

| SESAR |     | Initial  |     |     |     |     |    |     | APT |     |
|-------|-----|--|-----|-----|-----|-----|----|-----|-----|-----|
| AOP24 |     | Optimised use of runway configuration for multiple runway airports |     |     |     |     |    |     |     |     |
| REG   | ASP | MIL  | APO | USE | INT | IND | NM | MET | AIS | USP |

### Subject matter and scope

This Implementation Objective focuses on the Runway Manager (RMAN), a support tool for the Tower Supervisor to determine the optimal runway configuration and distribution of demand according to capacity and local constraints.

During the Medium/Short term Planning Phase, the RMAN tool checks the intentional demand versus the available capacity and it is capable of forecasting imbalances, raising alarms and alerts based on the indicators provided.

In the Execution Phase, the Runway Management tool monitors departure, arrival and overall delay and punctuality, in addition to the capacity shortage proposing changes if necessary.

Since the demand is continuously evolving along time, the RMAN continuously computes the optimal runway configuration and the associated Forecasted Landing (FLDT) and Take Off (FTOT) Times of arrival and departures flights that maximises the runway throughput.

As described before, in the same phase, the Integrated Runway Sequence function calculates Target Landing and Take-Off Times based on the flight plan information and considering the active runways.

The combination of the Runway Manager and the Integrated Runway Sequence has the aim of improving the punctuality of flights and reducing flight duration and average delay. The Forecasted Times calculated by the RMAN are provided to the Integrated Runway Sequence using them to calculate the final Target Times.

As a conclusion TLDT and TTOT calculated by the Integrated Sequence follows the Runway DCB Plan allowing the feedback to the RMAN to monitor the status of the Runway and to detect possible imbalances.

NOTE 1: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE 2: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

### Applicability Area(s) & Timescale(s)

|   |  |  |              |            |                       |
|---|--|--|--------------|------------|-----------------------|
| <b>Applicability Area</b><br>(Not yet defined - Potentially Multiple Runway Airports in ECAC+ States) |  | See list of airports in MP Level 3 Implementation Plan - Annexes |              |            |                       |
| <b>Timescales:</b>  |  |  | <b>From:</b> | <b>By:</b> | <b>Applicable to:</b> |
| IOC used for Analytics functioning only - not for implementation planning                             |  |  | 01/01/2020   |            |                       |
| FOC used for Analytics functioning only - not for implementation planning                             |  |  |              | 31/12/2030 |                       |

### References

#### European ATM Master Plan

|           |            |  |             |                 |   |  |  |          |  |  |  |
|-----------|------------|--|-------------|-----------------|---|--|--|----------|--|--|--|
| OI step - |            | <a href="#">[TS-0313]-Optimized Use of Runway Configuration for Multiple Runway Airports</a> |             |                 |   |  |  |          |  |  |  |
|           | Enablers - | AERODROME -ATC-74  | APP ATC 164 |                 |   |  |  |          |  |  |  |
| Legend:   | WXYZ-001   | Covered by SLoA(s) in this objective   |             | WXYZ-002<br>zzz | Covered by SLoA(s) in another objective<br>Objective covering the enabler |  |  | WXYZ-003 | Not covered in the Implementation Plan |  |  |

#### Applicable legislation

|              |   |
|--------------|---|
| <b>AOP24</b> | <b>Optimised use of runway configuration for multiple runway airports</b> |
|--------------|---|

|        |
|--------|
| -none- |
|--------|

Essential Operational Changes

|                             |
|-----------------------------|
| Airport and TMA performance |
|-----------------------------|

SESAR Solution

|  |
|--|
| PJ.02-08-02 - Optimised use of runway configuration for multiple runway airports |
|--|

ICAO GANP - ASBUs

|          |  |
|----------|--|
| - none - |  |
|----------|--|

Deployment Programme

|          |  |
|----------|--|
| - none - |  |
|----------|--|

European Plan for Aviation Safety

|          |  |
|----------|--|
| - none - |  |
|----------|--|

Operating Environments

|                   |
|-------------------|
| Airport           |
| Terminal Airspace |

Stakeholder Lines of Action (SLoAs)

| SloA ref.   | Title  | From | By |
|-------------|--|------|----|
| AOP24-ASP01 | Implement a Runway Demand and Capacity system                |      |    |
| AOP24-ASP02 | Adapt the ATC System to support optimal runway configuration |      |    |
| AOP24-ASP03 | Develop appropriate procedures                               |      |    |
| AOP24-ASP04 | Safety assessment  |      |    |
| AOP24-ASP05 | Training   |      |    |
| AOP24-ASP06 | System in use  |      |    |
| AOP24-APO01 | Implement a Runway Demand and Capacity system                |      |    |
| AOP24-APO02 | Develop appropriate procedures                               |      |    |
| AOP24-APO03 | Safety assessment  |      |    |
| AOP24-APO04 | Training   |      |    |
| AOP24-APO05 | System in use  |      |    |

Description of finalised and deleted SLoAs is available on the eATM Portal @ [https://www.eatmportal.eu/working/depl/essip\\_objectives](https://www.eatmportal.eu/working/depl/essip_objectives)

Expected Performance Benefits

|                                |  |
|--------------------------------|--|
| <b>Safety:</b>                 | Safety maintained while increasing capacity                |
| <b>Capacity:</b>               | Increased airport capacity                                 |
| <b>Operational Efficiency:</b> | Both fuel efficiency as well as CO2/Flight Time Efficiency |
| <b>Cost Efficiency:</b>        | -  |
| <b>Environment:</b>            | -  |
| <b>Security:</b>               | -  |

