | | |
| Remaining balance (end of year) | 68.221 | 68.221 | 68.221 | 68.221 | 68.221 |
| Interest rate % | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| Interest amount | 684 | 682 | 682 | 682 | 684 |

| **Loan #4** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Treasury banking 2020-2024 - new loans | | | | |
| Remaining balance (end of year) | 93.854 | 163.778 | 208.308 | 243.249 | 267.795 |
| Interest rate % | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| Interest amount | 471 | 1.289 | 1.861 | 2.258 | 2.562 |

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | | | | | |
| Remaining balance (end of year) | | | | | |
| Average weighted interest rate % | - | - | - | - | - |
| Interest amount | | | | | |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 205.624 | 269.993 | 310.892 | 342.852 | 364.418 |
| **Average weighted interest rate %** | 0,95% | 0,96% | 0,98% | 0,99% | 1,00% |
| **Interest amount** | 1.955 | 2.596 | 3.054 | 3.390 | 3.637 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - Skyguide

| Select number of loans | 1 |
|---|---|

**Interest rate assumptions for loans financing the provision of air navigation services**
**(Amounts in nominal terms in '000 national currency)**

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Long-term debt | | | | |
| Remaining balance (end of year) | 200.000 | 200.000 | 200.000 | 200.000 | 200.000 |
| Average weighted interest rate % | 2,23% | 2,23% | 0,50% | 0,50% | 0,50% |
| Interest amount | 4.462 | 4.462 | 1.000 | 1.000 | 1.000 |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 200.000 | 200.000 | 200.000 | 200.000 | 200.000 |
| **Average weighted interest rate %** | 2,23% | 2,23% | 0,50% | 0,50% | 0,50% |
| **Interest amount** | 4.462 | 4.462 | 1.000 | 1.000 | 1.000 |

## 3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - MUAC

| Select number of loans | 3 |
|---|---|

NOTE : Loans are used to finance all activities of EUROCONTROL. MUAC is allocated a share of these loans in proportion to its NBV of related assets compared to the NBV of EUROCONTROL as a whole.

**Interest rate assumptions for loans financing the provision of air navigation services**
**(Amounts in nominal terms in '000 national currency)**

| **Loan #1** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Loan contracted in 2014 at floating rate . Assumption EURIBOR+ margin in 2020-2024 = 1% | | | | |
| Remaining balance (end of year) | 17.500 | 8.750 | - | - | - |
| Interest rate % | 1,00% | 1,00% | | | |
| Interest amount | 175 | 88 | | | |

| **Loan #2** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Loan contracted in 2017 at floating rate . Assumption EURIBOR + margin in 2020-2024 = 1% | | | | |
| Remaining balance (end of year) | 18.750 | 15.000 | 11.250 | 7.500 | 3.750 |
| Interest rate % | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| Interest amount | 188 | 150 | 113 | 75 | 38 |

| **Loan #3** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | Loan contracted in 2017 at floating rate . Assumption EURIBOR + margin in 2020-2024 = 1% | | | | |
| Remaining balance (end of year) | 25.000 | 20.000 | 15.000 | 10.000 | 5.000 |
| Interest rate % | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| Interest amount | 250 | 200 | 150 | 100 | 50 |

| **Other loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Description | | | | | |
| Remaining balance (end of year) | | | | | |
| Average weighted interest rate % | - | - | - | - | - |
| Interest amount | | | | | |

| **Total loans** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total remaining balance** | 61.250 | 43.750 | 26.250 | 17.500 | 8.750 |
| **Average weighted interest rate %** | 1,00% | 1,00% | 1,00% | 1,00% | 1,00% |
| **Interest amount** | 613 | 438 | 263 | 175 | 88 |

# SECTION 3.4.5: Restructuring costs

**3.4.5 - Restructuring costs**

3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

3.4.5.2 Restructuring costs planned for RP3

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DFS
ANA LUX
LVNL
Skyguide
MUAC

**Annexes of relevance to this section**

ANNEX H. RESTRUCTURING MEASURES AND COSTS

## 3.4.5 - Restructuring costs - skeyes

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | Select |
| If yes, number of charging zones concerned | Select |

| Restructuring costs from previous reference periods to be recovered in RP3 (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Restructuring costs recovery plan from previous RPs | 2020D | 2021D | 2022D | 2023D | 2024D |

| Additional comments |
|---|
| |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | Select |
| If yes, number of charging zones concerned | Select |

**a) Overall description of the restructuring measures planned for RP3**

| |
|---|
| |

**b) Detailed information on the restructuring measures planned for RP3**

| | |
|---|---|
| Number of restructuring measures | Select |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by measures** | 0 | 0 | 0 | 0 | 0 |

**c) Detailed information on the restructuring costs by nature by charging zone**

| | | | | | |
|---|---|---|---|---|---|
| **Total restructuring costs** | 0 | 0 | 0 | 0 | 0 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by charging zone** | 0 | 0 | 0 | 0 | 0 |

| Additional comments |
|---|
| |

## 3.4.5 - Restructuring costs - DSNA

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | Select |
| If yes, number of charging zones concerned | Select |

| Restructuring costs from previous reference periods to be recovered in RP3 (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Restructuring costs recovery plan from previous RPs | 2020D | 2021D | 2022D | 2023D | 2024D |

| Additional comments |
|---|
| |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | Select |
| If yes, number of charging zones concerned | Select |

**a) Overall description of the restructuring measures planned for RP3**

| |
|---|
| |

**b) Detailed information on the restructuring measures planned for RP3**

| | |
|---|---|
| Number of restructuring measures | Select |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by measures** | 0 | 0 | 0 | 0 | 0 |

**c) Detailed information on the restructuring costs by nature by charging zone**

| | | | | | |
|---|---|---|---|---|---|
| **Total restructuring costs** | 0 | 0 | 0 | 0 | 0 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by charging zone** | 0 | 0 | 0 | 0 | 0 |

| Additional comments |
|---|
| |

## 3.4.5 - Restructuring costs - DFS

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | Select |
| If yes, number of charging zones concerned | Select |

| Restructuring costs from previous reference periods to be recovered in RP3 (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Restructuring costs recovery plan from previous RPs | 2020D | 2021D | 2022D | 2023D | 2024D |

| Additional comments |
|---|
| |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | Select |
| If yes, number of charging zones concerned | Select |

**a) Overall description of the restructuring measures planned for RP3**

| |
|---|
| |

**b) Detailed information on the restructuring measures planned for RP3**

| | |
|---|---|
| Number of restructuring measures | Select |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by measures** | 0 | 0 | 0 | 0 | 0 |

**c) Detailed information on the restructuring costs by nature by charging zone**

| | | | | | |
|---|---|---|---|---|---|
| **Total restructuring costs** | 0 | 0 | 0 | 0 | 0 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by charging zone** | 0 | 0 | 0 | 0 | 0 |

| Additional comments |
|---|
| |

## 3.4.5 - Restructuring costs - ANA LUX

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | No |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | No |

| Additional comments |
|---|
| |

## 3.4.5 - Restructuring costs - LVNL

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | Select |
| If yes, number of charging zones concerned | Select |

| Restructuring costs from previous reference periods to be recovered in RP3 (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Restructuring costs recovery plan from previous RPs | 2020D | 2021D | 2022D | 2023D | 2024D |

| Additional comments |
|---|
| |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | Yes |
| If yes, number of charging zones concerned | 2 |

**a) Overall description of the restructuring measures planned for RP3**

Integration of civil and military service providers: during RP3, the civil and military service providers below FL245, LVNL and CLSK, will be integrated into a single ANSP, with associated restructuring costs.

Centralisation of approach and tower function: the approach and tower control functions for the airports of Groningen/Eelde (EHGG) and Maastricht/Beek (EHBK) will be centralised at the main LVNL premises at Schiphol Oost, using remote tower technology. This activity may be extended to other airports (including military) after RP3.

**b) Detailed information on the restructuring measures planned for RP3**

| | |
|---|---|
| Number of restructuring measures | 2 |

| **Measure #1** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Associated restructuring costs | 790.000 | 1.006.000 | 805.000 | 615.000 | 202.000 |
| Description and justification of the restructuring measure | | | | | |
| Integration of civil and military service providers: The goal of the integration is to realize optimization of traffic handling in the relevant airspace by a single organisation responsible for service provision to all types of traffic. Integrated service provision will lead to improved and flexible use of airspace, and is an enabler for re-design of Dutch airspace.<br><br>The integration will also lead to more organisational efficiency through synergy benefits (recruitment, selection & training, management, standardisation of procedures, maintenance). | | | | | |
| Demonstration that the restructuring measure will deliver a net financial benefit to airspace users at the latest in the next reference period | | | | | |
| Details on the structure, roles and responsibilities of the future integrated provider are not yet know. A demonstration of the net financial benefit is therefore not possible at this time. | | | | | |

| **Measure #2** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Associated restructuring costs | 1.298.000 | 3.080.000 | 1.187.000 | 1.187.000 | 1.511.000 |
| Description and justification of the restructuring measure | | | | | |
| Centralisation of approach and tower functions: The project will contribute to the restructuring of the lower Dutch airspace. Moreover, it will optimise the efficiency of the Air Traffic Control Service at the two concerned airports. | | | | | |
| Demonstration that the restructuring measure will deliver a net financial benefit to airspace users at the latest in the next reference period | | | | | |
| An annual reduction of operating costs of 1,4 million euros is expected after the completion of the project, predominantly related to lower overhead costs after closing down local premises and efficiency gains of moving staff to the Schiphol location. With this savings a break-even point could be realised in around 10 years | | | | | |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by measures** | 2.088.000 | 4.086.000 | 1.992.000 | 1.802.000 | 1.713.000 |

**c) Detailed information on the restructuring costs by nature by charging zone**

| Restructuring costs planned for RP3 by nature and by charging zone (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Netherlands | 2020D | 2021D | 2022D | 2023D | 2024D |

| | | | | | |
|---|---|---|---|---|---|
| Staff | | | | | |
| of which, pension costs | | | | | |
| Other operating costs | | | | | |
| Depreciation | | | | | |
| Cost of capital | | | | | |
| Exceptional items | | | | | |
| **Total restructuring costs** | 1.281.000 | 2.344.800 | 1.237.500 | 1.085.500 | 917.100 |

| Netherlands - TCZ | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Staff | | | | | |
| of which, pension costs | | | | | |
| Other operating costs | | | | | |
| Depreciation | | | | | |
| Cost of capital | | | | | |
| Exceptional items | | | | | |
| **Total restructuring costs** | 807.000 | 1.741.200 | 754.500 | 716.500 | 795.900 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by charging zone** | 2.088.000 | 4.086.000 | 1.992.000 | 1.802.000 | 1.713.000 |

| Additional comments |
|---|
| |

## 3.4.5 - Restructuring costs - Skyguide

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | No |
| If yes, number of charging zones concerned | Select |

| Restructuring costs from previous reference periods to be recovered in RP3 (nominal terms in '000 national currency) | | | | | |
|---|---|---|---|---|---|
| Restructuring costs recovery plan from previous RPs | 2020D | 2021D | 2022D | 2023D | 2024D |

| Additional comments |
|---|
| |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | Yes |
| If yes, number of charging zones concerned | 2 |

***More restrictive application of capitalization rules***

**a) Overall description of the restructuring measures planned for RP3**

Evolution of the regulatory context
--> Current capitalization rules encourage project managers to invest rather than purchase services because it reduces the income statement in the short term. Finally, this reduces the company's room for manoeuvre in the long term because depreciation represents 15% of costs and is a fixed charge that can no longer be arbitrated.

Impact of technological change in an inadequate regulatory context
The traditional technological architecture of ANSPs is based on systems developed specifically for each of the control centres that require point-to-point links or complex interfaces so that they can communicate with each other and be interoperable. These systems are highly integrated vertically (from the data source to its appearance as a decision-making tool on an air traffic controller screen).
As part of the necessary renewal of this technical infrastructure, skyguide has opted for a fundamentally different architecture, which is also common practice in other industries: open and standard systems that ensure more efficient operation. All of this technological transformation is part of the Virtual Center program.
The consequence of this evolution is that it opens the way to new strategic options: buying or producing solutions that are invested or services that are recorded as operating expenses. The trade-off between these two options meets multiple criteria ranging from economic criteria to questions of national sovereignty.
The problem is that this transformation is absolutely new in the ANSP industry and it is not yet clear which technical elements should be internally produced and which should be purchased as solutions. Today, and in view of this uncertainty, it is still planned to invest in most of the technical services.
--> Given the financial pressure on ANSPs and the opportunity for new business models offered by the Virtual Center Program, there may be financial opportunities to purchase shared services rather than develop or have developed individual solutions. This would allow for attractive economies of scale and greater flexibility. However, the regulation requires users to be reimbursed for investments that have not been made (no longer capitalized) and requires ANSPs to bear the risk of higher costs on other operating costs (purchase solutions). Regulation foresees exceptions but they have to follow a burdensome administrative process which is not compatible with efficiency target, with timing and governance of decision making.

In fact, ANSPs have two options:
- Waive the purchase of services to comply with the performance plan and avoid penalties. This option is not at all part of the transformation process offered by the implementation of new technologies
- Make appropriate choices when purchasing solutions while trying to realize the associated benefits as quickly as possible to cover all or part of the amount to be reimbursed to users. The margin of manoeuvre is extremely limited because there is not yet necessarily an efficient market for the purchase of certain solutions and economies of scale will take time
--> It is therefore important to give skyguide the flexibility to limit the portion of projects invested in order to ensure that the trade-off between acquiring / producing solutions or purchasing services is as low as possible under the current regulatory framework, as this type of choice is in line with the transformation of the ANSP sector.

SOLUTION PROPOSAL
- Stop capitalizing internal hours on projects
- Stop capitalizing external project costs up to Gate 2 of the projects. Gate 2 is the moment when the project receives a validation for implementation. The costs before this step are devoted to the detailed study of the solution to be implemented

CONSEQUENCES
Costs that are no longer capitalized are recognized in the income statement when the vendor invoice or hours are recorded, increasing the cost base at the time of implementation. This negative impact is reduced over time as the amount of depreciation charges decreases in the same proportion. However, it is only after the average life of the assets (approximately 8 years) that the effect on the income statement is offset.
The company therefore took these effects into account in the determined cost when drawing up the Swiss performance plan.
If these cost are not recognized as restructuring cost, the owner of skyguide (Swiss State) has forbidden to implement the change as it would put the company into serious financial troubles.

If this change is not implemented, it would not be consistent with the outcome of the Airspace Architecture Study. It would breakdown the dynamic skyguide initiated to transform its business model and related benefits would at tleast delayed by the same amount of time or even more as some investments will have been don in the meantime. Respectively the cost of change will accordingly be higher.

**b) Detailed information on the restructuring measures planned for RP3**

| | |
|---|---|
| Number of restructuring measures | 1 |

| **Measure #1** | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Associated restructuring costs | 32.227.323 | 29.071.535 | 24.665.337 | 19.472.725 | 13.968.666 |
| Description and justification of the restructuring measure | | | | | |

One-off additional costs in transition phase due to adaptation of application of capitalization rules (no internal hours and no cost before Gate 2).
Main impacted project contributing to a transfer to operating charges is of course the Virtual Center programm. Investments in the network and in the coniuous upgrade of systems and infrastructurse are as well a significant contributor.

As a baseline value, skyguide proposes the latest cost forecast (budget 2019) which is not concerned by the mentioned change. As this change would be implemented as from 2020 on, comparing 2020-2024 cost (including the impact mentioned above) with proposed baseline value would make no sense from a performance perspective. Therefore, skyguide propose to consider the impact of this accounting adaptation as restructuring cost.

Implementing regulation (IR) 2019/317 foresees following definition of restructuring cost in Article 2(18):
“restructuring costs’ means significant one-time costs incurred by air navigation service providers in the process of restructuring for introducing new technologies, procedures or business models to stimulate integrated service provision, compensating employees, closing air traffic control centres, shifting activities to new locations, writing off assets or acquiring strategic participations in other air navigation service providers;”
--> Proposed change aims at enabling make or buy decision which is consistent with the “new business model to stimulate integrated service provision” or the “shifting activities to new locations” concepts

Annex IV of IR 2019/317 (point 1.4 (d) (ii)) foresees following provisions with regard to assessment of cost efficiency performance:
“A deviation from the criteria referred to in points (a) to (c) may be deemed necessary and proportionate in order to:
- …
- implement restructuring measures that lead to restructuring costs referred to in Article 2(18), provided that the deviation is exclusively due to those restructuring costs and that a demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period.”
--> If the impact of the change mentioned above is withdrawn from the determined cost, the average determined unit cost evolution reached the targeted level of -1.9% per annum.
Moreover, as visible in the table under, as from 2027 (third year of the subsequent reference period), the impact starts to be positive for airspace users.
**Both conditions mentioned in the regulation are thus met.**

Demonstration that the restructuring measure will deliver a net financial benefit to airspace users at the latest in the next reference period

**Not considering the costs shifted in time, there is a net benefit as of beginning of 2020 (less costs of capital). Taking into account shifted costs, there is a net benefit as of 2027.**

Note: calculation over 2020-2024 are based on detailed planning whereas calculation over 2025-2028 are based on extrapolations.

