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)

Applicability Area (Not yet defined - Potentially Multiple Runway Airports in ECAC+ States)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
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 -	[TS-0313]-Optimized Use of Runway Configuration for Multiple Runway Airports							
	Enablers -	AERODROME -ATC-74	APP ATC 164					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

AOP24	Optimised use of runway configuration for multiple runway airports

-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

Expected Performance Benefits

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

Detailed SLoA Descriptions

AOP24-ASP01	Implement a Runway Demand and Capacity system	From:	By:
		-	-
Action by:	**ANS Providers**		
Description & purpose:	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		

AOP24	Optimised use of runway configuration for multiple runway airports

ATM Master Plan relationship:	[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe		
Finalisation criteria:	1 - Runway Demand and Capacity system deployed.		
AOP24-ASP02	**Adapt the ATC System to support optimal runway configuration**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	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 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		
ATM Master Plan relationship:	[APP ATC 164]-APP ATC System adapted to support integrated arrival/departure sequence functionalities in ATCO's HMI		
Finalisation criteria:	1 - Systems have been adapted		
AOP24-ASP03	**Develop appropriate procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration		
Finalisation criteria:	1 - Procedures have been implemented.		
AOP24-ASP04	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	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.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP24-ASP05	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on the optimised use of runway configuration		
Finalisation criteria:	1 - Training has been completed		
AOP24-ASP06	**System in use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - System has been put into service		
AOP24-APO01	**Implement a Runway Demand and Capacity system**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	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		
ATM Master Plan relationship:	[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe		
Finalisation criteria:	1 - Runway Demand and Capacity system deployed		
AOP24-APO02	**Develop appropriate procedures**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration		
Finalisation criteria:	1 - Procedures have been implemented		
AOP24-APO03	**Safety assessment**	From: -	By: -
Action by:	**Airport Operators**		

AOP24	Optimised use of runway configuration for multiple runway airports

Description & purpose:	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.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP24-APO04	**Training**	From:	By:
		-	-
Action by:	**Airport Operators**		
Description & purpose:	Train the air traffic controller on the optimised use of runway configuration		
Finalisation criteria:	1 - Training has been completed		
AOP24-APO05	**System in use**	From:	By:
		-	-
Action by:	**Airport Operators**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - System has been put into service		