Detailed SLoA Descriptions

| AOP24-ASP01                       | Implement a Runway Demand and Capacity system   | From: | By: |
|-----------------------------------|---|-------|-----|
|                                   |   | -     | -   |
| <b>Action by:</b>                 | <b>ANS Providers</b>  |       |     |
| <b>Description &amp; purpose:</b> | In order to ensure that demand vs. capacity needs are met managing the different flows and dependencies between the multiple Runways in the Airport, the Runway Demand and Capacity system is enhanced with new information regarding arrivals and departures. The Tower ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it |       |     |

|              |   |  |  |
|--------------|---|--|--|
| <b>AOP24</b> | <b>Optimised use of runway configuration for multiple runway airports</b> |  |  |
|--------------|---|--|--|

|                                      |   |            |          |
|--------------------------------------|---|------------|----------|
| <b>ATM Master Plan relationship:</b> | <a href="#">[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe</a>  |            |          |
| <b>Finalisation criteria:</b>        | 1 - Runway Demand and Capacity system deployed.   |            |          |
| <b>AOP24-ASP02</b>                   | <b>Adapt the ATC System to support optimal runway configuration</b>   | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>ANS Providers</b>  |            |          |
| <b>Description &amp; purpose:</b>    | The APP ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it<br>An overview of the integrated runway sequence an appropriate HMI presenting the integrated runway sequence order for both arrivals and departures will be provided. This HMI will provide to each ATC role the relevant information on the integrated runway sequence. This HMI may include support functions to enhance awareness and increase controller ability to comply with a predefined integrated runway sequence in order to allow the optimal use of the runway configuration |            |          |
| <b>ATM Master Plan relationship:</b> | <a href="#">[APP ATC 164]-APP ATC System adapted to support integrated arrival/departure sequence functionalities in ATCO's HMI</a>   |            |          |
| <b>Finalisation criteria:</b>        | 1 - Systems have been adapted   |            |          |
| <b>AOP24-ASP03</b>                   | <b>Develop appropriate procedures</b>   | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>ANS Providers</b>  |            |          |
| <b>Description &amp; purpose:</b>    | Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration  |            |          |
| <b>Finalisation criteria:</b>        | 1 - Procedures have been implemented.   |            |          |
| <b>AOP24-ASP04</b>                   | <b>Safety assessment</b>  | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>ANS Providers</b>  |            |          |
| <b>Description &amp; purpose:</b>    | A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.  |            |          |
| <b>Finalisation criteria:</b>        | 1 - Safety assessment has been developed and delivered to the competent authority.  |            |          |
| <b>AOP24-ASP05</b>                   | <b>Training</b>   | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>ANS Providers</b>  |            |          |
| <b>Description &amp; purpose:</b>    | Train the air traffic controller on the optimised use of runway configuration   |            |          |
| <b>Finalisation criteria:</b>        | 1 - Training has been completed   |            |          |
| <b>AOP24-ASP06</b>                   | <b>System in use</b>  | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>ANS Providers</b>  |            |          |
| <b>Description &amp; purpose:</b>    | Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.  |            |          |
| <b>Finalisation criteria:</b>        | 1 - System has been put into service  |            |          |
| <b>AOP24-APO01</b>                   | <b>Implement a Runway Demand and Capacity system</b>  | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>Airport Operators</b>  |            |          |
| <b>Description &amp; purpose:</b>    | In order to ensure that demand vs. capacity needs are met managing the different flows and dependencies between the multiple Runways in the Airport, the Runway Demand and Capacity system is enhanced with new information regarding arrivals and departures. The Tower ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it   |            |          |
| <b>ATM Master Plan relationship:</b> | <a href="#">[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe</a>  |            |          |
| <b>Finalisation criteria:</b>        | 1 - Runway Demand and Capacity system deployed  |            |          |
| <b>AOP24-APO02</b>                   | <b>Develop appropriate procedures</b>   | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>Airport Operators</b>  |            |          |
| <b>Description &amp; purpose:</b>    | Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration  |            |          |
| <b>Finalisation criteria:</b>        | 1 - Procedures have been implemented  |            |          |
| <b>AOP24-APO03</b>                   | <b>Safety assessment</b>  | From:<br>- | By:<br>- |
| <b>Action by:</b>                    | <b>Airport Operators</b>  |            |          |

|              |   |  |  |
|--------------|---|--|--|
| <b>AOP24</b> | <b>Optimised use of runway configuration for multiple runway airports</b> |  |  |
|--------------|---|--|--|

|                                   |  |              |            |
|-----------------------------------|--|--------------|------------|
| <b>Description &amp; purpose:</b> | A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority. |              |            |
| <b>Finalisation criteria:</b>     | 1 - Safety assessment has been developed and delivered to the competent authority.   |              |            |
| <b>AOP24-APO04</b>                | <b>Training</b>  | <b>From:</b> | <b>By:</b> |
|                                   |  | -            | -          |
| <b>Action by:</b>                 | <b>Airport Operators</b>   |              |            |
| <b>Description &amp; purpose:</b> | Train the air traffic controller on the optimised use of runway configuration  |              |            |
| <b>Finalisation criteria:</b>     | 1 - Training has been completed  |              |            |
| <b>AOP24-APO05</b>                | <b>System in use</b>   | <b>From:</b> | <b>By:</b> |
|                                   |  | -            | -          |
| <b>Action by:</b>                 | <b>Airport Operators</b>   |              |            |
| <b>Description &amp; purpose:</b> | Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.   |              |            |
| <b>Finalisation criteria:</b>     | 1 - System has been put into service   |              |            |