**K CHF - nominal terms**

| | | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | Increase OPEX | 37 730 | 37 508 | 36 044 | 35 132 | 35 139 | 35 139 | 35 139 | 35 139 | 35 139 |
| | Decrease Depreciation | -680 | -2 974 | -5 805 | -9 695 | -15 102 | -22 694 | -27 086 | -31 479 | -35 871 |
| | Decrease Interests | -463 | -1 357 | -2 167 | -2 863 | -3 431 | -4 978 | -5 857 | -6 735 | -7 613 |
| | TOTAL Impact | **36 588** | **33 177** | **28 072** | **22 574** | **16 605** | **7 466** | **2 196** | **-3 075** | **-8 346** |

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|
| TOTAL per segment | **36 588** | **33 177** | **28 072** | **22 574** | **16 605** | **7 466** | **2 196** | **-3 075** | **-8 346** |
| En Route | 19 627 | 17 799 | 14 963 | 11 369 | 8 447 | 3 798 | 1 117 | -1 564 | -4 246 |
| Terminal CAT I (GVA+ZH) | 12 600 | 11 273 | 9 703 | 8 104 | 5 522 | 2 483 | 730 | -1 023 | -2 775 |
| CAT II | 2 307 | 2 264 | 1 835 | 1 709 | 1 429 | 643 | 189 | -265 | -718 |
| MIL | 1 643 | 1 533 | 1 349 | 1 247 | 1 155 | 519 | 153 | -214 | -580 |
| UTM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UL | 264 | 152 | 138 | 106 | 51 | 23 | 7 | -9 | -26 |
| FHA | 147 | 157 | 86 | 38 | 1 | 1 | 0 | 0 | -1 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by measures** | 32.227.323 | 29.071.535 | 24.665.337 | 19.472.725 | 13.968.666 |

**c) Detailed information on the restructuring costs by nature by charging zone**

**Restructuring costs planned for RP3 by nature and by charging zone**
**(nominal terms in '000 national currency)**

| Switzerland | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Staff | 15.008.904 | 15.357.320 | 14.721.555 | 13.656.408 | 13.720.330 |
| of which, pension costs | 4.311.101 | 4.526.970 | 4.461.363 | 4.219.226 | 4.312.061 |
| Other operating costs | 5.231.105 | 4.764.591 | 4.490.118 | 4.036.896 | 4.154.920 |
| Depreciation | -364.814 | - 1.595.248 | - 3.094.193 | - 4.882.807 | - 7.682.733 |
| Cost of capital | -248.249 | - 728.109 | - 1.154.956 | - 1.441.811 | - 1.745.504 |
| Exceptional items | | | | | |
| **Total restructuring costs** | 19.626.948 | 17.798.554 | 14.962.525 | 11.368.686 | 8.447.013 |

| Switzerland - TCZ | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| Staff | 9.635.621 | 9.726.788 | 9.546.550 | 9.734.816 | 8.968.722 |
| of which, pension costs | 1.824.808 | 1.887.594 | 1.903.302 | 1.976.034 | 1.857.436 |
| Other operating costs | 3.358.336 | 3.017.725 | 2.911.726 | 2.877.656 | 2.715.993 |
| Depreciation | -234.208 | - 1.010.374 | - 2.006.505 | - 3.480.654 | - 5.022.058 |
| Cost of capital | -159.374 | - 461.159 | - 748.959 | - 1.027.779 | - 1.141.003 |
| Exceptional items | | | | | |
| **Total restructuring costs** | 12.600.375 | 11.272.981 | 9.702.812 | 8.104.039 | 5.521.653 |

| | 2020D | 2021D | 2022D | 2023D | 2024D |
|---|---|---|---|---|---|
| **Total restructuring costs by charging zone** | 32.227.323 | 29.071.535 | 24.665.337 | 19.472.725 | 13.968.666 |

| Additional comments |
|---|
| Possible mitigation measure for airspace users<br>Whereas this change will bring benefits to airspace users in the medium term, skyguide is well aware that on the short term, it represents an additional financial burden for its customers.<br>Bearing this fact in mind, skyguide is looking for solutions to smoothen the effect of this change on user charges. One possible option would be to charge only one part of the effect the year it impacts the P&L and to book the other part as an accrual to be charged later in time (a bit like over/under recovery system) according to the table above. However, in order for the external audit to be able to accept this accrual as a valid one in skyguide's yearly accounts, it should rely on a regulatory basis.<br>Annex II of IR 2019/317 (point 3.3 (i)) mentions "where applicable, approved restructuring costs from previous reference periods to be recovered." Where restructuring cost would be acknowledged before the start of a reference period (possibly our case indeed), would it be possible to interpret this point as a possible regulatory anchor to split their charging effects over two reference period? |

## 3.4.5 - Restructuring costs - MUAC

### 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

| | |
|---|---|
| Restructuring costs from previous reference periods approved by the European Commission? | No |

### 3.4.5.2 Restructuring costs planned for RP3

| | |
|---|---|
| Restructuring costs foreseen for RP3? | No |

| Additional comments |
|---|
| |

# SECTION 3.5: ADDITIONAL KPIS / TARGETS

**3.5 Additional KPIs / Targets**

**Annexes of relevance to this section**

ANNEX J. OPTIONAL KPIs AND TARGETS

# SECTION 3.6: DESCRIPTION OF KPAS INTERDEPENDENCIES AND TRADE-OFFS INCLUDING THE ASSUMPTIONS USED TO ASSESS THOSE TRADE-OFFS

**3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs**

- 3.6.1 - Interdependencies and trade-offs between safety and other KPAs
- 3.6.2 - Interdependencies and trade-offs between capacity and environment
- 3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity
- 3.6.4 - Other interdependencies and trade-offs

## 3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

### 3.6.1 - Interdependencies and trade-offs between safety and other KPAs

| a) Do the measures to reach the targets in the different KPAs require changes in the ANSP functional system that have safety implications? If yes, which mitigation measures are put in place? |
|---|
| This information is not available as there are neither KPIs nor Pis which address interdependencies between safety and other KPAs in RP2. Considering RP3, currently no information is at hand whether changes in the ANSP functional systems that have safety implications are required by the measures to reach the targets in the different KPAs. |

| b) What are the main assumptions used to assess the interdependencies between safety and other KPAs? |
|---|
| As RP2 did not require the assessment of the interdependencies between safety and other KPAs there are also no main assumptions made for RP3. |

| c) What metrics, other than those indicators described in the Regulation, are you monitoring during RP3 to ensure targets in the KPAs of capacity , environment, and cost-efficiency are not degrading safety? |
|---|
| For RP3 the metrics for monitoring the interdependencies between safety and other KPAs are not finally discussed within the FABEC. As the NPA covering the safety KPI EoSM (based on the SoE Questionnaire) has not been published yet, the information to which extent the interdependencies between safety and other KPAs are covered is not sufficient. A monitoring on FABEC level will therefore be difficult as coordination between CAs and ANSPs prior to RP3 is necessary. |

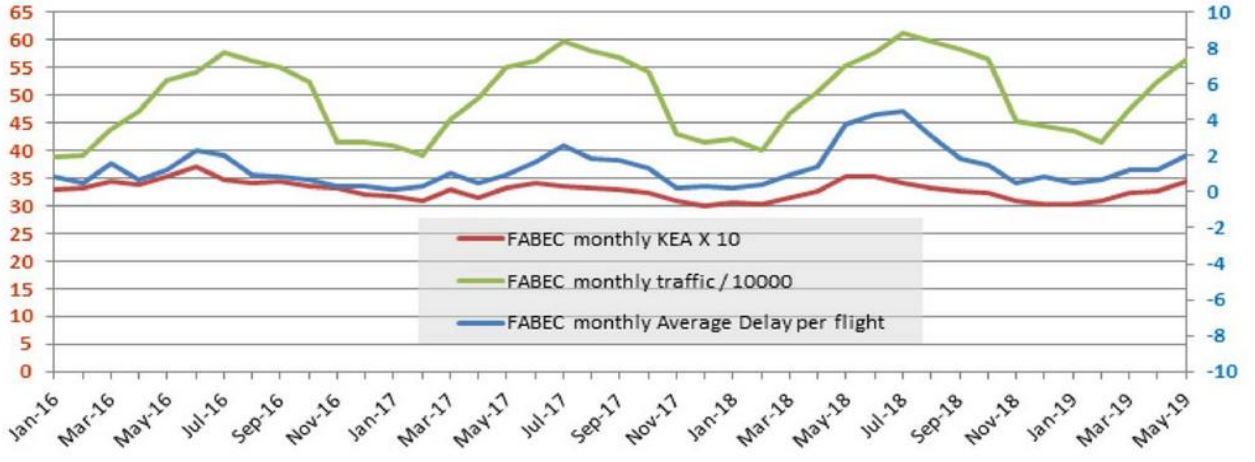
| d) Do targets allow trade-offs in operational decision making to managing resource shortfalls in order to preserve safety performance? Do targets restrict the release of staff for safety activities, such as training? |
|---|
| There is no statistics available to answer this question. The operation has still to stay in its safe framing. |

| e) Have the States reviewed the ANSP financial and personnel resources that are needed to support safe ATC service provision through safety promotion, safety improvement, safety assurance and safety risk management after changes introduced to achieve targets in other KPAs? Please, explain. |
|---|
| No. As stated in 3.6.1 a) and b) interdependencies between safety and other KPAs have not been reviewed until now. Nonetheless, States generally monitor the ANSPs financial and personnel resources needed to support safe ATC service provision. |

### 3.6.2 - Interdependencies and trade-offs between capacity and environment

Following traffic increases, the FABEC KEA indicator increased between 2014 and 2016. From 2017 onwards the KEA performance has stabilised as a balance has occurred between continued strong traffic growth and the introduction of operational changes such as FRA, but this may also be related to a change in the KEA calculation method.

KEA achievements are clearly influenced by traffic level and volatility (the yearly profile is clearly influenced by seasonality and number of flights). ATCOs can offer more direct routing with low traffic and facing no capacity issues. Nevertheless, with the capacity and staffing issues incurred by FABEC ANSPs in the core area, delays increased significantly, deteriorating flight eficiency. The graph provided here under show the relationship between traffic and delay increases and KEA deterioration :




In addition NM summer initiatives introduced as from 2018 summer introduced massive rerouting which are

## 3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

As it has been described in chapter 3.3.1, main capacity improvements during RP3 and following RP4 will be provided through measures such as:

- Implementation new ATM systems or upgrades of legacy systems enabling new concepts of operations or introducing new ATC tools (safety nets, stripless, DLS, 4D trajectory, MTCD, sector less ATM, new HMI etc.) such as 4-FLIGHT, ICAS or S-ATM;

- ATCO hiring plans;

- More flexible rostering and new working conditions for ATCO.

All these measures have an impact on the costs bases of ANSP: on staff costs for additional recruitments or social agreements, on depreciation costs and costs of capital regarding new investments.

Individual ANSPs' detailed interdependencies between cost-efficiency and capacity are addressed in chapter 3.4 and in Annex R & S of this FABEC performance plan.

## 3.6.4 - Other interdependencies and trade-offs

Regarding Environment performance, capacity is not the only performance area influencing KEA achievement; many other factors, some of them out of the full scope of responsability of ANSPs, can impact a good flight efficiency.

Among the main factors can be listed:

- Further implementation of FUA in the airspaces most affected by military activities is expected to bring a certain improvement of flight efficiency. However, the current ERNIP edition includes only one project (out of 300) focusing on FUA improvement. In addition, benefits from FUA implementation will only be perceivable if the level of military activity/training will remain unchanged in the years to come. Increase of military activity has a large adverse impact on flight efficiency.

- Weather has been becoming more extreme and unpredictable; and so has its impact on air traffic (to reflect the real situation the TMA cylinder should be extended from 40NM to 200NM, therefore excluding the constraints set for arrival and departure from the calculation of en-route flight efficiency).

- Structure of the traffic: more overflights automatically means a better HFE. FABEC area, however, contains the busiest European airports (FRA, CDG, AMS), and Heathrow in close proximity.

- In contrast to the aim to minimise emissions, Airspace users are not obliged to fly the shortest route. One example of a reason why they might not do this is when longer but cheaper route is available due to different unit rates across Europe. Neither are they obliged to provide a reason for not flying the shortest route. In addition the new En Route charging calculation according to actual flown route could have an impact on Airspace users choice regarding routes, which will influence flight-efficiency in a magnitude which is still unknown.
- The NM and the ANSPs have optimized their operations with respect to rolling UUP and Procedure 3, bringing more flexibility and more options for AOs to fly shorter routes. Unfortunately, the major part of AOs are not able to seize these opportunities because they file their flight plans more than 6-7 hours in advance. As a consequence, when a TRA is released only 3 hours in advance, they are not able to update their flight plans. As long as the flown track follows the flight plan trajectory, this lack of AOs' reactivity has a negative impact on flight efficiency and potentially on capacity (for instance if several flight plans are filed in a region with a capacity bottleneck whereas if these flight plans were updated, the corresponding flights would be rerouted outside this area).

More in general, we note that the performance scheme does not cover all KPAs and indicators that are relevant to ANS performance, and indeed to air transport as a whole. Performance areas such as security, sustainability, business continuity, etc are also important, and activities undertaken to address performance in these areas can affect performance in relation to the KPIs and targets included in this plan, e.g. improving security will come at a cost. Similarly, within the KPAs of safety, capacity, environment and cost efficiency there are (both local and European) issues or priorities that require action even without target setting - compare the PIs included in the performance and charging regulation. As an example, it may be necessary to invest in detecting and/or preventing runway incursions or airspace infrmgements. This will also affect cost efficiency but it will not contribute to meeting any of the targets in this plan.

# SECTION 4: CROSS-BORDER INITIATIVES AND SESAR IMPLEMENTATION

**4.1 - Cross-border initiatives and synergies**

4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs

4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives

**4.2 - Deployment of SESAR Common Projects**

**4.3 - Change management**

a) Belgium

b) France

c) Germany

d) Luxembourg

e) Netherlands

f) Switzerland

**Annexes of relevance to this section**

ANNEX N. CROSS-BORDER INITIATIVES

## 4.1 - Cross-border initiatives and synergies

### 4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs

| | |
|---|---|
| Number of cross-border initiatives | 10 |

**NOTE: 11 initiatives have been listed below; unfortunately it is not possible to select a number of initiatives higher than 10.**

| Initiative #1 | |
|---|---|
| Name | iCAS deployment collaboration |
| Description | DFS and LVNL develop and deploy common iCAS system. The German and Dutch Air Navigation Service Providers DFS and LVNL have signed contracts for the development and commissioning of the air traffic management system iCAS (iTEC Center Automation System) at the control centers in Germany and at the Amsterdam center in the Netherlands. iTEC is a highly advanced air traffic management system based on 4-dimensional trajectory-based flight management that provides major savings in terms of time and fuel, resulting in a reduction of both CO2 emissions and costs for airlines, in addition to increasing the total capacity of the system. |
| Expected performance benefits | SAF+ CAP+ CEF+ ENV+ |

| Initiative #2 | |
|---|---|
| Name | Collaboration for Flight Object Interoperability (FO IOP) |
| Description | Maastricht Upper Area Control Centre (MUAC), DFS and LVNL will jointly develop components that will enable interoperability between their respective Air Traffic Management systems and help deliver a Single European Sky. |
| Expected performance benefits | CAP+ CEF+ |

| Initiative #3 | |
|---|---|
| Name | Implementation of common Coflight cloud service (CCS) at DSNA and skyguide. |
| Description | The aim of the project is to implement a Flight data processing service and all related support services for testing, training, operational and contingency purpose. The Flight Data Processing System offered remotely "as a service", to interconnect with in an innovative Service Oriented Architecture. This advanced technology and architectural interface is implemented jointly with DSNA and skyguide. Coflight cloud services fosters interoperability required between the Europeans ANSPs, particularly in the FABEC while enabling consolidation of ATM systems in FABEC in an open architecture framework. |
| Expected performance benefits | SAF+ CAP+ CEF+ ENV+ |

| Initiative #4 | |
|---|---|
| Name | MUAC, BAC and skeyes introduce first shared civil-military ATM system (SAS) |
| Description | Skeyes, Belgian Defence and EUROCONTROL’s Maastricht Upper Area Control Centre (MUAC) jointly plan to use the same system for Air Traffic Management as from 2024. With one single technical solution, services to airspace users in Belgian airspace will be much more efficient. A Shared civil-military Air Traffic Management System (SAS) supports this objective and enables to cope with capacity and cost-efficiency challenges in Belgian and all FABEC airspace. It would also support the deployment of an efficient and effective external contingency solution in the event of a failure of one of the facilities providing technical services. |
| Expected performance benefits | SAF+ CAP+ CEF+ ENV+ |

| Initiative #5 | |
|---|---|
| Name | Dynamic Cross-border airspace shared by DSNA and skyguide |
| Description | Implementation of a France/Swiss cross-border airspace at Geneva Airport. Dependent on the RWY in use Swiss and French controllers operate a dynamically adapted cross border airspace. |
| Expected performance benefits | CEF+ ENV+ |

| Initiative #6 | |
|---|---|
| Name | The 14 ACCs of FABEC are internally benchmarked with the focus on sector level capacity |
| Description | The study explorers factors influencing capacity provision at all 14 FABEC ACCs. In contrast to available benchmark reports this is done on a unusual detailed level and unusual large data set. Local supervisors, ATCOs and ATFM experts along with FABEC performance experts analyse the operational environment, the technical environment as well as staff planning routines to provide a deeper understanding of performance differences and to identify and exchange best practices. |
| Expected performance benefits | CAP+ |

| Initiative #7 | |
|---|---|
| Name | Framework for Cross-Border Business Continuity / Contingency |
| Description | Establish the appropriate framework at FABEC level supporting the development of cross-border business continuity or contingency procedures. FABEC ANSPs will check the requirements to support each other with bilateral arrangements in case of outages of an ACC (e.g. frequency outage, power failure, etc.). Some procedures are already in place. Langen ACC can deliver/ take over traffic at the border directly to/ from Liège Approach in case of an outage at Brussels ACC. The same is done with DSNA and Charleroi Approach. |

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| Expected performance benefits | SAF+ CAP+ CEF+ ENV+ |

| Initiative #8 | |
|---|---|
| Name | Harmonisation of regulator framework for unmanned aircraft systems |
| Description | Initiative to harmonise separation standards to unmanned aircraft systems (UAS/ drones). In the framework of the initiative any kind of factors are analysed that may impair safety and operational performance. The objective is to avoid procedure diversification within FABEC and prepare a consolidated regulatory approach. |
| Expected performance benefits | CEF+ |

| Initiative #9 | |
|---|---|
| Name | RAD Optimisation Workshops |
| Description | The Route Availability Document (RAD) is a common reference document containing the policies, procedures and description for route and traffic orientation. The RAD is part of the European Route Network Improvement Plan (ERNIP). It also includes route network and free route airspace utilisation rules and availability. The RAD is also an Air Traffic Flow and Capacity Management (ATFCM) tool that is designed as a sole-source flight-planning document, which integrates both structural and ATFCM requirements, geographically and vertically. FABEC's CRM group organises regular meetings to optimise and harmonise the documents. Airspace users, NM representatives and FABEC's RAD coordinators optimise and harmonise RAD restrictions and increase understanding on users side. |
| Expected performance benefits | CAP+ ENV+ |

| Initiative #10 | |
|---|---|
| Name | Joint States/ ANSPs FUA Task Force |
| Description | The Task Force of State and ANSP experts, referred to as the joint FUA Task Force (JTF), supports the work of the Airspace Committee in developing an harmonised application of the ASM/FUA concepts within FABEC and in providing guidance to FABEC ANSPs on an harmonised application of FUA Level 2 and Level 3.<br>The tool sub-group is focussing on the usage of available tools.<br>The JTF is established with the general objectives of providing ASM/ FUA expertise to the AC and performing tasks for the AC in the area of ASM/FUA, with the end goal to develop proposals for the harmonisation of the application of ASM/ FUA concept at all three levels, in order to enhance airspace utilisation and contribute to performance and network improvements in particular in the FABEC core area and in cross-border areas of the FABEC airspace. |
| Expected performance benefits | CAP+ ENV+ |

| Initiative #11 | |
|---|---|
| Name | FABEC/Network Manager Airspace Design Coordination Group (FABEC/NM ADCG) |
| Description | For the mid-term, the NM Action Plan aims to tackle existing bottlenecks, address future capacity, and flight efficiency challenges, with a renewed airspace structure, in particular for the FABEC. The Airspace Design Coordination Group (ADCG) has been set up with the objective to make the link between the FABEC States and ANSPs bodies/structures (AC, SC OPS and ODG) and the NM RNDSG in charge of conducting the airspace study, on a seamless approach basis regardless of national borders. The new airspace structure will address current and future structural airspace bottlenecks and will include the new airspace requirements, which had to been declared by the States no later than May 2019. An Implementation plan is expected in spring 2020 with a fixed end goal in 2024, if both FABEC states and ANSP agreed the proposals. |
| Expected performance benefits | CAP+ ENV+ |

| Additional comments |
|---|
| FABEC States are focusing their work in order to ensure that FABEC airspace management aims at supporting both the performance of operations within FABEC airspace, in particular defined RP3 targets, and the Military Mission Effectiveness achievement.<br><br>The functional airspace block worked as facilitator for not just the abovementioned larger undertakings but also to many more smaller initiatives. Many initiatives are born when the CEOs, OPS directors, technical directors, the Head of ACC group or performance experts plan jointly future performance in their regular meetings. Studies, tests and deployment then, usually starts with one or two collaborating ANSPs and if successful are joined by the FABEC partners. FABEC offers a more comprehensive picture on Operational planning on this site:  https://www.fabec.eu/opmap/ |

## 4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives

| Details of synergies in terms of common infrastructure and common procurement |
|---|

Generally speaking, it has to be noted that the financial impact of such common procurement or common infrastructure is hard to determine as soon as an alliance starts to act.

Practically, on a yearly basis, FABEC SESAR Committee (SCMT) collects the investment plans for CNS equipment of the FABEC partners in order to investigate possibilities for a common procurement. This already resulted in cooperation between FABEC partners on many technical projects and investment synergies are achieved.

Such technical synergies are listed in chapter 4.1.1 above.

## 4.2 - Deployment of SESAR Common Projects

Note: for reasons of transparency and consistency, a separate report on MUAC is provided in the overview below.

### a) Belgium

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |
| Brussels Airport | - MP Obj ATC07.1 AMAN Tools and Procedures - An AMAN (Maestro) was implemented with the new CANAC 2 system in November 2009. In November 2010 the Maestro software has been upgraded. The AMAN is currently used as an information tool. Any further evolutions to AMAN procedures will be done in the scope of MP Obj ATC15.2.<br>- MP Obj ATC15.1 - Information Exchange with En-route in Support of AMAN - The Eurocat system is partially compliant. System evolutions are required in the concerned ANSPs to comply with the required system level. Completion expected by end 2019<br>- MP Obj ATC15.2 Arrival Management Extented to En-route Airspace - At this stage, no detailed implementation plan has been elaborated, but the extended AMAN functionality will be part of the new ATM system that is expected to be implemented in 2024.<br>(source LSSIP 2018 + additional input skeyes) |
| s-AF1.2 Enhanced TMA using RNP-based operations | |
| Brussels Airport | -MP Obj NAV03.1 / NAV03.2 RNAV1 / RNP 1 in TMA Operations - SIDs and STARs using RNAV1 specification have been fully designed by skeyes and partially implemented. The time for the full (RNP1) implementation is subject to the State decision but expected the latest by Dec 2023.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - BCAA issued the PBN Implementation Strategy for Belgium (PBNISB) in March 2011.The PBN Implemetation Group (PBNIG) allocated the priorities and plan for implementation. The RNP procedures for runways 25R/L and 01 at Brussels National became effective on 2 March 2017, the RNP procedures for runway 19 became effective on 11 October 2018. The RNP procedures for runways 07 L/R have been developed and are available but the timing of their implementation is depending upon decision by the authorities.<br>(source LSSIP 2018 + additional input skeyes) |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Brussels Airport | - MP Obj AOP05 Airport CDM - Fully implemented - A MoU between the different partners has been signed in June 2008. Gradual improvement have been made to the CDM platform, including the implementation of adverse conditions since 22 November 2013<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) –Airport Safety nets as foreseen in the PCP for 01/01/2021 were finalized in February 2016.<br>Electronic strips have been in operational use since the early 2000s. ATC clearance monitoring has been developed over the years. ATC clearances have also been included in the safety nets between Aug 2014 and Dec 2015.<br>- MP Obj AOP11 - Initial Airport Operations Plan - A joint project between Brussels Airport Company and skeyes is ongoing in which skeyes will deliver the required flight information and meteorological information as input to the iAOP. End of the project is expected by December 2020.<br>(source LSSIP 2018 +additional input skeyes) |
| s-AF2.2 DMAN integrating surface management constraints | |
| Brussels Airport | -MP Obj AOP04.1 /AOP04.2 A-SMGCS Levels 1 & 2 - Fully implemented since February 2016 |
| s-AF2.3 Time-based separation for final approach | |
| Brussels Airport | n/a |

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|---|---|
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Brussels Airport | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - In April 2017, a feasibility study has been performed and completed to declare the cleared taxi route on the EFS in the frame of the PCP. It also included an extension of the safety nets to the movement area (route deviation alerts and restricted area infringements).<br>Operational implementation shall be done in the coming years taking on board the new Eurocontrol specifications.<br>(source LSSIP 2018) |
| s-AF2.5 Airport safety nets | |
| Brussels Airport | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Airport Safety nets as foreseen in the PCP for 01/01/2021 were finalized in February 2016.<br>ATC clearance monitoring has been developed over the years. ATC clearances have also been included in the safety nets between Aug 2014 and Dec 2015.<br>-MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning - In April 2017, a feasibility study has been performed and completed to declare the cleared taxi route on the EFS in the frame of the PCP. It also included an extension of the safety nets to the movement area (route deviation alerts and restricted area infringements).<br>(Source LSSIP 2018) |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - LARA tool implemented and used to introduce civil booking since 07 March 2013.<br>Improve planning and allocation of airspace booking will be tackled in 2019.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data - The implementation of ASM Management of Real-Time Airspace Data has started and is planned to be finished by end 2019. Current percentage of completion is 60%.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing - The implementation of full rolling ASM/ATFCM process and ASM information sharing is planned to be finished by the end of 2020. Current percentage of implementation is 50%.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - Project initiated with Mil partners through harmonization TF.<br>(source LSSIP 2018) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace -Is outside the applicability area of skeyes (below FL 245) - nevertheless, some initiatives have been taken and implemented at national and FABEC level.<br>(source LSSIP 2018 + additional input skeyes) |
| **AF4 - Network Collaborative Management** | |
| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - Process completed since 2018<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 -The use of STAM Phase 2 measures will be the result of the implementation of a traffic complexity tool (project TCAST) The percentage of implementation is currently 30%.<br>(source LSSIP 2018) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP - The activities are ongoing and are linked to the implementation of a traffic complexity tool . The current percentage of implementation is 36%.<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | MP Obj FCM07 not yet included in LSSIP.<br>Reconciled target times for ATFCM and arrival sequencing are not yet planned for. |
| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment - Skeyes launched a project in 2017 for the implementation of a local traffic complexity assessment and simulation tool. Project is expected to be finalised in 2020 or 2021. |
| **AF5 - Initial SWIM** | |
| s-AF5.1 Common infrastructure components | 1) skeyes implementation of NewPENS is ongoing; the connection to the NewPens network was established in June 2019 and the migration of applications to NewPENS is expected to be finalised by Dec 2019.<br>2) skeyes participates also in the IP project , co founded by INEA, SWIM common KPI, a pan-European initiative from SDM led by Eurocontrol. |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Local implementation of SWIM technical infrastructure and profiles is still to be planned in detail. A study to investigate the best way to implement will start in course of 2019. The aim of skeyes is to have it be fully |

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| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - skeyes already uses the AIXM format for the majority of its AIM data (including the information for the EAD). Further local implementation of SWIM compliant aeronautical information services is still to be planned in detail. |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - skeyes has implemented IWXXM for the legacy ICAO messages in 2017. Further local implementation of SWIM compliant meteo information services will be done in several steps. A first step is linked to the delivery of |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - A number of B2B services from the Network Manager are implemented by skeyes. Further local implementation of SWIM compliant network information services is still to be planned in detail. The aim of skeyes is to have |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Local implementation of SWIM compliant flight information services is still to be planned in detail. The aim of skeyes is to have these fully implemented in line with the PCP regulation, pending the availability of the |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - Not in the scope of this LSSIPD (for Maastricht, see MUAC LSSIPD)<br>(source LSSIP 2018) |

### b) France

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |
| Paris Charles De Gaulle | -MP Obj ATC07.1 AMAN Tools and Procedures - Functionality is already operational at Charles de Gaulle since March 2012.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - France uses MAESTRO to support AMAN operations for many years. MAESTRO is already compliant to use in En-Route and is a level1 system, already implemented in the Paris ACC to support AMAN operations of CDG.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - The current situation (Paris CDG/ORY AMAN extended into Paris ACC) is already compliant with the PCP and the operational needs.<br>(source LSSIP 2018) |
| Paris Orly | -MP Obj ATC07.1 AMAN Tools and Procedures - Functionality is already operational at Orly Airport since March 2012.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - France uses MAESTRO to support AMAN operations for many years. MAESTRO is already compliant to use in En-Route and is a level1 system, already implemented in the Paris ACC to support AMAN operations of Orly.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - The current situation (Paris CDG/ORY AMAN extended into Paris ACC) is already compliant with the PCP and the operational needs.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj ATC07.1 AMAN Tools and Procedures - Functionality is already operational at Orly Airport since June 2015.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - France uses MAESTRO to support AMAN operations for many years. At Nice Airport, the implementation is being considered by mid 2019.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - The deployment of AMAN2SE in Marseille ACC guarantees PCP compliance, except for the flow coming from North-East via Milano ACC. Initiation of an XMAN project with ENAV is ongoing with 10% of progrss, to cover this North-East flow. The expected implementation date is by the end of 2020.<br>(source LSSIP 2018) |
| s-AF1.2 Enhanced TMA using RNP-based operations | |
| Paris Charles De Gaulle | -MP Obj NAV03.2 RNP 1 in TMA Operations - There are no plans yet as the performance of reversion in case of GNSS failure should be studied further before planning the implementation of RNP1 + RF.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - National deployment plan of APV/SBAS (supported by EGNOS) and APV/Baro has been launched and is on-going with 78% progress of implementation. Full deployment of remaining APV will be finished by end 2019.<br>(source LSSIP 2018) |

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| Paris Orly | -MP Obj NAV03.2 RNP 1 in TMA Operations - There are no plans yet as the performance of reversion in case of GNSS failure should be studied further before planning the implementation of RNP1 + RF.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - National deployment plan of APV/SBAS (supported by EGNOS) and APV/Baro has been launched and is on-going with 78% progress of implementation. Full deployment of remaining APV will be finished by end 2019.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj NAV03.2 RNP 1 in TMA Operations - There are no plans yet as the performance of reversion in case of GNSS failure should be studied further before planning the implementation of RNP1 + RF.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - National deployment plan of APV/SBAS (supported by EGNOS) and APV/Baro has been launched and is on-going with 78% progress of implementation. Full deployment of remaining APV will be finished by end 2019.<br>(source LSSIP 2018) |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Paris Charles De Gaulle | -MP Obj AOP05 Airport CDM - CDG airport is labellized "Airport-CDM" since 16th November 2010; CDM procedures in adverse condition implemented 02/2013; FUM process implemented by end 2013.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – The digital systems such as electronic flight strips (EFS) are implemented as part of DMAN deployed in February 2013.<br>(source LSSIP 2018) |
| Paris Orly | -MP Obj AOP05 Airport CDM - Orly airport has been certified as a CDM airport on November 2016.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – The digital systems such as electronic flight strips (EFS) are implemented as part of DMAN deployed in November 2016.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj AOP05 Airport CDM - Implementation of CDM at Nice is currently at 70% in cooperation with Nice airport.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – The digital systems such as electronic flight strips (EFS) are implemented as part of DMAN deployed at the end of 2018.<br>(source LSSIP 2018) |
| s-AF2.2 DMAN integrating surface management constraints | |
| Paris Charles De Gaulle | -MP Obj AOP04.1 A-SMGCS Level 1 - A-SMGCS Level 1 implemented at CDG since 2009.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - A-SMGCS Level 2 implementated at CDG since 2003.<br>(source LSSIP 2018) |
| Paris Orly | -MP Obj AOP04.1 A-SMGCS Level 1 - A-SMGCS Level 1 implemented at Orly since 2007.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - A-SMGCS Level 2 implementated at Orly since 2009.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj AOP04.1 A-SMGCS Level 1 - A-SMGCS Level 1 implemented in Nice since 2015.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - A-SMGCS Level 2 in operation since June 2017.<br>(source LSSIP 2018) |
| s-AF2.3 Time-based separation for final approach | |
| Paris Orly | -MP Obj AOP10 Time Based Separation - Because of the higher efficiency it would have, DSNA proposed to deploy TBS in CDG instead of Orly in the PCP revision. No progress has been made in Orly in that perspective. Work is ongoing for the implementaiton of TBS at CDG in the framework of CEF 2017.<br>(source LSSIP 2018) |
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Paris Charles De Gaulle | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is foreseen to be part of SYSAT, the new French ATM system for APPs, part of the SYSAT DSNA program. Commissioning dates for this functionality are not fully consolidated yet.<br>(source LSSIP 2018) |

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| Paris Orly | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is foreseen to be part of SYSAT, the new French ATM system for APPs, part of the SYSAT DSNA program. Commissioning dates for this functionality are not fully consolidated yet.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is foreseen to be part of SYSAT, the new French ATM system for APPs, part of the SYSAT DSNA program. Commissioning dates for this functionality are not fully consolidated yet.<br>(source LSSIP 2018) |
| s-AF2.5 Airport safety nets | |
| Paris Charles De Gaulle | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - The ATC clearances monitoring will be supported by the new system SYSAT planned to be implemented end 2021 in Paris CDG airport. The current percentage of implementation is 40%.<br>(source LSSIP 2018) |
| Paris Orly | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - The ATC clearances monitoring will be supported by the new system SYSAT planned to be implemented for winter 2022 at Paris Orly Airport. The current percentage of implementation is 40%.<br>(source LSSIP 2018) |
| Nice Cote D'Azur | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - The ATC clearances monitoring will be supported with the new system SYSAT.<br>Commissioning dates for Nice airport are not fully consolidated yet.<br>(source LSSIP 2018) |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - French AMC (called CNGE) is using its own appropriate support systems (e.g. COURAGE, ...) since the year 2000.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data - The current implementation percentage is 70%. 4Flight system will exchange data directly with NM. Exchanges with local ASM systems are not yet precisely identified.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing - LARA supports the ASM/ATFCM process in France. Procedure 3 is used in DSNA since Q2 2018. The Implement procedures and processes for a full rolling ASM/ATFCM process is planned for the end of 2021 and the current percentage of implementation is 70%.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - SALTO tool will support B2B exchanges with NM. The current percentage of implementation is 20%.<br>(source LSSIP 2018) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace - Free Route Implementation is being studied in the FABEC framework and in collaboration with NM. The current percentage of implementation is 45% and the expected date of implementation is March 2024.<br>(source LSSIP 2018) |
| **AF4 - Network Collaborative Management** | |
| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - Process is completed in 4 ACCs (Bordeaux, Brest, Paris and Reims) and work is on-going in Marseille, with the implementation percentage of 40%.<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 - DSNA has launched a program named SALTO to cover the need of local tool. The percentage of implementation is currently 28%.<br>(source LSSIP 2018) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP - Practical implementation of this objective by all concerned stakeholders is currently on-going. However, the provision of AOP to NM to perform the integration of the AOP with the NOP is only planned in a second phase for 2021. The current percentage of implementation is 23%.<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | No LSSIP info available |

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| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment - To be implemented through the framework of SALTO project by the end of 2020. The current percentage of implementation is 80%.<br>(source LSSIP 2018) |
| **AF5 - Initial SWIM** | |
| s-AF5.1 Common infrastructure components | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, a first step towards full implementation. Progress is monitored through the local common infrastructure components (items 2 and 3 for all actions), which is definitely restrictive wrt the various tasks / steps required to implement these exchanges through SWIM. For instance, DSNA has started consuming various NM services offered on B2B concerning Flight and Network information, which we believe is in itself a step towards full implementation, expected by December 2024. The current percentage of implementatio is 6%.<br>(source LSSIP 2018) |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - A revised scenario for phased deployment of the DLS in DSNA airspace has been constructed jointly with the European Commission, Eurocontrol and DSNA Clients (airlines). Full compliance will be completed by end 2020. The current percentage of implementation is 79%.<br>(source LSSIP 2018) |

## c) Germany

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |
| Berlin Brandenburg Airport | -MP Obj ATC07.1 AMAN Tools and Procedures - Pending the opening of Berlin Brandenburg airport.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - Procedures for Berlin inbound flights will be in operational use, when BER airport will be opened.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - In line with the PCP Implementing Rule 716/2014 and the associated Deployment Programme, the planning horizons of the AMAN systems serving Frankfurt, Munich, Dusseldorf and Berlin airport will be extended up to 220NM into the area of responsibility of identified upstream control centres until the given PCP deadline (31.12.2023). Due to dependencies of neighbouring partners and their schedules, the connections to all upstream centres and vice versa still require time. The DFS systems, procedures and agreements are ready and prepared for implementation.<br>(source LSSIP 2018) |
| Düsseldorf International | -MP Obj ATC07.1 AMAN Tools and Procedures - The development of an arrival management tool serving flights to Düsseldorf Airport has been completed in December 2017.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - Procedures in en-route airspace in support of inbound traffic to Frankfurt airport are in operational use since the end of 2017.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - In line with the PCP Implementing Rule 716/2014 and the associated Deployment Programme, the planning horizons of the AMAN systems serving Frankfurt, Munich, Dusseldorf and Berlin airport will be extended up to 220NM into the area of responsibility of identified upstream control centres until the given PCP deadline (31.12.2023). Due to dependencies of neighbouring partners and their schedules, the connections to all upstream centres and vice versa still require time. The DFS systems, procedures and agreements are ready and prepared for implementation.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj ATC07.1 AMAN Tools and Procedures - AMAN provides enhanced arrival management functionalities for Frankfurt Airport since September 2013.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - Procedures in en-route airspace in support of inbound traffic to Frankfurt airport are in operational use since the end of 2017.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - In line with the PCP Implementing Rule 716/2014 and the associated Deployment Programme, the planning horizons of the AMAN systems serving Frankfurt, Munich, Dusseldorf and Berlin airport will be extended up to 220NM into the area of responsibility of identified upstream control centres until the given PCP deadline (31.12.2023). Due to dependencies of neighbouring partners and their schedules, the connections to all upstream centres and vice versa still require time. The DFS systems, procedures and agreements are ready and prepared for implementation.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj ATC07.1 AMAN Tools and Procedures - AMAN provides enhanced arrival management functionalities for Munich Airport since February 2008.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - Procedures in en-route airspace in support of inbound traffic to Munich airport are in operational use since December 2016.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - In line with the PCP Implementing Rule 716/2014 and the associated Deployment Programme, the planning horizons of the AMAN systems serving Frankfurt, Munich, Dusseldorf and Berlin airport will be extended up to 220NM into the area of responsibility of identified upstream control centres until the given PCP deadline (31.12.2023). Due to dependencies of neighbouring partners and their schedules, the connections to all upstream centres and vice versa still require time. The DFS systems, procedures and agreements are ready and prepared for implementation.<br>(source LSSIP 2018) |
| s-AF1.2 Enhanced TMA using RNP-based operations | |

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|---|---|
| Berlin Brandenburg Airport | -MP Obj NAV03.2 RNP 1 in TMA Operations - Currently for SIDs and approaches, the implementation is ongoing. There are no plans to implement RNP 1 arrival procedures in TMA operations.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - APV/Baro and/or APV/SBAS procedures are published and implemented in accordance with ICAO Assembly resolution A37-11.<br>(source LSSIP 2018) |
| Düsseldorf International | -MP Obj NAV03.2 RNP 1 in TMA Operations - Currently for SIDs and approaches, the implementation is ongoing. There are no plans to implement RNP 1 arrival procedures in TMA operations.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - APV/Baro and/or APV/SBAS procedures are published and implemented in accordance with ICAO Assembly resolution A37-11.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj NAV03.2 RNP 1 in TMA Operations - Currently for SIDs and approaches, the implementation is ongoing. There are no plans to implement RNP 1 arrival procedures in TMA operations.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - APV/Baro and/or APV/SBAS procedures are published and implemented in accordance with ICAO Assembly resolution A37-11.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj NAV03.2 RNP 1 in TMA Operations - Currently for SIDs and approaches, the implementation is ongoing. There are no plans to implement RNP 1 arrival procedures in TMA operations.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - APV/Baro and/or APV/SBAS procedures are published and implemented in accordance with ICAO Assembly resolution A37-11.<br>(source LSSIP 2018) |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Berlin Brandenburg Airport | -MP Obj AOP05 Airport CDM - Implementation of A-CDM is planned for the end of 2020.<br>At Schoenefeld Airport (SXF), an A-CDM is already installed and fully operational. With the extension of the airport as the new BER Airport the capabilities will be enlarged for the additional areas.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - Pending airport opening. EFS is available already. Completed date refers to last major update. EFS will be updated for Airport Safety Nets.<br>(source LSSIP 2018) |
| Düsseldorf International | -MP Obj AOP05 Airport CDM - At Duesseldorf Airport, implementation of A-CDM is completed since April 2013.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - EFS is available already, with last major update in 2013. EFS will be updated for Airport Safety Nets.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj AOP05 Airport CDM - At Frankfurt Airport, implementation of A-CDM is completed since January 2013.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - EFS available already, with last major update in 2011. EFS will be updated for Airport Safety Nets.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj AOP05 Airport CDM - At Munich Airport, A-CDM is fully operational since 7th June 2007.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - EFS is available already, with last major update in 2007. EFS will be updated for Airport Safety Nets.<br>(source LSSIP 2018) |
| s-AF2.2 DMAN integrating surface management constraints | |
| Berlin Brandenburg Airport | -MP Obj AOP04.1 A-SMGCS Level 1 - Implementation of A-SMGCS Level 1 is planned for the end of 2020, after the opening of the airport.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - Implementation of A-SMGCS is planned for the end of 2020, after the opening of the airport.<br>(source LSSIP 2018) |

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| Düsseldorf International | -MP Obj AOP04.1 A-SMGCS Level 1 - For Duesseldorf Airport, the installation of a Multilateration Radar System is finished since February 2019.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - For Dusseldorf Airport, the implementation of A-SMGCS Level 2 is planned to be finalised in August 2019. Current percentage of implementation is 43%.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj AOP04.1 A-SMGCS Level 1 - At Frankfurt Airport, MLAT (CAPTS; operated by Fraport) and three SMR sites (operated by DFS) are installed as sensor systems. DFS and Fraport are using a combination of these sensor systems for different purposes in Surface Movement Guidance.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - At Frankfurt Airport, the Fraport system FAST MS (Frankfurt Airport Surface Traffic Management System) is operational. FAST MS is not covering the runway system. The A-SMGCS functionalities for the runway system fall under the responsibility of DFS. A system upgrade for warning functionality is currently being tested and operational implementation is planned for December 2020. The current progress is 50%.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj AOP04.1 A-SMGCS Level 1 - At Munich Airport, the installation of the surface movement radar antennas and the system is completed. The installation of the multilateration system (ERA) is also completed. It is used as a level 1 system. The procurement of equipment for ground vehicles has been finished in 11/2014.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - At Munich Airport, the multilateration system is implemented in addition to the existing primary radar.<br>(source LSSIP 2018) |
| s-AF2.3 Time-based separation for final approach | |
| Düsseldorf International | -MP Obj AOP10 Time Based Separation - The possible use of Time Based Separation is being studied. Initial work has been started as a pilot project at Frankfurt airport and approach. There are no initial results for the time being. The feasibility study and its final report will be taken into account for a future decision (not part of this proposal) on TBS implementation at mandated German airports.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj AOP10 Time Based Separation - The possible use of Time Based Separation is being studied. Initial work has been started as a pilot project at Frankfurt airport and approach. There are no initial results for the time being. The feasibility study and its final report will be taken into account for a future decision (not part of this proposal) on TBS implementation at mandated German airports.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj AOP10 Time Based Separation - The possible use of Time Based Separation is being studied. Initial work has been started as a pilot project at Frankfurt airport and approach. There are no initial results for the time being. The feasibility study and its final report will be taken into account for a future decision (not part of this proposal) on TBS implementation at mandated German airports.<br>(source LSSIP 2018) |
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Berlin Brandenburg Airport | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is planned to be implemented in 2023, pending the airport opening.<br>(source LSSIP 2018) |
| Düsseldorf International | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is planned to be implemented in 2023. No progress in implementation so far.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is planned to be implemented in 2023. No progress in implementation so far.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - Automated assistance to Controller for Surface Movement Planning and Routing is planned to be implemented in 2023. No progress in implementation so far.<br>(source LSSIP 2018) |
| s-AF2.5 Airport safety nets | |
| Berlin Brandenburg Airport | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Implementation of runway and airfield safety with ATC clearances monitoring is scheduled to be finished by 2020, pending airport opening.<br>(source LSSIP 2018) |

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| Düsseldorf International | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Implementation of runway and airfield safety with ATC clearances monitoring is scheduled to be finished by 2020. Current percentage of implementation is 25%.<br>(source LSSIP 2018) |
| Frankfurt International | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Implementation of runway and airfield safety with ATC clearances monitoring is scheduled to be finished by 2020. Current percentage of implementation is 28%.<br>(source LSSIP 2018) |
| Munich Franz Josef Strauss | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Implementation of runway and airfield safety with ATC clearances monitoring is scheduled to be finished by 2020. Current percentage of implementation is 25%.<br>(source LSSIP 2018) |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - The implementation of ASM support tools to support A-FUA was finished in January 2019.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data - The implementation of ASM Management of Real-Time Airspace Data has started and is planned to be finished in 2023. Current percentage of completion is 20%.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing - The implementation of full rolling ASM/ATFCM process and ASM information sharing is planned to be finished by the end of 2021. Current percentage of implementation is 25%.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - The implementation of the management of pre-defined airspace configurations is planned to be finished by the end of 2021. Current percentage of implementation is 40%.<br>(source LSSIP 2018) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace - The implementation of Free Route Airspace is ongoing for FABEC and expected to be completed by the end of 2021. Civil and military stakeholders are involved, however Air Traffic Services for OAT flights in Germany were provided by DFS. Current percentage of implementation is 40%.<br>(source LSSIP 2018) |
| **AF4 - Network Collaborative Management** | |
| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - The implementation of Short Term ATFCM Measures (STAM) - phase 1 is completed since December 2016.<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 - The implementation of Short Term ATFCM Measures (STAM) - phase 2 is planned to be finished by the end of 2021. No progress of implementation yet.<br>(source LSSIP 2018) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | No LSSIP info available |
| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment - A Local Traffic Load Management tool is planned to be implemented between 2017 - 2021. The evaluation and validation of the tool has started. DFS systems receive, process and integrate EFD provided by Network Manager. Expected completion date is the end of 2021 and current percentage of implementation is 60%.<br>(source LSSIP 2018) |
| **AF5 - Initial SWIM** | |
| s-AF5.1 Common infrastructure components | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%.<br>(source LSSIP 2018) |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%.<br>(source LSSIP 2018) |

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| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%.<br>(source LSSIP 2018) |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%. |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%.<br>(source LSSIP 2018) |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation activities are ongoing at DFS, with implementation date expected by the end of 2024. Current percentage of completion is 4%.<br>(source LSSIP 2018) |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - Data link functions are provided in accordance with DLS IR. The respective ATS system is upgraded accordingly.<br>(source LSSIP 2018) |

### d) Luxembourg

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |
| Luxembourg Airport | n/a |
| s-AF1.2 Enhanced TMA using RNP-based operations | |
| Luxembourg Airport | n/a |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Luxembourg Airport | n/a |
| s-AF2.2 DMAN integrating surface management constraints | |
| Luxembourg Airport | n/a |
| s-AF2.3 Time-based separation for final approach | |
| Luxembourg Airport | n/a |
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Luxembourg Airport | n/a |
| s-AF2.5 Airport safety nets | |
| Luxembourg Airport | n/a |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - Luxembourg airspace controlled by ANA does not contain military airspace and therefore no ASM cell I required in LU. ASM is handled in FIR Brussels by EBBR via NM. The OAT in Luxembourg is negligible.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data -Luxembourg airspace does not contain military airspace. All ASM / ATFCM processes and info sharing is handled at FIR Brussels by EBBR via NM.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing Luxembourg airspace does not contain military airspace. All ASM / ATFCM processes and info sharing is handled at FIR Brussels by EBBR via NM.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - This Objective is not applicable in Luxembourg and ANA is not involved in ASM<br>(source LSSIP 2018) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace -Delegation of service provision above FL 145/165 is to Belgocontrol and above FL 245 to EUROCONTROL Maastricht (MUAC); direct routes are provided in the entire airspace controlled by MUAC. FABEC FRA 3-step plan does not include airspace controlled by ANA.<br>(source LSSIP 2018) |
| **AF4 - Network Collaborative Management** | |

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| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - This item is not applicable for Luxembourg.<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 -All ATFCM measures for Luxembourg are implemented by the FMP position of Belgocontrol for the entire FIR Brussels in accordance with the established agreements. N/A for Luxembourg<br>(source LSSIP 2018) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP - Luxembourg is not in the applicability area of this objective has no intention to implement a rolling NOP. Given the fact that the ANSP does not operate an ASM system nor automated ASM support tool and Luxembourg airport is not a coordinated airport and provides no airport slot info to the EU Airport Coordinators Association (EUACA) it is not required to implement this Objective.<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | No LSSIP info available |
| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment -This item is not applicable for Luxembourg.<br>(source LSSIP 2018) |
| **AF5 - Initial SWIM** | |
| s-AF5.1 Common infrastructure components | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - ANA is aware and follows the developments in regard to the yellow profile information exchange requirements. Most information exchange requirements are not applicable, required or are already in place in ANA. However, some important and relevant information exchange features and functions will be implemented in time. Completion is expected by end 2024<br>(source LSSIP 2018) |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - This item is not applicable for Luxembourg. For further details, refer to MUAC LSSIP.<br>(source LSSIP 2018) |

### e) Netherlands

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |
| Amsterdam Schiphol | - MP Obj ATC07.1 AMAN Tools and Procedures - LVNL has basic arrival management functions in line with the EUROCONTROL specifications in place. An new extendable Arrival Manager for Schiphol is under development, the initial version AMAN 1.0 is in operational use, new AMAN versions 2.0 and 2.1 will be implemented in RP3 by the investment in “Extended Arrival Management (AMAN/XMAN)”.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - The interface with MUAC was implemented in 2011. The interface with other ANSPs will be implemented as part of Extended AMAN.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) – This will be implemented in RP3 by the investment in “Extended Arrival Management (AMAN/XMAN)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF1.2 Enhanced TMA using RNP-based operations | |
| Amsterdam Schiphol | -MP Obj NAV03.2 RNP 1 in TMA Operations - LVNL has set the first step by designing and implementing a RNAV route from ARTIP to 36R. RNP1 transitions and RNP1 SIDs for Schiphol Airport will be implemented in RP3 by the investment in “Performance Based Navigation (PBN)”.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - In 2010 the national PBN Roadmap has been approved. The implementation of APV is part of the PBN Roadmap. For five runway end at Schiphol RNP-APCH procedures will be implemented before RP3. All runway ends (10 in total) will be implemented in RP3 by the investment in “Performance Based Navigation (PBN)”. The current percentage of implementation is 50%.<br>(source LSSIP 2018 and investments in RP3) |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Amsterdam Schiphol | -MP Obj AOP05 Airport CDM - LVNL and Schiphol Airport participate together with Dutch Airlines in a CDM Platform, which uses the Eurocontrol CDM manual as input for its activities. Both AAS and LVNL are reviewing performance on a regular basis. Schiphol Airline Operators Committee has endorsed CDM, all local handlers are bound by local regulations to participate. In Q2 2015 CPDSP was taken in operational use. The start of exchange of DPI messages with the Eurocontrol Network Manager was effectuated in May 2018.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - Electronic Flight Strips are introduced in 2019, initially using interfaces with the current Tower system (FDP/RDP). Airport Safety Nets functionalities as runway related clearances will be implemented in RP3 as part of in the investment “Tower system.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF2.2 DMAN integrating surface management constraints | |

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| Amsterdam Schiphol | -MP Obj AOP04.1 A-SMGCS Level 1 - At Amsterdam Airport Schiphol, this Objective has been implemented under the responsibility of LVNL.<br>A-SMGCS at Amsterdam Airport Schiphol is operational. Ground labels are used for both aircraft and ground vehicles. All vehicles which are allowed within the manoeuvring area are equipped with transponders. A slight increase of ground capacity during low visibility conditions has been recorded. The next step is to further increase both runway and manoeuvring surface capacity and to take full advantage of the availability of ground labels. Simultaneous use of two landing runways during LVC should take place within the next years. While primary ground surveillance does not have full coverage, it appears that the recently improved coverage and reliability of the Multilateration information no longer make full primary ground surveillance necessary. Further introduction of safety-significant changes to A-SMGCS are now subject to verification of compliance and acceptance by IVW (CAA-NL) in accordance with (EC) Regulation No 1315/2007.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - RIASS (Runway Incursion and Alerting System Schiphol) has been implemented for Schiphol airport and is fully operational. RIASS was stepwise taken into operation from 2008 to 2010. At first the system was only used for a limited number of runways during reduced visibility. In phases the operational use has been extended to all runways and full time. Integration of A-SMGCS Level 1 and 2 with the new Tower FDP/RDP system and an upgrade of the Multilateration surveillance system is included in the investment “Tower system”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF2.3 Time-based separation for final approach | |
| Amsterdam Schiphol | -MP Obj AOP10 Time Based Separation - Time based separation will be implemented in 2021 as part of the investment “Increasing peak hour capacity and sustainability”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Amsterdam Schiphol | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing – The implementation of this function is included in the investment “Tower system”<br>(source LSSIP 2018 and investments in RP3) |
| s-AF2.5 Airport safety nets | |
| Amsterdam Schiphol | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Airport Safety Nets will be implemented at Schiphol with the replacement of the current Tower FDP/RDP system by the investment “Tower system”, starting in 2020.<br>(source LSSIP 2018 and investments in RP3) |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - The civil airspace controlled by LVNL is 24/7 available for air traffic. In order to make effectively use of military airspace and CDR's for civil air traffic, implementation of LARA in RP3 is part of the investment “Capacity Management”.<br>Within the military ATM structure LARA is allready installed and as of October 2017 FOC. However the co-location at LVNL will enable the full scope of the SLoA to be completed accordingly. The current percentage of implementation is 41%.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data - The civil airspace controlled by LVNL is 24/7 available for air traffic. In order to make effectively use of military airspace and CDR's for civil air traffic. For the further realisation of AOM 19.2 iCAS has to be implemented.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing - The implementation of LARA V3 will fully support the automated process with regard to military rolling ASM process and is expected to be completed by the end of 2021.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - For the further realisation of AOM 19.4 iCAS has to be implemented. Shortly before and also afterwards, activities concerning this objective could start.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace - No civil local FRA airspace has been identified in the Amsterdam FIR below FL245. Military system improvements have been implemented. The FABEC FRA TF is aiming at the implementation of FRA above FL365 before 2018.<br>(source LSSIP 2018) |
| **AF4 - Network Collaborative Management** | |

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| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - This item is not applicable for The Netherlands.<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 - In 2017 LVNL started activities on the further development of capacity management. These will continue in the years to come and will also focus on STAM procedures. LVNL will work on the what-if function of a Workload Model. This will provide an upgrade in the local systems for STAM procedures. STAM procedures are part of the investment “Capacity Management”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP - Amsterdam Airport Schiphol provides all required data to the NM. RNLAF has planned the use of AIXM 5.1 B2B and data exchange with NM with the next version of LARA. LVNL has planned the use of LARA as well. The current percentage of implementation is 78% and the expected implementation date is the end of 2021.<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | No LSSIP info available |
| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment - LVNL has implemented a WorkLoad Model (WLM) that is based on ETFMS data. The WLM is in use to predict and monitor ACC sector workload based i.a. on traffic and weather circumstances. The WLM will be enhanced for the Schiphol TMA / APP and further developments for the ACC WLM are part of the investment “Capacity Management”. Based on the WLM output appropriate ATFCM measures are applied when necessary. The implemented ATFCM procedures are tailored to maintain the Schiphol hub operation. The completion date is expected by the end of 2020 and the current percentage of implementation is 77%.<br>(source LSSIP 2018 and investments in RP3) |
| **AF5 - Initial SWIM** | |
| s-AF5.1 Common infrastructure components | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - Implementation in RP3 is part of the investment “System Wide Information Management (SWIM)”.<br>(source LSSIP 2018 and investments in RP3) |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - The Netherlands will provide initial ATC air-ground data link services above FL285 through Maastricht UAC. Data Link Services are provided by MUAC from 2002 onwards. However in light of the requirements for safety oversight of changes to the ATM system, when a change on the implementation of the Data Link Services is envisaged by the ANSP, it will be adequately addressed by the safety oversight process of ILT (CAA-NL) in colaboration with the other 3 MUAC States. Safety argumentation of the changes imposed by the implementation of the Data Link Services will be reviewed as appropriate. Only PM-CPDLC equipped aircraft will be able to log-on for ATN via VHF data link Mode 2 (VDL M2)-. Address management procedures follow the ICAO document EUR Doc 28, tittled -EUR NSAP Address Registry-. Information in regard to Data Link Services have been published in the NL AIP (Gen 3.4).<br>(source LSSIP 2018) |

### f) Switzerland

| PCP ATM Functionality (AF) / Sub functionality (s-AF) | Recent and expected progress |
|---|---|
| **AF1 - Extended AMAN and PBN in high density TMA** | |
| s-AF1.1 AMAN extended to en-route airspace | |

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| Zurich Kloten | -MP Obj ATC07.1 AMAN Tools and Procedures - An Arrival management tool is implemented in Zurich, called CALM.<br>-MP Obj ATC15.1 Information Exchange with En-route in Support of AMAN - AMAN tools and exchange mechanisms and corresponding procedures have been established in Switzerland for years. Time To Lose (TTL) information is provided in LSZH operational environment (APP and corresponding upper sectors). An XMAN implementation project (including an OPS trial) is on-going which will allow an extension of the ER operational coordination with adjacent centers. The current AMAN in LSZH (CALM) will be replaced (AMAN CH Project 2018-2020)<br>Changes to the existing framework will be treated according to standard oversight procedures (EC REG 1034/2011). With the new AMAN, the XMAN Horizon will be increased to the required 200 NM.<br>-MP Obj ATC15.2 - Arrival Management Extended to En-route Airspace) - An AMAN is implemented in Zurich. In the frame of the FABEC activities an XMAN project was launched in 2015. Initial step is to receive XMAN information (Munich) from DFS and integrate them in Zurich ACC for operational use by ACC ATCOs. Also with this step, XMAN information is sent to Munich, Langen & Reims for operational use by ACC ATCOs of these adjacent centers. The current percentage of implementation is 49% and the expected completion date is December 2023.<br>(source LSSIP 2018) |
| s-AF1.2 Enhanced TMA using RNP-based operations | |
| Zurich Kloten | -MP Obj NAV03.2 RNP 1 in TMA Operations - RNP1 deployment in TMA is part of PBN implementation strategy expected to be completed by December 2023. The current percentage of implementation is 50%.<br>-MP Obj NAV10 RNP Approach Procedures with Vertical Guidance - Approach Procedures with Vertical Guidance have been implemented in LSZHin September 2016.<br>(source LSSIP 2018) |
| **AF2 - Airport Integration and Throughput** | |
| s-AF2.1 DMAN synchronised with predeparture sequencing | |
| Zurich Kloten | -MP Obj AOP05 Airport CDM - Airport CDM Applications Level 1 to 3 implemented since 2013 and audited by EUROCONTROL CDM-Team.<br>-MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) – SloA ASP03 - Completed for the runway part (TWR) and to be completed for the airfield part (APRON).<br>(source LSSIP 2018) |
| s-AF2.2 DMAN integrating surface management constraints | |
| Zurich Kloten | -MP Obj AOP04.1 A-SMGCS Level 1 - A-SMGCS Level 1 is operational at Zurich Airport since 2010.<br>-MP Obj AOP04.2 A-SMGCS Level 2 - A-SMGCS Level 2 is operational at Zurich Airport since 2010.<br>(source LSSIP 2018) |
| s-AF2.3 Time-based separation for final approach | |
| Zurich Kloten | -MP Obj AOP10 Time Based Separation - The PCP is being reviewed and Skyguide requested that Zürich is removed from the applicability area. However, an implementation project might be launched (LORD) for 2024, although currently there are no plans.<br>(source LSSIP 2018) |
| s-AF2.4 Automated assistance to controller for surface movement planning and routing | |
| Zurich Kloten | -MP Obj AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing - An SMAN implementation project is started. Gathering of system requirements is ongoing. The implementation is foreseen for December 2027, after the replacement of the current DMAN. The current percentage of implementation is 5%.<br>(source LSSIP 2018) |
| s-AF2.5 Airport safety nets | |

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| Zurich Kloten | -MP Obj AOP12 Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC) - Currently, ZRH TWR ATCO clearances and instructions are not systematically traced in the e-strip and A-SMGCS equipment. Furthermore clearances and instructions which are already entered into the different equipment are recorded afterwards.<br>The Advanced Runway Safety Improvement (ARSI) project aims at changing the working methods and procedures to systemically trace controller actions to record the clearances and instructions to get knowledge of the controllers intentions. Moreover this requires a more and deeper coupled e-strip and A-SMGCS systems as it is the case today in order to improve the situational awareness within the TWR and APRON rooms as well as to provide alerts/warnings in case of safety critical / contradictory ATC clearances. A special focus has to be paid to the crossing runways in terms of take-offs and landings in their different configurations.<br>This new capability to alert of potentially critical situations is to be realized through the integration between the existing skyguide TWR A-SMGCS (SAMAX), TWR/APP e-strip and coordination tool (TRACE), FZAG airport e-strip and DMAN (DARTS) and SMAN (to come).<br>This should contribute to a first step towards the complete integration of the automation support tools provided by the ANSP for TWR control and those managing the airport situation.<br>In addition, this new capability will be put in the latter into relation with the up-to-come new FZAG AGL (Air Ground Lighting) system to interact in a more advanced way with it using the new capabilities developed in ARSI to pave the foundations for initiatives like PIVIS or follow-the-green.<br>(source LSSIP 2018) |
| **AF3 - Flexible Airspace Management and Free Route** | |
| s-AF3.1 Airspace management and advanced flexible use of airspace | - MP Obj AOM19.1 ASM Support Tools to Support Advanced FUA (AFUA) - LARA tool is in place and the B2B SW Release 3.0 is implemented since 2016.<br>- MP Obj AOM19.2 ASM Management of Real-Time Airspace Data - A study is on-going to identify system changes. This study should lead to the launch of an implementation project.<br>- MP Obj AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing - A study is on-going to identify system changes but concret plans are not yet available.<br>- MP Obj AOM19.4 Management of Pre-defined Airspace Configurations - Management of Pre-defined Airspace Configurations is not yet planned.<br>(source LSSIP 2018) |
| s-AF3.2 Free route | - MP Obj AOM21.2 Free Route Airspace - FABEC FRA delivered a good basis to develop the FRA concept for Switzerland. Also, the SESAR FRA validation will be used to test some specific performance of the foreseen FRA Switzerland design. The on-going FRA Switzerland project aims to implement FRA in the Swiss Area of Responsibility by December 2021 . The current percentage of implementation is 18%.<br>(source LSSIP 2018) |
| **AF4 - Network Collaborative Management** | |
| s-AF4.1 Enhanced short-term ATFCM measures | - MP Obj FCM04.1 Short Term ATFCM Measures (STAM) - Phase 1 - A local tool, Crystal has been developed (in house) and is used to perform STAM Phase 1 En-Route. Integration to the CHMI is awaited from the NM (local traffic monitoring rules cannot be interpreted by the NM) . The current percentage of implementation is 78%.<br>-MP Obj FCM04.2 Short Term ATFCM Measures (STAM) - Phase 2 - STAM - phase 2 is implemented between Geneva and Zürich ACCs.<br>(source LSSIP 2018) |
| s-AF4.2 Collaborative NOP | - MP Obj FCM05 Interactive Rolling NOP - LARA B2B V3 tool is in use and was implemented in 2016.<br>(source LSSIP 2018) |
| s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes | No LSSIP info available |
| s-AF4.4 Automated support for traffic complexity assessment | - MP Obj FCM06 Traffic Complexity Assessment - Skyguide is using CRYSTAL, a traffic complexity and prediction tool which allows supervisors to continuously monitor sector demand and evaluate traffic complexity (by applying predefined complexity metrics) according to a predetermined qualitative scale. The current percentage of implementation is 80% and a new local traffic complexity tools and procedures are expected to be implemented by the end of 2021.<br>(source LSSIP 2018) |
| **AF5 - Initial SWIM** | |

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| s-AF5.1 Common infrastructure components | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| s-AF5.2 SWIM technical infrastructure and profiles | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| s-AF5.3 Aeronautical information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| s-AF5.4 Meteorological information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| s-AF5.5 Cooperative network information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| s-AF5.5.6 Flight information exchange | - MP Obj INF08.1 Information Exchanges using the SWIM Yellow TI Profile - The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing, thus currently there are no implementation plans.<br>(source LSSIP 2018) |
| **AF6 - Initial Trajectory Information Sharing** | - MP Obj ITY-AGDL Initial ATC Air-Ground Data Link Services - The AGDL CPDLC is in operation in both Geneva and Zurich ACC (above FL245) since end 2012 (Geneva) and beginning 2013 (Zurich).<br>(source LSSIP 2018) |

## 4.3 - Change management

Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance

**Skeyes**

change management for the shared ATS services solution (SAS)
Skeyes will clearly identify all the necessary elements towards this change in a dedicated change management process, part of the SAS program. Aim is to have limited impacts on operational traffic, even during the transition phase of the change.
Amongst others, skeyes will assess all the changes and impacts to different functional systems generated by this change. The internal safety management procedures will be followed, as will be the case for the risk assessment. Obtaining the necessary approval of this change by the Belgian Supervisory Authority will be essential to the SAS program.
With respect to different assessments, the human factors aspect (operational and technical staff) will be covered as well. The necessary elements to timely train operational and technical staff will be foreseen in the SAS program. Operational and technical staff will extensively participate – from the beginning) in the program in order to guarantee user requirements are correctly implemented in the SAS solution.
The whole change management process will be monitored as part of the SAS program.

**DFS**

In the context of the planned development/implementation of major airspace changes as well as new/revised ATM systems, the rules of the relevant project structure foresee as one essentiel element a dedicated change management process. Key goals of this process are on the one hand the limitation of potential impacts on operational traffic, even during the transition phase of the change and on the other hand the close involvement of all concerned (operational and technical) staff members.

Amongst others, the process also includes the assessment of all the changes and potential impacts to different functional systems generated by this change, safety- and risk assessments, as well as the approval by the German NSA.

As an integral part of functional systems, regarding the involvement of all concerned (operational and technical) staff, an essentiel element is the human factors aspect, including timely training programs. Operational and technical staff are being involved in the different development and implementation steps right from the beginning of each project in order to guarantee that all aspects relating to user and staff requirements are appropriately being addressed.

The whole change management process of each project is regularly being monitored as part of the project management process.

**DSNA**

Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance

**A modern methodology for program management:**

As well as DSNA is committed to modernizing its systems, it pursues the continuous improvement of its project/program/portfolio management process. This process has been formalized and is supported by a dedicated team which provides tools and coaching directed towards project and program managers and their teams.

All DSNA major programs (4-Flight and SYSAT among others) are managed using the MSP method (Managing Successfully Programs), as well as Prince 2 and PMI. DSNA top 100 managers have been trained to the MSP standard.

The experience feedback from the first major stages of the technical modernization of the DSNA (deployment of the EEE stripless -ERATO - system at Brest and Bordeaux, development of the CAUTRA system core to integrate data link services with EHS and ground/ground communications in IP) has highlighted several issues regarding DSNA technical and operational processes during the phases of operational commissioning of new systems which needed improvement.

As per the MSP method, DSNA has designated dedicated managers in charge of the change management aspects for programs like 4-Flight and SYSAT. In cooperation with the managers in charge of the technical aspects, these managers are responsible for the transition plan associated to each program.

The process of delivery of system versions will be secured by stabilizing the contents of the versions, by sequencing production more effectively, and by ensuring the completeness and representativeness of tests in industry, at the DTI and on operational sites. The managerial transformation approaches initiated since 2015, focused on the management issues of technical modernization and now yielding their first benefits, are being continued and extended to three cross-disciplinary fields which are strategic for the DSNA: innovation, agility and partnerships.

Application of this methodology as well as the development of the portfolio management in DSNA have been a positive enabler for consolidated risk management. Through our methodology and tools, risks escalate in a more efficient and timely manner up to the adequate level for a more efficient and consolidated risk management.

**Management of tactical changes, disruption and management of strategic changes (French ATM Strategy):**

DSNA has developped the concept of Collaborative Decision Making, a set of methods and tools that enable to manage pre-tactical and tactical disruptions caused by unforeseen events in close collaboration with all the relevant stakeholders such as the Network Manager, the operators and the airport managers.

To address longer term strategic changes, French ATM Strategy (FAS) is a joint DSNA/IATA initiative launched at the end of 2017. The stake for DSNA is to set up the stakeholder strategy platform needed to support its main transformation programmes that DSNA has launched in the framework of SESAR roadmap (free route airspace in en-route, new ATM systems and tools, terminal airspace sustainable design, transition from ground to space based CNS infrastructure). These challenging programmes take place in a wider transformation challenge of the ecological transition sponsored in France by the Ministry for the Ecological and Inclusive Transition.

These transformations, to be successful, need:
- To take into consideration the impact on day to day business of all stakeholders and to assess the best compromise;
- To involve stakeholder into the decision making, also because change can impact their own corporate processes and organisation.
- To consider also stakeholders as a potential resource to contribute to projects.

FAS is an opportunity to consolidate a national CDM platform to involve our stakeholders. The current draft version of the FAS is provided in annex E of the FABEC performance plan.

**Evolving while maintaining safety:**

The performance of DSNA safety service depends on its ability to integrate technical and operational innovations to adapt to the changing context and maintaining a high level of operational skills. Providing this service now and tomorrow to the highest level of requirement and performance lastly entails fully integrating security issues, and in particular the threat of cyber into increasingly more automated and interoperable with all the aerospace stakeholders.

To do this, DSNA will however continue to capitalize on the three historical pillars of its safety approach which are the high level of operational competence of the personnel, reporting and transparency in a Just culture framework and finally its recognized acknowledgment in the deployment of “safety net” tools. DSNA will consolidate the fourth pillar that is now cybersecurity, along with the management of technical transitions by capitalizing on experience feedback.

Following the diagnosis on the operation of its SMS established in 2015, and in the aim of integrating the results of discussions then initiated as part of its “integrated safety approach”, the DSNA will resolutely commit to a transformation of its SMS, particularly aiming, by the creation of “unit safety cases”, to:
- Take into account safety event analyses (and, more broadly, findings) in the safety studies
- Harmonize and optimize safety studies
- Capitalize on the analysis results of the findings
- Better take into account the human factor element in the functional system

To do this, the DSNA has already decided to seize the opportunity of the new European regulation 2017-373 (known as ATM-IR) to achieve its goals: empowering the SMS with the prospect of making it more adaptive (than normative), bringing the designed close to the end user, developing the “collection” modes, and better defining the strategic policies in the matter by an approach by risks (precaution vs. innovation).

For this purpose, a modeling of DSNA safety, by the adoption of a so-called “barrier” safety model, will be established from 2019/2020, on which the DSNA’s safety assessment methodologies will be based.

**LVNL**

With all changes LVNL pays attention to limiting the negative impact on the operation. This is achieved in different ways depending on the type of change. For example changes at the controller working position and operational testing of software are done during night hours. For airspace changes, such a phasing will be applied that is feasible for airspace users and air traffic controllers. The cut over to the new iCAS ATC system will be done in the winter season and will be executed using the so called Shadow-Mirroring principle. A new building, intended as a contingency and training facility, will be used for the transition to iCAS. The new system will be installed in that new building and integrated with all other systems, creating a fully independent operational environment without any major effect on the current operation. To test the iCAS system in real operations pre-transition life operations will be executed during nights and weekends. After thorough training the controllers will temporarily provide services from the new building using the iCAS system. The controllers move back after replacement of the current ATC-system in the main operational room.

**skyguide**

During RP3, skyguide will continue to conduct change management programs and projects to introduce major airspace changes and ATM System improvements.

Skyguide will extend the usage of the "Agile" framework introduced by the Virtual Center program since 2015. This new way to realize the content of the changes will be progressively extended to all projects in ATM/AIM areas related to "Innovation & Custom solutions" where using an Agile methodology brings benefits.
The benefits are related to better efficiency, effective realization of a Service Oriented Architecture, smoother and more frequent deliveries of smaller changes and support to continuous innovation with the introduction of DevOps principles.
For the projects where a traditional approach makes more sense, the existing well-known "Innovation & Change Management" process will continue to be used and will evolve according to the needs.

In support to the Scaled Agile Framework extension, the skyguide transformation program (TOM) will also drive the formalization of a new "Software Factory" to concentrate and streamline all software development efforts for the sake of better efficiency, greater flexibility and enhanced quality.

**MUAC**

Change Management ensures that all changes are efficiently and promptly handled, using adequate methods and procedures, in order to guarantee coherence with the MUAC Work Plan (MWP) and to minimise the impact of changes upon other processes.

This process is executed for any change, i.e. any introduction, modification or removal of any configuration item (CI) of the MUAC System (staff, equipment, procedures) which requires a minimum level of predictability. Changes find their origin in user requests, projects, corrective actions, regulatory requirements and problems to be fixed. Excluded are corrective hardware maintenance (like-for-like replacements) as well as changes that are part of the normal operation of the system as documented in user manuals (e.g. switch off a comms line).

Depending on its size, risk and/or exposure, a change may be managed as a project. In such case, Strategy & Performance Management triggers the project initiation by an approved Idea Sheet (IDS), committing resources for this first stage, and approves the Project Management Plan (PMP) to allocate the necessary resources for the project execution.

Project management at MUAC follows the PRINCE2 methodology, tailored as needed to the MUAC environment.

**ANA Luxemburg**

For the ANSP, change management practices and transition plans are governed by the current change management process/procedure in place to deal with changes to the ATM FS. An airspace change for example follows this process and is safety assessed by practitioners from the unit and the Certification department. Any possible negative impact is assessed, reviewed and mitigated in this process. A transition plan is one step of the safety assessment process.

As examples, the following are recent ANA projects that have fallen under this procedure: Surveillance Chain Upgrade, Airspace Reclassification, 8.33 implementation. New projects, such as the ILS 06 and 24 replacements also fall under this procedure.

# SECTION 5: TRAFFIC RISK SHARING ARRANGEMENTS AND INCENTIVE SCHEMES

**5.1 - Traffic risk sharing**

5.1.1 Traffic risk sharing - En route charging zones

5.1.2 Traffic risk sharing - Terminal charging zones

**5.2 - Capacity incentive schemes**

5.2.1 - Capacity incentive scheme - Enroute

5.2.1.1 Parameters at FAB level for the calculation of financial advantages or disadvantages - Enroute

5.2.1.2 Rationale and justification - Enroute

5.2.1.3 Parameters for the calculation of financial advantages or disadvantages - Enroute (skeyes)

5.2.1.4 Parameters for the calculation of financial advantages or disadvantages - Enroute (DSNA)

5.2.1.5 Parameters for the calculation of financial advantages or disadvantages - Enroute (DFS)

5.2.1.6 Parameters for the calculation of financial advantages or disadvantages - Enroute (LVNL)

5.2.1.7 Parameters for the calculation of financial advantages or disadvantages - Enroute (Skyguide)

5.2.1.8 Parameters for the calculation of financial advantages or disadvantages - Enroute (MUAC)

5.2.2 - Capacity incentive scheme - Terminal

5.2.2.1 Belgium

5.2.2.2 France

5.2.2.3 Germany

5.2.2.4 Luxembourg

5.2.2.5 Netherlands

5.2.2.6 Switzerland

**5.3 - Optional incentives**

**Annexes of relevance to this section**

ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING

ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES

ANNEX K. OPTIONAL INCENTIVE SCHEMES

## 5.1 - Traffic risk sharing

### 5.1.1 Traffic risk sharing - En route charging zones

| **Belgium-Luxembourg** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **France** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Germany** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Netherlands** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Switzerland** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

## 5.1.2 Traffic risk sharing - Terminal charging zones

| **Belgium EBBR** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **France - Zone 1** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **France - Zone 2** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Germany - TCZ** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Luxembourg - TCZ** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Netherlands - TCZ** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

| **Switzerland - TCZ** | | | Traffic risk-sharing parameters adapted? | | | no |
|---|---|---|---|---|---|---|
| | | | Service units lower than plan | | Service units higher than plan | |
| | Dead band | Risk sharing band | % loss to be recovered | Max. charged if SUs 10% < plan | % additional revenue returned | Min. returned if SUs 10% > plan |
| Standard parameters | ±2,00% | ±10,0% | 70,0% | 5,6% | 70,0% | 5,6% |

## 5.2 - Capacity incentive schemes

### 5.2.1 - Capacity incentive scheme - Enroute

#### 5.2.1.1 Parameters at FAB level for the calculation of financial advantages or disadvantages - Enroute

| | |
|---|---|
| ***Ratio CRSTMP*** | ***66,00%*** |

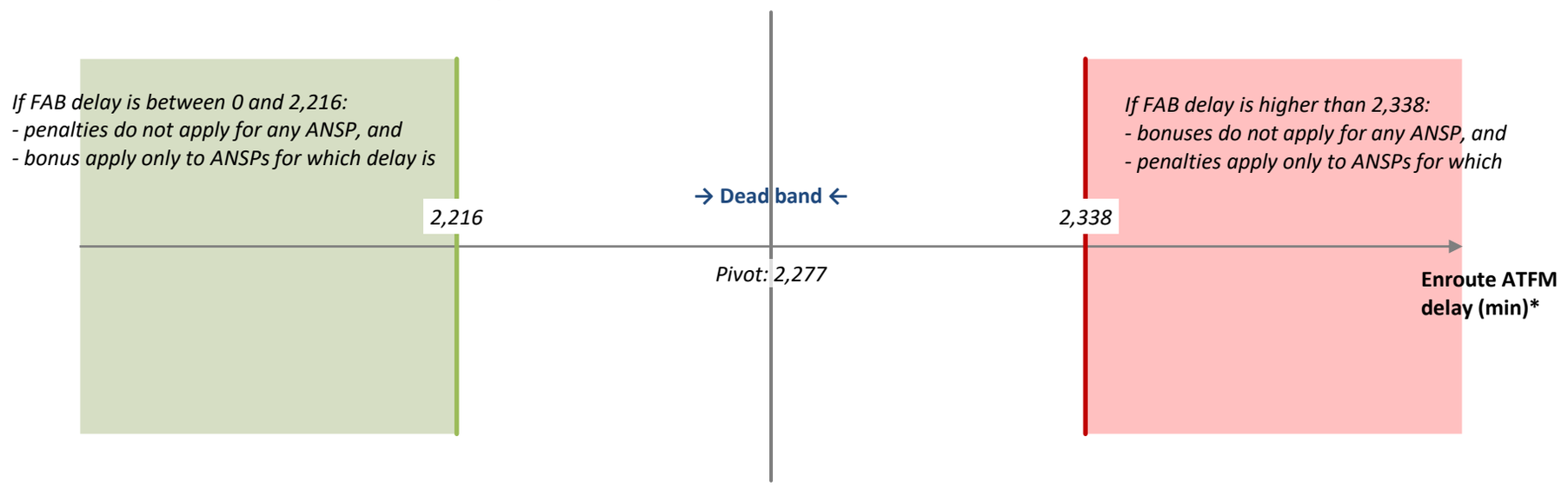
| **FABEC - Enroute** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±2,7% |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,69 | 0,68 | 0,51 | 0,37 | 0,36 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,075 | ±0,074 | ±0,066 | ±0,059 | ±0,058 |
| FAB Performance Plan targets (mins of ATFM delay per flight) | | **3,45** | **3,88** | **3,61** | **2,19** | **1,78** |
| FAB pivot values for RP3 (mins of ATFM delay per flight)* | | **2,28** | **2,56** | **2,38** | **1,45** | **1,17** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [2,216-2,338] | [2,492-2,63] | [2,318-2,447] | [1,406-1,484] | [1,143-1,207] |
| | Bonus range | FAB delay < 2,216 | FAB delay < 2,492 | FAB delay < 2,318 | FAB delay < 1,406 | FAB delay < 1,143 |
| | Penalty range | FAB delay > 2,338 | FAB delay > 2,63 | FAB delay > 2,447 | FAB delay > 1,484 | FAB delay > 1,207 |

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2 below. The pivot values for year n have to be notified to the EC by 1 January n.*

**Application of the FAB incentive scheme in year 2020**
**(before any revision of the NOP reference values)**




**Only C, R, S, T, M, P causes*

#### 5.2.1.2 Rationale and justification - Enroute

| | |
|---|---|
| Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3: | |
| a) In order to enable significant and unforeseen changes in traffic to be taken into account: | |
| a.1) The pivot value for year n IS the reference value from the November release of year n-1 of the NOP. | No |
| a.2) The pivot value for year n is informed by the November release of the year n-1 of the NOP and calculated according to the following principles and formulas:** | Yes |

As from the pivot value (pv n) initially filled in the FABEC Performance Plan at both levels (FABEC and ANSP), the *informed* Pivot Value of year n (PV n) will be calculated yearly by updating (pv n) with the trend (t) of the reference value (RV) from the November release of year n-1 of the NOP compared to the value from the FABEC performance plan (RVpp): t = [(RV n/RVpp n) -1]

Then, a non linear function is defined for determining the Pivot Value of the year n: PV n = [pv n]^(1+t)
Indeed, ATFM *en route* delays are increasing exponentially when the traffic is close to the the limit of capacity and even going to overshoot it. In that respect, only a non linear function is relevant to update (pv n) for setting annually the Pivot Value (PV n).

Knowing that the FABEC performance capacity targets for which the air traffic scenario is based on a level of ambition in compliance with the STATFOR baseline scenario, the dead-band has been fixed as wide as possible. In any case, such a dead-band remains narrow compared to the magnitude of the pivot value.
Knowing that the value of the ANSP contribution to the FABEC performance capacity targets, the dead-band has been fixed not only in a consistent manner to all ANSPs concerned but also with an expression which does rely on the NSA's choice related to the magnitude of the ANSP pivot value.

| | |
|---|---|
| b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated. | Yes |

The FABEC incentive scheme for the *en route* ATFM delay per flight KPI has been established in accordance with the requirements of Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky.
The FABEC incentive scheme is only based on the *en route* ATFM delay causes related to the codes C, R, S, T, M and P of the ATFCM user manual. FABEC had already decided to focus on these *en route* ATFM delay causes in RP2 because the ANSPs are responsible for them. Accordingly, the FABEC incentive scheme has only to take into account this responsibility for getting any financial advantages or disadvantages.
Considering the ratio of *en route* ATFM delay CRSTMP causes, the historical data show that roughly 66% of *en route* ATFM delay can be considered under the responsibility of ANSPs. Therefore, pivot value (pv n) represents two-thirds of the capacity targets.

Regarding the way of calculation for a pivot value (PV n) as from the initial pivot (pv n) and the trend (t) of the reference value (RV), see above.

*** Refer to Annex I, if necessary.*

### 5.2.1.3 Parameters for the calculation of financial advantages or disadvantages - Enroute (skeyes)

| *Ratio CRSTMP* | *66%* |
|---|---|

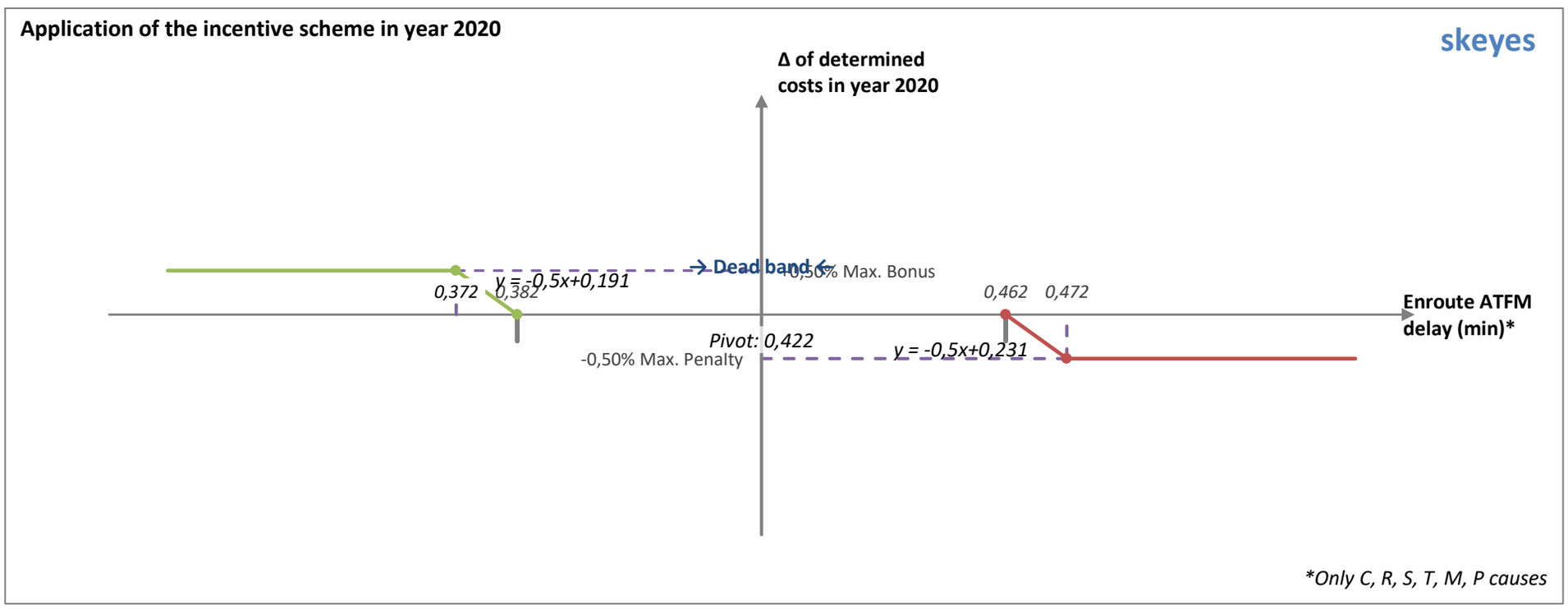
| **skeyes** | Expressed in | Value |
|---|---|---|
| Dead band Δ | fraction of min | ±0,040 min |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,2 | 0,21 | 0,17 | 0,12 | 0,12 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,050 | ±0,051 | ±0,050 | ±0,050 | ±0,050 |
| Performance Plan targets (mins of ATFM delay per flight) | | **0,64** | **0,61** | **0,56** | **0,48** | **0,48** |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | **0,42** | **0,40** | **0,37** | **0,32** | **0,32** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [0,382-0,462] | [0,363-0,443] | [0,33-0,41] | [0,277-0,357] | [0,277-0,357] |
| | Bonus range* | [0,372-0,382] | [0,352-0,363] | [0,32-0,33] | [0,267-0,277] | [0,267-0,277] |
| | Penalty range* | [0,462-0,472] | [0,443-0,453] | [0,41-0,42] | [0,357-0,367] | [0,357-0,367] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



### 5.2.1.4 Parameters for the calculation of financial advantages or disadvantages - Enroute (DSNA)

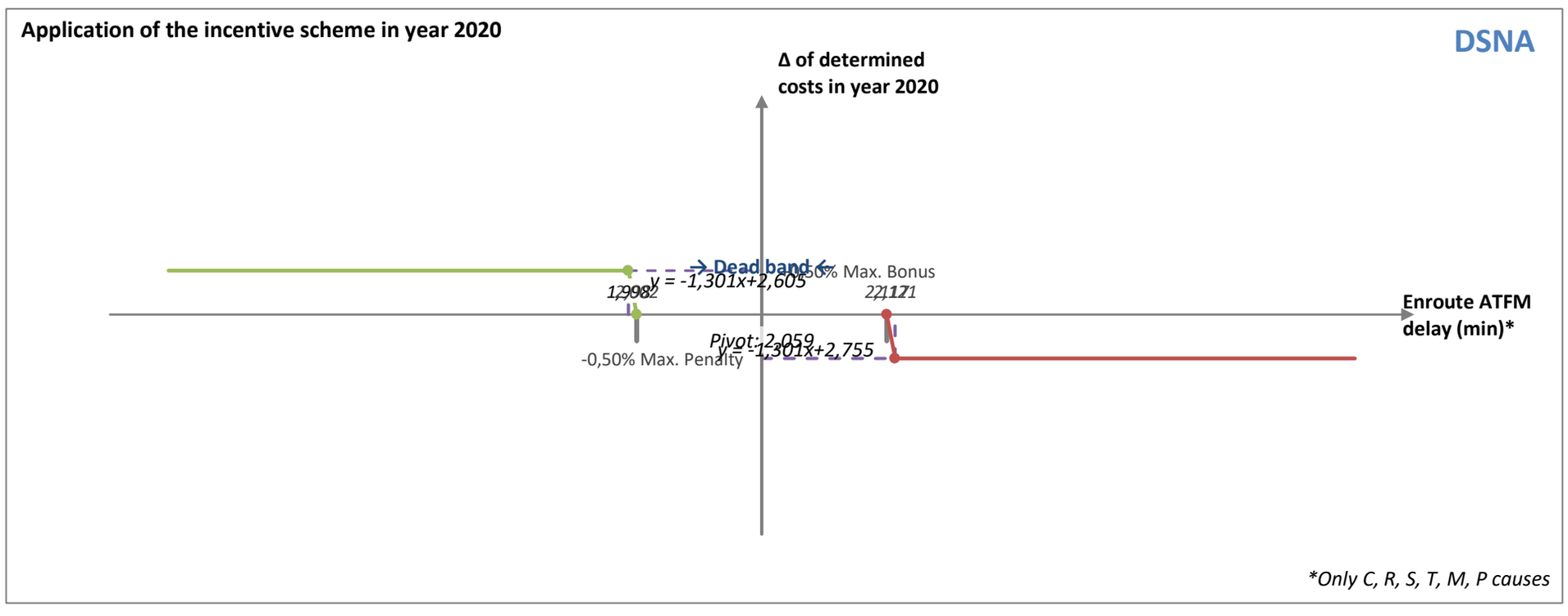
| **DSNA** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±2,8% |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,43 | 0,43 | 0,32 | 0,23 | 0,23 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,062 | ±0,062 | ±0,056 | ±0,052 | ±0,052 |
| Performance Plan targets (mins of ATFM delay per flight) | | **3,12** | **2,52** | **2,00** | **1,91** | **1,29** |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | **2,06** | **1,66** | **1,32** | **1,26** | **0,85** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [2,002-2,117] | [1,617-1,71] | [1,283-1,357] | [1,225-1,296] | [0,828-0,875] |
| | Bonus range* | [1,998-2,002] | [1,602-1,617] | [1,264-1,283] | [1,209-1,225] | [0,8-0,828] |
| | Penalty range* | [2,117-2,121] | [1,71-1,725] | [1,357-1,376] | [1,296-1,312] | [0,875-0,903] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



### 5.2.1.5 Parameters for the calculation of financial advantages or disadvantages - Enroute (DFS)

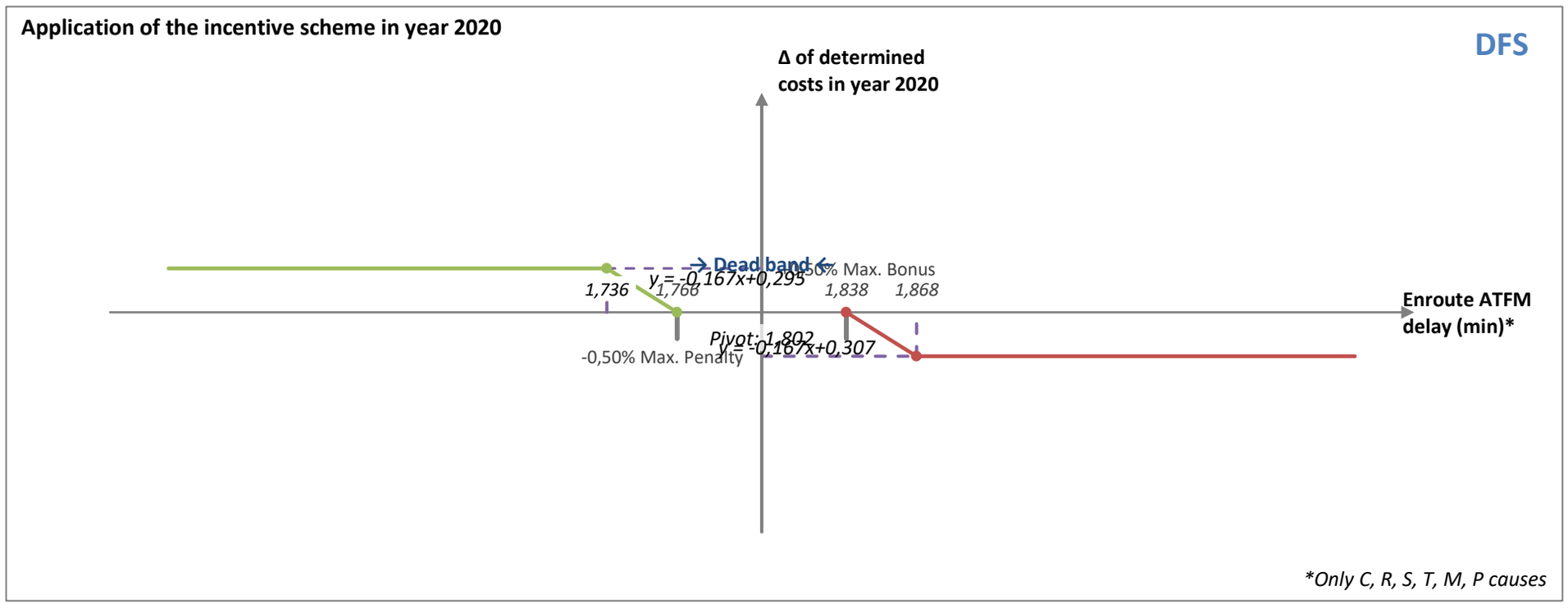
| **DFS** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±2,0% |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,52 | 0,5 | 0,37 | 0,25 | 0,23 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,066 | ±0,065 | ±0,059 | ±0,053 | ±0,052 |
| Performance Plan targets (mins of ATFM delay per flight) | | **2,73** | **4,14** | **4,24** | **1,48** | **1,28** |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | **1,80** | **2,73** | **2,80** | **0,98** | **0,84** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [1,766-1,838] | [2,678-2,787] | [2,742-2,854] | [0,957-0,996] | [0,828-0,862] |
| | Bonus range* | [1,736-1,766] | [2,667-2,678] | [2,74-2,742] | [0,924-0,957] | [0,793-0,828] |
| | Penalty range* | [1,838-1,868] | [2,787-2,797] | [2,854-2,857] | [0,996-1,029] | [0,862-0,896] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



### 5.2.1.6 Parameters for the calculation of financial advantages or disadvantages - Enroute (LVNL)

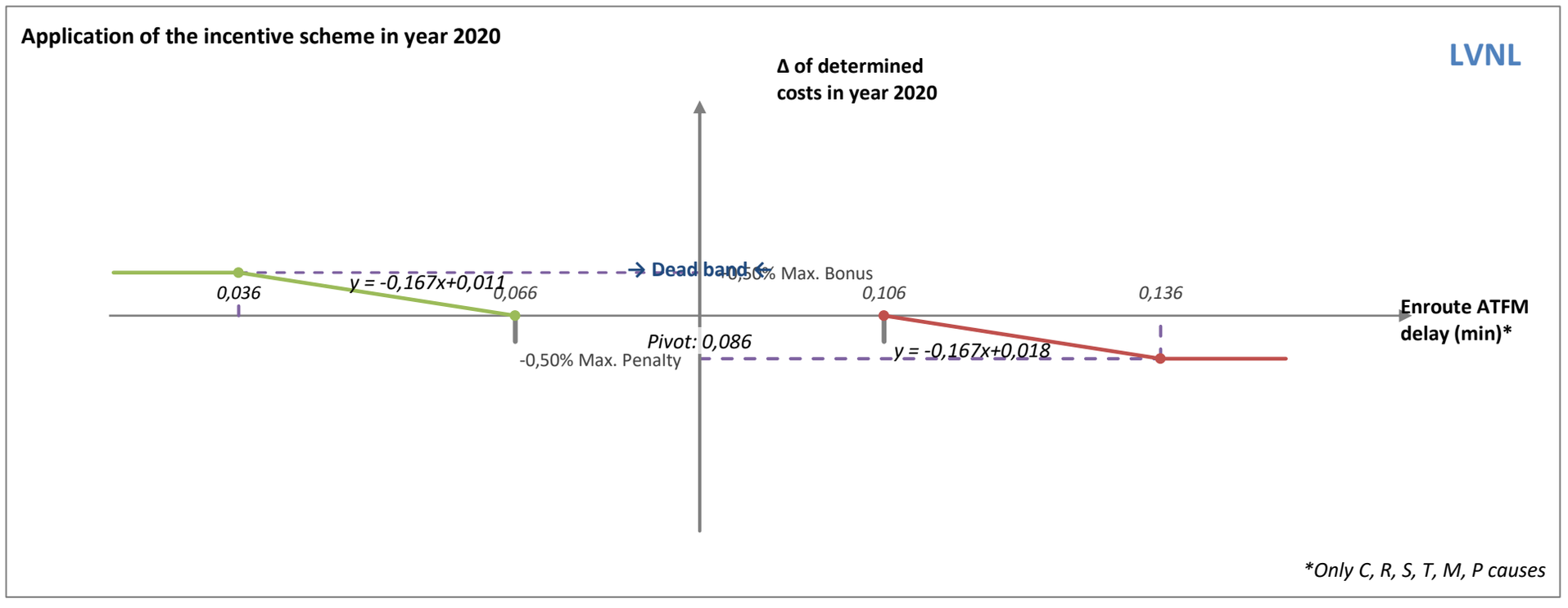
| **LVNL** | Expressed in | Value |
|---|---|---|
| Dead band Δ | fraction of min | ±0,020 min |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,13 | 0,14 | 0,12 | 0,12 | 0,11 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,050 | ±0,050 | ±0,050 | ±0,050 | ±0,050 |
| Performance Plan targets (mins of ATFM delay per flight) | | 0,13 | 0,17 | 0,17 | 0,21 | 0,13 |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | 0,09 | 0,11 | 0,11 | 0,14 | 0,09 |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [0,066-0,106] | [0,092-0,132] | [0,092-0,132] | [0,119-0,159] | [0,066-0,106] |
| | Bonus range* | [0,036-0,066] | [0,062-0,092] | [0,062-0,092] | [0,089-0,119] | [0,036-0,066] |
| | Penalty range* | [0,106-0,136] | [0,132-0,162] | [0,132-0,162] | [0,159-0,189] | [0,106-0,136] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



### 5.2.1.7 Parameters for the calculation of financial advantages or disadvantages - Enroute (Skyguide)

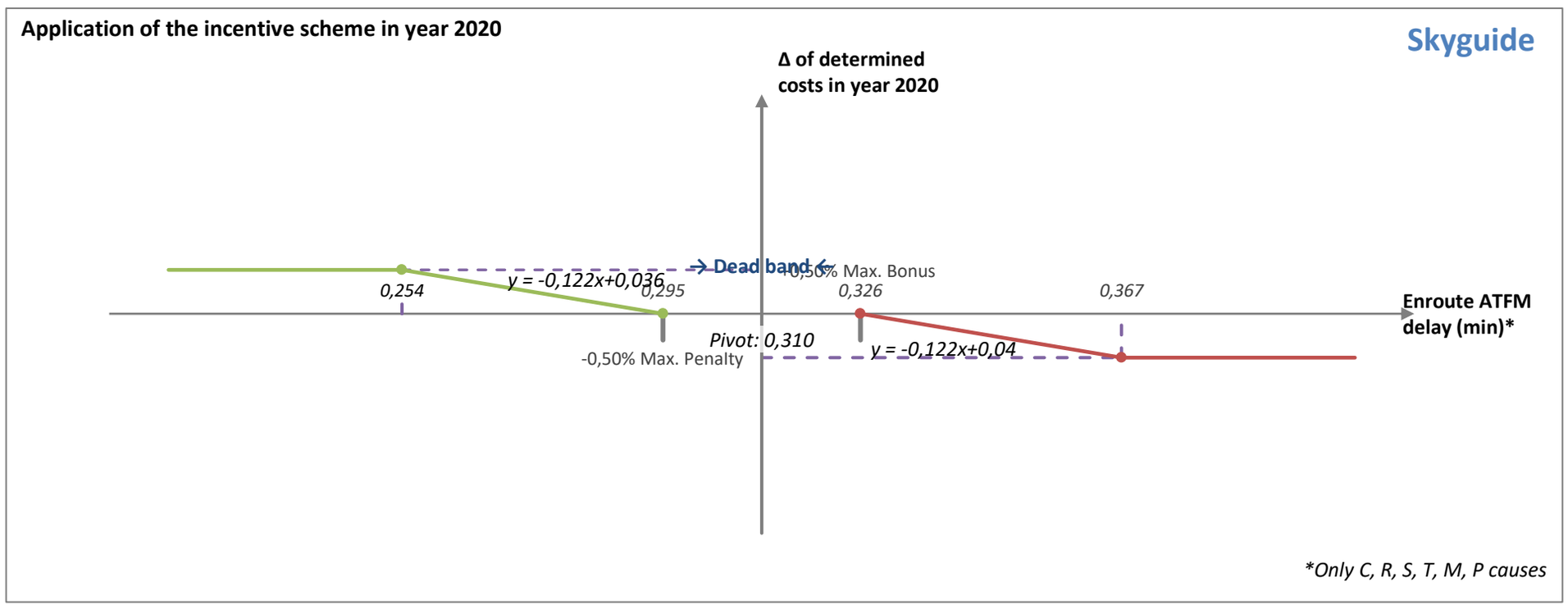
| **Skyguide** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±5,0% |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,33 | 0,33 | 0,27 | 0,2 | 0,2 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,057 | ±0,057 | ±0,054 | ±0,050 | ±0,050 |
| Performance Plan targets (mins of ATFM delay per flight) | | **0,47** | **0,64** | **0,64** | **0,86** | **1,36** |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | **0,31** | **0,42** | **0,42** | **0,57** | **0,90** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [0,295-0,326] | [0,401-0,444] | [0,401-0,444] | [0,539-0,596] | [0,853-0,942] |
| | Bonus range* | [0,254-0,295] | [0,366-0,401] | [0,369-0,401] | [0,518-0,539] | [0,848-0,853] |
| | Penalty range* | [0,326-0,367] | [0,444-0,479] | [0,444-0,476] | [0,596-0,618] | [0,942-0,948] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



### 5.2.1.8 Parameters for the calculation of financial advantages or disadvantages - Enroute (MUAC)

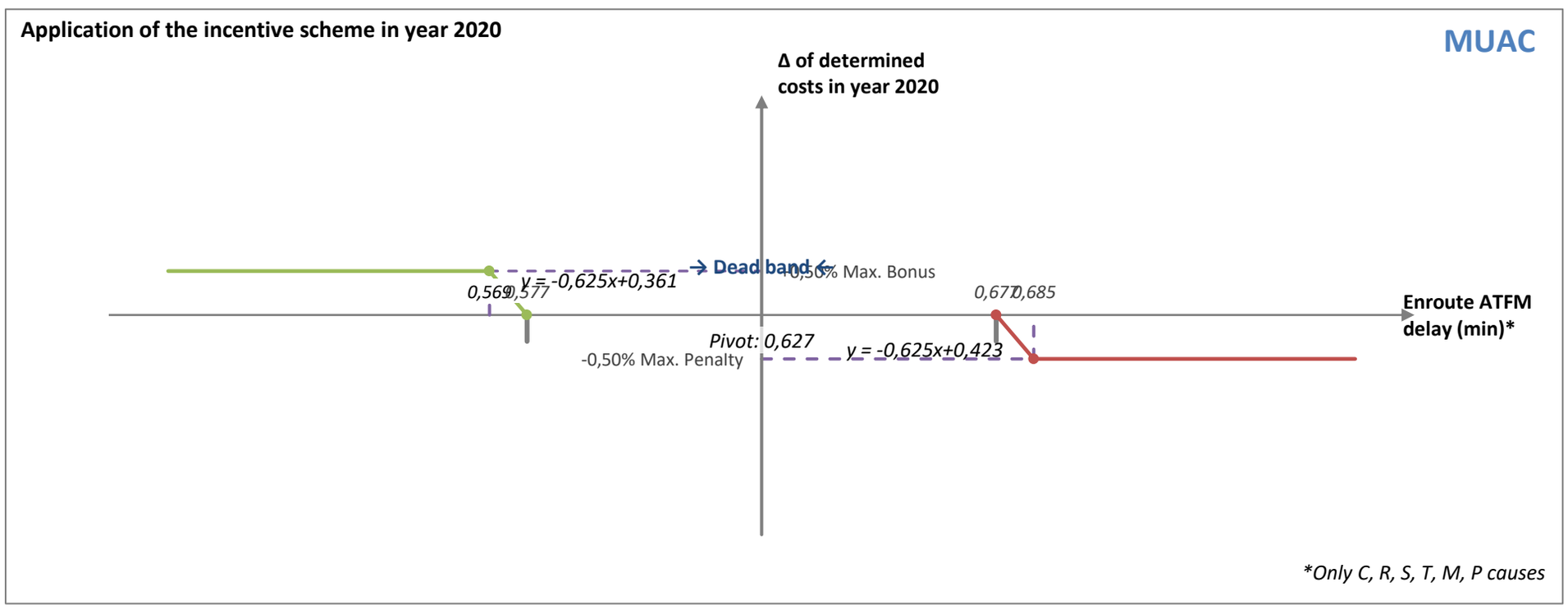
| **MUAC** | Expressed in | Value |
|---|---|---|
| Dead band Δ | fraction of min | ±0,050 min |
| Max bonus (≤2%)* | *% of DC* | 0,50% |
| Max penalty (≥ Max bonus)* | *% of DC* | 0,50% |
| The pivot values for RP3 are* | modulated | |

** These values are defined at FAB level and apply to all ANSPs and for the whole duration of RP3*

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| *NOP reference values (mins of ATFM delay per flight)* | | 0,36 | 0,35 | 0,23 | 0,18 | 0,18 |
| Alert threshold (Δ Ref. value in fraction of min) | | ±0,058 | ±0,058 | ±0,052 | ±0,050 | ±0,050 |
| Performance Plan targets (mins of ATFM delay per flight) | | **0,95** | **0,90** | **0,80** | **0,65** | **0,40** |
| Pivot values for RP3 (mins of ATFM delay per flight)** | | **0,63** | **0,59** | **0,53** | **0,43** | **0,26** |
| Delay ranges for the calculation of financial advantages / disadvantages | Dead band range | [0,577-0,677] | [0,544-0,644] | [0,478-0,578] | [0,379-0,479] | [0,214-0,314] |
| | Bonus range* | [0,569-0,577] | [0,537-0,544] | [0,477-0,478] | [0,379-0,379] | [0,214-0,214] |
| | Penalty range* | [0,677-0,685] | [0,644-0,652] | [0,578-0,58] | [0,479-0,479] | [0,314-0,314] |

** Bonuses only apply if ATFM delay per flight in year n at FAB level is within the 'Bonus range' for year n as shown in Section 5.2.1.1 and penalties only apply if ATFM delay per flight in year n at FAB level is within the 'Penalty range' for year n as shown in Section 5.2.1.1.*

*** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2. The pivot values for year n have to be notified to the EC by 1 January n.*



## 5.2.2 - Capacity incentive scheme - Terminal

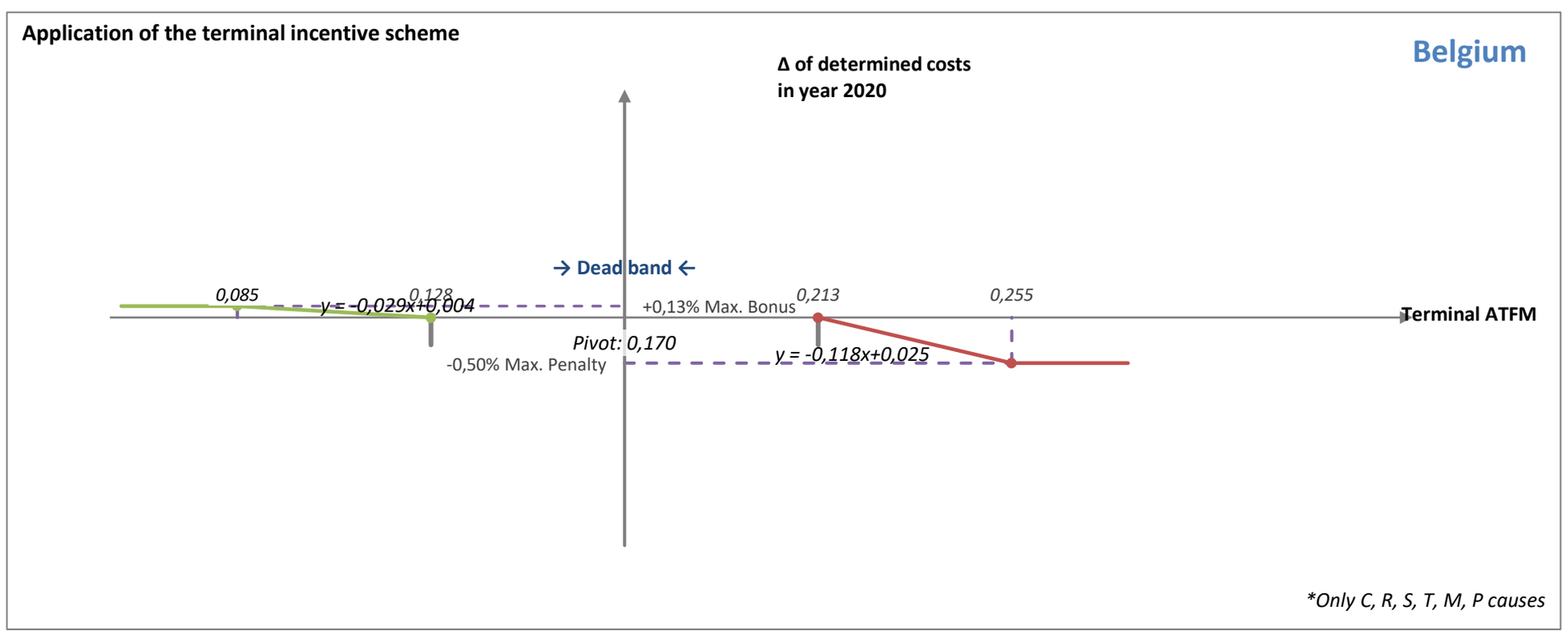
### 5.2.2.1 Belgium: Capacity incentive scheme - Terminal

**a) Parameters for the calculation of financial advantages or disadvantages - Terminal**

| **Belgium - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±25,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,125% |
| Max penalty | *% of DC* | 0,50% |
| The pivot values for RP3 are | modulated | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 1,82 | 1,71 | 1,61 | 1,5 | 1,5 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,085 | ±0,080 | ±0,075 | ±0,070 | ±0,070 |
| Pivot values for RP3 (mins of ATFM delay per flight)* | | 0,17 | 0,16 | 0,15 | 0,14 | 0,14 |
| Financial advantages / disadvantages | Dead band range | [0,128-0,213] | [0,12-0,2] | [0,113-0,188] | [0,105-0,175] | [0,105-0,175] |
| | Bonus range | [0,085-0,128] | [0,08-0,12] | [0,075-0,113] | [0,07-0,105] | [0,07-0,105] |
| | Penalty range | [0,213-0,255] | [0,2-0,24] | [0,188-0,225] | [0,175-0,21] | [0,175-0,21] |

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the methodology described in 5.2.1.2.a below. The pivot values for year n have to be notified to the EC by 1 January n.*




**b) Rationale and justification - Terminal**

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| There is only one Terminal charging zone included in the Performance Plan for Belgium, namely EBBR. Skeyes is the sole service provider. |

*** Refer to Annex I, if necessary.*

| Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3: | |
|---|---|
| a) The pivot value for year n is modulated in order to enable significant and unforeseen changes in traffic to be taken into account and is based on the principles explained below:** | No |
| | |
| b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated. | Yes |
| ANSPs can only be held accountable for delay attributed for CRSTMP-causes. Therefore, the incentive scheme should be only applicable to these causes. The CRSTMP ratio has been calculated based on the average ratio CRSTMP/all causes of the last 5 years (2014-2018). This gave a CRSTMP ratio of 9,34%. | |

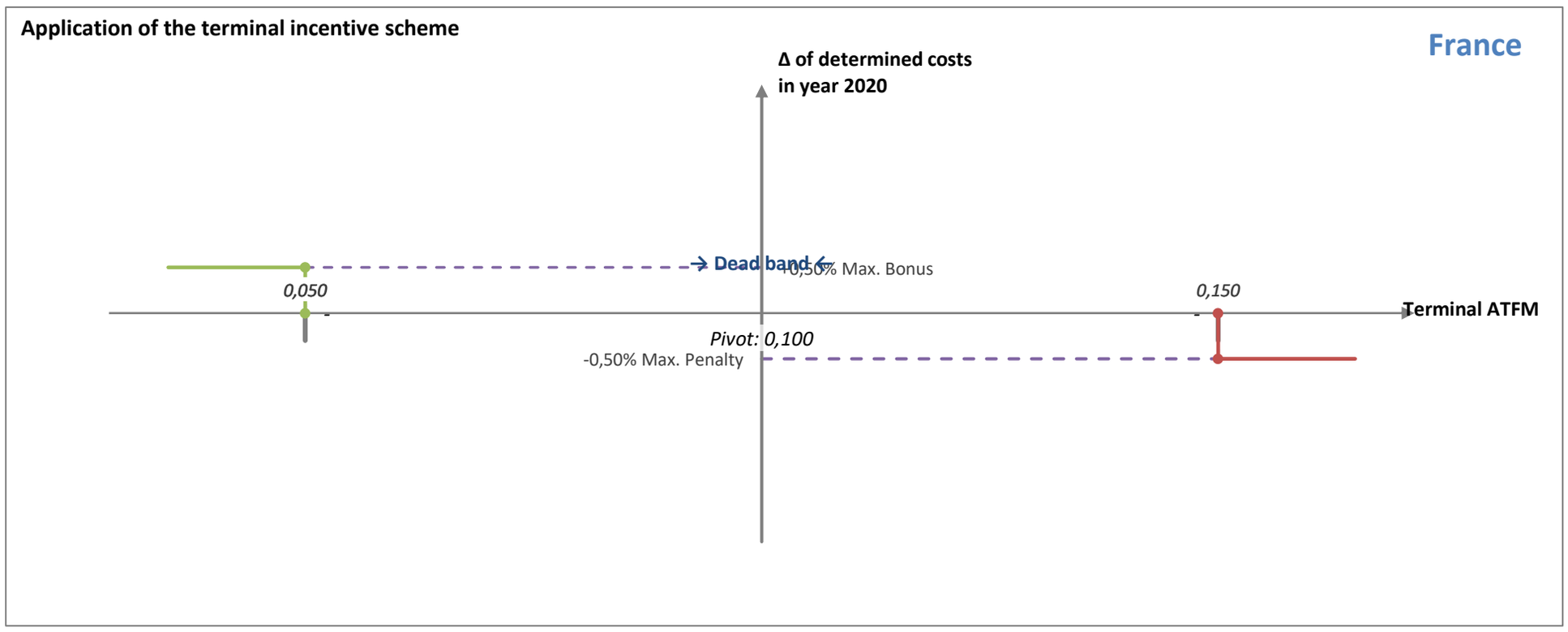
*** Refer to Annex I, if necessary.*

### 5.2.2.2 France: Capacity incentive scheme - Terminal

### a) Parameters for the calculation of financial advantages or disadvantages - Terminal

| **France - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±50,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,50% |
| Max penalty | *% of DC* | 0,50% |
| The pivot values for RP3 are | fixed | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,050 | ±0,050 | ±0,050 | ±0,050 | ±0,050 |
| Pivot values for RP3 (mins of ATFM delay per flight) | | 0,10 | 0,10 | 0,10 | 0,10 | 0,10 |
| Financial advantages / disadvantages | Dead band range | [0,05-0,15] | [0,05-0,15] | [0,05-0,15] | [0,05-0,15] | [0,05-0,15] |
| | Bonus range | [0,05-0,05] | [0,05-0,05] | [0,05-0,05] | [0,05-0,05] | [0,05-0,05] |
| | Penalty range | [0,15-0,15] | [0,15-0,15] | [0,15-0,15] | [0,15-0,15] | [0,15-0,15] |




### b) Rationale and justification - Terminal

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| Based on Annex XIII §1.2 b), the modulation mechanism limits the scope of incentives to cover only ATFM delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with respectively the codes C, R, S, T, M and P of the ATFCM user manual.<br><br>In case of a bonus or a penalty, *i.e.* an annual terminal ATFM delay respectively below 0.05 mn/flight or above 0.15 mn/flight, the financial amount A is going to be apportioned proportionally between both terminal charging zones in applying yearly the same sharing key during RP3.<br>This sharing key is based on the average weight of air traffic managed by each charging zone during RP2, counted in terms of IFR movements, and to be applied for RP3: 40% in the first charging zone (CZ1) and 60% in the second charging zone (CZ2).<br><br>Indeed, in years 2015 to 2018 included, the cumulated number of IFR flights (in millions) in CZ1 and CZ2 was 1.431 and 2.205 respectively, i.e. 40% and 60%.<br><br>In year n+2, unit rates for CZ1 and CZ2 will be adjusted by taking into account respectively an amount equal to 40% of A and 60% of A where appropriate. |

| | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| Number of IFR flights (in millions) | | | | |
| CZ1 | 354 985 | 358 404 | 357 396 | 360 240 |
| CZ2 | 533 695 | 544 916 | 559 940 | 566 906 |
| Ratio (in percentage) | | | | |
| CZ1 | 39,95% | 39,68% | 38,96% | 38,85% |
| CZ2 | 60,05% | 60,32% | 61,04% | 61,15% |

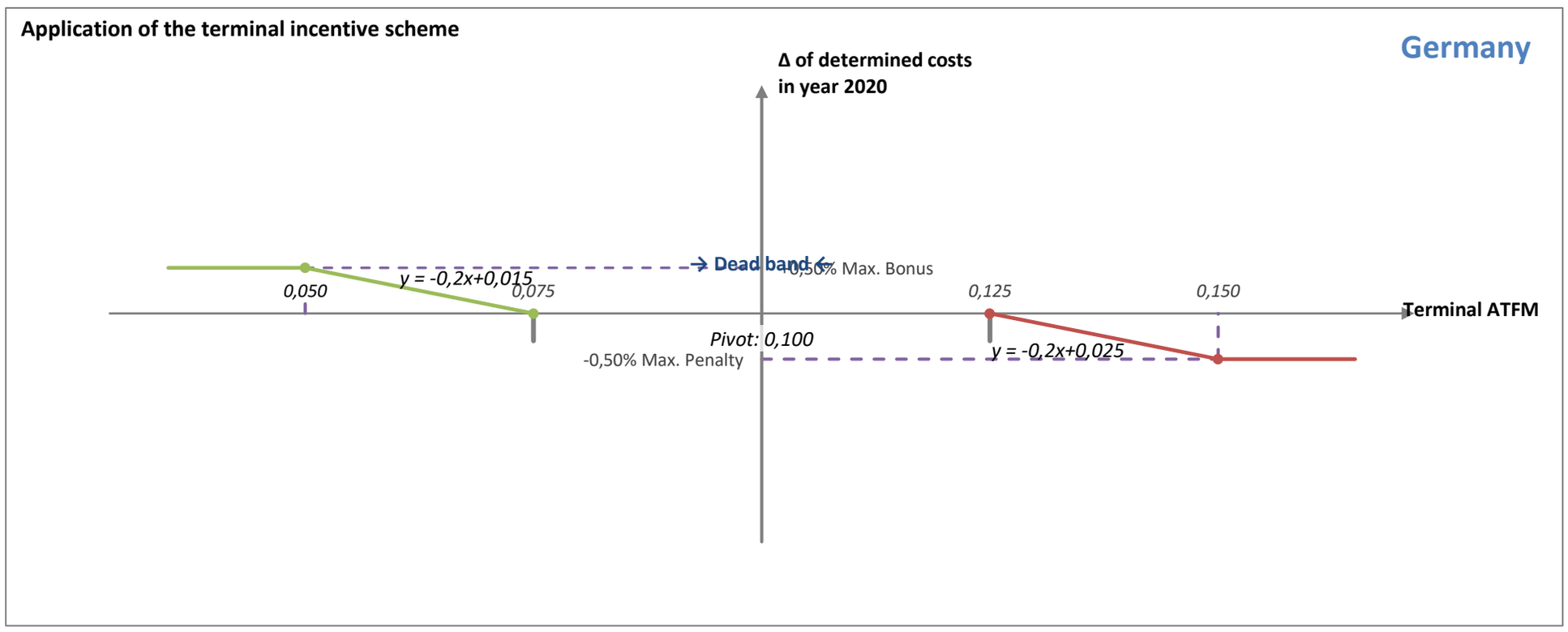
*** Refer to Annex I, if necessary.*

### 5.2.2.3 Germany: Capacity incentive scheme - Terminal

### a) Parameters for the calculation of financial advantages or disadvantages - Terminal

| **Germany - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±25,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,50% |
| Max penalty | *% of DC* | 0,50% |
| The pivot values for RP3 are | fixed | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 0,66 | 0,655 | 0,65 | 0,645 | 0,635 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,050 | ±0,048 | ±0,045 | ±0,043 | ±0,038 |
| Pivot values for RP3 (mins of ATFM delay per flight) | | 0,1 | 0,095 | 0,09 | 0,085 | 0,075 |
| Financial advantages / disadvantages | Dead band range | [0,075-0,125] | [0,071-0,119] | [0,068-0,113] | [0,064-0,106] | [0,056-0,094] |
| | Bonus range | [0,05-0,075] | [0,048-0,071] | [0,045-0,068] | [0,043-0,064] | [0,038-0,056] |
| | Penalty range | [0,125-0,15] | [0,119-0,143] | [0,113-0,135] | [0,106-0,128] | [0,094-0,113] |




### b) Rationale and justification - Terminal

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| |

*** Refer to Annex I, if necessary.*

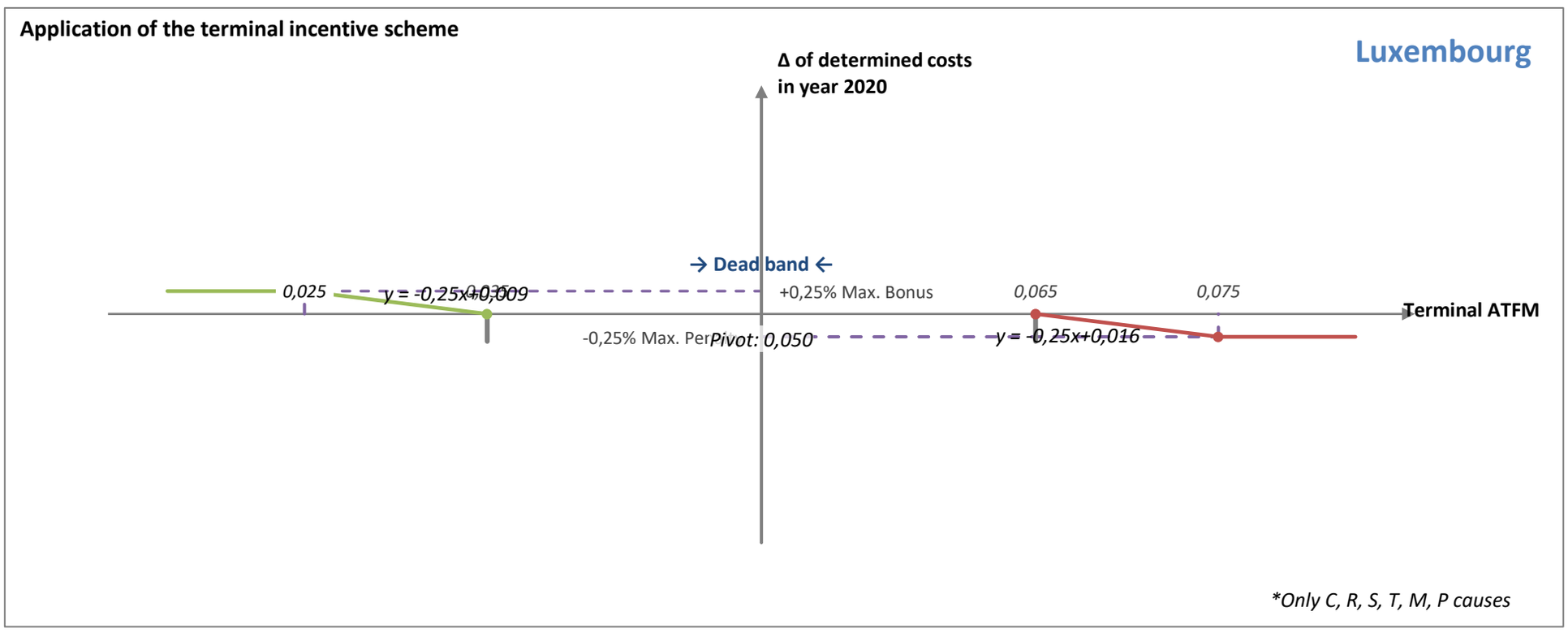
### 5.2.2.4 Luxembourg: Capacity incentive scheme - Terminal

### a) Parameters for the calculation of financial advantages or disadvantages - Terminal

| **Luxembourg - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±30,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,25% |
| Max penalty | *% of DC* | 0,25% |
| The pivot values for RP3 are | modulated | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 0,12 | 0,12 | 0,12 | 0,12 | 0,12 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,025 | ±0,025 | ±0,025 | ±0,025 | ±0,025 |
| Pivot values for RP3 (mins of ATFM delay per flight)* | | 0,05 | 0,05 | 0,05 | 0,05 | 0,05 |
| Financial advantages / disadvantages | Dead band range | [0,035-0,065] | [0,035-0,065] | [0,035-0,065] | [0,035-0,065] | [0,035-0,065] |
| | Bonus range | [0,025-0,035] | [0,025-0,035] | [0,025-0,035] | [0,025-0,035] | [0,025-0,035] |
| | Penalty range | [0,065-0,075] | [0,065-0,075] | [0,065-0,075] | [0,065-0,075] | [0,065-0,075] |

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the methodology described in 5.2.1.2.a below. The pivot values for year n have to be notified to the EC by 1 January n.*




### b) Rationale and justification - Terminal

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| N/A (one terminal charging zone) |

*** Refer to Annex I, if necessary.*

| Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3: | |
|---|---|
| a) The pivot value for year n is modulated in order to enable significant and unforeseen changes in traffic to be taken into account and is based on the principles explained below:** | No |
| | |
| b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated. | Yes |
| ANA choose to take into account CRSTMP delay causes only, as these are the only ones under its control. Delay caused by weather conditions becomes less and less predictable, especially with regard to an increase in the frequency of extreme weather events in recent times. The pivot values have been calculated to be as close to the present values as possible taking into consideration the evolution of the airport during RP3. | |

*** Refer to Annex I, if necessary.*

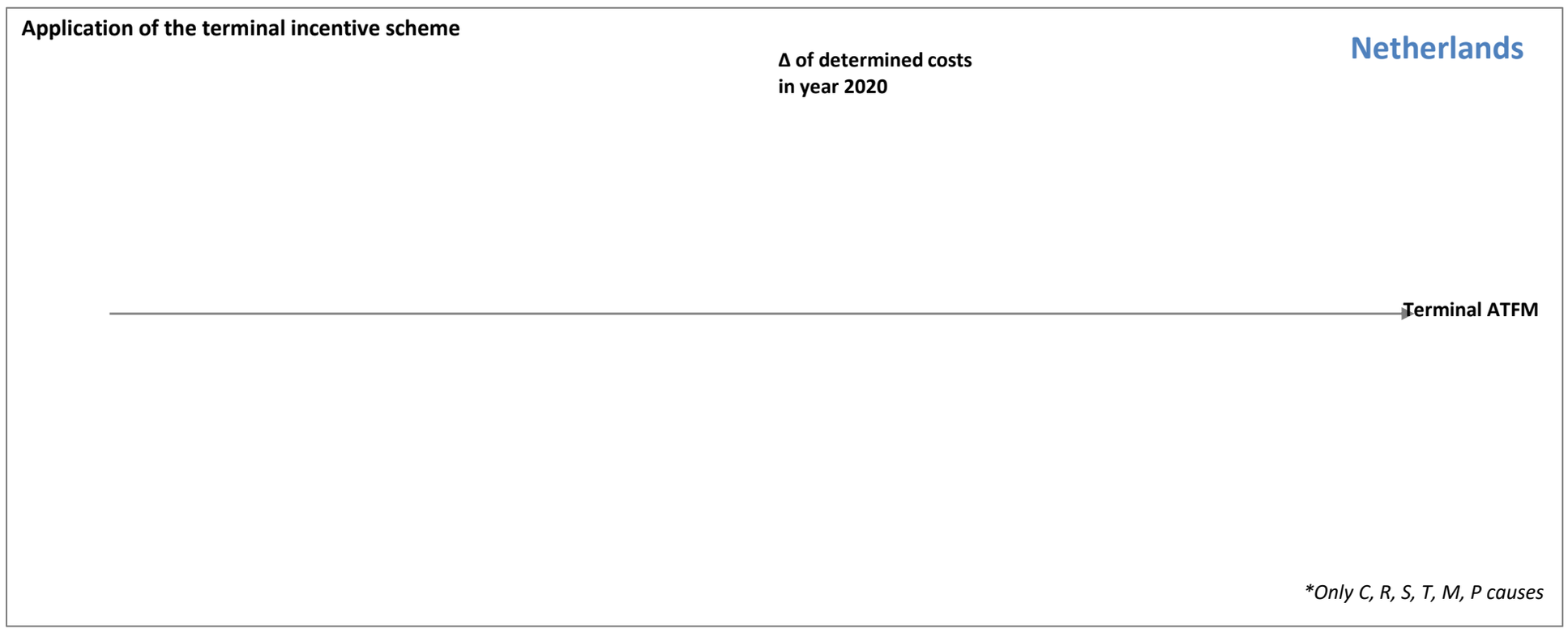
### 5.2.2.5 Netherlands: Capacity incentive scheme - Terminal

### a) Parameters for the calculation of financial advantages or disadvantages - Terminal

| **Netherlands - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±20,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,50% |
| Max penalty | *% of DC* | 0,50% |
| The pivot values for RP3 are | modulated | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 2 | 1,8 | 1,6 | 1,4 | 1,2 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,250 | ±0,215 | ±0,185 | ±0,155 | ±0,125 |
| Pivot values for RP3 (mins of ATFM delay per flight)* | | 0,50 | 0,43 | 0,37 | 0,31 | 0,25 |
| Financial advantages / disadvantages | Dead band range | [0,4-0,6] | [0,344-0,516] | [0,296-0,444] | [0,248-0,372] | [0,2-0,3] |
| | Bonus range | [0,25-0,4] | [0,215-0,344] | [0,185-0,296] | [0,155-0,248] | [0,125-0,2] |
| | Penalty range | [0,6-0,75] | [0,516-0,645] | [0,444-0,555] | [0,372-0,465] | [0,3-0,375] |

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the methodology described in 5.2.1.2.a below. The pivot values for year n have to be notified to the EC by 1 January n.*




### b) Rationale and justification - Terminal

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| There  is only one charging zone and one relevant ANSP. |

*** Refer to Annex I, if necessary.*

| Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3: | |
|---|---|
| a) The pivot value for year n is modulated in order to enable significant and unforeseen changes in traffic to be taken into account and is based on the principles explained below:** | No |
| | |
| b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated. | Yes |
| Arrival ATFM delays in the Netherlands are dominated by the performance of Schiphol. The vast majority of delays at Schiphol are due to either weather or aerodrome capacity: on average over the period 2016-2018, 38% of delays was due to aerodrome capacity and 57% due to weather – together these two issues have therefore caused 95% of all ATFM delays. As a basic principle, it is considered unfair to reward or penalise the ANSP for performance that is outside of its influence (i.e. non-CRSTMP delays). Additionally, in particularly weather delays are highly volatile from one year to the next, making it nearly impossible to define a non-modulated incentive scheme that would fairly reward or penalise the ANSP. The Netherlands has therefore decided to introduce a CRSTMP-only scheme.<br>Modulated values start with the CRSTMP-only target that was already in place during RP2, but with the intention to make the target more challenging by reducing it by 50% in2024, with a linear decreas in the intermediate years. | |

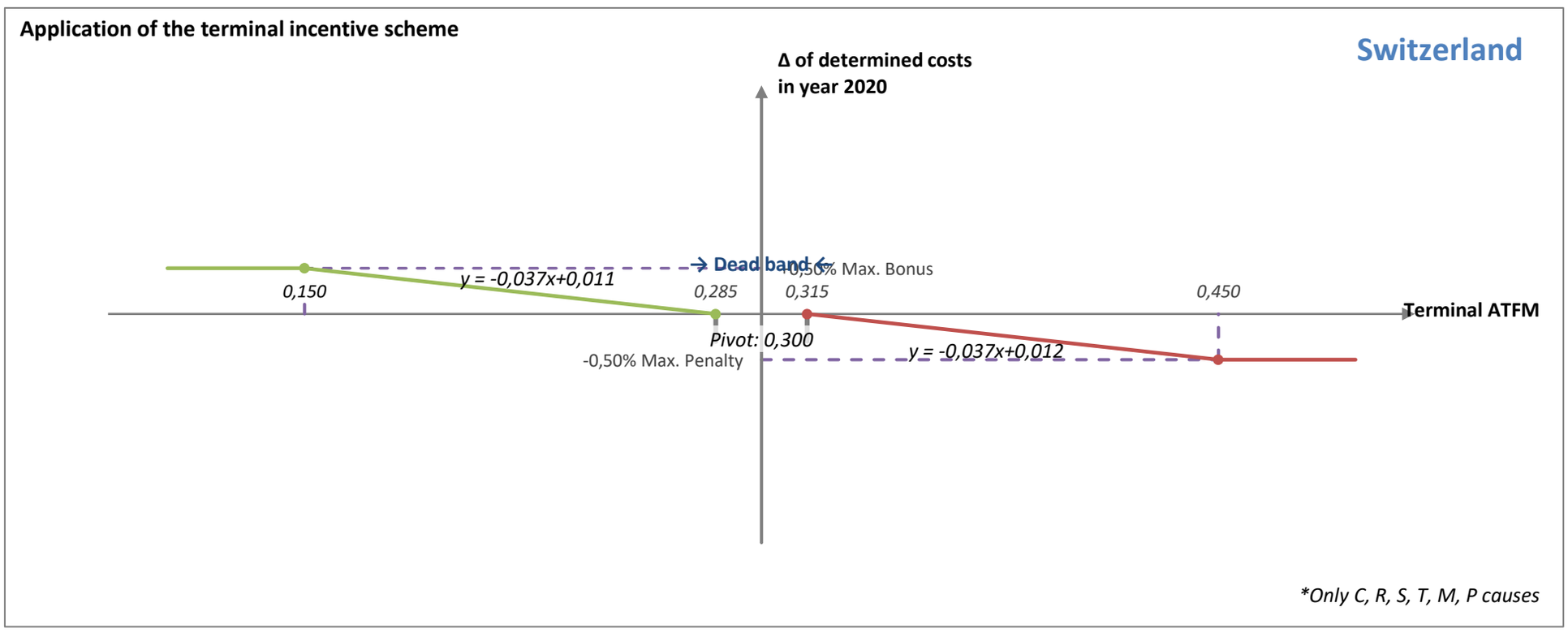
*** Refer to Annex I, if necessary.*

### 5.2.2.6 Switzerland: Capacity incentive scheme - Terminal

### a) Parameters for the calculation of financial advantages or disadvantages - Terminal

| **Switzerland - Terminal** | Expressed in | Value |
|---|---|---|
| Dead band Δ | % | ±5,0% |
| Bonus/penalty range (% of pivot value) | *%* | ±50% |
| Max bonus | *% of DC* | 0,50% |
| Max penalty | *% of DC* | 0,50% |
| The pivot values for RP3 are | fixed | |

| | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Performance Plan targets (mins of ATFM delay per flight) | | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| Bonus/penalty range Δ (in fraction of min) | | ±0,150 | ±0,150 | ±0,150 | ±0,150 | ±0,150 |
| Pivot values for RP3 (mins of ATFM delay per flight) | | 0,30 | 0,30 | 0,30 | 0,30 | 0,30 |
| Financial advantages / disadvantages | Dead band range | [0,285-0,315] | [0,285-0,315] | [0,285-0,315] | [0,285-0,315] | [0,285-0,315] |
| | Bonus range | [0,15-0,285] | [0,15-0,285] | [0,15-0,285] | [0,15-0,285] | [0,15-0,285] |
| | Penalty range | [0,315-0,45] | [0,315-0,45] | [0,315-0,45] | [0,315-0,45] | [0,315-0,45] |




### b) Rationale and justification - Terminal

| Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them** |
|---|
| There is only one Terminal Charging Zone included in the Performance Plan for Switzerland and skyguide is the unique ANSP.<br><br>ANSPs can only be held accountable for delay attributed for CRSTMP causes. Therefore, the incentive scheme should be only applicable to these causes. However in order to mitigate the limitation of this scope, a trigger is set at 1.94 min / arrival movement. This means that a bonus is computed only if the total ATFM arrival delay per arrival movement is below 1.94 min/arrival movement. And a penalty is computed only if the total ATFM arrival delay per arrival movement is above 1.94 min/arrival movement. |

*** Refer to Annex I, if necessary.*

# SECTION 6: IMPLEMENTATION OF THE PERFORMANCE PLAN

**6.1 Monitoring of the implementation plan**

**6.2 Non-compliance with targets during the reference period**

# 6 - IMPLEMENTATION OF THE PERFORMANCE PLAN

## 6.1 Monitoring of the implementation plan

| Description of the processes put in place by the NSAs to monitor the implementation of the Performance Plan including the yearly monitoring of all KPIs and PIs defined in Annex I of the Regulation and a description of the data sources |
|---|
| Monitoring processes exist at FABEC and national level, and vary between different KPAs.<br><br>Capacity and environment performance is reported by the FABEC ANSPs' Performance Management Group (PMG) on a monthly basis. Reports are presented to the States' Financial and Performance Committee (FPC) which meets approximately 6 times per year.<br><br>Monitoring of the safety KPI is limited to the annual monitoring process described below. Monitoring of PIs is done at national level.<br><br>Monitoring of cost efficiency and investments is performed at national level.<br><br>For the annual monitoring process, FABEC will continue to use the process applied during RP2. The process is performed under the responsibility of the FPC, with FPC members nominated as Champions for the development of the individual parts of of the monitoring report. Champions coordinate with:<br>- the FABEC ANSPs' Performance Management Group (PMG) on gathering operational performance information (capacity, environment)<br>- the FABEC States' Safety Performance and Risk Coordination (SPRC) Task Force and the ANSPs' focal points for EoSM for gathering and verifying safety performance data; If necessary, the ANSPs' Standing Committee on Safety will be consulted<br>- national NSAs for information on costs and investments<br>In all areas, identification of the main drivers for performance and in particular for deviations from planned performance will be part of the monitoring process. Input of all Champions is consolidated into a single monitoring report, which is then reviewed, updated and finalised during a dedicated drafting session. |

## 6.2 Non-compliance with targets during the reference period

| Description of the processes put in place and measures to be applied by the NSAs to address the situation where targets are not reached during the reference period |
|---|
| Non-compliance with cost efficiency targets is dealt with at national level.<br><br>Since the safety target is only defined for the final year of RP3, no non-compliance can be determined during the period, but NSAs will monitor progress towards meeting the target, as described above, and enter into discussions with ANSPs if progress towards meeting the target is considered to be at risk.<br><br>For capacity and environment performance, FABEC has developed the 'OPS performance process' which requires ANSPs to propose measures to improve performance if performance is not in line with targets. Remedial measures are initially proposed to the FPC, which will assess the proposals and provide advice to the FABEC Council to either accept the proposed remedial measures or request further improvements. |

# 7 - ANNEXES

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
    ANNEX A.x - En route Charging Zone #x
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
    ANNEX B.x - Terminal Charging Zone #x
ANNEX C. CONSULTATION
ANNEX D. LOCAL TRAFFIC FORECASTS
ANNEX E. INVESTMENTS
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING
ANNEX H. RESTRUCTURING MEASURES AND COSTS
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ANNEX J. OPTIONAL KPIs AND TARGETS
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ANNEX M. COST ALLOCATION
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ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS
ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS
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ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS
ANNEX S. INTERDEPENDENCIES
ANNEX T. OTHER MATERIAL
ANNEX Z. CORRECTIVE MEASURES*
** Only as per Article 15(6) of the Regulation*